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**Feedback — Parsing**

**You achieved a score of 3.75 out of 5.00**

Principio del formulario

**Question 1**

Convert the following grammar to Chomsky Normal Form (as described in the lecture video):  
  
A → B C  
  
B → *e*  
B → C C  
  
C → C D  
C → C D D

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| -------------------- A → B C A → C D A → C @A\_C @A\_C → D D  B → C C  C → C D C → C @C\_C @C\_C → D D ------------------- | Correct | 1.00 |  |
| Total |  | 1.00 / 1.00 |  |

**Question 2**

Given the following grammar and transition probabilities:

|  |  |
| --- | --- |
| S → NP VP | 0.9 |
| S → VP | 0.1 |
| VP → V NP | 0.5 |
| VP → V | 0.1 |
| VP → V @VP\_V | 0.3 |
| VP → V PP | 0.1 |
| @VP\_V → NP NP | 1.0 |
| NP → NP NP | 0.1 |
| NP → NP PP | 0.2 |
| NP → N | 0.7 |
| PP → P NP | 1.0 |

And given the following part of the CKY matrix:  
  
  
  
Which of the following constituents (and with what *maximum* probability) will be in the next cell?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| PP: 0.0294 | Correct | 0.25 | There is actually a higher probability way to get PP. |
| NP: 0.0084 | Correct | 0.25 | NP → NP NP: 0.1×0.2×0.42=0.0084 |
| PP: 0.042 | Correct | 0.25 | PP → P NP: 1.0×0.1×0.42=0.042. |
| S: 0.05 | Incorrect | 0.00 | You may have tried to apply the S → VP unary rule to the upper left cell, but that rule applies only to that cell - the S label does not go into the upper right cell (the cell we are concerned about). |
| Total |  | 0.75 / 1.00 |  |

**Question 3**

Given the following true and guessed parses, what is the LP/LR F1 (excluding any contribution from ROOT)?

Guess:

(ROOT

(S

(NP

(NP (NN Activation))

(PP (IN of)

(NP

(NP (NN ISGF3) (NN alpha))

(, ,)

(NP

(NP (DT the) (JJ latent) (NN component))

(PP (IN of)

(NP (NN ISGF3))))

(, ,))))

(VP (VBZ occurs) (RB rapidly))

(. .)))

Gold:

(ROOT

(S

(NP

(NP (NN Activation))

(PP (IN of)

(NP

(NP (NN ISGF3) (NN alpha))

(, ,)

(NP

(NP (DT the) (JJ latent) (NN component))

(PP (IN of)

(NP (NN ISGF3))))

(, ,))))

(VP (VBZ occurs)

(ADVP (RB rapidly)))

(. .)))

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| 0.9565 | Correct | 1.00 | With a precision of 1 and recall of 0.9167, we have a F1 of 0.9565. |
| Total |  | 1.00 / 1.00 |  |

**Question 4**

Lexicalize the following parse tree (annotate each non-terminal with the head of the phrase over which it is a constituent):

(S

(NP (NNP William)

(VP (VBD gave)

(NP (DT the) (NN gift)

(PP (TO to) (PRP her))))

(. .))

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| (S-gave  (NP-William (NNP William)  (VP-gave (VBD gave)  (NP-gift (DT the) (NN gift)  (PP-to (TO to) (PRP her))))  (. .)) | Correct | 1.00 |  |
| Total |  | 1.00 / 1.00 |  |

**Question 5**

Given the following parse trees,

( (S (S (NP (PRP It))

(VP (VBZ 's)

(NP (NN summertime))))

(, ,)

(CC so)

(S (NP (PRP it))

(VP (MD must)

(VP (VB be)

(NP (NP (NN time))

(PP (IN for)

(NP (NN CAMP)))))))

(. !)))

( (NP (NP (CD Six) (NNS weeks))

(PP (IN of)

(NP (NP (NN learning) (CC and) (NN exploring))

(, ,)

(NP (NNS sports) (, ,) (NNS arts) (, ,) (CC and) (NN fellowship))))

(. .)))

What is the MLE probability of the rule NP^PP -> NN if we were to perform parent annotation?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| 1/3 | Incorrect | 0.00 | You may have counted an extra instance of NP^PP. |
| Total |  | 0.00 / 1.00 |  |

Final del formulario

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