$p[s][r][n][t]$: the probability of getting a turn result of t by throwing the dice of $[s(\text{wapped})][r(\text{eroll})]$ for n times.

$rp[s][r][n][t][hog\_out]$: the probability of getting a raw score (before Hogtimus Prime and When Pigs Fly) of t by throwing the dice of $[s][r]$ for n times. $f(s_0, s_1, d)$: maximum winning rate when score is s_0, the opponent's score is s_1, and dice has swapped if d. Swine Swap is calculated in here.

d: A boolean value which documents if the dice has swapped or not.

$\mathrm{HP}(s)$: Hogtimus Prime.

$\mathrm{FB}(s)$: Free Bacon.

To calculate p:

$$rp[s][r][n][t][0] = \sum_{i=2}^{side} c(t) \cdot p[s][r][n-1][t-d],\ side = \begin{cases} 6,\ s=0 \\ 4,\ s=1 \end{cases}$$

$$rp[s][r][n][t][1] = c(t) \cdot p[s][r][n-1][t-1][1] + \big(1 - c(t)\big) \cdot p[s][r][n-1][t][1]$$

and

$$c(t) = \begin{cases} 1/side,\ r=0 \\ 1/(2 \cdot side),\ r=1 \text{ and } t \equiv 1 (\text{mod } 2) \\ 3/(2 \cdot side),\ r=1 \text{ and } t \equiv 0 (\text{mod } 2) \end{cases}$$

and

$$p[s][r][n][t] = \sum_q rp[s][r][n][q][hog\_out],\ \min\big(\mathrm{HP}(q),\ 25-n\big) = t$$

and

$$p[s][r][1][t][0] = c(t),\ t \in [2, side]$$

$$p[s][r][1][1][1] = c(1)$$

$$p[s][r][1][0][1] = 1 - c(1)$$

To calculate f:

$$f(s_0,\ s_1,\ s) = \max\left(\begin{array}{l} \displaystyle\sum_k p[s][r_1][4][k] \cdot f(s_0+1,\ s_1+k,\ !d), \\ \displaystyle\sum_k p[s][r_2][4][k] \cdot f\Big(s_0 + \mathrm{HP}\big(\mathrm{FB}(s_1)\big),\ s_1+k,\ d\Big), \\ \displaystyle\sum_{j,k} p[s][r_0][i][j] \cdot p[s][r_3][4][k] \cdot f(s_0+j,\ s_1+k,\ d),\ i \in [1,10] \end{array}\right)$$

and

$$f(100,\ s_1,\ d) = 1$$

$$f(s_0,\ 100,\ d) = 0$$