

Programming Languages Course Note

— Running GNU Prolog at Your PC

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- We will be using GNU Prolog (gprolog). Download GNU Prolog from <http://www.gprolog.org/> where you will find pre-built systems for Ubuntu, Mac OS X and Windows that can be readily installed on Intel-based PCs. There are also source files and instructions on how to build the system on other machines.
- Read pp. 13–19 of the manual *GNU Prolog — A Native Prolog Compiler with Constraint Solving over Finite Domains* (Edition 1.9, for GNU Prolog version 1.3.1, February 10, 2009). The PDF file for the manual is available at <http://www.gprolog.org/manual/gprolog.pdf>.
- Make sure you have properly installed the GNU Prolog (gprolog) system.
- Type `gprolog` after the console prompt. Now, you should be in the GNU Prolog top-level. To leave gprolog, simply type `control-D`. To interrupt computation in gprolog, type `control-C`.
- The following is a transcript of how the gprolog top-level looks like. `^D` stands for `control-D`.

```
[trc@localhost pl-course]$ gprolog
GNU Prolog 1.2.16
By Daniel Diaz
Copyright (C) 1999-2002 Daniel Diaz
| ?- [user].
compiling user for byte code...
even(0).
even(s(N)) :- odd(N).

odd(s(N)) :- even(N).
^D
user compiled, 5 lines read - 483 bytes written, 42164 ms

yes
| ?- even(0).

yes
| ?- even(s(s(s(s(0))))).

yes
| ?- even(N).

N = 0 ? ;

N = s(s(0)) ? ;

N = s(s(s(s(0)))) ? ;

N = s(s(s(s(s(s(0)))))) ? ;

N = s(s(s(s(s(s(s(s(0))))))) ?

yes
| ?- odd(s(s(N))).
```

```
N = s(0) ? ;
```

```
N = s(s(s(0))) ?
```

```
yes  
| ?- odd(0).
```

```
no  
| ?- ~D
```

```
[trc@localhost pl-course]$
```

- You can also put your prolog program in a file, and have the GNU Prolog top-level read from the file. As an example, suppose file `membership.pl` is in your working directory, and it contain the following text.

```
membership(X, [X|_]).  
membership(X, [_|T]) :- membership(X, T).
```

- You then can “consult” file `membership.pl` in GNU Prolog by the following:

```
[trc@localhost pl-course]$ gprolog  
GNU Prolog 1.2.16  
By Daniel Diaz  
Copyright (C) 1999-2002 Daniel Diaz  
| ?- [membership].  
compiling /home/trc/work/pl-course/membership.pl for byte code...  
/home/trc/work/pl-course/membership.pl compiled, 3 lines read - 503 bytes written, 20 ms
```

```
yes  
| ?- membership(X, [a, b, b]).
```

```
X = a ? ;
```

```
X = b ? ;
```

```
X = b ? ;
```

```
no  
| ?- ~D
```

```
[trc@localhost pl-course]$
```