

CS112, Fall 2013  
Brandeis University

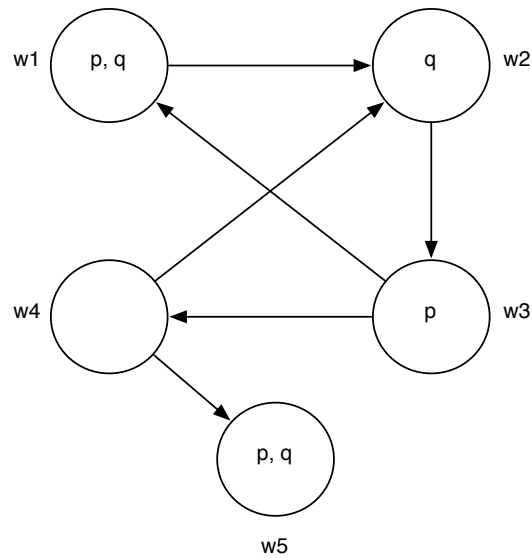
Problem Set 3: Modal Logic  
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September 30, 2013

**Posted:** Monday, September 30, 2013

**Due Date:** Tuesday, October 8, 2013 IN CLASS

(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  $\Diamond(p \vee \neg p) \rightarrow \Box(p \vee \neg p)$  valid in the model? Show why or why not.