

Evolution of dispersal toward fitness*

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Abstract. It is widely believed that the slowest dispersal strategy is selected in the evolutionary if the environment is temporally invariant but spatially heterogeneous. Authors claim in this paper that this belief is true only if random dispersals with constant motility are considered. However, if a dispersal strategy with fitness property is included, the size of the dispersal is not such a crucial factor anymore. Recently, a starvation driven diffusion has been introduced by Cho and Kim [1], which is a random dispersal strategy with a motility increase on starvation. The authors show that such a dispersal strategy has fitness property and that the evolutionary selection favors fitness but not simply slowness. Such a conclusion is obtained from a stability analysis of a competition system between two phenotypes with different dispersal strategies of linear and starvation driven diffusions.

Key words. evolution of dispersal, fitness, local stability, starvation driven diffusion

References

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