Guidelines for Preparing for Your Logic Proficiency Exam

Overview

All Gonzaga Philosophy M.A. students are required to demonstrate minimal proficiency in symbolic logic by achieving a score of 80% or better on a logic proficiency exam. This exam tests the knowledge one would generally acquire in an introductory logic course. While there is no requirement that this exam be taken any particular semester, taking the exam early is beneficial as it allows you to brush up on logical skills that may be needed for your course work. Students who have already taken an introductory logic class as part of their undergraduate education may need only minimal preparation for the exam. If you have not had a logic course, you will need to either enroll in PHIL 541 Symbolic Logic or prepare on your own. If you choose to prepare on your own, you should work from *A Concise Introduction to Logic* by Patrick J. Hurley. You may attempt the exam no more than twice.

Exam Content

In order to be judged proficient, students must demonstrate their skill using both the propositional and the predicate calculi. Students should be able to:

**Translate statements** of English into the symbolic language using a given translation key. Translations may include:

1) Propositional translations containing multiple operators.
   **Examples:**
   1. Either clear-cutting in national forests is halted and old-growth trees are allowed to stand, or salmon runs will be destroyed and bird habitats obliterated.
   2. If Amy will dance just in case Steve sings, then not both Matt and Nancy are attending.

2) Monadic predicate translations containing multiple operators.
   **Examples:**
   1. If all Jesuits are priests but not all priests are Jesuits, there is at least one priest who is a Dominican
   2. If the scientists and technicians are conscientious and exacting, then some of the mission directors will be either pleased or delighted.
3) Relational predicate translations.
   Examples:
   1. Godzilla ate Bambi.
   2. If Ralph is taller than Esmeralda, then Jane is smarter than Paul if and only if Elmer is a carpenter.
4) Binary and ternary predicate translations containing multiple operators.
   Examples:
   1. There is some monkey that grooms all and only those monkeys that do not groom themselves.
   2. Everybody gives something to somebody.

**Construct truth tables** including:

1) Truth tables for propositions
   
   Note: You should be able to use your completed truth table to determine whether the given prop is a tautology, contingency, or contradiction.

2) Direct truth table for arguments
   
   This is the long (complete) version of truth tables. For information on the approved methods, please consult the Hurley text or Dr. Hutchins.
   
   Note: You should be able to use your completed truth table to determine whether the argument is valid or invalid.

3) Indirect truth tables for arguments
   
   This is the shortcut method of truth table construction. For information on the approved method, please consult the text.
   
   Note: You should be able to use your table to determine validity/invalidity of arguments.

**Construct proofs** showing the validity of both propositional and predicate arguments.

   You should be prepared to demonstrate your ability to use a variety of proof strategies including conditional proof, indirect proof, multi-level assumptions, and proving tautologies.

   Examples:

   A.  1. \(~A \supset (D \cdot C)\)  
       2. \(~(B \cdot A) / \sim C \supset \sim B\)  

   B.  1. \(K \supset [(M \lor N) \supset (P \cdot Q)]\)  
       2. \(L \supset [(Q \lor R) \supset (S \cdot \sim N)] / (K \cdot L) \supset \sim N\)
B. 1. \( (x)[Ax \supset (Bx \lor Cx)] \)  
2. \( Ag \cdot \neg Bg / Cg \)

1. \( (\exists x)[Ax \bullet (y)(By \supset Cxy)] \)
2. \( (\exists x)Ax \supset Bj / (\exists x)Cxj \)

Exam Scoring

While logic is, of course, an exact science, partial credit will be given on all types of problems. You will have two attempts to pass the exam. You must score a minimum of 80% in order to receive a grade of “pass”

1) Truth tables
   Partial credit will be granted based on case-by-case basis based on initial set-up, number of values missed, and classification/identification step.

2) Translations
   Partial credit will be granted on the basis of the amount of accurate translation achieved. Credit will be given for correctly translating the main operator of the proposition.

3) Proofs
   You may commit one major rule violation and still receive one-half credit for a proof. More than one major rule violation (in a single proof) will result in no credit for that problem.