Informační systém Masarykovy univerzity

# Zodpovězení odpovědníku (student)

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## Odpovědník TrainAndHaveFun

Odpovědi k průchodu Po 16. 12. 2013 21:03.01, operaci Po 16. 12. 2013 21:07.13, osobě M. Lukáč, učo 430614

• Klikněte: Ukaž Přehled nastavení parametrů odpovědníku.

**Přehled nastavení parametrů odpovědníku**

*Kdy lze s odpovědníkem pracovat:*

- od 7. 1. 2014 16:45 do 8. 1. 2014 10:00

*Zobrazují se pouze správné odpovědi*: ne
*Test můžu skládat opakovaně:* ano, v dalších průchodech se nabídnou další otázky
(Lze pouze vytvářet nové sady otázek, nelze znovu odpovídat na již zodpovězené.)
*Maximální počet průchodů:* 5
*Implicitní počet bodů za správně zodpovězenou otázku (ok):* 1
*Implicitní počet bodů za špatně zodpovězenou otázku (nok):* -0.5
*Implicitní počet bodů za nezodpovězenou otázku (null):* -0.25
*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. Let the following set of clauses
   $\{\{Q\}, \{\neg Q\}\}$
   be processed with the DPLL algorithm. It is possible to apply
   - ○ the PURE rule and then the SAT rule
   - ◉ ✔ *the SPLIT rule and then the UNSAT rule
   - ○ the SPLIT rule and then the SAT rule

   body = ok = 1
2. Which of the formulas represents the same truth function as the formula $p \Rightarrow ((q \wedge \neg p) \Rightarrow p)$?
   - ○ $(q \wedge \neg q) \vee (\neg q \vee p)$
   - ◉ ✔ *$(\neg q \vee p) \vee (q \wedge \neg p)$
   - ○ $(q \wedge \neg p) \vee p$

   body = ok = 1
3. A formula `A` is a logical consequence of a formula `B` (i.e. `B` $\models$ `A`) if
   - ○ there is some model of `A` which is not a model of `B`
   - ○ *every model of `B` is a model of `A`
   - ◉ ✘ every model of `A` is a model of `B`

   body = nok = -0.5

4. The value of a term
   - ○ can be arbitrary
   - ○ *has to be from a given domain
   - ◉ ✗ has to be true or false

   body = nok = -0.5
5. Suppose $p$ is interpreted as false. Then the formula $p \Rightarrow q$ is
   - ○ true or false depending on the interpretation of $q$
   - ◉ ✓ *true
   - ○ false

   body = ok = 1
6. Which of the following clauses is NOT a specialization of $q(X,Y) :- p(U,V), r(W,Z), s(X), t(Y), h(F)$.?
   - ◉ ✗ $q(Y,Y) :- p(a,a), r(W,Z), s(Y), t(Y), h(F), s(G)$.
   - ○ $q(X,Y) :- p(U,V), r(b, f(B)), s(X), t(Y), h(f(A))$.
   - ○ *$q(X,Y) :- p(U,V), r(W,Z), t(Y), s(X), h(F), s(c)$.

   body = nok = -0.5
7. Which is a functionally complete set of connectives?
   - ○ $\{\vee, \wedge, \Leftrightarrow\}$
   - ○ $\{\vee, \wedge\}$
   - ◉ ✓ *$\{\vee, \wedge$,NOR $\}$

   body = ok = 1
8. Which of the sets contain all of its mutually nonequivalent logical consequences (with only proposition symbols from premises)?
   - ○ *$\{p \vee \neg p, q \vee \neg q, q \Rightarrow q\}$
   - ○ $\{p \vee \neg p, q \vee \neg q, q \vee q\}$
   - ◉ ✗ $\{p \vee \neg q, q \vee p, (p \vee \neg q) \wedge (q \vee \neg p)\}$

   body = nok = -0.5
9. Suppose $P(Adam, Eve, apple)$ is interpreted as *Adam gives Eve an apple*. Which of the formulas represents the statement equivalent to *Adam gives an apple to everyone and someone does not give an apple to anyone*?
   - ○ $\forall x P(Adam, x, apple) \wedge \neg(\exists x(\exists y P(x, y, apple))$
   - ○ $\forall x P(x, Adam, apple) \wedge \exists x \forall y\ \neg P(x, y, apple)$
   - ○ *$\forall x P(Adam, x, apple) \wedge \exists x\ \neg(\exists y P(x, y, apple))$

   body = null = -0.25
10. For the following set of clauses $\{\{P, \neg Q\}, \{\neg P, \neg R\}, \{Q, R\}\}$ Davis Putnam algorithm **cannot** update the set to
    - ○ $\{\{P, \neg Q\}, \{\neg P, Q\}\}$
    - ○ $\{\{Q, R\}, \{\neg Q, \neg R\}\}$
    - ○ *$\{\{P, R\}, \{\neg Q, \neg R\}\}$

    body = null = -0.25
11. How many constants will be introduced in a tableau built from $F(\forall x P(x) \Rightarrow \exists x P(x))$?
    - ◉ ✗ 2
    - ○ *0
    - ○ 1

body = nok = -0.5

12. For specialization $son(S,P) : -man(S), parent(V,S).$ to $son(S,P) : -man(S), parent(P,S).$ we used the following specialization operation
    - ○ addition of a new subgoal
    - ○ substitution of a variable
    - ◉ ✔ *binding two variables

body = ok = 1

13. There exists an interpretation $I$ such that a propositional formula $A$ that contains $\wedge$, $\vee$, and $\neg$ is not true in $I$. Then
    - ○ there exists a tableau proof of $A$
    - ◉ *there exists a noncontradictory path in a finished tableau for $\mathrm{F}A$
    - ○ there exists a noncontradictory path in a finished tableau for $\mathrm{T}A$

body = null = -0.25

14. Consider the following Prolog program.

```
b(X,Y):- b(Y,X).
b(m,n).
```

    Then the goal

```
?- b(Z,m).
```

    results in
    - ○ `yes, Z=m`
    - ○ `yes, Z=n`
    - ◉ ✔ * looping

body = ok = 1

15. For the variables `x`,`y` in $\mathtt{P(x)} \wedge \exists \mathtt{x P(y,x)}$, it holds that
    - ◉ ✔ * each of them has one free occurence
    - ○ only `y` has a free occurence
    - ○ only `x` has a free occurence

body = ok = 1

16. A unifier for the set `{P(f(x),y), P(f(a),w)}` is **not**
    - ○ `[x/a, y/w]`
    - ○ `[x/a, y/c, w/c]`
    - ◉ ✔ *`[y/x, w/y]`

body = ok = 1

17. Transformation of a predicate formula into Skolem normal form preserves
    - ◉ neither satisfiability nor equivalence
    - ○ ✔ *satisfiability
    - ○ equivalence

body = ok = 1

18. 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 a formula in prenex conjunctive normal form that is equivalent to `P`.
    - ○ 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 Skolem normal form that is equivalent to P.

body = null = -0.25

19. The inference strategy in Prolog is
    - ○ Bayesian inference
    - ○ forward chaining
    - ◉ ✔ *backward chaining

body = ok = 1

20. Suppose the following set of clauses
    $\{\{P\},\{P,Q\}\}$
    is processed with the DPLL algorithm. It is possible to apply the SUBS rule and update the set to
    - ○ $\{\{Q\}\}$
    - ○ *$\{\{P\}\}$
    - ○ $\{\{P,Q\}\}$

body = null = -0.25

21. For the following set of clauses
    $\{\{P,\neg P,Q\}\}$
    Davis Putnam algorithm within one step
    - ○ ends up with the EMPTY CLAUSE and so the set is unsatisfiable
    - ○ *ends up with the empty set (NO CLAUSES) and so the set is satisfiable
    - ○ updates the set to $\{\{Q\}\}$

body = null = -0.25

22. 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 is contradictory then T = P
    - ○ *if F si correct then T $\subseteq$ P
    - ○ if F is complete then T = V

body = null = -0.25

23. Let $p$ be interpreted as false. Then the formula $p \wedge q$ is
    - ◉ ✔ *false
    - ○ true or false according to the interpretation of $q$
    - ○ true

body = ok = 1

24. It holds for existential $\exists$ and universal $\forall$ quantifiers that
    - ○ $\forall x P(x)$ is equivalent to $\exists x(\neg P(x))$
    - ○ *$\neg(\forall x P(x))$ is equivalent to $\exists x(\neg P(x))$
    - ○ $\neg(\forall x P(x))$ is equivalent to $\neg(\exists x(\neg P(x)))$

body = null = -0.25

25. How many steps are necessary to specialize the clause $p(X,W) :- q(X,Y), r(Z,W).$ to the clause $p(a,b) :- q(a,Y), r(Y,b), s(Y,Y).$?
    - ◉ ✘ seven
    - ○ *six
    - ○ five

body = nok = -0.5

26. An LI-resolution tree of a derivation of $\square$ from $P \cup \{G\}$ where $P$ is a set of Horn clauses and $G$ is a goal, is always
    - ✗ an LD-resolution derivation of $G$ from $P$
    - an SLD-resolution derivation of $\square$ from $P \cup \{G\}$
    - *a linear resolution refutation of $P \cup \{G\}$

body = nok = -0.5

27. For predicate logic, linear resolution is
    - not sound but complete
    - sound but not complete
    - ✓ *sound and complete

body = ok = 1

**Celkem bodů: 6.5 (z maximálních 27)** (celkem otázek: 27, z toho špatně 7, nezodpovězených 8)

- Zpět na výběr operace

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**Bez uložení:**

- Zpět na výběr odpovědníku
- Moje studium
- Osobní administrativa