Informační systém Masarykovy univerzity

Zodpovězení odpovědníku (student)

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Studium FI N-IN UMI [sem 1, roč 1]
podzim 2013 (jiné)

Odpovědník INTRASEM

Odpovědi k průchodu Út 12. 11. 2013 11:06.23, operaci St 13. 11. 2013 18:40.10, osobě M. Lukáč, učo 430614 (číslo zadání: 60)

24 tasks, 3 possible answers for each, only 1 is correct Evaluation: 0.5/-0.125/-0.25 for correct/missing/incorrect answer

• Klikněte: Ukaž Přehled nastavení parametrů odpovědníku.

Přehled nastavení parametrů odpovědníku

Kdy lze s odpovědníkem pracovat:

- od 13. 11. 2013 08:00 do 13. 11. 2013 10:00

Zobrazují se pouze správné odpovědi: ne
Test můžu skládat opakovaně: test nelze skládat, je přístupná pouze prohlídka (typicky skenovací písemky)
Implicitní počet bodů za správně zodpovězenou otázku (ok): 0.5
Implicitní počet bodů za špatně zodpovězenou otázku (nok): -0.25
Implicitní počet bodů za nezodpovězenou otázku (null): -0.125
Při vyplňování záleží na velikosti písmen: ne
Při vyplňování záleží na diakritice: ne
Při vyplňování nedovoluji zaměnit různé typy apostrofů a uvozovek: ne
Při vyplňování záleží na interpunkci: ne

Zeleně jsou vyznačeny správné odpovědi.

1. For an SLD-tree, it is true that
   - ○ it contains finitely many nodes
   - ◉ ✔ *it may contain an infinite branch
   - ○ it contains at least one finite branch

   body = ok = 0.5
2. In Box model, for the logic program p(a,b)., after CALL of the goal p(X,a) control reaches
   - ○ REDO
   - ◉ ✘ EXIT
   - ○ *FAIL

   body = nok = -0.25
3. Consider $T(((C \Rightarrow A) \vee (B \wedge A)) \Rightarrow D)$. By using an appropriate rule for atomic tableaux, you will get
   - ◉ ✔ *branching tableau with one branch $F((C \Rightarrow A) \vee (B \wedge A))$ and one branch $T(D)$
   - ○ nonbranching tableau with nodes $T((C \Rightarrow A) \vee (B \wedge A))$ and $F(D)$
   - ○ nonbranching tableau with nodes $F(C \Rightarrow A)$ and $T((B \wedge A) \Rightarrow D)$

   body = ok = 0.5
4. Transformation of a predicate formula into Skolem normal form preserves

- ○ neither satisfiability nor equivalence
- ○ equivalence
- ◉ ✔ *satisfiability

body = ok = 0.5

5. What is not a datalog evaluation strategy?
   - ◉ ✔ *version spaces
   - ○ top-down
   - ○ top-down with memorization

   body = ok = 0.5
6. Suppose we have the following Prolog code:

```
prove(true).
prove((A,B)):- prove(A), prove(B).
prove(A):- clause(A,B), prove(B).
```

   To obtain a metainterpreter that can interpret *itself* it is necessary to
   - ○ *add the clauses `prove(A):- built_in(A), A.` `built_in(clause(_,_)).`
   - ○ add the clause `prove(A):- built_in(A), A.` and remove the clause `prove(A):- clause(A,B), prove(B).`
   - ◉ ✘ add the clause `prove(A):- built_in(A), A.`

   body = nok = -0.25
7. Consider $T(\forall x \varphi(x))$. By using an appropriate rule for atomic tableaux, you will get
   - ○ *$T(\varphi(t))$ for any ground term t
   - ◉ ✘ $T(\varphi(c))$ for a new constant c
   - ○ $T(\neg\varphi(c))$ for a new constant c

   body = nok = -0.25
8. Let `P` be a predicate calculus formula with at least one variable existentially quantified that is neither a contradiction nor a tautology.
   Which of the following propositions hold?
   - ○ There is either a formula in prenex conjunctive normal form or in prenex disjunctive normal form that is equivalent to `P`, but not both.
   - ○ *There is a formula in prenex conjunctive normal form that is equivalent to `P`.
   - ◉ ✘ There is a formula in Skolem normal form that is equivalent to `P`.

   body = nok = -0.25
9. Suppose you have evidence A with following certain factor: $CF(A) = 0.75$. What is the certainty factor of negation of this evidence, i.e. $CF(\neg A)$?
   - ◉ ✘ 0.25
   - ○ *-0.75
   - ○ -0.25

   body = nok = -0.25
10. Let P be a predicate formula which is neither a contradiction nor a tautology. Then
    - ○ there is exactly one formula in prenex conjunctive normal form equivalent to P
    - ○ *there is at least one formula in prenex conjunctive normal form equivalent to P
    - ○ it is possible that a formula in prenex conjunctive normal form equivalent to P does not exist

    body = null = -0.125

11. Let F, a formal system for propositional logic, be given. Let T be a set of all theorems that can be derived in F, V a set of all well-formed formulas of propositional logic and P a set of all tautologies. Which of the following statements is true?
    - ○ *if F si correct then $T \subseteq P$
    - ○ if F is contradictory then $T = P$
    - ◉ ✗ if F is complete then $T = V$

body = nok = -0.25

12. For attributes Size ∈ {small, medium, large}, Color ∈ {red, blue, green}, Shape ∈ {square, circle, triangle}, all proper specializations of p(Size,Color,Shape) :- Size=large, Color=red, not logicaly equivalent to false, are
    - ◉ ✓ *p(Size,Color,Shape) :- Size=large, Color=red, A. where A is any subgoal of the form Shape=Value
    - ○ p(Size,Color,Shape) :- Size=large, Color=red, A. where A is any subgoal of the form Size=Value or Color=Value
    - ○ p(Size,Color,Shape) :- Size=large and p(Size,Color,Shape) :-Color=red

body = ok = 0.5

13. Backward chaining is
    - ○ an inference method which starts with the available data (list of facts)
    - ○ a refinement of SLD resolution
    - ◉ ✓ *an inference method which starts with a hypothesis (list of goals)

body = ok = 0.5

14. Consider $T(\exists x \varphi(x))$. By using an appropriate rule for atomic tableaux, you will get
    - ○ $T(\varphi(t))$ for any ground term t
    - ◉ ✓ *$T(\varphi(c))$ for a new constant c
    - ○ $F(\neg\varphi(t))$ for any ground term t

body = ok = 0.5

15. For the formulas $\{\neg a \Rightarrow b\}$ and $\{b\}$ it holds that
    - ○ $\{\neg a \Rightarrow b\}$ and $\{b\}$ are not related using the generalization relation
    - ◉ ✓ *$\{b\}$ is a generalization of the formula $\{\neg a \Rightarrow b\}$
    - ○ $\{\neg a \Rightarrow b\}$ is a generalization of the formula $\{b\}$

body = ok = 0.5

16. Consider $F((A \Rightarrow C) \Leftrightarrow ((B \wedge C) \Rightarrow A))$. By using an appropriate rule for atomic tableaux, you will get
    - ○ branching tableau with one branch containing nodes $T((A \Rightarrow C))$ and $T((B \wedge C) \Rightarrow A)$ and one branch containing nodes $F((A \Rightarrow C))$ and $F((B \wedge C) \Rightarrow A)$
    - ○ branching tableau with one branch containing nodes $T((A \Rightarrow C) \Leftrightarrow ((B \wedge C)))$ and $F(A)$ and one branch containing nodes $F((A \Rightarrow C) \Leftrightarrow ((B \wedge C)))$ and $T(A)$
    - ◉ ✓ *branching tableau with one branch containing nodes $T((A \Rightarrow C))$ and $F((B \wedge C) \Rightarrow A)$ and one branch containing nodes $F((A \Rightarrow C))$ and $T((B \wedge C) \Rightarrow A)$

body = ok = 0.5

17. By processing the next example the algorithm for the version space computation
    - ◉ ✓ *may decrease the version space size
    - ○ always decreases the version space size
    - ○ may increase the version space size

body = ok = 0.5

18. For Horn clauses, SLD-resolution is

- ○ sound and not complete
- ◉ ✔ *sound and complete
- ○ not sound but complete

body = ok = 0.5

19. Which is a functionally complete set of connectives?
    - ○ $\{\vee, \wedge, \Leftrightarrow\}$
    - ◉ ✔ *$\{\vee, \wedge$,NOR $\}$
    - ○ $\{\vee, \wedge\}$

    body = ok = 0.5
20. Given the Prolog program,

    ```
    a(s(X)):- a(X).
    a(0).
    ```

    which goal will succeed?
    - ○ `?- a(X).`
    - ◉ ✔ * `?- a(s(0)).`
    - ○ `?- a(s(X)).`

    body = ok = 0.5
21. How many constants will be introduced in a tableau built from $F(\exists x P(x) \Rightarrow \forall x P(x))$?
    - ○ *2
    - ◉ ✘ 1
    - ○ 0

    body = nok = -0.25
22. Suppose you have two rules $R_1 = if\ E_1\ then\ H$ and $R_2 = if\ E_2\ then\ H$ with following certain factors: $CF(R_1) = 0.8, CF(R_2) = 0.5$. What is the CF of H given that certainty factors of evidences are $CF(E_1) = -0.5$ and $CF(E_2) = 0.4$?
    Hint: You can calculate $CF(H, E)$ from rule $R = if\ E\ then\ H$ as $CF(H, E) = CF(E) * CF(R)$.
    - ◉ ✘ -0.2
    - ○ *-0.25
    - ○ -0.15

    body = nok = -0.25
23. Suppose you have evidences A, B with following certain factors: $CF(A) = 0.75, CF(B) = 0.5$. What is the certainty factor of disjunction of these evidences, i.e. $CF(A \vee B)$?
    - ◉ ✔ *0.75
    - ○ 0.5
    - ○ 1.25

    body = ok = 0.5
24. In Box model, for the logic program p(a,b)., after CALL of the goal p(X,b) control reaches
    - ○ REDO
    - ○ FAIL
    - ○ *EXIT

    body = null = -0.125

Celkem bodů: 4.75 (z maximálních) (celkem otázek: 24, z toho špatně 8, nezodpovězených 2)

- Zpět na výběr operace

Bez uložení:

- Zpět na výběr odpovědníku
- Moje studium
- Osobní administrativa