

Extended Compact Genetic Algorithm

Demonstration

Dr. Piotr Lipiński

ECGA

Harik, Linkage learning via probabilistic modeling in the ECGA, 1999

ECGA(F, N, S)

S := InitialChromosomePartition();

P := RandomPopulation(N);

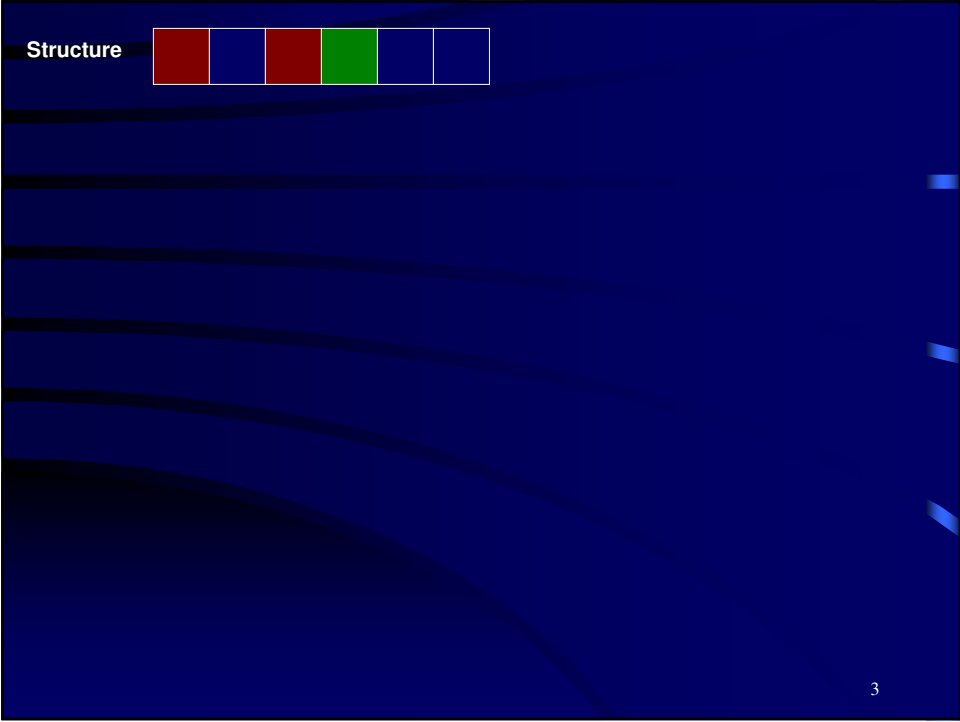
PopulationEvaluation(P, F);

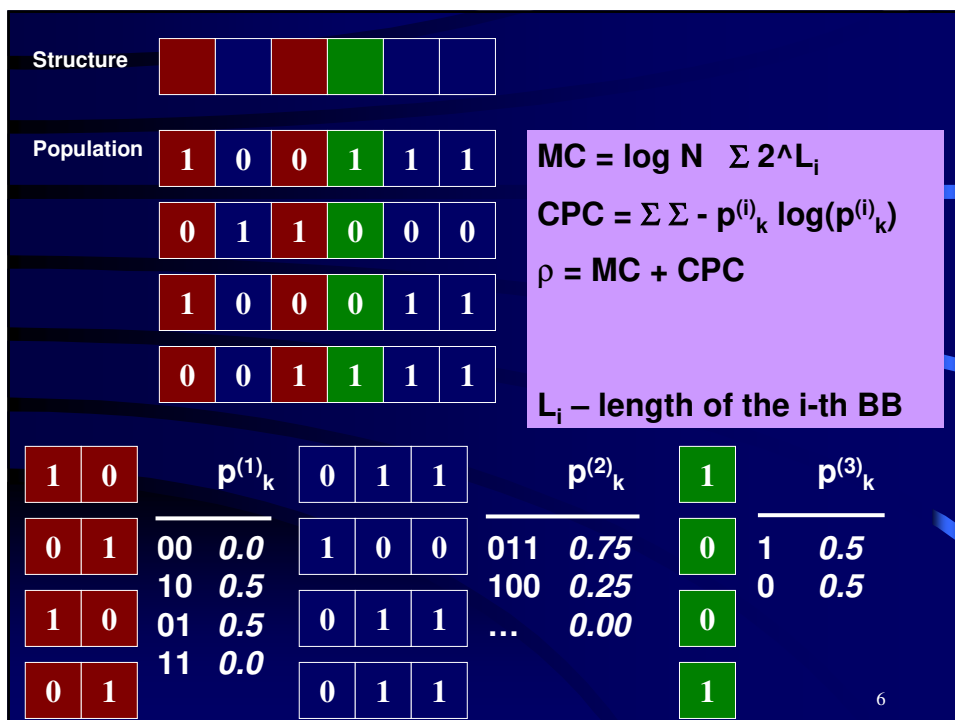
while not TerminationCondition(P) **do**

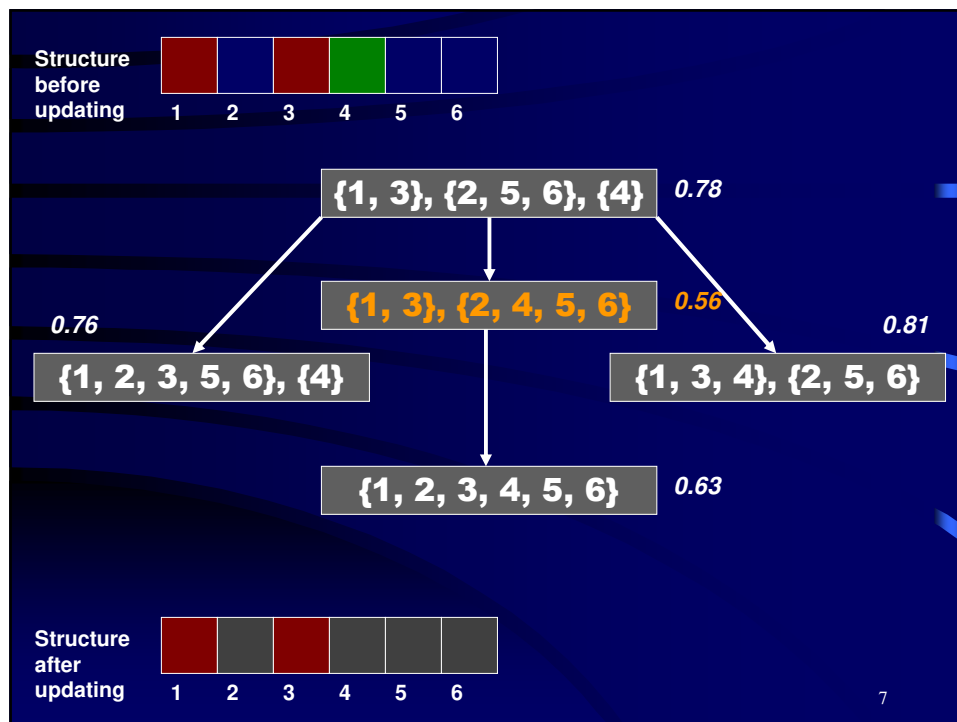
 ChromosomePartitionUpdating(S, P);

P := PopulationGenerating(S, N);

 PopulationEvaluation(P, F);



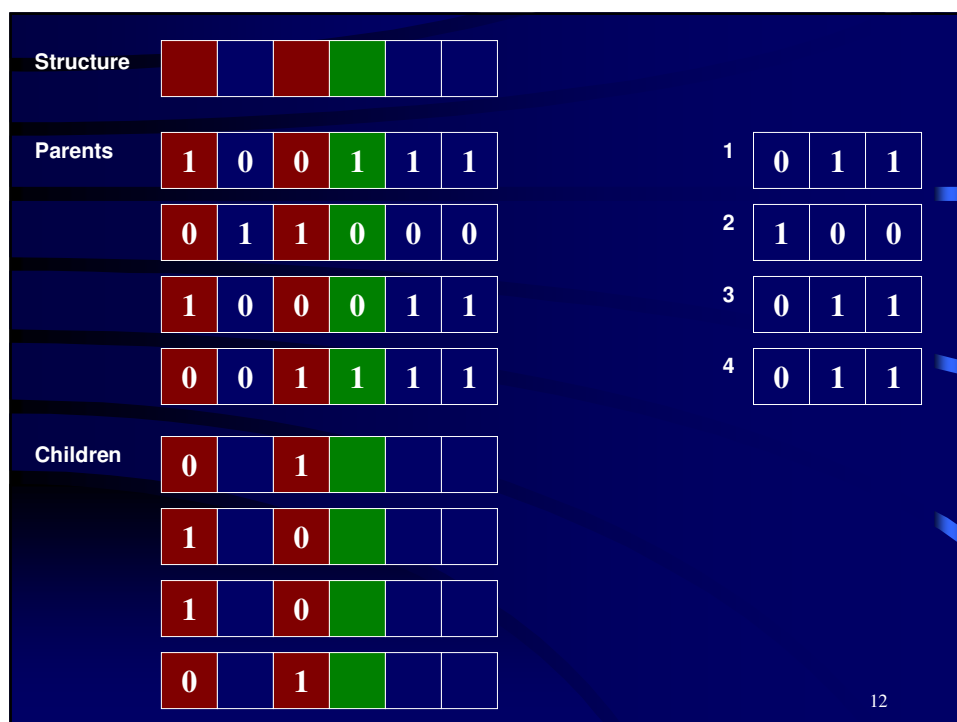
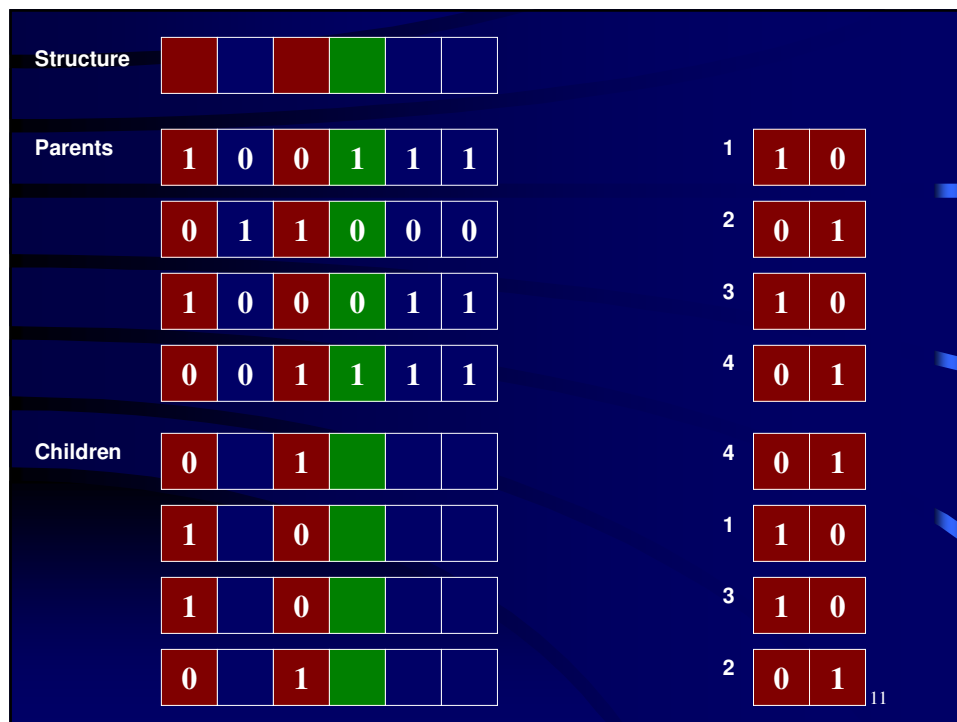


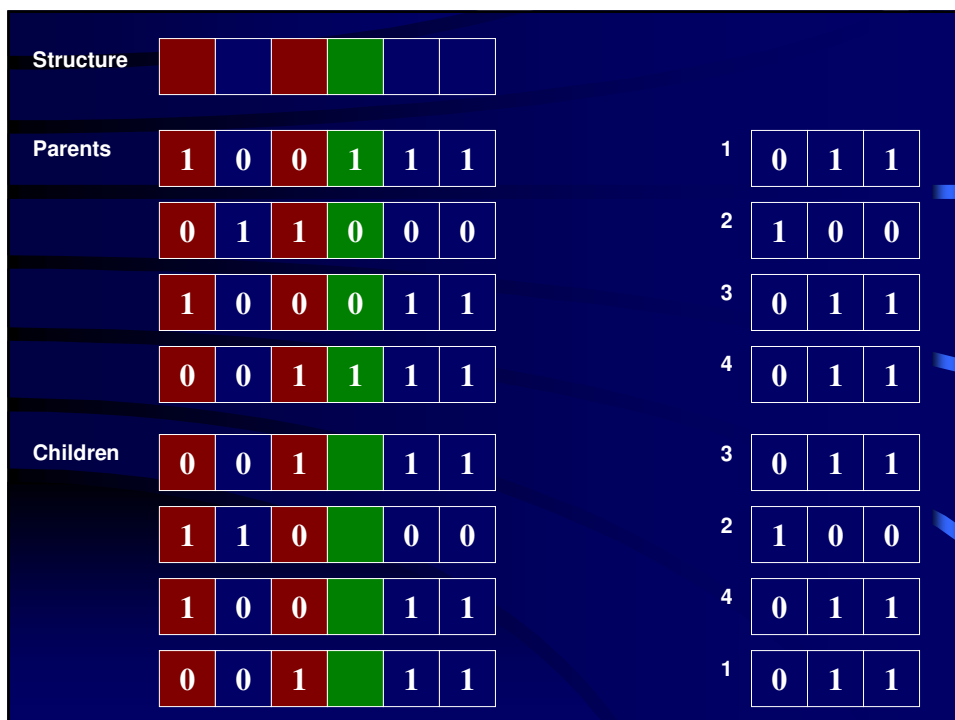


Structure						
Parents	1	0	0	1	1	1
	0	1	1	0	0	0
	1	0	0	0	1	1
	0	0	1	1	1	1
Children						

8







Structure		
Parents	1 0 0 1 1 1	1 1
	0 1 1 0 0 0	2 0
	1 0 0 0 1 1	3 0
	0 0 1 1 1 1	4 1
Children	0 0 1 1 1	
	1 1 0 0 0	
	1 0 0 1 1	
	0 0 1 1 1	

15

Structure		
Parents	1 0 0 1 1 1	1 1
	0 1 1 0 0 0	2 0
	1 0 0 0 1 1	3 0
	0 0 1 1 1 1	4 1
Children	0 0 1 1 1	2 0
	1 1 0 0 0	4 1
	1 0 0 1 1	3 0
	0 0 1 1 1	1 1

16

Structure		
Parents	1 0 0 1 1 1	1 1
	0 1 1 0 0 0	2 0
	1 0 0 0 1 1	3 0
	0 0 1 1 1 1	4 1
Children	0 0 1 0 1 1	2 0
	1 1 0 1 0 0	4 1
	1 0 0 0 1 1	3 0
	0 0 1 1 1 1	1 1

17

Structure		
Parents	1 0 0 1 1 1	
	0 1 1 0 0 0	
	1 0 0 0 1 1	
	0 0 1 1 1 1	
Children	0 0 1 0 1 1	
	1 1 0 1 0 0	
	1 0 0 0 1 1	
	0 0 1 1 1 1	

18