

Author's Accepted Manuscript

Evolutionary branching under multi-dimensional evolutionary constraints

Hiroshi Ito, Akira Sasaki



PII: S0022-5193(16)30194-1
DOI: <http://dx.doi.org/10.1016/j.jtbi.2016.07.011>
Reference: YJTBI8736

To appear in: *Journal of Theoretical Biology*

Received date: 15 February 2016
Revised date: 28 June 2016
Accepted date: 7 July 2016

Cite this article as: Hiroshi Ito and Akira Sasaki, Evolutionary branching under multi-dimensional evolutionary constraints, *Journal of Theoretical Biology*, <http://dx.doi.org/10.1016/j.jtbi.2016.07.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Evolutionary branching under multi-dimensional evolutionary constraints

Hiroshi Ito^{1*}, Akira Sasaki^{1,2}

¹Department of Evolutionary Studies of Biosystems, SOKENDAI (The Graduate University for Advanced Studies, Hayama, Kanagawa 240-0193, Japan

²Evolution and Ecology Program, International Institute for Applied Systems Analysis, Laxenburg, Austria

*Corresponding author: (hiroshibeetle@gmail.com)

Abstract

The fitness of an existing phenotype and of a potential mutant should generally depend on the frequencies of other existing phenotypes. Adaptive evolution driven by such frequency-dependent fitness functions can be analyzed effectively using adaptive dynamics theory, assuming rare mutation and asexual reproduction.

When possible mutations are restricted to certain directions due to developmental, physiological, or physical constraints, the resulting adaptive evolution may be restricted to subspaces (constraint surfaces) with fewer dimensionalities than the

Download English Version:

<https://daneshyari.com/en/article/6368995>

Download Persian Version:

<https://daneshyari.com/article/6368995>

[Daneshyari.com](https://daneshyari.com)