

Section, October 22, 2004

1	start	$\gamma \rightarrow \cdot S$	[0, 0]	
2	1	$S \rightarrow \cdot NP VP$	[0, 0]	
3	2	$NP \rightarrow \cdot NP PP$	[0, 0]	

4	2	$NP \rightarrow Kim \cdot$	[0, 1]	
5	4 (2)	$S \rightarrow NP \cdot VP$	[0, 1]	[4]
6	5	$VP \rightarrow \cdot V NP$	[1, 1]	
7	5	$VP \rightarrow \cdot V$	[1, 1]	
8	5	$VP \rightarrow \cdot VP PP$	[1, 1]	

9	6	$V \rightarrow adores \cdot$	[1, 2]	
10	9 (6)	$VP \rightarrow V \cdot NP$	[1, 2]	[9]
11	9 (7)	$VP \rightarrow V \cdot$	[1, 2]	[9]
12	10	$NP \rightarrow \cdot NP PP$	[2, 2]	
14	11 (5)	$S \rightarrow NP VP \cdot$	[0, 2]	[4, 11]
*15	11 (8)	$VP \rightarrow VP \cdot PP$	[1, 2]	[11]
16	14 (1)	$\gamma \rightarrow S \cdot$	[0, 2]	[14]

13	10	$NP \rightarrow snow \cdot$	[2, 3]	
17	13 (10)	$VP \rightarrow V NP \cdot$	[1, 3]	[9, 13]
18	13 (12)	$NP \rightarrow NP \cdot PP$	[2, 3]	[13]
19	17 (5)	$S \rightarrow NP VP \cdot$	[0, 3]	[4, 17]
20	17 (8)	$VP \rightarrow VP \cdot PP$	[1, 3]	[17]
21	18	$PP \rightarrow \cdot P NP$	[3, 3]	
22	19 (1)	$\gamma \rightarrow S \cdot$	[0, 3]	[19]

23	21	$P \rightarrow in \cdot$	[3, 4]	
24	23 (21)	$PP \rightarrow P \cdot NP$	[3, 4]	[23]
25	24	$NP \rightarrow \cdot NP PP$	[4, 4]	

26	24	$NP \rightarrow Oslo \cdot$	[4, 5]	
27	26 (24)	$PP \rightarrow P NP \cdot$	[3, 5]	[23, 26]
28	26 (25)	$NP \rightarrow NP \cdot PP$	[4, 5]	[26]
29	27 (18)	$NP \rightarrow NP PP \cdot$	[2, 5]	[13, 27]
30	27 (20)	$VP \rightarrow VP PP \cdot$	[1, 5]	[17, 27]
31	28	$PP \rightarrow \cdot P NP$	[5, 5]	
32	29 (10)	$VP \rightarrow V NP \cdot$	[1, 5]	[9, 29]
33	29 (12)	$NP \rightarrow NP \cdot PP$	[2, 5]	[29]
34	{30 (5), 32 (5)}	$S \rightarrow NP VP \cdot$	[0, 5]	{[4, 30], [4, 32]}
35	30 (8)	$VP \rightarrow VP \cdot PP$	[1, 5]	[30]
36	34 (1)	$\gamma \rightarrow S \cdot$	[0, 5]	[34]

The completed chart for *Kim adores snow in Oslo*

The above chart uses this grammar.

$S \rightarrow NP VP$	$NP \rightarrow Kim$
$VP \rightarrow V NP$	$NP \rightarrow snow$
$VP \rightarrow V$	$NP \rightarrow Oslo$
$VP \rightarrow VP PP$	$V \rightarrow adores$
$PP \rightarrow P NP$	$V \rightarrow snores$
$NP \rightarrow NP PP$	$P \rightarrow in$

The algorithm on page 381 has been modified slightly to accommodate our grammar. Rather than expanding NP only as a phrasal category or only as a preterminal, we expand it as either one.

As the algorithm requires, the chart is divided into 6 sections, one for each position in the string.

The first column is a number identifying the state. The number reflects the order in which the state is created. Note that state 13, in the fourth section, is created before states 14, 15 and 16, which are in the third section.

The second column indicates the state which was expanded to get to this state. If the state is the result of a “completer” rule, the second column will also contain a parenthesized number indicating which rule was advanced. For instance, state 5 is the result of using state 4 (a complete NP) to advance state 2.

The third column indicates the state itself: which rule is being considered, how much that rule has accounted for, and how much it has left to go.

The fourth column indicates the start position and end position of the substring that the state accounts for.

The fifth column is used for states resulting from a “completer” rule. It contains the numbers of the states that represent the constituents of the state. For instance, state 14 is a completed $S \rightarrow NP VP$ state. Its fifth column contains the states for its completed NP and completed VP constituents. It is information in this column that is used to reconstruct completed parses from the chart that this algorithm returns.

