Option 13

$p_1 := 0.55 \qquad s := -1$

$p_2 := 0.5 \qquad One(x,y) := 1$

$Zero(x,y) := 0$

$$X := \begin{bmatrix} s & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & s & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & s & p_1 & 1-p_1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & s & 0 & p_1 & 1-p_1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1-p_2 & 0 & s & 0 & p_2 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & s & 0 & p_1 & 1-p_1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & p_1\cdot(1-p_2) & 1-p_1 & 0 & s & 0 & p_1\cdot p_2 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & s & 0 & 1-p_1 & p_1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & p_1\cdot(1-p_2) & 1-p_1 & 0 & s & p_1\cdot p_2 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & p_1\cdot(1-p_2) & 1-p_1 & s & 0 & 0 & p_1\cdot p_2 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1-p_1 & s+p_1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1-p_1 & p_1\cdot(1-p_2) & s+p_1\cdot p_2 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1-p_1 & p_1\cdot(1-p_2) & p_1\cdot p_2 & s \end{bmatrix}$$

$b := \mathrm{matrix}(1, \mathrm{rows}(X), Zero)^{\mathrm{T}} \qquad i := 12$

$X_2 := X^{\mathrm{T}} \qquad b^{\langle i \rangle} := 1 \qquad X_2^{\langle i \rangle} := \mathrm{matrix}(1, \mathrm{rows}(X_2), One)$

$y_2 := \mathrm{lsolve}(X_2, b)$

$p_{2000} := {y_2}_0 = 0 \qquad p_{1110} := {y_2}_7 = 0.088$

$p_{1000} := {y_2}_1 = 0 \qquad p_{1011} := {y_2}_8 = 0.148$

$p_{2010} := {y_2}_2 = 0.038 \qquad p_{2111} := {y_2}_9 = 0.178$

$p_{1010} := {y_2}_3 = 0.056 \qquad p_{0110} := {y_2}_{10} = 0.149$

$p_{1001} := {y_2}_4 = 0.075 \qquad p_{0111} := {y_2}_{11} = 0.019$

$p_{2110} := {y_2}_5 = 0.072 \qquad p_{1111} := {y_2}_{12} = 0.049$

$p_{2011} := {y_2}_6 = 0.129$

$$P_{deny} := \frac{(1-p_1)\cdot p_2 \cdot (p_{2011}+p_{1011}+p_{2111}+p_{1111}+p_{0111})}{p_{2000}+p_{2010}+p_{2110}+p_{2011}+p_{2111}} = 0.282$$

$$P_{block} := p_{0110}+p_{0111} = 0.168$$

$$L_{queue} := 1\cdot(p_{1110}+p_{2110}+p_{2111}+p_{0110}+p_{0111}) = 0.505$$

$$L_{tokensAvg} := 1\cdot(p_{2010}+p_{1001}+p_{1010}) + 2\cdot(p_{2011}+p_{2110}+p_{1110}+p_{1011}) + 3\ (p_{2111}+p_{0110}+p_{1111}) + 4\cdot p_{0111} = 2.244$$

$$Q := 1\cdot(1-P_{deny}) = 0.718$$

$$A := \frac{((1-p_2)\cdot(p_{1001}+p_{2011}+p_{1011}+p_{2111}+p_{1111}+p_{0111}))}{\sum_{i=0}^{\mathrm{length}(y_2)-1} {y_2}_i} = 0.299$$

$$A_{deny} := \frac{(1-p_1)\cdot p_2\cdot(p_{2011}+p_{1011}+p_{2111}+p_{1111}+p_{0111})}{\sum_{i=0}^{\mathrm{length}(y_2)-1} {y_2}_i} = 0.118$$

$$W_{queue} := \frac{L_{queue}}{A+A_{deny}} = 1.214 \qquad W_{tokensAvg} := \frac{L_{tokensAvg}}{A+A_{deny}} = 5.391$$