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IAT-1 NLP

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Formalizing HMM Taggers

Possible Bigrams

<S>	DT	0	0	<S>	DT	NN	VBZ	<JJ </S>
DT	NN	0	1	<S>	DT	NN	VBZ	JJ</S>
NN	VBZ	1	0	<S>	DT	NN	VBZ	JJ</S>
VBZ	JJ	0	0					
JJ	</S>	0	0					

Transition probabilities.

$$P(DT | <S>) = 3/3 = 1$$

$$P(NN | DT) = 3/3 = 1$$

$$P(VBZ | NN) = 3/3 = 1$$

$$P(JJ | VBZ) = 3/3 = 1$$

$$P(</S> | JJ) = 3/3 = 1$$

Emission probabilities.

	DT	NN	VBZ	JJ
the	3/3	0	0	0
cat	0	2/2	0	0
is	0	0	3/3	0
brown	0	0	0	1/1
black	0	0	0	1/1
dog	0	1/1	0	0
white	0	0	0	1/1

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Transition Probabilities

	< s >	DT	NN	VBZ	JJ	< / s >
< s >	0	0	0	0	0	0
D@T	0	0	1	0	0	0
NN	0	0	0	1	0	0
VBZ	0	0	0	0	1	0
JJ	0	0	0	0	0	1
< / s >	0	0	0	0	0	0

Transition Probabilities

$$\begin{aligned}
 P(DT | < s >) &= 0/3 = 0 \\
 P(NN | DT) &= 1/3 \\
 P(VBZ | NN) &= 1/3 \\
 P(JJ | VBZ) &= 1/3 \\
 P(< / s > | JJ) &= 1/3
 \end{aligned}$$