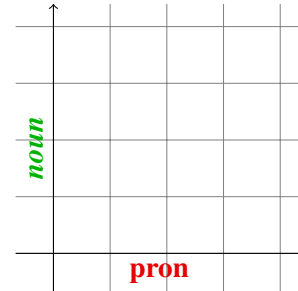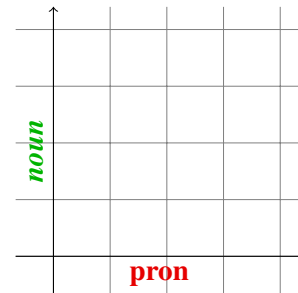b. (6 points) What is the decision boundary found by the perceptron? Give a formula, and draw the boundary on the graph with a vector pointing in the direction of the positive class (similar to Figures 4.6 and 4.9 in the reading).

Formula:

c. (5 points) Suppose instead of the vanilla perceptron algorithm, we used an *averaged* perceptron (section 4.6 in the reading). What would be the decision boundary? Give a formula and draw the boundary on the graph.

Formula:

d. (4 points) How would each of the perceptrons (vanilla and averaged) classify each of the following texts?

Finally **her** *confidence* grew to such an *extent* that **she** was able to explain that **she** had been christened not in the *vanguard* but in the extreme *rearguard* of *fashion*, after a Wesleyan *great-aunt*, and that **her** *mother* had formed the *notion* not as an unusual and charming *conceit* but as a preconceived *penance* for **her** *daughter*, whose only *offences* at that tender *age* were **her** *existence* and **her** *sex*.

Vanilla: Averaged:

Some backward *tribes* inhabited the remoter *mountains* and *jungles* but the main *population* was of the same *race*; today **they** are known as *Vietnamese* but then the outside *world* knew **them** as *Annamites* or *Annamese*.

Vanilla: Averaged:

3