



ASSIGNMENT # 1

Degree / Branch : B.Tech / CSE
Subject Code / Name : CSPE73 / NATURAL LANGUAGE PROCESSING
(Elective)
Year / Semester : IV / VII

1. Consider the grammar G given below.

S → NP VP | Wh NP VP | Wh NP Aux NP VP
S → Aux NP VP
S → VP
NP → Proper-Noun | Personal Pronoun | NP PP
NP → Determiner Nominal | Possessive Pronoun Noun
Nominal → Noun
Nominal → Noun Nominal
Nominal → Adjective Nominal
PP → Preposition NP
VP → Verb
VP → Verb NP

By using the above grammar, perform Top-Down as well as Bottom-Up Parsing for the following sentences and generate the corresponding parse trees.

- a. Show the lowest fare
- b. Show me the cheapest fare that has lunch
- c. Give me Sunday's flights arriving in Las Vegas from Memphis and New York City
- d. List all flights between five and seven p.m
- e. List all flights from Burbank to Denver
- f. Show me all flights that depart before ten a.m and have first class fares
- g. Show me all the flights leaving Baltimore
- h. Show me flights arriving within thirty minutes of each other
- i. Please list the flights from Charlotte to Long Beach arriving after lunch time
- j. Show me the last flight to leave
- k. Does American airlines have a flight between five a.m. and Six a.m.

o

- l. I would like to fly on American airlines.
- m. Please repeat that.
- n. Does American 487 have a first class section?
- o. I need to fly between Philadelphia and Atlanta.
- p. What is the fare from Atlanta to Denver?
- q. Is there an American airlines flight from Philadelphia to Dallas?
- r. What flights do you have from Burbank to Tacoma ?
- s. Can you give me the same information for United?
- t. I like to fly from Detroit to Saint Petersburg on Tuesday.

2. Draw the different parse trees for the following ambiguous Sentences by using the Grammar G given in Ques.No.1.

- a. Teacher strikes idle kids
- b. Rice flies like an arrow
- c. I shot an elephant in my pajamas
- d. Can you book TWA flights?

3. Draw the pronunciation networks for the following words using Markov model and Hidden Markov Model.

- a. Believe
- b. Receive
- c. Yellow
- d. Orange
- e. Study
- f. Slight
- g. Planning
- h. Natural

4. Match the following misspelt words with their corresponding Confusion matrices in Statistical Spell Checking.

absence – abcense, absance
 acceptable – acceptible
 accidentally/accidently – accidentaly
 accommodate – accomodate, acommodate
 achieve – acheive
 acknowledge – acknowlege, aknowledge
 acquaintance – acquaintence, aquaintance
 beginning – begining
 believe – believe

calendar – calender
category – catagory
caught – cauhgt, caught
colleague – collaegue, colleague
conscious – concious, consious
definitely – definitely, definately, defiantly
dilemma – dilema
disappoint – disapoint
embarrass – embarass
exceed – exced
fluorescent – fluorescent
foreign – foriegn
friend – freind
grateful – gratefull, grateful
guarantee – guarantee, garentee, garanty
guidance – guidance
harass – harrass
height – heighth, heighth
hierarchy – heirarchy
ignorance – ignorence
imitate – immitate
intelligence – inteligence, intelligance
kernel – kernal
leisure – liesure
library – libary, liberry
miniature – miniture
millennium – millenium, millennium
necessary – neccessary, necessery
occasionally – occasionally, occassionally
personnel – personell, personel
precede – preceed
presence – presance
principle – principal
professor – professor
proof – prufe
queue – que
questionnaire – questionnaire, questionnair
really – realy
recommend – recomend, reccommend
seize – sieze
separate – seperate
speech – speach, speeche
surprise – suprise, surprize

their – there
until – untill
vacuum – vaccuum, vaccum, vacume
vehicle – vehical
weather – wether
welfare – wellfare, welfair
whether – wether
writing – writting, writeing
