

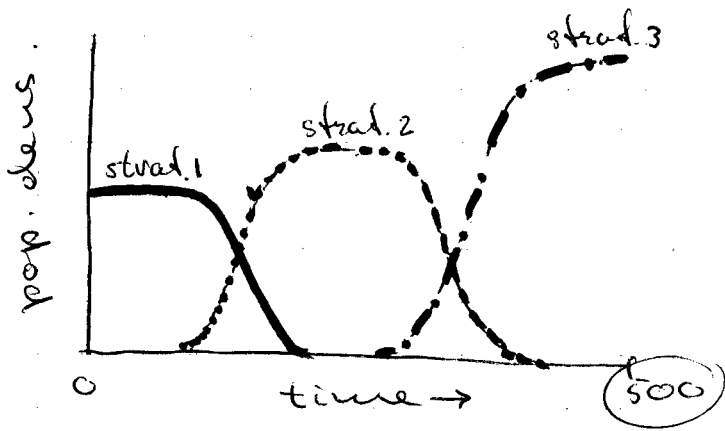
Previous lecture

Simulation experiment

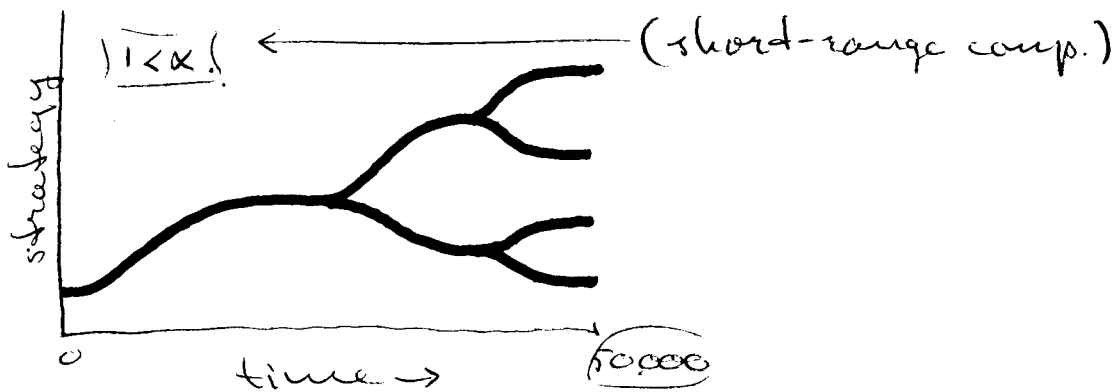
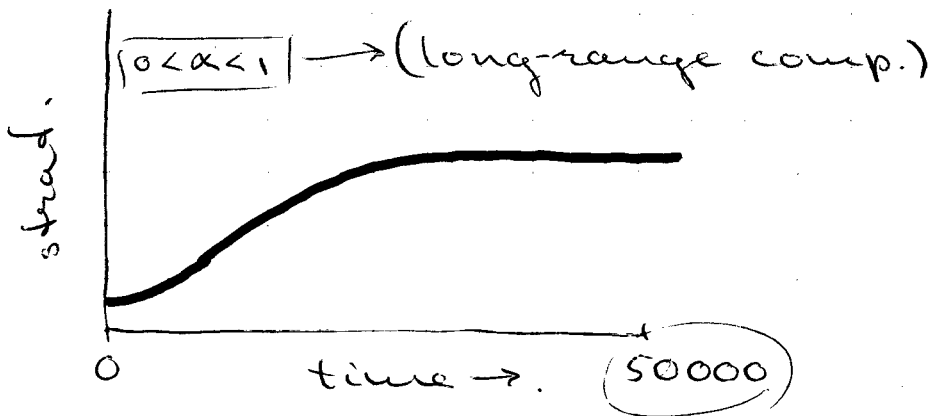
Lotka-Volterra comp. model with infrequent mutations.

random

Population dynamics: (short-term)



Strategy dynamics: (long-term)



Important note:

The (short-term) population dynamics were fully specified, but the (long-term) evolutionary pattern is ~~not~~ emergent.

Question:

Could we predict the evolutionary pattern from the population dynamics?

→ That is what adaptive dynamics is about.

The four basic assumptions of adaptive dynamics.

- ① Clonal reproduction.
- ② Resident pop. is at a pop. attractor by the time the next mutant comes along.
- ③ Initial mutant population density is very small compared to the resident pop. density.
- ④ Small mutation steps.

These assumptions set adaptive dynamics apart from alternative approaches, and make it especially suitable for studying the evolution of complex ecological interactions.