

chandra devuosi

11664381

Question 45

- a) Top-down(SLO) derivation of The query accepted(chris) applied to knowledge base:
1. Query: accepted(chris)
 2. Rule: accepted(student) \leftarrow returning(student) \wedge goodstanding(student) \wedge clearBalance(student)
 \rightarrow substituting student with chris in the rule
 returning(chris) \wedge goodstanding(chris) \wedge clearBalance(chris)
 \rightarrow we need to find support for these three sub goals
 3. Rule: qualified(student) \leftarrow legacyStudent(student)
 \rightarrow substituting student with chris in the rule we get
 qualified(chris)
 4. Rule: legacyStudent(student) \leftarrow child(student, parent) \wedge graduate(parent)
 \rightarrow substituting student with chris and parent with sam in the rule
 legacyStudent(chris) \leftarrow child(chris, sam) \wedge graduate(sam)
 5. Fact: child(chris, sam)
 6. Fact: graduate(sam)
 7. we have found support for all the sub-goals of the original rule
 so chris is qualified
 8. Rule: qualified(student) \leftarrow highSAT(student) \wedge goodHS(student)
 \rightarrow substituting student with chris in the rule
 qualified(chris) \leftarrow highSAT(chris) \wedge goodHS(chris)
 9. Fact: goodHS(chris)
 10. we have found support for the all the sub-goals of the original rule
 so chris is qualified
 11. Rule: accepted(student) \leftarrow allComplete(student) \wedge qualified(student)
 \rightarrow substituting student with chris in the rule
 accepted(chris) \leftarrow allComplete(chris) \wedge qualified(chris)
 12. Fact: allComplete(chris)
 13. we already established that chris is qualified in step 10
 14. we have found support for all sub-goals of the original rule
 so, chris is accepted
- The top-down derivation for accepted(chris) is successful

b) one of the failing top down (SD) activation of the query accepted (Iaxaa) applied to the KB:

1. Query: accepted (Iaxaa)

2. Rule: accepted (student) \leftarrow returning (student) \wedge goodstanding (student) \wedge clearBalance (student)

-> Substituting student with Iaxaa in the rule

-> returning (Iaxaa) \wedge goodstanding (Iaxaa) \wedge clearBalance (Iaxaa)

3. fact: returning (Iaxaa)

4. we need to find support for the remaining two sub goals goodstanding (Iaxaa) and clearBalance (Iaxaa)

-> However, there are no facts or rules in the knowledge base that provides support for these subgoals. Since there is no support for the subgoal the top-down activation for accepted (Iaxaa) fails