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Lecture: Part of Speech Tagging

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Viterbi: Backward Pass

Great, now that you know how to compute A, B, C, and D, we will put it all together and show you how to construct the path that will give you the part of speech tags for your sentence.

$C =$

	w_1	w_2	w_3	w_4	w_5
t_1	0.25	0.125	0.025	0.0125	0.01
t_2	0.1	0.025	0.05	0.01	0.003
t_3	0.3	0.05	0.025	0.02	0.0000
t_4	0.2	0.1	0.000	0.0025	0.0003

$$s = \underset{i}{\operatorname{argmax}}\, c_{i,K} = 1$$

The equation above just gives you the index of the highest row in the last column of C. Once you have that, you can go ahead and start using your D matrix as follows:

$D =$

	w_1	w_2	w_3	w_4	w_5
t_1	0	1	3	2	3
t_2	0	2	4	1	3
t_3	0	2	4	1	4
t_4	0	4	4	3	1

<s> w1 w2 w3 w4 w5

$\pi \leftarrow t_2 \leftarrow t_3 \leftarrow t_1 \leftarrow t_3 \leftarrow t_1$

Note that since we started at index one, hence the last word (w^5) is $t1$. Then we go to the first row of D and what ever that number is, it indicated the row of the next part of speech tag. Then next part of speech tag indicates the row of the next and so forth. This allows you to reconstruct the POS tags for your sentence. You will be implementing this in this week's programming assignment. Good luck!