

(a) Bit string representation of genotypes

Global Reaction Set

$R_1: 3pg + nad \rightarrow 3php + h + nadh$
 $R_2: 6pgc + nadp \rightarrow co_2 + nadph + ru5p-D$
 $R_3: 6pgc \rightarrow 2ddg6p + h_2o$
.
.
.
 $R_N: \text{-----}$

List of catalyzed reactions

G1	G2	G3
1	1	1
0	1	1
1	1	0
.	.	.
.	.	.
.	.	.
.	.	.

Genotypes **G1** and **G3** differ by a single reaction swap. This reaction swap can be decomposed into a single reaction addition, which produces from **G1** a new genotype **G2**, followed by a single reaction deletion, which produces **G3** from **G2**.

(b) MCMC sampling of the genotype network

