Philosophy 110
Introductory Logic
Spring 2008

Homework Assignment #1
Due at the beginning of class on Wednesday, January 23.

Validity

For each of 1-7, say whether it is true or false.

1. Some invalid arguments have a false conclusion.
2. No valid argument has all true premises and a false conclusion.
3. If an argument has a false premise, then it is invalid.
4. Every argument that has all true premises and a false conclusion is invalid.
5. Every argument that has all false premises is invalid.
6. If an argument is valid, and you produce a new argument by adding one or more premises to it, then the resulting argument will still be valid.
7. If an argument is invalid, and you produce a new argument by adding one or more premises to it, then the resulting argument will still be invalid.

Soundness

For each of 8-13, say whether it is true or false.

8. All valid arguments are sound.
9. All sound arguments are valid.
10. All sound arguments have true conclusions.
11. All unsound arguments have at least one false premise.
12. If an argument is sound, and you produce a new argument by adding one or more premises to it, then the resulting argument will still be sound.
13. If an argument is unsound, and you produce a new argument by adding one or more premises to it, then the resulting argument will still be unsound.

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Multiple Choice

For each of 14-15, indicate the letter of the correct answer.

14. Suppose that φ, ψ, and χ are (simple or complex) sentences. ('φ' is the Greek letter phi, pronounced so that it rhymes with "sigh"; 'ψ' is the Greek letter psi, pronounced "sigh"; χ is the Greek letter chi, pronounced "kigh", rhymes with "sigh".) Suppose that the following two arguments are valid.

φ $\quad\quad$ ψ
$\therefore\psi$ $\quad\quad$ $\therefore\chi$

Now consider this third argument:

φ
$\therefore\chi$

Supposing (again) that the first two arguments are valid, which of the following must be correct?

A. The third argument is valid.
B. The third argument has all true premises.
C. The third argument is unsound.
D. None of the above.

15. Suppose that the following argument is invalid.

φ
$\therefore\chi$

Consider now the second and third arguments below.

φ $\quad\quad$ ψ
$\therefore\psi$ $\quad\quad$ $\therefore\chi$

Which of the following must be correct?

A. Both the second argument and the third argument are invalid.
B. Either the second argument is invalid or the third argument is invalid (or both).
C. At least one of the premises in the second argument or third argument is false.
D. None of the above.