Re: Minimization principal for evolution

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> > But wait, you still have to explain why some mountain tops don't have clouds, and it's only when two mountain tops join, allowing a cloud to spill from one to the other. That's not natural. Clouds form spontaneously from ambient humidity. They don't breed from one to another. Your cloud at mountain top metaphor would seem to apply better to abiogenesis than evolution. So upside−down function, puddle of water in valleys, still wins over hill−climbing/cloud metaphor.
>
> You need to think of a cloud of gnats rather than a cloud of water droplets that might form by spontaneous generation.

Phewwwwffff! (Bronx cheer!)

> I'm not sure why Wright chose to describe 'fitness landscapes' upside−down from the physicist's convention. Probably because the usual metaphor of evolution has species arising in the slime and progressing uphill.

Ugh! (Not the native−American sign of greeting. Rather some disgust.)

> But there is also a ghost of the old idea that life is somehow anti−entropic. You fall downhill if you are an inanimate entropy maximizer. But you climb uphill if you are a living organism thumbing your nose at the second law of thermodynamics.

Double, nay *triple*, ugh!

But ignoring all those really stupid reasons for turning the energy−well model upside down, you've accidently convinced me: There some self−regulated arms−race games, of which the most popular is Poker. Beginners play an easy game. If one of the players is strong, he pushes the game to be more difficult, thereby increasing his advantage over the his novice opponent(s). In Poker, he does it by bidding more. In Chess, he does it by making a bunch of pawn sacrifices to open up

the position. In Go, he does it by making an invasion and thereby starting a large fight. You get the idea?

In arms races in evolution there's something like that. Each of the two parties makes it more difficult for the other party. In the metaphor, anything that drowns is out of the picture. The short−term goal is to stay above the rising water level. A basic fact of arms−races (preditor/prey, or diseaseParasite/host, or male/female, those are the only three considered here) is that whenever one species climbs up its hill, that causes the water level for its opponent to rise. (It works the same both ways, whichever is the climber, the other finds water rising at it.) If the water level is high, most of your individuals at low levels drown, so there's strong selection for only the very highest. If the water level is low, there's not much selection, so you mostly sit fast. So it's only when your opponent makes some success, that your own water level rises, and you are forced to evolve up−hill yourself. Another basic fact is that each of the two parties *needs* the other, and if either decreases too much in number it causes a supply/demand imbalance which automatically favors reproduction of the small−number party and disfavors reproduction of the large−number party. (In effect it's almost like that Devil's game from Sci−Fi where you are not allowed to die, any time you get killed you are reincarnated to suffer it all over again.) So if your opponent makes a big advance and thereby raises your water level a lot, you suffer massive death of all your low−level individuals as the water overtakes them, but at the same time supply/demand gives you massive fecundity of those few who are at high levels, so you really do evolves quickly in response, rather than go extinct.

Maybe we should liken this to a double see−saw: There's a tank of water under each person's seat, and each person's seat is at the same level as the *other* person's tank of water. So if you rise to get out of the water, you are also dunking your opponent, who rises to get away, causing you to be dunked. I don't know if that metaphor helps any.

Anyway, imagine two fitness landscapes where the population level on either landscape controls the water level on the *other* landscape, plus the supply/demand rule for reproduction rates.
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