Compound Poisson approximation to weighted sums of symmetric discrete variables

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Abstract The weighted sum $S = w_1 S_1 + w_2 S_2 + \cdots + w_N S_N$ is approximated by compound Poisson distribution. Here S_i are sums of symmetric independent identically distributed discrete random variables, and w_i denote weights. The estimates take into account the smoothing effect that sums S_i have on each other.