

ICS 661 Quiz 4

Assume an HMM with two states, Hot and Cold, use the Forward-Backward algorithm to learn the new transition and emission probabilities after one iteration given the following initial probabilities:

Transition: Hot \rightarrow Cold = 0.3 Hot \rightarrow Hot = 0.6
 Cold \rightarrow Cold = 0.4 Cold \rightarrow Hot = 0.5
 Start \rightarrow Cold = 0.3 Start \rightarrow Hot = 0.7
 Cold \rightarrow Stop = 0.1 Hot \rightarrow Stop = 0.1

Emission: P(1|Cold) = 0.8 P(2|Cold) = 0.2
 P(1|Hot) = 0.1 P(2|Hot) = 0.9

And the following 2 training observations (number of ice creams eaten on each of two days, which can be either 1 or 2): 2 1

Show the forward trellis (α) and backward trellis (β).