

Artificial Intelligence LAB-8

Knowledge Representation

Date:8-2-22

-Source Code:

```
go :- hypothesize(Animal),

write('I guess that the animal is: '), write(Animal),
nl, undo.
hypothesize(cheetah) :- cheetah, !. hypothesize(tiger) :- tiger, !.
hypothesize(giraffe) :- giraffe, !. hypothesize(zebra)          :- zebra, !.
hypothesize(ostrich) :- ostrich, !. hypothesize(penguin) :- penguin, !.
hypothesize(albatross) :- albatross, !. hypothesize(unknown).
cheetah :- mammal, carnivore,
verify(has_tawny_color), verify(has_dark_spots).
tiger :- mammal,

carnivore, verify(has_tawny_color), verify(has_black_stripes).
giraffe :- ungulate,

verify(has_long_neck), verify(has_long_legs).
zebra :- ungulate, verify(has_black_stripes).

ostrich :- bird,

verify(does_not_fly), verify(has_long_neck).
penguin :- bird,

verify(does_not_fly), verify(swims), verify(is_black_and_white).
albatross :- bird,

verify(appears_in_story_Ancient_Mariner), verify(flys_well).
mammal :- verify(has_hair), !. mammal :- verify(gives_milk). bird :-
verify(has_feathers), !. bird          :- verify(flys),
```

```
verify(lays_eggs). carnivore :- verify(eats_meat), !.  
carnivore :- verify(has_pointed_teeth), verify(has_claws),  
verify(has_forward_eyes).  
ungulate :- mammal,
```

```
verify(has_hooves), !. ungulate :- mammal,  
verify(chews_cud). ask(Question) :-  
write('Does the animal have the following attribute: '), write(Question),  
write('? '), read(Response),
```

```
nl,
```

```
( (Response == yes ; Response == y)
```

```
->
```

```
assert(yes(Question)) ; assert(no(Question)), fail).
```

```
:- dynamic yes/1,no/1. verify(S) :-  
(yes(S)
```

```
->
```

```
true ; (no(S)
```

```
->
```

```
fail ; ask(S))).
```

```
undo :- retract(yes(_)),fail. undo :- retract(no(_)),fail. undo.
```

Output

```
?- go.
Does the animal have the following attribute: has_hair? n.
Does the animal have the following attribute: gives_milk? |: y.
Does the animal have the following attribute: eats_meat? |: y.
Does the animal have the following attribute: has_tawny_color? |: n.
Does the animal have the following attribute: has_hooves? |: y.
Does the animal have the following attribute: has_long_neck? |: n.
Does the animal have the following attribute: has_black_stripes? |: n.
Does the animal have the following attribute: has_feathers? |: y.
Does the animal have the following attribute: does_not_fly? |: n.
Does the animal have the following attribute: appears_in_story_Ancient_Mariner? Does the animal
have the following attribute: appears_in_story_Ancient_Mariner?y
|: .
Does the animal have the following attribute: flies_well? |: y.
I guess that the animal is: albatross
true.
?- ■
```

For built-in help, use `?- help(Topic).` or `?- apropos(Word).`

```
?-
% c:/Users/Admin/Desktop/animal.pl.txt compiled 0.00 sec, 29 clauses
?-
|   go.
Does the animal have the following attribute: has_hair? y.
Does the animal have the following attribute: eats_meat? |: y.
Does the animal have the following attribute: has_tawny_color? |: n.
Does the animal have the following attribute: has_hooves? |: n.
Does the animal have the following attribute: chews_cud? |: y.
Does the animal have the following attribute: has_long_neck? |: y.
Does the animal have the following attribute: has_long_legs? |: y.
I guess that the animal is: giraffe
true.
?- ■
```