A Simple POS HMM

Word Emission Probabilities
\[ P \left( \text{word} \mid \text{state} \right) \]

- A two-word language: “fish” and “sleep”
- Suppose in our training corpus,
  - “fish” appears 8 times as a noun and 5 times as a verb
  - “sleep” appears twice as a noun and 5 times as a verb
- Emission probabilities:
  - **Noun**
    - \( P(\text{fish} \mid \text{noun}) : 0.8 \)
    - \( P(\text{sleep} \mid \text{noun}) : 0.2 \)
  - **Verb**
    - \( P(\text{fish} \mid \text{verb}) : 0.5 \)
    - \( P(\text{sleep} \mid \text{verb}) : 0.5 \)