Recap

COMP 524: Programming Language Concepts
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What are the four types of terms in Prolog?

Atoms, variables, numeric literals, and structures.

Thursday, February 18, 2010

How do you declare a variable in Prolog?

You don't, you just refer to it.

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How can you tell atoms and variables apart?

Variable names start with a capital letter, atoms either start with a lower-case letter or are quoted.

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Write a Prolog clause `xor_equal/4` that has the following behavior:

```
xor_equal(a, a, b, c). ➜ true.
xor_equal(a, b, b, b). ➜ true.
xor_equal(a, a, b, b). ➜ false.
```

```
xor_equal(A, B, C, D) :- A = B, C = D, !, fail.
xor_equal(A, B, _, _) :- A = B, !.
xor_equal(_, _, C, D) :- C = D.
```

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How can you do iterative computations in Prolog?

Only with recursion, since there are no loops.

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Is this a LL(1) grammar?

foo → x | y | z *foo* | bar *foo* baz | *foo foobar* bar

foobar → 1 | 2 | 3

No, *foo* is left-recursive.

Thursday, February 18, 2010

Write a Prolog clause `count/0` that outputs the numbers 1 through 100.

Hint:
output a term with `write/1`,
cause a line break with `nl/0`.

```
count :- count(1).
count(101).
count(X) :-
      write(X), nl,
      Y is X + 1,
      count(Y).
```

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How can we implement a linked list in Prolog?

See sample code…

Thursday, February 18, 2010