Starting from the Minorization-Maximization Formula

$$\gamma_i = \frac{W_i}{\sum_{j=1}^{N} \frac{C_{ij}}{E_j}} ,$$

we get

$$\gamma_i \cdot \sum_{j=1}^{N} \frac{C_{ij}}{E_j} = W_i .$$

We add an additional game $M = N + 1$ with W_i^M beeing the number of wins of player i in this game. In the standard game this can be 1 or 0, as we usually only take one winner and a number of loosers. With this definition

$$\gamma_i^M = \frac{W_i + W_i^M}{\sum_{j=1}^{N} \frac{C_{ij}}{E_j} + \frac{C_{iM}}{E_M}} ,$$

with the definition $A_i = \sum_{j=1}^{N} \frac{C_{ij}}{E_j}$ the result is

$$\gamma_i^M = \frac{A_i\gamma_i + W_i^M}{A_i + \frac{C_{iM}}{E_M}} ,$$

calling $r = W_i^M$ and $x = \frac{C_{iM}}{E_M}$

$$\gamma_i^M = \frac{A_i\gamma_i + r}{A_i + x} ,$$

we can argue that after a number of games r $\ll A_i\gamma_i$ and $x \ll A_i$. Therefor a Taylor series gives

$$\gamma_i^M = \gamma_i - \frac{\gamma_i}{A_i} x + \frac{1}{A_i} r .$$

The value of A_i depends on how many games allready played.In the program

$$\frac{1}{A} = params- > learn\_delta ,$$

$$C_{iM} \cdot \gamma_i = C\_iM\_gamm\_i ,$$

$$E_M = sum\_gammas .$$

giving

$$\gamma_i^M = \gamma_i + learn\_delta \left(r - \frac{C\_iM\_gamm\_i}{sum\_gammas} \right) .$$