**CPT\_S 580 HW3**

**Yang Zhang**

**11529139**

1. Since the happening of the mistake is depends on the if there is a mistake on the previous decision step. We can conduct the following:

At step 1 there are epsilon \* T mistakes

Step2 there are epsilon \* (T-1) mistakes

…

StepsT there are epsilon \* 1 mistakes

In total, there are epsilon \* (T + (T-1) + (T-2) + .. + 1) mistakes

Therefore the total number of mistakes grows quadratically O(epsilon \* T2)

1. ….
2. ….
3. (a)

Classifier settings: weka.function.MultilayerPerceptron Learning Rate 0.01, hide layer 0, iteration 50

Nettalk testing Recurrent error: 0.581

Nettalk testing oracle error: 0.563

Ocr testing Recurrent error: 0.142

Ocr testing oracle error: 0.136

(b)