$$w^{t+1} := w^t + \eta \cdot f(\sum_i \phi_i) \times r^t$$

w^t: weights at round t

ϕ_i: feature vector saved during game t for state i

r^t: reward at game t

$$r = \begin{cases} Win : 1 \\ Lose : -1 \\ Draw : 0 \end{cases}$$

f: normalizing function

$$f = (\frac{1}{1 + \exp^{-x}} - 0.5) \times A$$

A: scaling parameter