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## 7. Prediction

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Exercises due Apr 19, 2023 08:59 -03 Completed

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**Predictions of a Generative Multinomial Model**

1/1 point (graded)

Consider using a multinomial generative model  $\mathbf{M}$  for the task of binary classification of documents, where documents are either positive or negative. Documents are denoted by  $+$  (positive class) and  $-$  (negative class).

Let the parameters of  $\mathbf{M}$  that maximize the likelihood of training data for the positive class be denoted by  $\theta^+$  and for the negative class be denoted by  $\theta^-$ .

Also, suppose that we classify a new document  $D$  to belong to the positive class iff

$$\log \frac{P(D|\theta^+)}{P(D|\theta^-)} \geq 0$$

where

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You have used 1 of 2 attempts

## Linear Classifier of the Generative Multinomial Model

0/1 point (graded)

Consider the prediction classifier for the two classes and introduced in the above problem, let and represent the classes and , respectively.

Let . Let and .

We see the following document . To what class would you assign this document to using the linear classifier for the generative multinomial model? (Type "0" for class 1 (-))

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