NK landscape models

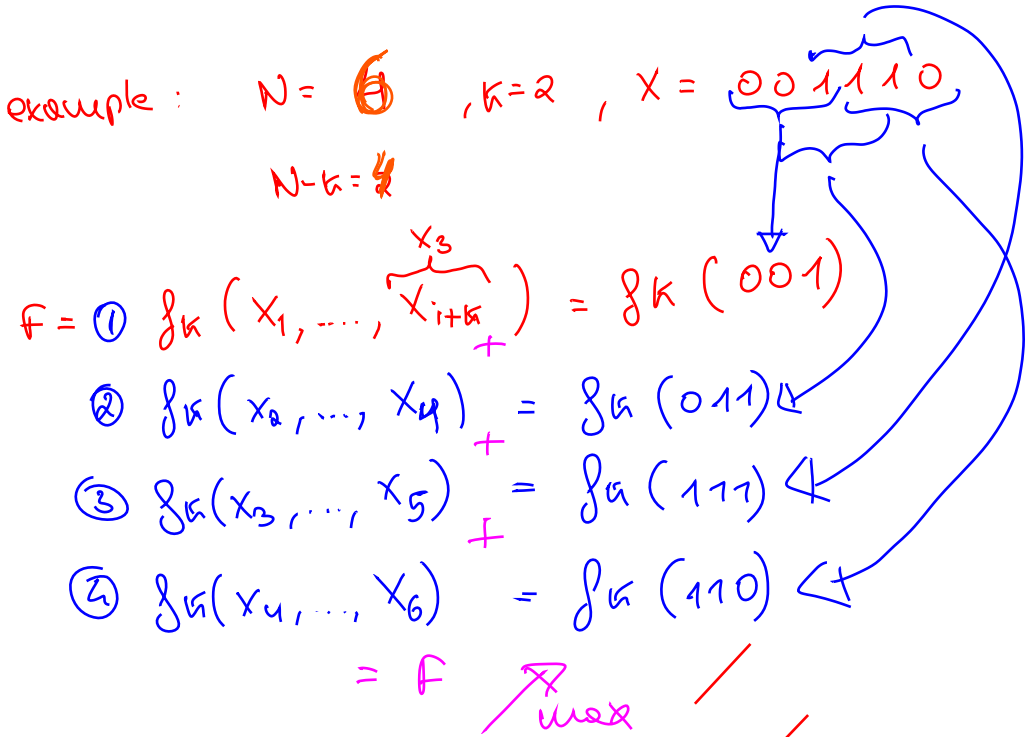
↳ generate fitness landscapes

$X = \{x_1, \dots, x_N\} \rightarrow x_i \in \{0,1\} \quad \forall i = 1 \dots N$

↳ séquence binaire

$F \rightarrow$ global fitness

$$F = \sum_{i=1}^{N-K} f_K(x_i, \dots, x_{i+K})$$



now we have to define f_K

f_K has $(K+1)^2$ possible outcomes

↳ K = 1 ↳ 00 | 01 | 10 | 11

possible values

Hill climber heuristics

Deterministic hill climb:

1. generate randomly initial sequence of N bits
2. chose the neighboor with highest fitness

$x = 00 \rightsquigarrow 01$ is neighboor

change 1 bit

Probability:

1. same
2. selection done in stochastic manner

$$P(x') = \frac{F(x')}{\sum_{y \in V(x)} F(y)}, \text{ for } x' \in V(x)$$

$P(x')$: probability of selecting this neighboor

$V(x)$: Set of neighboors of x