

# Shouji Rating System V3.4

## Formulas

$$A\mu = 1500$$

$$B\mu = 1500$$

$$A\varphi = 0.64$$

$$B\varphi = 0.64$$

$$A\sigma = 0$$

$$B\sigma = 0$$

$$\beta = 400$$

$$\alpha = 0.5$$

$$C = \text{mean}(A\varphi, B\varphi, AT, BT) * \beta$$

$$AJ = A\mu + \text{mean}(\alpha, AT)$$

$$BJ = B\mu + \text{mean}(\alpha, BT)$$

$$AT = A\mu / (A\mu + B\mu)$$

$$BT = B\mu / (A\mu + B\mu)$$

$$A^o = 1 / (1 + \exp((B\mu - A\mu) / C))$$

$$B^o = 1 / (1 + \exp((A\mu - B\mu) / C))$$

**A $\emptyset$ , 1 = Win, 0.5 = Draw, 0 = Loss.**

**B $\emptyset$ , 1 = Win, 0.5 = Draw, 0 = Loss.**

$$A\mu' = A\mu + AJ * A\varphi * (A\emptyset - A^o) + AJ * A\varphi * A\sigma$$

$$B\mu' = B\mu + BJ * B\varphi * (B\emptyset - B^o) + BJ * B\varphi * B\sigma$$

$$A\varphi' = (A\varphi * AT) * (1 - |A\sigma|)$$

$$B\varphi' = (B\varphi * BT) * (1 - |B\sigma|)$$