

```
1: Script started on Tue Mar  6 20:55:50 2012
2: bash-3.2$ cat -n dfa\007.pl
3:      1  % $Id: dfa.pl,v 1.2 2011-05-19 19:53:59-07 - - $ */
4:      2
5:      3  %
6:      4  % DFA simulator.
7:      5  % Simulates a DFA that accepts the language b*aa*b[ab]*
8:      6  %
9:      7
10:     8  %
11:     9  % Facts describing the DFA.
12:    10  % trans( source, label, dest).
13:    11  %
14:    12
15:    13  trans( 0, a, 1).
16:    14  trans( 0, b, 0).
17:    15  trans( 1, a, 1).
18:    16  trans( 1, b, 2).
19:    17  trans( 2, a, 2).
20:    18  trans( 2, b, 2).
21:    19  start( 0).
22:    20  final( 2).
23:    21
24:    22  %
25:    23  % Functions for determining moves.
26:    24  %
27:    25
28:    26  match( String) :- start( State), move( State, String).
29:    27
30:    28  move( From_state, String) :-
31:    29      [Head_string | Tail_string] = String,
32:    30      trans( From_state, Head_string, To_state),
33:    31      print_status( From_state, String),
34:    32      move( To_state, Tail_string).
35:    33
36:    34  move( From_state, []) :-
37:    35      final( From_state),
38:    36      print_status( From_state, []).
39:    37
40:    38  print_status( State, String) :-
41:    39      write( State), write( ' '), write( String), nl.
42:    40
43:    41  % TEST: match( [b, b, a, a, b, a, b]).
44:    42  % TEST: match( [b, b, b, b]).
45:    43
46: bash-3.2$ gprolog
47: GNU Prolog 1.3.1
48: By Daniel Diaz
49: Copyright (C) 1999-2009 Daniel Diaz
50: | ?- [dfa].
51: compiling /afs/cats.ucsc.edu/courses/cmpls112-wm/Languages/prolog/Examples/dfa.pl
for byte code...
52: /afs/cats.ucsc.edu/courses/cmpls112-wm/Languages/prolog/Examples/dfa.pl compiled,
43 lines read - 2492 bytes written, 10 ms
53:
54: yes
55: | ?- match( [b, b, a, a, b, a, b]).
56: 0 [b,b,a,a,b,a,b]
57: 0 [b,a,a,b,a,b]
58: 0 [a,a,b,a,b]
59: 1 [a,b,a,b]
60: 1 [b,a,b]
61: 2 [a,b]
62: 2 [b]
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63: 2 []
64:
65: true ?
66:
67: yes
68: | ?- match( [b, b, b, b]).
69: 0 [b,b,b,b]
70: 0 [b,b,b]
71: 0 [b,b]
72: 0 [b]
73:
74: no
75: | ?-
76:
77:
78: bash-3.2$ exit
79:
80: Script done on Tue Mar 6 20:56:46 2012
```