Viterbi decoding

Let $Q_{t,s}$ be the most probable sequence of hidden states of length t that finishes in the state s and generates $o_1, \dots, o_t$. Let $q_{t,s}$ be the probability of this sequence.

Then $q_{t,s}$ can be computed dynamically:

$$q_{t,s} = \max_{s'} q_{t-1,s'} \cdot p(s|s') \cdot p(o_t|s)$$

Transition probabilities

Output probabilities

$Q_{t,s}$ can be determined by remembering the argmax.