

# Tight words

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March 24, 2020

Given  $n, k$ , for all  $1 \leq i \leq n$ ,  $0 \leq j \leq k$ . Define  $t(i, j)$  to be the percentage of the number of tight words of length  $i$  ending in  $j$  over all possible words of length  $i$ .

We have the recurrence:

$$t(i, j) = \begin{cases} \frac{100}{k+1} \text{ when } i = 1 \\ \frac{t(i-1, 0) + t(i-1, 1)}{k+1} \text{ when } j = 0 \\ \frac{t(i-1, (j-1)) + t(i-1, j) + t(i-1, j+1)}{k+1} \text{ when } j = k \end{cases}$$