Midhum	
Vista as assessment	a helpful water the contains a (s
) Language Models	of the same of
	following corpus of toxt:
	13 town a new all to start !
<5> You love magrammit	y Les all
a) Provide all the bigram	probabilities for this corpus
The control of the same of	ria sera de la companya del companya del companya de la companya d
P(I/457) = 1/2	p ( You 1 457) = 1/2
P(lon   I) = 1	P(Inn (You) = 1
P(NIP(101) = = = = ===========================	P (programming low) = 1/2
P((17   NLP) = 1	P(cer/ programming) = 1
was to see a design from the second	The same what want made to the
b) Calculate the proporbility	for the sentine
ess you lon NLP	447
	Language of the contract of th
$\left(\frac{1}{2}\right)\left(1\right)\left(\frac{1}{2}\right)\left(1\right)$	1) = 4
the control of the co	S. T. D. Man. Description States of the second
c) What is the perploxity	of the corpus?
V  = 8	= ta/4100 (ta) +4100 (1)
ppl = 2 - 101 2, 10/2 (101) =	2
	$= \frac{-1}{6}(4 05_{2}(\frac{1}{2}) + 4 05_{2}(1))$ $= \frac{-1}{6}(4(-1) + 4 0)) = 2^{\frac{1}{2}} = 1.41$
d) What is the probability	of the surtime
	, 2. What is the probability if me
	with add-one smoothing?
	o P(sentine) = 0
$P\left(\mathbb{I}\left(257\right) = \frac{1+1}{2+8} = \frac{1}{2}$	2 10 P(sentence) = 8100
P(lou(I) = 1+1 =	2 9
P(NLP (100) = 1+1/8 =	

.) A probabilistic Context-Free wammar	(PLFG)	
Consider the following PCFL,	Rule	P(Rule)
when the top half of the	S-S NP VP	1.0
table is the grammar, and	NP-> DT NN	0.0
below is the lexicon	Nb -> Nb - bb	0.1
1, (00)	18 -> 16 Bb	0.2
e makes with the second of the second of	NB 2 NB NB	0.5
May a device the terms of the second	PP - IN NP	1.0
	IN with	1.0
and the second of the second of the	pt -> the	1.0
Particular designation of the second	UP -> SAW	0.3
The first of the second of the	NN -> woman	0.4
	NN -> professor	0.4
	NN -> telescope	0.2
a) For the sentence "the woman s telescope", how many valid par	an the professor	with the Praw the
telescope", how many valid par	aw the professor	with the ? Draw the
telescope", how many valid par parse trees.	aw the professor	? Draw the
telescope", how many valid par parse trees.	sus are them?	? Draw the
parse trees.	sus are them?	? Draw the
parse trees.	su an thin?	? Draw the
parse trees.	pp	Praw the
parse trees.  D  S  NP  NP  NP  DT NN	PP NP	Praw the
parse trees.  D  S  NP  NP  NP  DT NN	pp NP	Praw the
parse trees.  D  S  NP  NP  NP  DT NN UP DT NN  the woman saw the professor of	PP NP	Praw the
parse trees.  D  S  NP  NP  NP  NP  NP  NP  NP  NP  NP	PP NP	Praw the
parse trees.  D  S  NP  NP  NP  NP  NP  NP  NP  NP  NP	PP NP	Praw the
parse trees.  D  S  NP  NP  NP  NP  NP  NP  NP  NP  NP	pp  / NP  IN DT NN  with the teles.	Praw the

b) What are the probabilities? If more than one. Which is largest and what is the meaning or interpretation of that parse true? (1.0)(0.9)(0.5)(0.2)(0.9)(1.0)(0.9) = 0.0729(0.0729)(1.0)(0.4)(0.3)(1.0)(0.4)(1.0)(1.0)(0.2) = 0.00070 (1.0)(0.9)(0.5)(0.1)(0.9)(1.0)(0.9) = 0.03645 (0.03645)(1.0)(0.4)(0.3)(1.0)(0.4)(1.0)(1.0)(0.1) = 0.00035 The more probable parse tree implies that the woman uses the telescope to see the professor Bias What is one example of bias in NLP, and how would An example of bias in NED is the way in which people example shown of UPT-3. To fix this, I would include backgrounds, I affirm that I will not give or receive any unauthorized hulp on this exam, and that all work 0. The written portion took me about 3-4 hours in total. I haven't completed the programming section, but I'm assuming it will take around the same time. 1. I liked that I was able to find examples from class which helped solve the problems