**Figure.docx**

Figure 2.1: Language-related Disciplines (Tsujii 2021) – Linguistics, Cognitive Science, Psychology, Natural Language Processing (NLP), Artificial Intelligence (AI), and Computational Linguistics. All of these disciplines study language from different perspectives.

Figure 2.2: Stages of the language processing pipeline for textual data input.

Figure 2.3: Tasks in NLP.

Figure 2.4: Constituent Parsing for the Sentence, ‘The mouse ate the cheese that was kept in the drawer’.

Figure 2.5: The dependency parse tree for the sentence, ‘The mouse ate the cheese that was kept in the drawer.’ The labels on the arcs are according to Universal Dependency nomenclature for grammatical relations.

Figure 2.6: 2D plots showing different boolean logic functions and the corresponding line (dotted) separating the input coordinates with different output values for AND (Left), OR (Centre), and XOR (Right). Note that no separating line exists for the XOR function.

Figure 2.7: Architecture of a Multilayer Perceptron.

Figure 2.8: Implementing XOR Boolean function using an MLP with a single hidden layer and sgn’(·) as the activation function as defined in Section 2.8.2.

Figure 2.9: A basic neural network architecture with linear activation function and no hidden layers.

Figure 2.10: A neural network architecture with a single hidden layer and a nonlinear activation function.

Figure 2.11: The Neural Network Architecture for Example 2.5.