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Takens' (1981) Embedding Theorem tells us that a (strange) attractor can be recovered ("reconstructed") from observations of a single component process of a complex interaction-dominant system.

Takens, F. (1981). Detecting strange attractors in turbulence. In D. A. Rand and L.-S. Young (Eds.) *Dynamical Systems and Turbulence. Lecture Notes in Mathematics vol. 898*, 366–381, Springer-Verlag.

# Quantifying Complex Dynamics

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highly correlated / interdependent  
nonlinear / maybe chaotic  
result of multiplicative interactions

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# How to study interaction-dominant systems

As you know in a **coupled system** the time evolution of one variable depends on other variables of the system. This implies that one variable contains information about the other variables (of course depending upon the strength of coupling and maybe the type of interaction)