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*Jello*

The natural conjecture is that the unit of evolution is something more like an ecology. — The diversified biomass. — An interdependent network of organisms.

This is not cosmic-jello holism, of course, because there's no guarantee *a priori* that everything depends on everything else. On the largest scale you can observe that there are vast colonies of anaerobic bacteria living on the sea floor around volcanic vents, and unknown numbers of organisms living far underground — possibly the bulk of terrestrial biomass — and that so far as the surface ecology which supports us is concerned, all this might as well be on other planets.

One might imagine a large graph, which factors into components with many internal connections and few external connections. And that this occurs in scale-independent fashion.

(There was a mass extinction about four hundred million years ago which looks as though it may have been caused by a local gamma ray burst;<sup>1</sup> one corroborating piece of evidence is said to be that trilobites in the shallows died off, whereas trilobites deeper in the oceans did not. This shows their ecosystems were largely decoupled.)

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<sup>1</sup> The most energetic explosions known; if one occurred within a few light years of the Earth it could kill all life on the planet. — Much worse than a, asteroid, but for that reason probably hard to use as a premise for a disaster movie. — I mean, let's see Bruce Willis stop an exploding star. — Cf. Melott, A.L., B.S. Lieberman, et al. "Did a gamma-ray burst initiate the late Ordovician mass extinction?" *International Journal of Astrobiology*, Vol. 3 No. 1 [January 2004]; pp. 55-61.