1 Question 1

Write the parsing tree of the command ‘the most populated state’ using a combinatorial categorical grammar (CCG) that interprets the sentence according to the KB below.

![State Table]

In this exercise please make sure that you:

- Identify the POS tags of the command.
- Define the semantic features.
- Define the derived parsing tree.
2  Question 2

Convert the sentence below into RDF-NL.

“As the carbon percentage content rises, steel has the ability to become harder and stronger through heat treating; however, it becomes less ductile.”

- Start by identifying the nuclei and the satellites.
- Identify the rhetorical relations.
- Identify the clause-level predicate-argument structure (subject, predicate, object and context).
- Link the propositions using ids for each statement.
- Represent it using the RDF-NL format.

3  Question 3

For the following statements about the FOIL Algorithm, assert if they are true or false, correcting the false statements.

1. The FOIL algorithm is a supervised learning algorithm.
2. FOIL produces Horn clauses as output.
3. The algorithm is a generalization of the SEQUENTIAL-COVERING and LEARN-ONE-RULE algorithms.
4. The outer loop adds new rules to the output until no more negative examples are covered.
5. The inner loop searches for the next best rule by incremental generalisation.