**Single reaction update O(1)**

$G_0$

$r_N$

total = $r_N$

$G_1$

$r_1$

$r_3$

**total = $r_3$**

$G_k$

$r_2$

**total = $r_2 + r'_1$**

remove from previous group

$r'_1$

place in group corresponding to new rate value