

CS 278 Lab 4

1.7.6 (c) $\forall x (W(x) \rightarrow E(x))$

All employees that work more than 60 hours per week earn more than \$100,000

(d) $\exists x (\neg A(x) \wedge E(x))$

There is an employee that isn't on the board of directors, but earns more than \$100,000

(e) $\forall x (E(x) \rightarrow (A(x) \vee W(x)))$

All employees that earn more than \$100,000, is on the board of directors, or works more than 60 hours per week

1.7.7 (a) $\forall x (\neg D(x) \rightarrow \neg N(x))$ False

All people that didn't miss the deadline, weren't new employees

(c) $N(\text{bert}) \rightarrow D(\text{bert})$ False

IF bert is a new employee, he missed the deadline

⑦ $\forall x (\neg N(x) \rightarrow D(x))$ true

All people who aren't new employees, missed the deadline.

⑧ $\exists x (\neg D(x) \wedge \neg N(x))$ false

There is a person who is not an employee and did not miss the deadline

1.7.8 ⑨ $\exists x M(x) \wedge D(x)$
not a proposition

⑩ $\forall x (A(x) \vee M(x))$ proposition, false

All male patients had fainting spells or migraines

⑪ $\exists x (D(x) \wedge \neg A(x) \wedge \neg M(x))$ proposition, true

There is a patient that had medication and did not have fainting spells and did not have migraines.

⑫ $\forall x (D(x) \rightarrow (A(x) \vee M(x)))$ proposition, false

All patients that took medication had fainting spells or migraines.

1.7.9 c) $\exists x (x=c \rightarrow P(x))$ true

d) $\exists x (Q(x) \wedge R(x))$ true

e) $\forall x (P(x) \vee R(x))$ false

f) $\forall x (R(x) \rightarrow P(x))$ true