

Assignment No. 11

Due: 13:15 on Thursday 26 March 2015 via email

There is no word limit/requirement for these exercises. Your responses may be in English, French, Spanish, German, Arabic, or any other language you are comfortable writing in. The grammar, spelling, and prescriptive conventions are not evaluated for the assignment. You do not need to edit, revise a number of times, or attend in any special way to form or language. You should just write in a way that is clear to you. You are welcome to use bullet points. You do not need to write complete sentences or in paragraph form complete with transitions.

Homework should be submitted by 15:15 on the day it is due. There is no late homework accepted. All written assignments must be typed using 12 pt Times New Roman or 11 pt Arial font with 1" margins. All assignments must be send in one of the following formats: .doc, .docx, .txt, .tex, .pdf, .rtf, .odt, .dot. Remember to cite all sources and use APA guidelines. Homework must also include your name, class, date, and assignment.

1 Scope

There is no bracketing for the expressions below. You can do the bracketing in a number of ways which determines what is the main connective. Remember that you can think about scope as the domain over which the logical connective operates. For all of the expressions below, write all of the logically possible combinations of bracketing and state the main connective for each of the resulting expressions. You do not need to do truth tables for each of the resulting expressions.

Remember that you can think of these expressions as having some meanings, but that is irrelevant to the task at hand. You are just manipulating abstract symbols. Additionally, you are welcome to change the Greek letters to letter in the American English alphabet.

For example, for the unbracketed expression $\neg\phi \wedge \psi \leftrightarrow \rho$ You can get the following possible expressions with different bracketing and by extension of the different bracketing, a different main connective: 1. $((\neg\phi) \wedge \psi) \leftrightarrow \rho$, biconditional; 2. $\neg(\phi \wedge \psi) \leftrightarrow \rho$, biconditional; 3. $(\neg\phi) \wedge (\psi \leftrightarrow \rho)$, conjunction; and 4. $\neg(\phi \wedge (\psi \leftrightarrow \rho))$, conjunction.

1. $\phi \vee \psi \leftrightarrow \neg\phi \wedge \psi$.
2. $\neg\phi \vee \psi \leftrightarrow \phi \rightarrow \psi$
3. $\phi \wedge \neg\phi \rightarrow \psi$
4. $\neg\phi \vee \neg\phi$
5. $\neg\phi \rightarrow \psi \rightarrow \psi \rightarrow \rho \wedge \neg\phi \rightarrow \rho$ [Optional Extra Practice]
6. $\phi \vee \neg\psi \wedge \neg\phi \rightarrow \psi$ [Optional Extra Practice]