Problem 2

<s> I am Sam <e>
<s> Sam I am <e>
<s> I am Sam <e>
<s> I do not like green eggs and Sam <e>

Linear interpolation for my model:
$$\hat{P}(Sam \mid am) = \lambda_2 P(Sam \mid am) + \lambda_1 P(Sam)$$

With $\lambda_2 = 0.5$ $\lambda_1 = 0.5$ (equal weights):

$$P(Sam) = \frac{4}{25} = 0.16$$

$$P(Sam \mid am) = \frac{2}{3} = 0.6\overline{6}$$

$$\hat{P}(Sam \mid am) = \frac{1}{2}\left(\frac{4}{25}\right) + \frac{1}{2}\left(\frac{2}{3}\right) = \frac{31}{75} = 0.4133$$