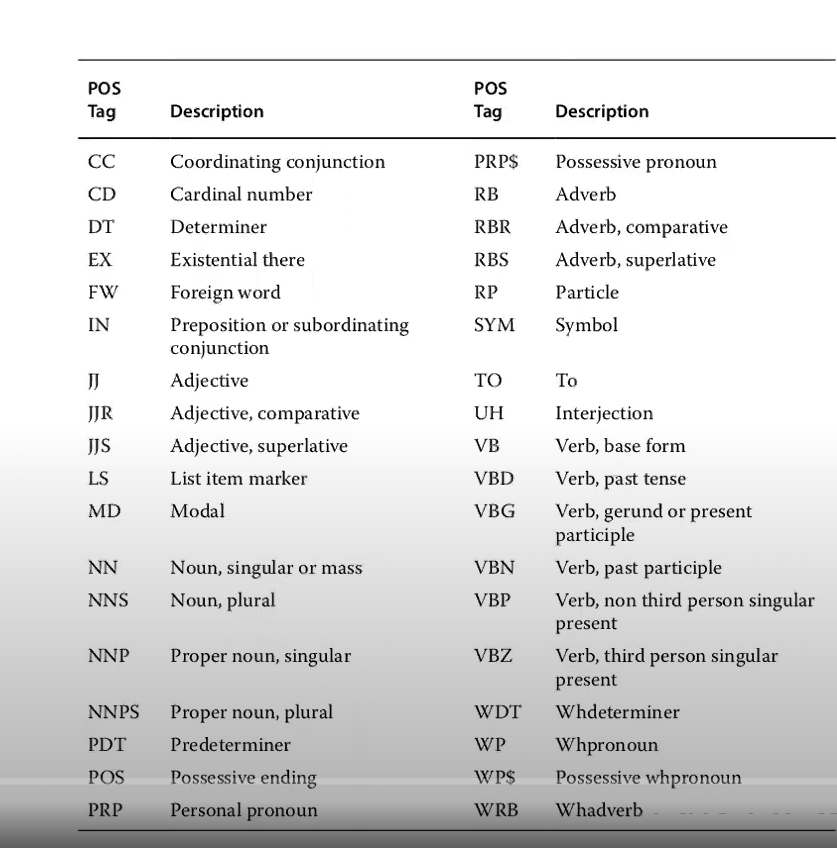
Tagging

* Tagging is the task of labelling each word in a sentence with its appropriate part of the speech.

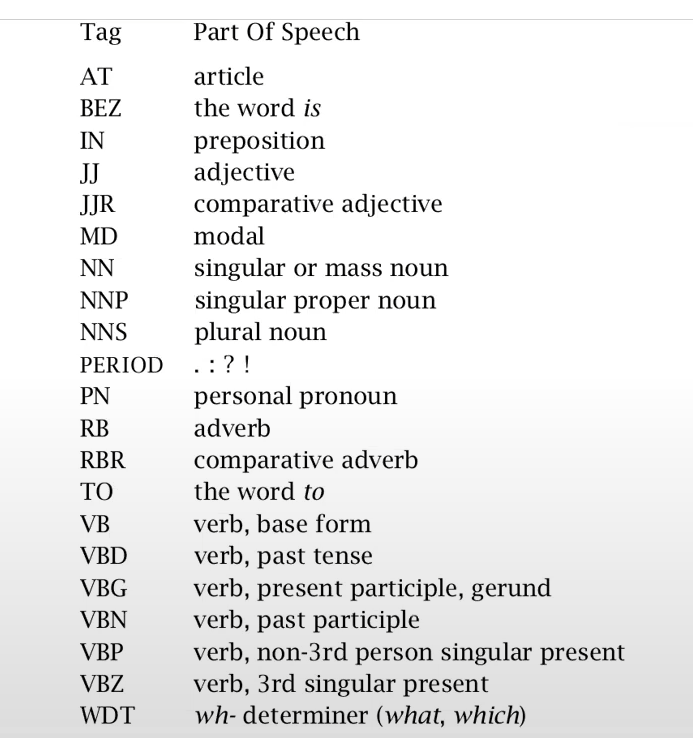


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Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence



Problem with Tagging is that : The same word could be a part of multiple part of speech tags. When that particular word is tagged in different sentences or texts, it may a noun, adjective or verb at different places.

Hence the problem is to determine a particular POS tag for a particular word in a sentence.

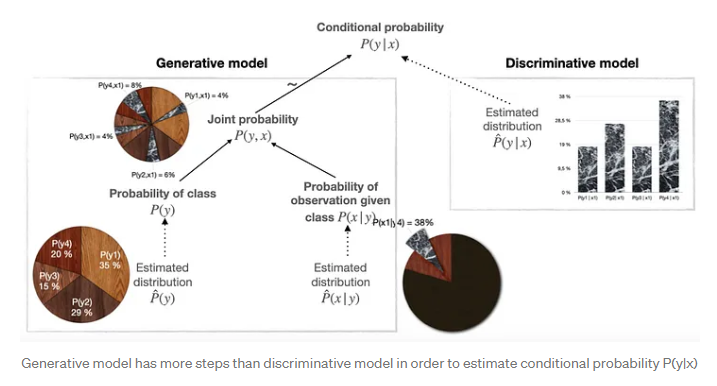
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Description automatically generated

**Generative models** are a wide class of machine learning algorithms which make predictions by modelling joint probability P(y, x).

**Discriminative models** are a class of supervised machine learning models which make predictions by estimating conditional probability P(y|x).

In order to use a generative model, more unknowns should be solved: one has to estimate probability of each class and probability of observation given class. These probabilities are used to compute joint probability, and finally, joint probability can be used as a substitute for conditional probability to make predictions.



The discriminative model takes a shorter way: it simply estimates conditional probability directly.

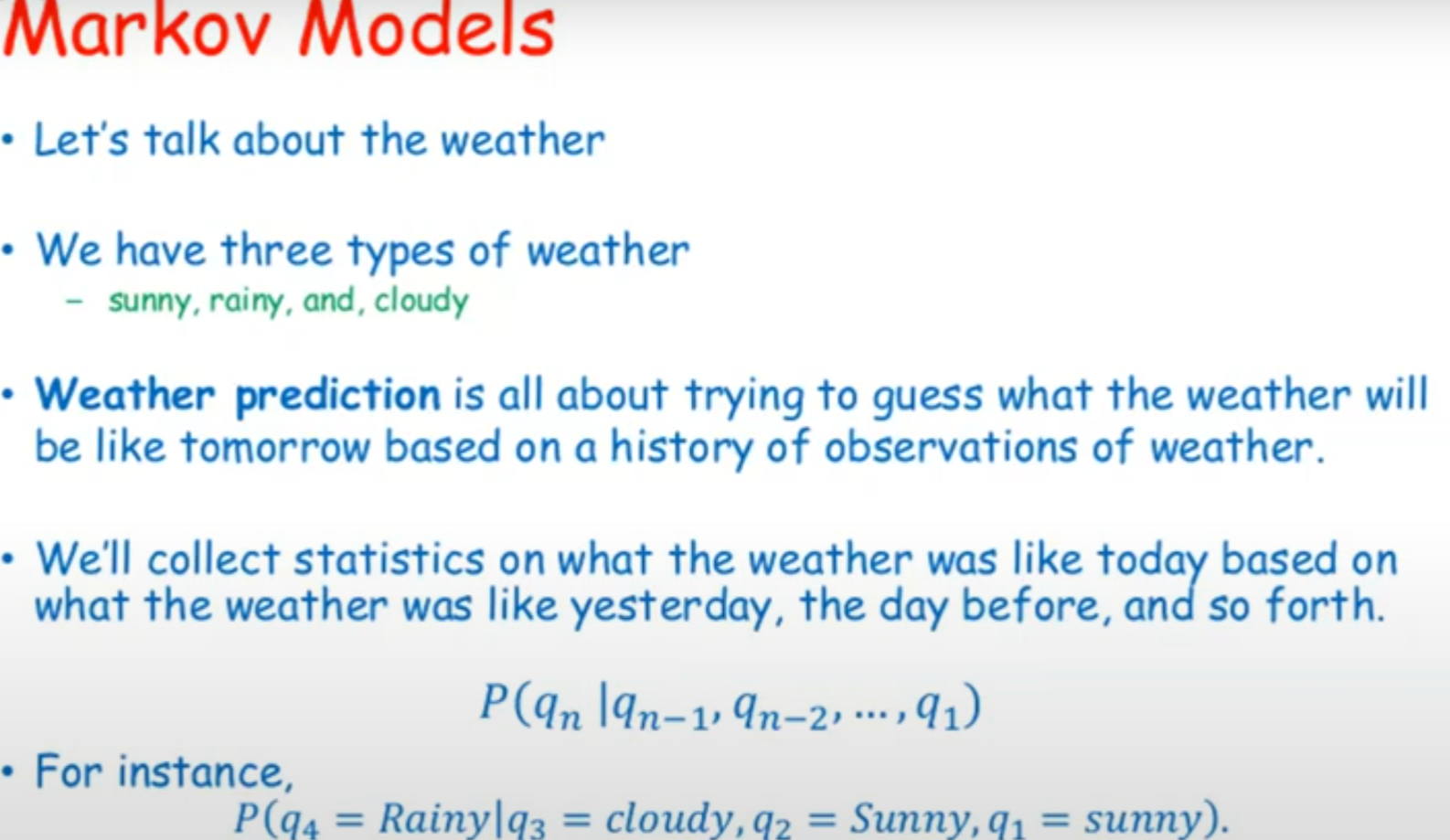
Markov Chains

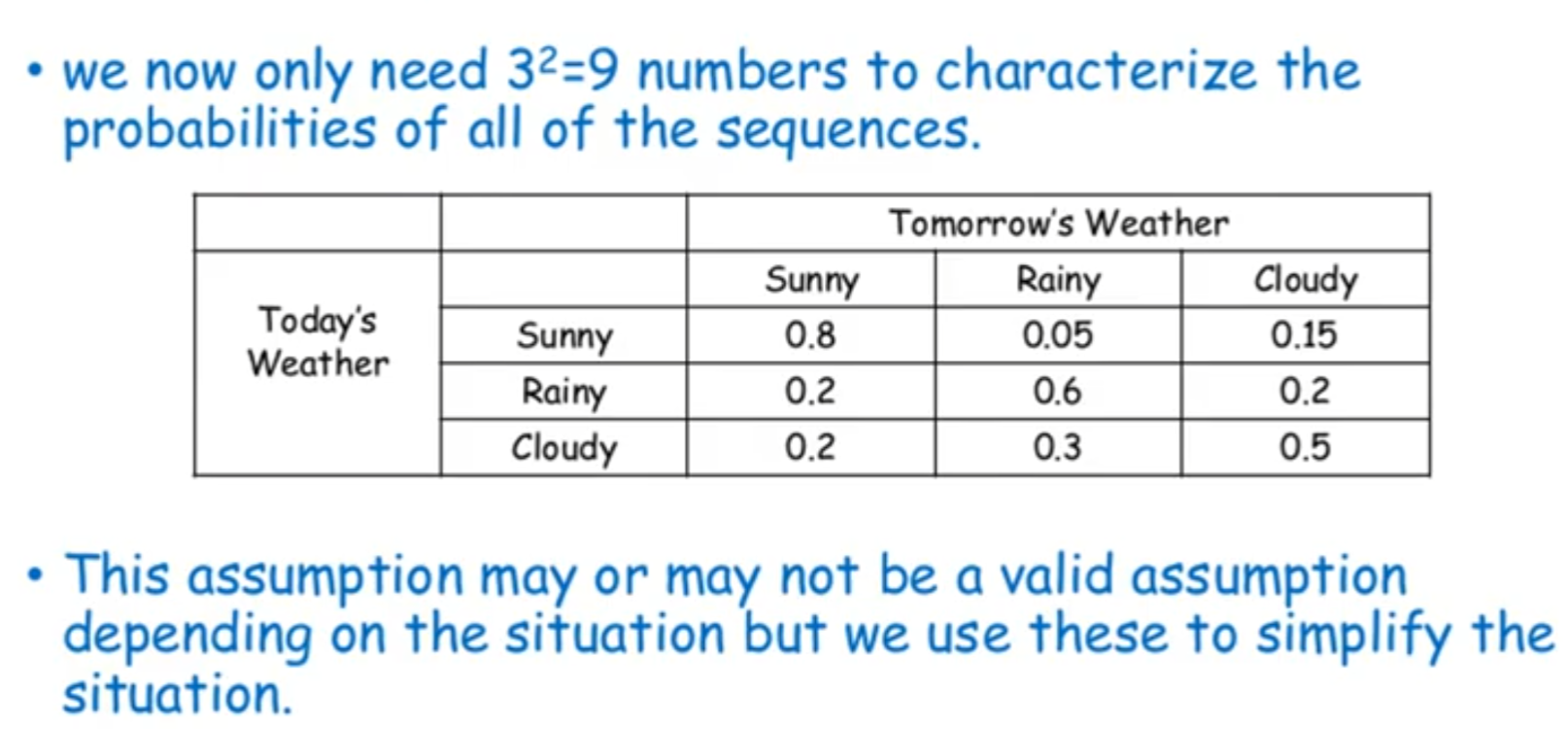
* A Markov Chain is a stochastic process where the past present and future states are independent.
* X\_t denotes the value of a random variable at time t.
* A picture containing text, screenshot, font

  Description automatically generatedMarkov Process : The random variable is a Markov process if the transition probailtites between different values in the state space depend only on the random variable’s current state.

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Description automatically generated





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A screenshot of a computer

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