

FRISTON, FREE ENERGY AND THE LATE WALTER FREEMAN III

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Foundations of Mind

ABSTRACT

We can work on for the rest of this century assured that Walter Freeman's reputation will continue to grow. By his own testimony, his first run at the fence used the language of linear systems. What was required was a giant leap in abstraction; the use of the language of dynamical systems, with linear models being supplanted by attractors and neural dynamics being implemented by trajectories in state space. This approach culminated in masterful papers about scale-free neural dynamics [1, 2].

So matters remained until he met Giuseppe Vitiello. Initially skeptical – never having seen a quantum in his lab, as he dismissively explained – Freeman began to realize that quantum field theory (QFT) could provide a hospitable formalism for observed neural phenomena like vortices. That was only the beginning; as the last intense collaboration of his life proceeded, he became open to the idea that symmetry breaking begat what were in effect the basins of attraction he had worked with for 30 years. The convergence with synergetics and order parameters he found intoxicating; the next century will perhaps reveal whether he was correct in positing a solution to problems of consciousness and subjectivity in the elliptical and veridical language of QFT.

This giant may be new to many of the attendees of this conference. It is his adaptation of Friston's [3] free energy principle we wish to take issue with it. This is above all to confound informational energy with semantics, a move that Claude Shannon balked at. This talk will examine why this category error must not be allowed to continue.

Keywords: scale-free neural dynamics, consciousness, synergetics, informational energy

References

- [1] Freeman, Walter J. "A field-theoretic approach to understanding scale-free neocortical dynamics." *Biological cybernetics* 92, no. 6 (2005): 350-359.
- [2] Freeman, Walter J., and Michael Breakspear. "Scale-free neocortical dynamics." *Scholarpedia* 2, no. 2 (2007): 1357.
- [3] Friston, Karl. "The free-energy principle: a unified brain theory?." *Nature reviews neuroscience* 11, no. 2 (2010): 127-138.