CSCI.GA.2590 - Natural Language Processing – Spring 2016 – Prof. Grishman

Assignment #2

(1) [2 points] Using the grammar given below, based on section 12.3 of J & M, determine the constituent structure of the sentences

    (a) Show the airlines with flights to Boston.

    (b) Show the airlines that fly to Boston.

    (c) I need to know the flight number.

    (d) Do you prefer to go to Boston?

You should submit the trees using parenthesis notation (”[S [NP [Nominal [Noun flights]]] [VP [Verb crash]]]”).

Solution:

(a)
```
[S
   [VP
     [Verb "Show"]
     [NP
       [Det "the"]
       [Nominal
         [Nominal
           [Noun "airlines"]
         ]
         [PP
           [preposition "with"]
           [NP [Nominal]]
               [Nominal
                 [Noun "flights"]
               ]
               [PP
                 [preposition "to"]
                 [NP
                   [ProperNoun "Boston"]
                 ]
               ]
             ]
           ]
         ]
       ]
     ]
   ]
]
```

(b)
```
[S
   [VP
     [Verb "Show"]
     [NP
       [Det "the"]
       [Nominal
         [Nominal [Noun "airlines"]]
         [RelClause "that"
           [VP
             [verb "fly"]
             [PP
               [preposistion "to"]
               [NP
                 [ProperNoun "Boston"]
               ]
             ]
           ]
         ]
       ]
     ]
   ]
]
```

```
(c) [S
     [NP
       [Pronoun "I"]
     ]
     [VP
       [Verb-with-Inf-VP-Cmpl "want"]
       [VPto
         [Verb-to "to know"]
         [NP
           [Det "the"]
           [Nominal
             [Nominal [Noun "flight"]]
             [Noun "number"]
           ]
         ]
       ]
     ]
   ]
(d) [S
     [Aux "Do"]
     [NP [Pronoun "you"]]
     [VP
       [Verb-with-Inf-VP-Cmpl "prefer"]
       [VPto
         [Verb-to "to go"]
         [PP
           [Preposition "to"]
           [NP [ProperNoun "Boston"]]
         ]
       ]
     ]
   ]
```

(2) See modified *asgn2-grammar.txt* and *asgn2-dict.txt*.