

LGIC 010 & PHIL 005
Problem Set 2
Spring Term, 2016
DUE IN CLASS MONDAY, FEBRUARY 1

For the purposes of this problem set, we restrict attention to truth-functional schemata all of whose sentence letters are among $p_1, p_2, p_3,$ and p_4 . We employ the following terminology in the problems below.

- A list of truth-functional schemata is *succinct* if and only if no two schemata on the list are equivalent.
 - A truth-functional schema *implies a list of schemata* if and only if it implies every schema on the list.
 - The *power* of a truth-functional schema is the length of a longest succinct list of schemata it implies.
1. (25 points) What is the power of the schema $p_1 \equiv p_2$?
 2. (25 points) What is the length of a longest list of schemata no two of which have the same power?
 3. (25 points) What is the length of a longest succinct list of schemata each of which has power 256?
 4. (25 points) What is the largest number n such that there is a schema of power n and the conjunction of every two schemata of power n is satisfiable?