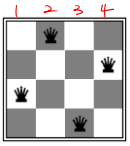
Genetic algorithms

- Local beam search + generate successors from pairs of states
- GAs require states encoded as strings
- The objective function h is the number of NONE attacking pairs
- Goal: maximizing h



attacking pairs + # None attac. pairs $\Rightarrow \binom{n}{2}$

Genetic algorithms

- 4-state approach (8 queens problem)
- Better 'gene' has more 'chance' to survive.

24748552
32752411
24415124
32543213

Genetic algorithms

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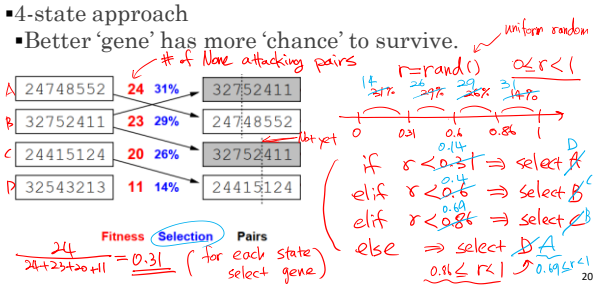

24/(24+23+20+11) = 0.31 (for each state select gene)

Genetic algorithms

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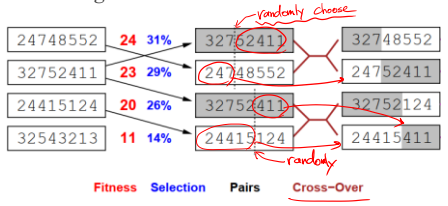

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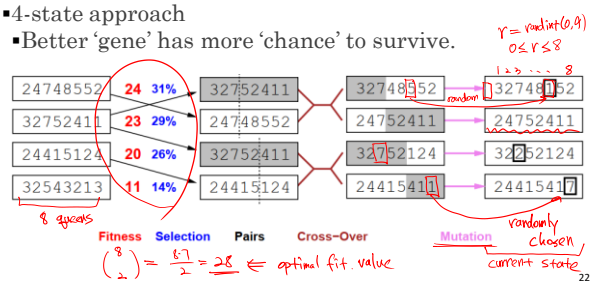

$\binom{8}{2} = \frac{8 \cdot 7}{2} = 28 \Leftarrow$ optimal fit. value