CSE 663 Advanced Knowledge Representation
Professor Shapiro
Homework 5
The Classic Zoo Keeper
Maximum Points: 30
Due: 9:00 AM, Friday, November 12, 2004

November 5, 2004

For this homework, submit a well-commented file containing your solution, suitable for loading into ACL and running. Make sure the file is headed with a comment identifying it and you.

Implement, in Classic, a version of Winston's ZooKeeper system from

P. H. Winston, *Artificial Intelligence, Third Edition*, Addison-Wesley, Reading, MA, 1992, 121–124.

A copy of the relevant pages is being handed out.

You are to give Classic definitions of the concepts: Animal, Mammal, Bird, Carnivore, Ungulate, Cheetah, Tiger, Giraffe, Zebra, Ostrich, Penguin, and Albatross. Your definition of Animal is to be

```
(cl-define-primitive-concept 'Animal 'Classic-Thing)
```

You should use rules only for categorizing animals under the disjunctive concepts: Mammal, Bird, Carnivore, and Ungulate.

Create one individual Cheetah, one Tiger, one Giraffe, one Zebra, one Ostrich, one Penguin, and one Albatross. Of course, your Giraffe should be named Stretch, and Stretch should be created as an Animal with the features given by Winston on page 124. Similarly, the other animals should be created as Animals with certain features. Make sure that each of your concepts and rules is used for at least one animal.

After creating each animal, print its ancestors by including the Lisp expression

```
(printAncestors @name)
```

in your file. You will need to include the following function definition before its first use,

```
(defun printAncestors (ind)
  (format t "~%The ancestors of ~A are: ~A~%"
          ind (cl-ind-ancestors ind)))
```

Points: You will need to define 11 concepts (not including Animal) and create 7 individual animals (including Stretch). (You might need additional definitions as well.) Each of the 11 concepts will be worth 2 points and each of the 7 animal will be worth 1 point. 1 point will be awarded for turning in the homework.