Finis: putting the pieces together

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8	5/36
9	4/36
10	3/36
11	2/36
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$$\mathbf{P}(W \mid F_k) = \frac{p_k}{p_k + p_7} \qquad \left(k \in \{4, 5, 6, 8, 9, 10\}\right)$$

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$$= \frac{244}{495} = 0.492929\cdots$$

Slogan

Don’t gamble. The other guy always knows something you don’t.