

LGIC 010 & PHIL 005

Problem Set 4

Spring Term, 2014

1. (25 points) How long a list of pure monadic schemata involving only the predicate letters “ F ,” “ G ,” and “ H ” can be constructed so that no two schemata on the list are equivalent and no schema on the list is implied by “ $(\exists x)(Fx \wedge Hx) \vee (\exists x)(Gx \wedge Hx)$ ”?
2. (25 points) How long a list of pure monadic schemata involving only the predicate letters “ F ,” “ G ,” and “ H ” can be constructed so that each schema on the list implies the next schema on the list, but is not implied by it, and every schema on the list implies “ $(\forall x)(Fx \supset Gx) \wedge (\forall x)(Gx \supset Hx)$ ”?
3. (25 points) How long a list of pure monadic schemata involving only the predicate letters “ F ,” “ G ,” and “ H ” can be constructed so that each schema on the list neither implies, nor is implied by, “ $(\forall x)(Fx \oplus Gx \oplus Hx)$ ”?
4. (25 points) How long a list of pure monadic schemata involving only the predicate letters “ F ” and “ G ” can be constructed so that no two schemata on the list are equivalent and each schema on the list is satisfied by exactly 40 structures with universe of discourse $\{1, 2, 3, 4\}$.