

CS112, Fall 2016
Brandeis University

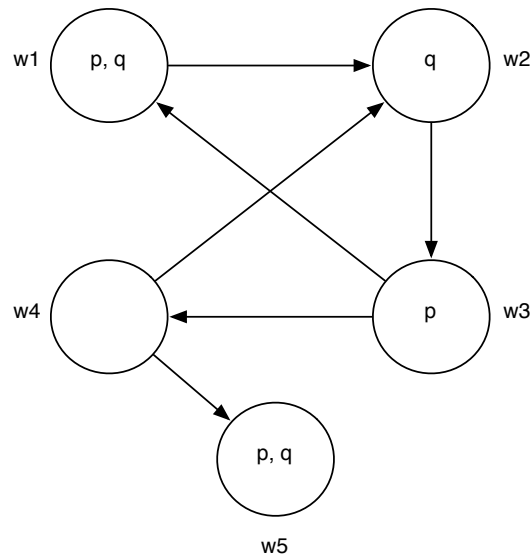
Problem Set 3: Modal Logic
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September 15, 2016

Posted: Thursday, September 15, 2016

Due Date: Thursday, September 22, 2016 at 6:00 pm

(1) Consider the simple model below, assuming a closed world:



- (a) Does $w_3 \models \Diamond \Box q$? Show why or why not.
- (b) Does $w_4 \models \Box \Box \Diamond p$? Show why or why not.
- (c) Is $\Box p \rightarrow \neg p$ valid in the model? Show why or why not.
- (d) Is $\Diamond(p \vee \neg q) \rightarrow \Box(p \vee \neg q)$ valid in the model? Show why or why not.

(2) Exercise 5.2 in Huth and Ryan, pg. 350:

- 1. (b) i, ii, v.
- 5. (a), (b), (e).