$\Delta H$

i - rock, j - paper, k - scissors, N - i - j - k + players

H = -x(1-x)

$\Delta H = \Delta H(t+1) - \Delta H(t)$,

$\Delta H = -x_{t+1}(1-x_{t+1}) - (-x_t(1-x_t))$

$\Delta H = -x_{t+1}(1-x_{t+1}) + x_t(1-x_t)$

$\Delta H = x_t(1-x_t) - x_{t+1}(1-x_{t+1})$

Rough equation:

$\langle \Delta H \rangle = \sum_{i,j,k} \Big( \Delta H_s - \Delta H_{s'} \Big) T^{s \to s'}$

$$\begin{aligned}\langle \Delta H \rangle = \frac{1}{N^6} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{k=1}^{N} \Big[ & (N-i-j-k)(1-N+i+j+k)(T^{R+} + T^{P+} + T^{S+} + T^{+R} + T^{+P} + T^{+S}) \\ & - (N-i-j-k+1)(-N+i+j+k)T^{R+} \\ & - (N-i-j-k+1)(-N+i+j+k)T^{P+} \\ & - (N-i-j-k-1)(2-N+i+j+k)T^{+R} \\ & - (N-i-j-k-1)(2-N+i+j+k)T^{+P} \\ & - (N-i-j-k-1)(2-N+i+j+k)T^{+S} \Big]\end{aligned} \tag{1}$$

$q = 1-x-y-z$, $p = N-i-j-k$

$$\begin{aligned}\langle \Delta H \rangle = \frac{1}{N^6} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{k=1}^{N} \Big[ & p(1-p)(T^{R+} + T^{P+} + T^{S+} + T^{+R} + T^{+P} + T^{+S}) \\ & - (p+1)(-p)(T^{R+} + T^{P+} + T^{S+}) \\ & - (p-1)(2-p)(T^{+R} + T^{+P} + T^{+S}) \Big]\end{aligned} \tag{2}$$

$$\begin{aligned}\langle \Delta H \rangle = \int_0^1 dx \int_0^1 dy \int_0^1 dz \Big[ & q(1-q)(T^{R+} + T^{P+} + T^{S+} + T^{+R} + T^{+P} + T^{+S}) \\ & - (q+\frac{1}{N})(1-q-\frac{1}{N})(T^{R+} + T^{P+} + T^{S+}) - (q-\frac{1}{N})(1-q+\frac{1}{N})(T^{+R} + T^{+P} + T^{+S}) \Big]\end{aligned} \tag{3}$$