In this model, the strength of teams are represented by a single real number. Suppose team A and team B have strength s_A and s_B respectively, then the probability of team A winning over team B is assumed to be:

$$w(s_A, s_B) := \frac{1}{1 + s_B/s_A}$$

Since there are 12 teams, team strength is a vector $\vec{s}$ in $\mathbb{R}^{12}$. We represent our uncertainty in team strength by the prior distribution:

$$\begin{aligned} p(\vec{s}) &:= 1 \text{ on } \Omega \\ \Omega &:= [0,1]^{12} \end{aligned}$$

(This prior was chosen because it is scale invariant in case we) In the event W_{AB} of team A winning over team B, we have:

$$\begin{aligned} p(\vec{s}|W_{AB}) &\propto p(W_{AB}|\vec{s})p(\vec{s}) \\ &\propto w(s_A, s_B)p(\vec{s}) \end{aligned}$$

So for a total of n matches, with the i-th one being a match bewteen team u_i and v_i ending in k_i - l_i, is:

$$p(\vec{s}|\text{match results}) \propto \prod_{i=1}^{n} w(s_{u_i}, s_{v_i})^{k_i} w(s_{v_i}, s_{u_i})^{l_i} p(\vec{s})$$

For example, for NYXL 3-2 LAG, we have:

$$p(\vec{s}|\text{match results}) \propto (\frac{1}{1 + s_{LAG}/s_{NYXL}})^3 (\frac{1}{1 + s_{NYXL}/s_{LAG}})^2 p(\vec{s})$$

The expected strength for team A is thus:

$$\langle s_A \rangle = \frac{\int_\Omega \mathrm{d}\vec{r} s_A \prod_{i=1}^{n} w(s_{u_i}, s_{v_i})^{k_i} w(s_{v_i}, s_{u_i})^{l_i}}{\int_\Omega \mathrm{d}\vec{r} \prod_{i=1}^{n} w(s_{u_i}, s_{v_i})^{k_i} w(s_{v_i}, s_{u_i})^{l_i}}$$

The map-winrate for team A versus B is:

$$\langle w(s_A, s_B) \rangle = \frac{\int_\Omega \mathrm{d}\vec{r} w(s_A, s_B) \prod_{i=1}^{n} w(s_{u_i}, s_{v_i})^{k_i} w(s_{v_i}, s_{u_i})^{l_i}}{\int_\Omega \mathrm{d}\vec{r} \prod_{i=1}^{n} w(s_{u_i}, s_{v_i})^{k_i} w(s_{v_i}, s_{u_i})^{l_i}}$$