

∴ Intro to Logical Arguments: Soundness ∴

In this assignment, each question will ask you to fill out a truth table and then answer a series of questions. The format is as follows.

- Fill out the truth table for the argument “P so $\sim P$ ”.

	<u>Premise</u>	<u>Conclusion</u>
Row	P	$\therefore \sim P$
1		
2		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain why it's not possible for the argument to be sound.

- Fill out the truth table for the argument “P, so $\sim\sim P$ ”.

	<u>Premise</u>	<u>Conclusion</u>
Row	P	$\therefore \sim\sim P$
1		
2		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain why it is not possible for the argument to be sound.

1. Fill out the truth table for the argument " $P \wedge Q$, so P ".

	<u>Premise</u>	<u>Conclusion</u>
Row	$P \wedge Q$	$\therefore P$
1		
2		
3		
4		

(a) Is the argument *invalid*? (Yes or no?) If it *is* invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it *is* possible for the argument to be sound, state every row that shows *how* it's possible for the argument be sound. Yet, if it is *not* possible for the argument to be sound, explain *why* it's not possible for the argument to be sound.

2. Fill out the truth table for the argument " $P \vee Q$, so P ".

	<u>Premise</u>	<u>Conclusion</u>
Row	$P \vee Q$	$\therefore P$
1		
2		
3		
4		

(a) Is the argument *invalid*? (Yes or no?) If it *is* invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it *is* possible for the argument to be sound, state every row that shows *how* it's possible for the argument be sound. Yet, if it is *not* possible for the argument to be sound, explain *why* it's not possible for the argument to be sound.

3. Fill out the truth table for the argument “P, so $P \vee Q$ ”.

	<u>Premise</u>	<u>Conclusion</u>
Row	P	$\therefore P \vee Q$
1		
2		
3		
4		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain why it's not possible for the argument to be sound.

4. Fill out the truth table for the argument “ $P \vee Q$, so P”.

	<u>Premise</u>	<u>Conclusion</u>
Row	P	$\therefore P \wedge Q$
1		
2		
3		
4		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain why it's not possible for the argument to be sound.

5. Fill out the truth table for the argument " $P \wedge \sim P$, so P ".

	<u>Premise</u>	<u>Conclusion</u>
Row	$P \wedge \sim P$	$\therefore P$
1		
2		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain why it's not possible for the argument to be sound.

6. Fill out the truth table for the argument " $P \vee \sim P$, so P ".

	<u>Premise</u>	<u>Conclusion</u>
Row	$P \vee \sim P$	$\therefore P$
1		
2		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain why it's not possible for the argument to be sound.

7. Fill out the truth table for the argument " $P \vee \sim P$, so $\sim(P \wedge \sim P)$ ".

	<u>Premise</u>	<u>Conclusion</u>
Row	$P \vee \sim P$	$\therefore \sim(P \wedge \sim P)$
1		
2		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it *is* possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain *why* it's not possible for the argument to be sound.

8. Fill out the truth table for the argument " $P \wedge \sim P$, so $\sim(P \vee \sim P)$ ".

	<u>Premise</u>	<u>Conclusion</u>
Row	$P \wedge \sim P$	$\therefore \sim(P \vee \sim P)$
1		
2		

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it *is* possible for the argument to be sound, state every row that shows *how* it's possible for the argument to be sound. Yet, if it is *not* possible for the argument to be sound, explain *why* it is not possible for the argument to be sound.

9. Fill out the truth table for the argument “ $P \vee Q$, but $\sim P$, so Q ”.

	<u>Premise 1</u>	<u>Premise 2</u>	<u>Conclusion</u>
Row	$P \vee Q$	$\sim P$	$\therefore Q$
1			
2			
3			
4			

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument be sound. Yet, if it is *not* possible for the argument to be sound, explain why it is not possible for the argument to be sound.

10. Fill out the truth table for the argument “ $P \vee Q$, but P , so Q ”.

	<u>Premise 1</u>	<u>Premise 2</u>	<u>Conclusion</u>
Row	$P \vee Q$	P	$\therefore Q$
1			
2			
3			
4			

(a) Is the argument *invalid*? (Yes or no?) If it is invalid, state every row that shows *how* it's invalid.

(b) Is it *possible* for the argument to be *sound*? (Yes or no?) If it is possible for the argument to be sound, state every row that shows *how* it's possible for the argument be sound. Yet, if it is *not* possible for the argument to be sound, explain why it is not possible for the argument to be sound.