

LGIC 010 & PHIL 005
Problem Set 4
Spring Term, 2016
DUE IN CLASS MONDAY, FEBRUARY 22

For the purposes of this problem set, we restrict attention to pure monadic quantificational schemata all of whose predicate letters are among F and G , and to structures which interpret exactly these predicate letters. We employ the following terminology in the problems below.

- A list of pure monadic schemata is *succinct* if and only if no two schemata on the list are equivalent.
 - A pure monadic schema *implies a list of schemata* if and only if it implies every schema on the list.
 - The *power* of a pure monadic schema is the length of a longest succinct list of pure monadic schemata it implies.
 - A pure monadic schema S *rules* a number n if and only if more than half of the structures with universe of discourse $\{1, \dots, n\}$ satisfy S .
1. (25 points) What is the length of a longest list of schemata no two of which have the same power?

 2. (25 points) What is the length of a longest succinct list of schemata all of which have the same power?

 3. (25 points) What is the maximum power of a schema that rules 4?

 4. (25 points) What is the maximum power of a schema that rules 10?