

CSC165 tutorial exercise #2

winter 2013

1. Let C be a set of courses, and let $P(x, y)$ mean course x is a prerequisite for course y . Rewrite the following symbolically:
 - (a) “There is no prerequisite for CSC108.”
 - (b) “Every course has a prerequisite.”
 - (c) “Some course is not a prerequisite for any course.”
 - (d) “No course is a prerequisite for itself.”
 - (e) “Some courses have several prerequisites.”
 - (f) “No course has more than two prerequisites.”
 - (g) “Some courses have the same prerequisites.”
2. Which are true, which are true in one direction, and which are false both directions? Explain your answers.
 - (a) $\forall x \in D, P(x) \wedge Q(x) \iff (\forall x \in D, P(x)) \wedge (\forall x \in D, Q(x))$
 - (b) $\exists x \in D, P(x) \wedge Q(x) \iff (\exists x \in D, P(x)) \wedge (\exists x \in D, Q(x))$
 - (c) $\forall x \in D, P(x) \vee Q(x) \iff (\forall x \in D, P(x)) \vee (\forall x \in D, Q(x))$
 - (d) $\exists x \in D, P(x) \vee Q(x) \iff (\exists x \in D, P(x)) \vee (\exists x \in D, Q(x))$