LGIC 010 & PHIL 005
Problem Set 8
Spring Term, 2014

If X is a finite set, we write $|X|$ to denote the the number of members of X. Let A be a structure. Recall that $\mathsf{Aut}(A)$ is the set of automorphisms of A and that $\mathsf{Def}(A)$ is the set of sets which are definable over A.

Let S be the schema:

$$(\forall x)(\exists y)(\forall z)(Lxz \equiv y = z).$$

1. (25 points) How long a list of structures A with universe of discourse $\{1, 2, 3\}$ satisfy the schema S?

2. (25 points) How long a list of pairwise non-isomorphic structures with universe of discourse $\{1, 2, 3\}$ satisfy the schema S?

3. (25 points) How long a list of structures A with universe of discourse $\{1, 2, 3\}$ satisfy the condition: $A \models S$ and $|\mathsf{Aut}(A)| = 1$.

4. (25 points) How long a list of structures A with universe of discourse $\{1, 2, 3\}$ satisfy the condition: $A \models S$ and $|\mathsf{Def}(A)| = 2$.