**Feedback — Parsing**

**You achieved a score of 2.75 out of 5.00**

Principio del formulario

**Question 1**

Convert the following grammar to Chomsky Normal Form (as described in the lecture video):  
  
X → Y Z W  
X → Y Z  
  
W → Z  
W → *e*  
  
Z → X W Z

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| -------------------- X → Y @Z\_W X → Y Z @Z\_W → Z W  W → X @W\_Z W → X Z @W\_Z → W Z  Z → X @W\_Z Z → X Z -------------------- | Incorrect | 0.00 | Your labeling of non-terminals created by binarization is incorrect. |
| Total |  | 0.00 / 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** |
| NP: 0.018 | Correct | 0.25 | NP → NP PP: 0.2×0.3×0.3=0.018 |
| S: 0.005 | Incorrect | 0.00 | Highest probability VP (VP → V NP) followed by S → VP: (0.5×0.2×0.5)×0.1=0.005 |
| VP: 0.05 | Correct | 0.25 | VP → V NP: 0.5×0.2×0.5=0.05 |
| S: 0.108 | Correct | 0.25 | You may have thought the rule S → NP VP applies using @VP\_V instead of a VP (0.9×0.3×0.4=0.108). However, that would require the rule S → NP @VP\_V, which does not exist. |
| 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 (JJ Alpha-lipoic) (NN acid))

(VP (VBZ is)

(NP

(NP (DT a) (JJ potent) (NN inhibitor))

(PP (IN of)

(NP (NN NF-kappa) (NN B) (NN activation))))

(PP (IN in)

(NP (JJ human) (NN T) (NNS cells))))

(. .)))

Gold:

(ROOT

(S

(NP (JJ Alpha-lipoic) (NN acid))

(VP (VBZ is)

(NP

(NP (DT a) (JJ potent) (NN inhibitor))

(PP (IN of)

(NP

(NP (NN NF-kappa) (NN B) (NN activation))

(PP (IN in)

(NP (JJ human) (NN T) (NNS cells)))))))

(. .)))

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| 0.7368 | Correct | 1.00 |  |
| 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 (PRP$ her) (NN husband))

(VP (VBD cleared)

(NP

(NP (DT a) (NN visit))

(PP

(IN by)

(NP (PRP$ her) (NN mother))))))

(. .)

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| (S-cleared  (NP-husband (PRP$ her) (NN husband))  (VP-cleared (VBD cleared)  (NP-visit  (NP-visit (DT a) (NN visit))  (PP-by  (IN by)  (NP-mother (PRP$ her) (NN mother))))))  (. .) | Correct | 1.00 |  |
| Total |  | 1.00 / 1.00 |  |

**Question 5**

Given the following parse trees,

( (S (NP (NP (DT Each))

(PP (IN of)

(NP (NP (DT the) (NNS chapters))

(PP (IN of)

(NP (NNS Investigations))))))

(VP (VBZ broaches)

(NP (JJ new) (NN territory)))

(. .)))

( (S (NP (DT Each))

(VP (VBZ is)

(ADJP (ADJP (JJ tentative) (CC and) (JJ incomplete))

(, ,)

(UCP (VP (VBG pointing))

(CONJP (RB but) (RB not))

(ADJP (RB fully) (JJ adequate)))))

(. .)))

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| 2/7 | Incorrect | 0.00 | This is the MLE probability of NP -> NP PP (without parent annotation). |
| Total |  | 0.00 / 1.00 |  |

Final del formulario