Unit 4 – Hybrid Agent Architectures

This activity involved creating constituency-based parse trees to demonstrate how intelligent systems can interpret natural language structure.

Parse Tree 1: The government raised interest rates.

```
(S
 (NP (Det The) (N government))
 (VP (V raised)
  (NP (N interest) (N rates))))
```

Explanation: This structure shows a simple sentence with a noun phrase subject ('The government') and a verb phrase containing the verb and its compound noun object ('interest rates').

Parse Tree 2: The internet gives everyone a voice.

```
(S
 (NP (Det The) (N internet))
 (VP (V gives)
  (NP (N everyone))
  (NP (Det a) (N voice))))
```

Explanation: This sentence includes a double-object verb ('gives'), where the first NP ('everyone') is the indirect object, and the second NP ('a voice') is the direct object.

Parse Tree 3: The man saw the dog with the telescope. [Ambiguous]

Interpretation 1:

```
(S
 (NP (Det The) (N man))
 (VP (V saw)
  (NP
   (NP (Det the) (N dog))
   (PP (P with) (NP (Det the) (N telescope))))))
```

Explanation: Here, the prepositional phrase 'with the telescope' is attached to the noun 'dog', suggesting the dog has the telescope.

Interpretation 2:

```
(S
 (NP (Det The) (N man))
 (VP (V saw)
```

(NP (Det the) (N dog))
(PP (P with) (NP (Det the) (N telescope)))))

Explanation: In this version, the phrase 'with the telescope' modifies the verb 'saw', meaning the man used the telescope to see the dog.

This activity helped in understanding how intelligent agents can parse and interpret human language structure, especially when ambiguity is present.