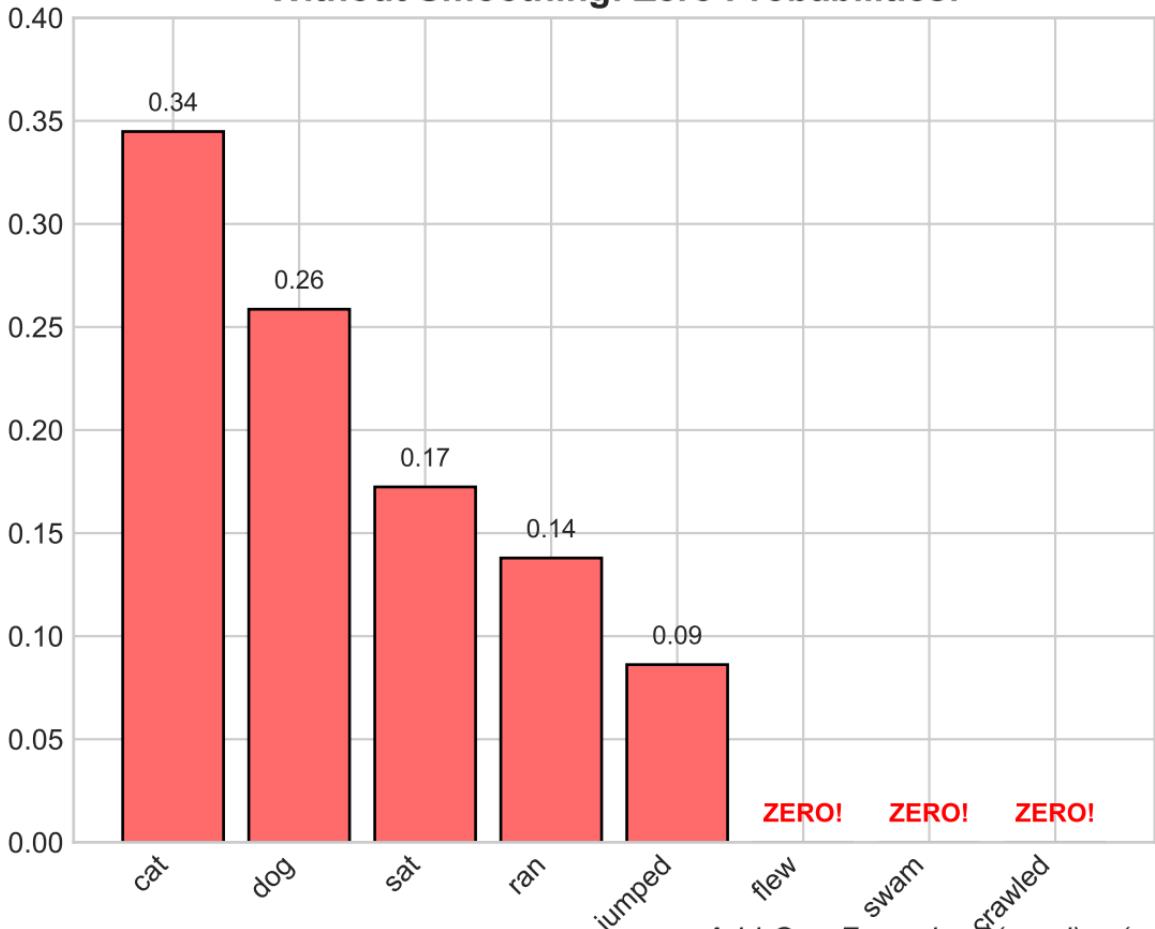


## Without Smoothing: Zero Probabilities!

Probability



$$\text{Add-One Formula: } P(\text{word}) = (\text{count} + 1) / (\text{total} + \text{vocabulary\_size})$$

## With Add-One Smoothing: All Words Possible!

Probability

