Week 7

9 試題

1 point

1 。
Which of the follows is not a valid sentence?

- ∀x F(x) ∨ ¬F(x)
- ∀x Pretty(x) ∨ (x = x)
- ∃x x = Copy(x) ⇒ ∀y ∃z y = Copy(z)
- ∀x Likes(x,IceCream) ⇒ ∃x ¬Likes(x,IceCream)

1 point

2 。
Consider the following KB:

Constants: Alice, Bob, Oscar Sentences: ∀x∃y∃z Eavesdrop(x, y, z) ∧ Talk(y, z) ⇒ Sniffer(x)

(a) What's the KB after UI?

- Eavesdrop(x, Alice, Bob) ∧ Talk(Alice, Bob) ⇒ Sniffer(x)

  Eavesdrop(x, Alice, Oscar) ∧ Talk(Alice, Oscar) ⇒ Sniffer(x)

  Eavesdrop(x, Bob, Oscar) ∧ Talk(Bob, Oscar) ⇒ Sniffer(x)
- Eavesdrop(x, y, z) ∧ Talk(Alice, Bob) ⇒ Sniffer(x)

  Eavesdrop(x, y, z) ∧ Talk(Alice, Oscar) ⇒ Sniffer(x)

  Eavesdrop(x, y, z) ∧ Talk(Bob, Oscar) ⇒ Sniffer(x)

- Eavesdrop(Alice, y, z) ∧ Talk(y, z) ⇒ Sniffer(Alice)

  Eavesdrop(Alice, y, z) ∧ Talk(y, z) ⇒ Sniffer(Bob)

  Eavesdrop(Bob, y, z) ∧ Talk(y, z) ⇒ Sniffer(Oscar)

- Eavesdrop(Alice, y, z) ∧ Talk(y, z) ⇒ Sniffer(Alice)

  Eavesdrop(Bob, y, z) ∧ Talk(y, z) ⇒ Sniffer(Bob)

  Eavesdrop(Oscar, y, z) ∧ Talk(y, z) ⇒ Sniffer(Oscar)

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1 point

3 ◦

(b) Corresponding to the above question,

what's the KB after EI?

- Eavesdrop(x, C1, C2) ∧ Talk(C1, C2) ⇒ Sniffer(x)
- Eavesdrop(A, B, O) ∧ Talk(B, O) ⇒ Sniffer(A)
- Eavesdrop(Alice, C1, C2) ∧ Talk(y, z) ⇒ Sniffer(Alice)
- Eavesdrop(Alice, Bob, Oscar) ∧ Talk(Bob, Oscar) ⇒ Sniffer(Alice)

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1 point

4 ◦

(c) Corresponding to the above question,

is the original KB equal to the KB after UI? to the KB after UI and EI?

- After UI: No; after UI and EI: No
- After UI: Yes; after UI and EI: Yes
- After UI: No; after UI and EI: Yes
- After UI: Yes; after UI and EI: No

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1 point

5 ◦

Is the Forward chaining and the Backward chaining in First-Order definite clause sound and complete?

- Forward: sound and complete; Backward: unsound and incomplete
- Forward: sound and complete; Backward: sound but incomplete
- Forward: sound but incomplete; Backward: sound and complete
- Forward: sound and complete; Backward: sound and complete

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1 point

6 ◦

Why is Prolog unsound and incomplete?

- Due to memory restriction and no occur check
- Because Prolog uses databases semantics instead of first-order semantics
- Because when performing occur check, collision may occur
- There are some bugs in Prolog

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1 point

7 ◦

Which of the following statement(s) is true?

- ☐ $(\forall x\ \forall y\ P(x, y)) \equiv (\forall y\ \forall x\ P(x, y))$
- ☐ $(\exists x\ \forall y\ P(x, y)) \equiv (\forall y\ \exists x\ P(x,y))$
- ☐ $(\exists x\ \forall y\ P(x, y)) \models (\forall y\ \exists x\ P(x,y))$
- ☐ $(\exists x\ \exists y\ P(x, y)) \models (\exists y\ \exists x\ P(x,y))$
- ☐ $(\forall x\ \forall y\ P(x, y)) \models (\forall y\ \forall x\ P(x, y))$

1 point

8。
“Everyone who likes coding will be asked by some people to help. They will become welcomed (or become an ‘errand boy’ in the end), always being asked for help”. The first-order logic of the sentence is written below: ∀x [∃y Coding(x) ∧ AskHelp(x, y)] ⇒ [∃y Welcomed(x) ∨ AskHelp(x, y)] Convert this sentence into CNF. Which of the following clauses is in that CNF?(F(x) is a Skolem function)

- [¬Welcomed(x) ∨ ¬AskHelp(x, F(x))]
- [¬Coding(x) ∨ ¬AskHelp(x, y)]
- [Welcomed(x) ∨ AskHelp(x, F(x))]
- [¬Coding(x) ∨ AskHelp(x, y)]

1 point

9。
Consider the Horn KBs: SpeakChinese(FatherOf(x)) ⇒ SpeakChinese(x) LiveInTaiwan(x) ⇒ SpeakChinese(x) SpeakChinese(Li) LIveInTaiwan(Su) Where x is variable, Li, Su are constants, and FatherOf is a function. Suppose we use a “breadth-first” forward chaining algorithm, repeatedly adds consquences of current satisfied rules, and we use a “depth-first” backward chaining algorithm that tries clauses in the order as the sentences list above about the KB. Which of the following statement(s) is true?

- The forward chaining will infer the result SpeakChinese(Su)
- Given the query SpeakChinese(Su), The backward chaining will loop forever
- The forward chaining will infer the result LiveInTaiwan(Li)
- If the forward chaining can not infer a query, it does not mean it can not be intailed by the KB
- If the backward chaining does not return True for a given query, then it is not entailed by the KB

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課程或導致我的 Coursera 帳號被關閉。 了解榮譽準則的更多信息

6 試題 未回答

提交測試