**Part-of-Speech Tagging with Hidden Markov Models**

**Introduction**

This document explores Part-of-Speech (POS) tagging using Hidden Markov Models (HMMs). We will analyze a set of example sentences to derive POS tags, emission probabilities, and transition probabilities.

**Example Sentences**

* s1: Tom will chase Jerry
* s2: Jerry can trick Tom
* s3: Can Tom catch Jerry?
* s4: Jerry will hide Tom

**POS Tags**

* **Noun (N)**: Tom, Jerry
* **Modal Verb (M)**: will, can
* **Verb (V)**: chase, trick, catch, hide

**Observations**

* "Tom" and "Jerry" are identified as nouns (proper names).
* "will" and "can" are classified as modal verbs.
* "chase," "trick," "catch," and "hide" are categorized as verbs.

Q1. จงหา emission probabilities

Q2. จงหา transition probabilities

Q3. จาก dataset ข้างต้น ความน่าจะเป็นของ P(noun,model,noun |Tom,trick,Jerry)

Q3. จาก dataset ข้างต้น ความน่าจะเป็นของ P(noun,verb,noun |Tom,trick,Jerry)