

Evolutionary Algorithms: Introduction

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<http://cw.felk.cvut.cz/doku.php/courses/a4m33bia/start>

Representation

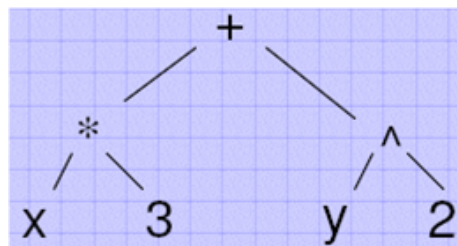
:: Problem can be represented as

- **binary string** – 1 0 1 1 0 1 1 0 0 1 0 1 1 0 1

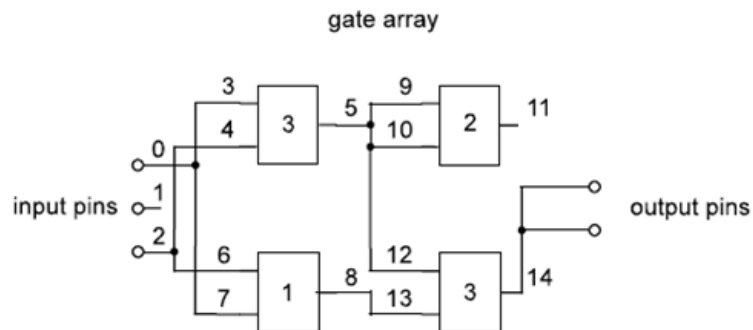
- **real-valued string** – 3,24 1,78 -2,61

- **string of chars** – D→E→A→C→B

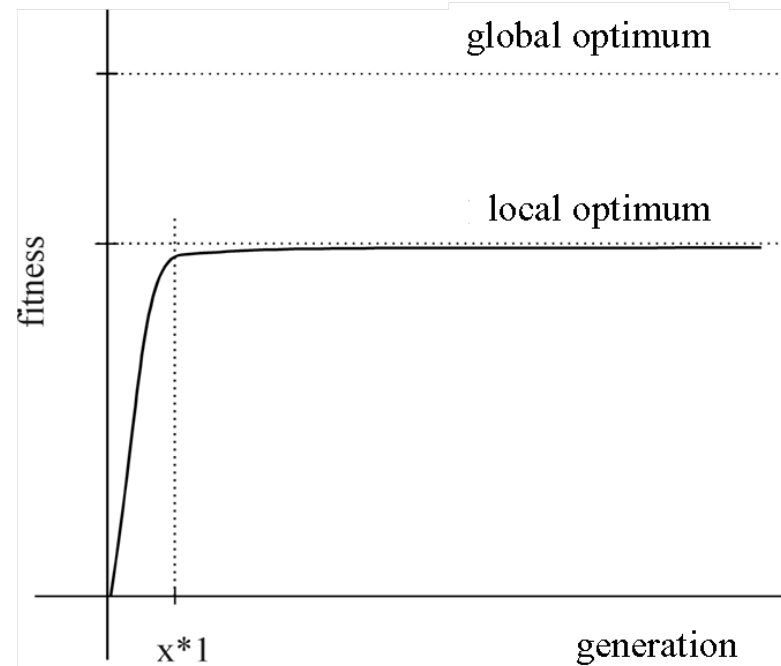
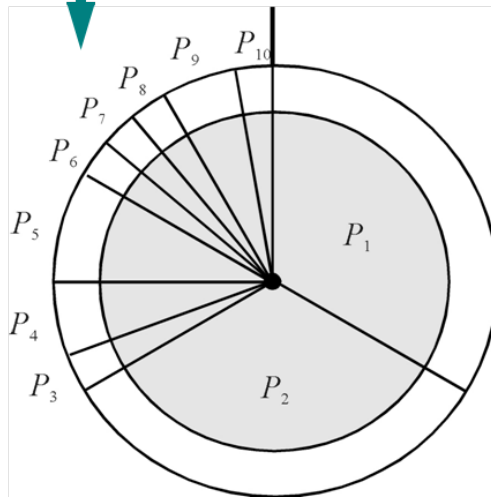
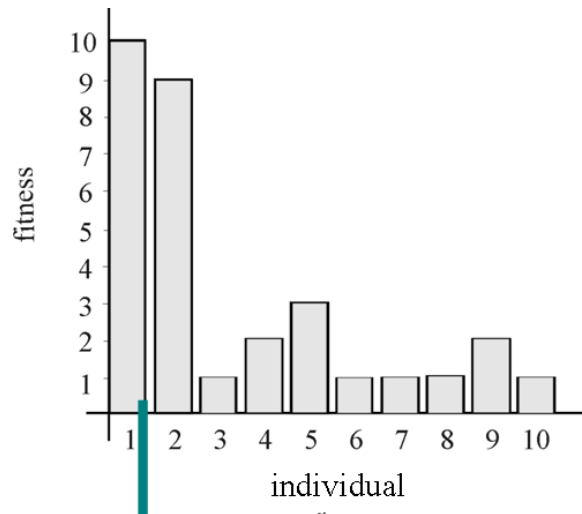
- or as a **tree**



- or as a **graph**, and others.



Premature Convergence



Artificial Ant Problem: Example cont.

Ant behavior

- What happens if the ant "hits" an obstacle?
- What is strange with transition from state 10 to the initial state 00?
- When does the ant succeed?
- Is the number of states sufficient to solve the problem?
- Do all of the possible 34-bit chromosomes represent a feasible solution?

