

BERLIN MAHJONG CLUB



ELO

RATING

12  
2023  
V1.2



# 天鳳 R-VALUE

Rateの変動 = (試合数補正) x (対戦結果 + 補正值) x (スケーリング係数)

初期値=R1500

試合数補正(400試合未満):  $1 - \text{試合数} \times 0.002$

試合数補正(400試合以上): 0.2

対戦結果(段位戦4人打ち): 1位+30 2位+10 3位-10 4位-30

対戦結果(雀荘戦): 得点 + 祝儀(得点換算)

補正值:  $(\text{卓の平均R} - \text{自分のR}) / 40$

スケーリング係数(段位戦): 1.0

スケーリング係数(雀荘戦): (調整中)

<https://tenhou.net/man/#RATING>

<https://wandm.syakuhati.com/probstat.html>

[https://wandm.syakuhati.com/tenhou\\_pap.pdf](https://wandm.syakuhati.com/tenhou_pap.pdf)



# BMC R-VALUE

天鳳

$$\frac{\max(1 - \text{試合数} \times 0.002, 0.2)}{\frac{\text{Average R of this table} - \text{R of this player}}{40}}$$

(卓の平均R - 自分のR) / 40

Uma  
順位点

1

Rateの変動 = (試合数補正) x (対戦結果 + 補正值) x (スケーリング係数)

Rate Variation = #Hanchan Adjustment x (Result + Adjustment) x Scaling Coefficient

1

Score  
得点

0.5

$$\frac{\text{Average R of this table} - \text{R of this player}}{40}$$

(卓の平均R - 自分のR) / 40

BMC

- ① use this formula as base
- ② adjust with inner-R and outer-R



# INNER R-VALUE (IR)

R-value from **last year** until now (2-year data), starting from 1500, tends to represent a player's true skill level.

- $iR_0 = 1500$

- $$\Delta_{k(iR)} = \$s \times \left( \text{score} + \frac{\overline{iR}_k - iR_{k-1}}{\$c} \right)$$

average **iR-value** of this table, the minimum is 1500

the **iR-value** of this player

a **Coefficient** to tune the difference of iR-value to the same level with score

the final **Score** of this player (after uma)

a weight to **Scale** the changes

- $iR_k = iR_{k-1} + \Delta_{k(iR)}$

In our case:

$$\$s = 0.5$$

$$\$c = 40$$



# OUTER R-VALUE (R)

R-value from **this year** until now (1-year data), starting from 1000.

The first 40 Hanchan will have **additional bonus** to encourage everyone to participate more in club activities.

the **Bonus**, valid if #Hanchan is less than 40.  $\$b = \frac{iR_0 - R_0}{\#Hanchan \times \$s \times \$w_1}$

- $R_0 = 1000$

- $\overset{\circ}{\Delta}_{k(R)} = \$s \times \left( \text{score} + \$b + \frac{\overline{R}_k - R_{k-1}}{\$c} \right)$

- $\Delta_{k(R)} = \$w_1 \times \Delta_{k(iR)} + \$w_2 \times \overset{\circ}{\Delta}_{k(R)}$

the changes of inner R-Value

the **weight** to balance the inner R-Value and the outer R-Value

- $R_k = R_{k-1} + \Delta_{k(R)}$

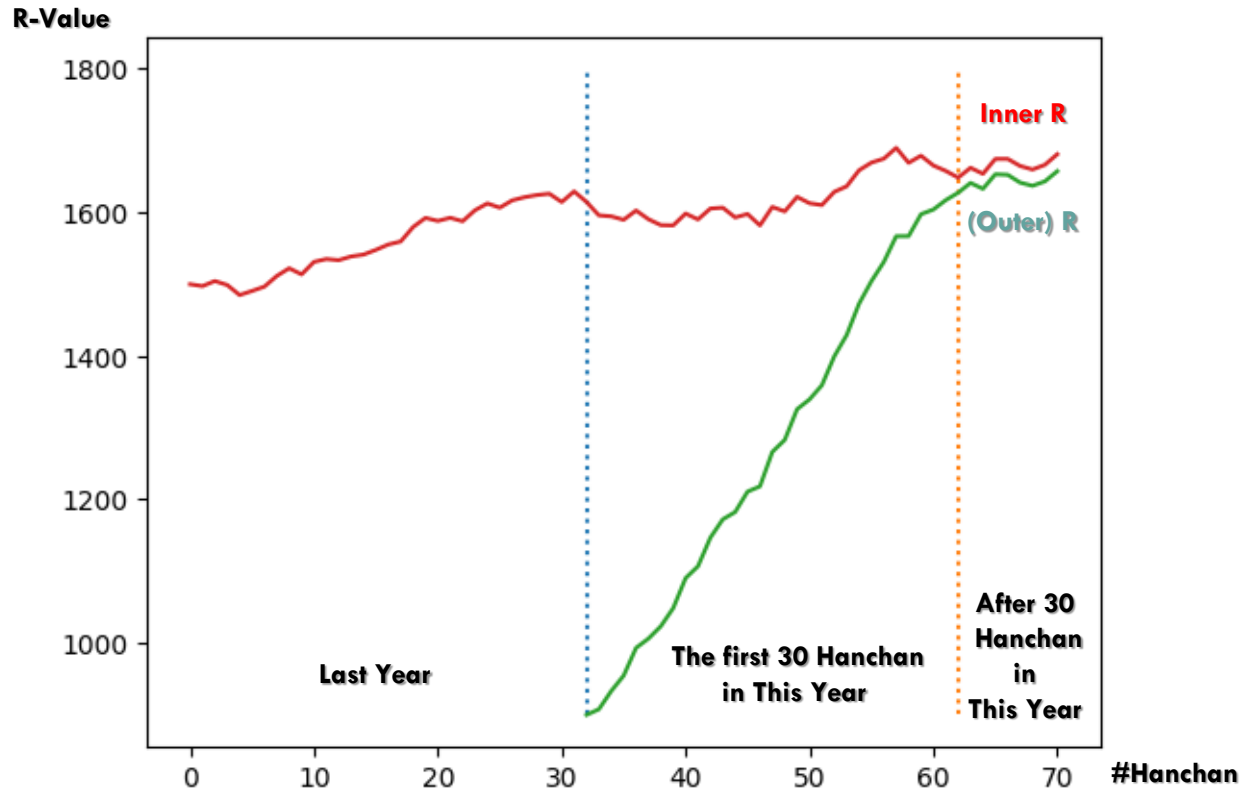
In our case:

$$\$b = 31.25$$

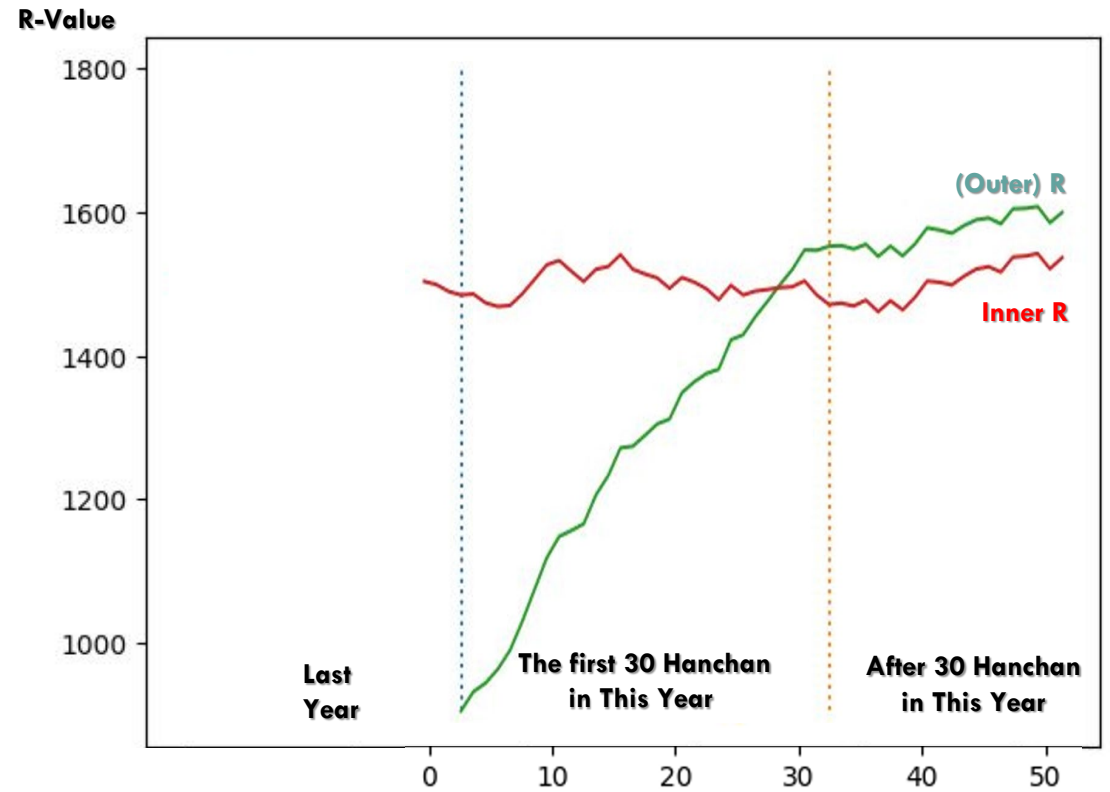
$$\$w_1 = 0.8$$

$$\$w_2 = 0.2$$

# EXAMPLES



**The Changes of R-Values of an active Player**



**The Changes of R-Values of a new Player**

