- Goal of Good-Turing smoothing: compute *expected count* c^*

- Expected count can be computed with help from binomial distribution:

$$E(c^*(\alpha)) = \sum_{r=0}^{N} r \, p(c(\alpha) = r)$$

$$= \sum_{r=0}^{N} r \binom{N}{r} p^r (1-p)^{N-r}$$

- Note again: p is unknown, we cannot actually compute this