

TW Noler on

John Gribbin *Deep Simplicity:  
Bringing Order to Chaos and Complexity*  
Random House 2004

The key aspects to chaos and complexity are two simple ideas

"The sensitivity of a system to its starting condition and feedback" xox

"The great insight is that chaos and complexity obey simple laws" xx

Murray Gell-Mann describes our complicated world as "surface complexity arising out of deep simplicity" xx2

"no system is ever in perfect equilibrium" <sup>29</sup> p 29

"there is a world of difference between being in equilibrium and being close to equilibrium" p 31

"A linear system is more or less equal to the sum of its parts; a non-linear system may be either much more or much less..." p 57

"The kind of chaos we are discussing ... is completely orderly and deterministic ... It is just that in practice it is impossible to predict in detail..." p 74

"What looks like the same system can be described in simple terms under some conditions, in terms of chaos under other conditions, and there is a complex region in between the two where interesting things happen..." 7:

"If systems are close to equilibrium, they generally respond in a linear fashion to change in the environment" 111

phase transition

"What seems to be a complicated pattern of self-organization can be explained in terms of a few simple interactions". 133

"self-organization and the spontaneous appearance of patterns out of uniform systems occur on the edge of chaos." 133

Complex doesn't necessarily mean complicated

"A complex system is really just a system that is made up of simpler components interacting with one another". 145

"The great triumph of science... has largely been achieved by breaking complex systems down into their simple components and studying the way the simple components behave..." 145

