CRITICAL THINKING

Workshop #5: Translating Natural Language & Creating Truth Tables

Part I: Each of the following problems presents a statement in English. Translate each of them into the language of symbolic logic by (1) using the indicated capital letters to label each simple positive statement involved,
(2) performing statement classification, (3) combine those capital letters with the logical operators to symbolize the results of statement classification, while (4) being sure to use grouping punctuation as needed. These problems should start out fairly straightforward but the latter ones may require more thought.

- 1. The seniors love logic. (S)
- 2. Either the freshmen or the juniors love logic. (F, J)
- 3. The juniors do not hate logic, but they love it. (H, L)
- 4. If the seniors do not love logic, then the logic professor is sad. (S, P)
- 5. The freshmen or the seniors love logic, and the logic professor is happy. (F, S, P)
- 6. Call for help only if the logic professor falls and hurts his head. (C, F, H)
- 7. Juniors and seniors do not both love logic. (J, S)
- 8. Juniors and seniors students both do not love logic. (J, S)
- 9. It is not the case that either seniors hate logic or freshmen hate calculus. (S, F)
- 10. Either it is not the case that seniors hate logic or freshmen hate calculus. (S, F)
- 11. If the logic professor teaches well then seniors do not commit fallacies and juniors reason clearly. (P, S, J)
- 12. If the logic professor teaches well then seniors do not commit fallacies, and juniors reason clearly. (P, S, J)

Workshop #5: Translating Natural Language & Creating Truth Tables (Continued)

Part II: Each of the following problems presents a statement in logical form. Construct a truth table for each, and use that table to briefly explain whether it is a tautology, a contradiction, or a contingent statement.

1. $\sim (p \vee \sim q)$.



2. $(p \& q) \rightarrow (r \lor \sim r)$.

р	q	r	~r	p & q	$r \vee \sim r$	$(p \& q) \rightarrow (r \lor \sim r)$
Т	Т	Т				
Т	Т	F				
Т	F	Т				
Т	F	F				
F	Т	Т				
F	Т	F				
F	F	Т				
F	F	F				

3. $(p \& \sim q) \rightarrow \sim p$.