

Due: In class today and Wednesday

Part I: Write each of these connected statements symbolically, and define each basic statement (just like last week). Then, write the negation of the statement, both symbolically and verbally. Lastly, construct a truth table for both the original statement and its negation.

Example: *If she's there then I'm not staying.*

Symbolically:  $p \Rightarrow \sim q$

$p$  = "She is there."  
 $q$  = "I am staying."

Negation:  $p \wedge q$ : "She is there and I stay."

$p$	$q$	$\sim q$	$p \Rightarrow \sim q$	$p \wedge q$
$T$	$T$	$F$	$F$	$T$
$T$	$F$	$T$	$T$	$F$
$F$	$T$	$F$	$T$	$F$
$F$	$F$	$T$	$T$	$F$

- (1) If everybody finishes most of the problems, then the assignment won't be this short next time.
- (2) Don't talk with your mouth full.
- (3) Your fuel line froze up so it's probably not going to start.
- (4) Just because you're rich doesn't mean you'll be happy.
- (5) Stop, except right turn.



Part II: Determine whether or not these arguments are valid.

(12)        Either The Patriots or the Falcons will win the Super Bowl. The Patriots lost.  
              Therefore The Eagles won.

(13)        It's wrong to indiscriminately imprison someone, or it's not wrong to imprison  
              someone just because they disagree. It's wrong to kill someone just because they  
              disagree. Therefore, it's wrong to indiscriminately imprison people.

(14)        If all dogs are mammals, then all dogs are reptiles. All dogs are mammals.  
              Therefore, all dogs are reptiles.