How to train n-gram models

Log-likelihood maximization:

$$\log p(\mathbf{w}_{\text{train}}) = \sum_{i=1}^{N+1} \log p(w_i | w_{i-n+1}^{i-1}) \to \max$$

Estimates for parameters:

$$p(w_i | w_{i-n+1}^{i-1}) = \frac{c(w_{i-n+1}^{i})}{\sum_{w_i} c(w_{i-n+1}^{i})} = \frac{c(w_{i-n+1}^{i})}{c(w_{i-n+1}^{i-1})}$$

N is the length of the **train corpus** (all words concatenated).