Simple complexity

Chaos generates **variety** of *behaviors*.
That's done with:
- Simple, non linear mathematical laws;
- "Bifurcations" / large changes in output for infinitesimal changes in input, due to these nonlinearities;
- (Strange) attractor-driven dynamics, capable of "exploring" large sections of the phase space.

Then *complexity* leverages on chaos.
An endless **variety** of *structures* is generated, starting from a primeval fractal broth [i.e. where everything may connect with everything else...], in a sort of "automatic" mode − auto-poiesis (i.e. self generation) from autocatalysis (i.e. self reinforcement) − by *blindly exploiting*:
- Variety of behaviors / "exploration" of phase space, from chaos (as indicated).
- Widespread presence of self-reinforcing feedbacks, amenable to fasten together into auto-catalytic cycles.
- Favorable power law [or similar] statistics (from interdependence),[1] capable of readily acti-vating viable autocatalytic cycles.[2]

Generated structures are layered and hierarchical, with positive feedbacks operating also be-tween layers, according to the most intriguing characteristic of [some] autocatalytic cycles: *downward causation*.
At this stage, variety generation spreads wildly / becomes "ontological":
- On the one hand: arrow of time, self-organized criticality, life, representation, cognition, learning, consciousness, history, society, ..., politics, economics, finance, ..., art, ...
- On the other hand: evolution, natural selection, "fitness", ...

In the end, everything is explained by:
- *Endless "blind" structural variety generation*, the engine of it all;
- *Downward causation*, capable of co-generating multiple layers (i.e. "bootstrapping" the gen-erating layer below by the generated layer above);
- *Downward perception*, pushing humans to attribute purposefulness / meaningfulness to a mere variety generation for the sake of itself, which − since it includes interaction and compe-tition [which in turn provides selection and evolution] − elicits a perception of "fitness" which, however, is utterly fake: *the survivor is "fit"* (**tautology**), *not the other way round* (**teleol-ogy**).

"Were I God, I'd start from a variety generator to create the Universe.
And then I'll let humans try to make some sense of it."

Actually, variety has a plus. Whatever may happen, there's a constant: learning.

"Were I Adam, ...I'd start to learn."

"Learning to learn, that's *the* method." (Edgar Morin)

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[1] A Gaussian distribution describes the behavior of a set of independent phenomena; a power law [or similar] statisti-cal distribution, with s.c. "long tails", appears when individual phenomena become increasingly interdependent and the system components increasingly interconnected.

[2] To activate an autocatalytic cycle (a set of loops which self-sustain as a whole), the system has to "explore" its pos-sible states, to find one which "activates" the cycle; in this scenario, chaos provides the "exploring capability", while a power [or similar] law (with "longer tails" than a Gaussian) provides much much larger chances of activation.

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