

swish.swi-prolog.org/example/kb.pl

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examples queens kb +

```

1 % Some simple test Prolog programs
2 % -----
3
4 % Knowledge bases
5
6 loves(vincent, mia).
7 loves(marcellus, mia).
8 loves(pumpkin, honey_bunny).
9 loves(honey_bunny, pumpkin).
10
11 jealous(X, Y) :-
12     loves(X, Z),
13     loves(Y, Z).
14
15
16 /** <examples>
17
18 ?- loves(X, mia).
19 ?- jealous(X, Y).
20
21 */
22
23

```

jealous(vincent,marcellus) true 1

jealous(vincent,mia) false

jealous(marcellus,mia) false

jealous(pumpkin,pumpkin) true 1

loves(honey_bunny,pumpkin) true 1

loves(honey_bunny,honey_bunny) false

?- Loves(honey_bunny,honey_bunny)

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Lists

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examples queens kb lists +

```

1 % Some simple test Prolog programs
2 % working with Lists
3 % Also demonstrates timing
4 % -----
5
6 suffix(Xs, Ys) :-
7     append(_, Ys, Xs).
8
9 prefix(Xs, Ys) :-
10    append(Ys, _, Xs).
11
12 sublist(Xs, Ys) :-
13     suffix(Xs, Zs),
14     prefix(Zs, Ys).
15
16 nrev([], []).
17 nrev([H|T0], L) :-
18     nrev(T0, T),
19     append(T, [H], L).
20
21
22 /** <examples>
23
24 ?- sublist([a, b, c, d, e], [c, d]).
25 ?- sublist([a, b, c, d, e], Ys).
26 ?- sublist(Xs, Ys).

```

sublist([a, b, c, d, e], [c, d]) true 1

Next 10 100 1,000 Stop

sublist([a, b, c, d, e], Ys) Ys = []

Next 10 100 1,000 Stop

sublist(Xs, Ys) Ys = []

Next 10 100 1,000 Stop

?- numlist(1, 1000, _L), time(nrev(_L, _))

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Houses

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examples houses_puzzle grammar cipfd_sudoku movies expert_system queens lists

```

7 /* Houses logical puzzle: who owns the zebra and who drinks water?
8
9 1) Five colored houses in a row, each with an owner, a pet, cigarettes, and a drink.
10 2) The English lives in the red house.
11 3) The Spanish has a dog.
12 4) They drink coffee in the green house.
13 5) The Ukrainian drinks tea.
14 6) The green house is next to the white house.
15 7) The Winston smoker has a serpent.
16 8) In the yellow house they smoke Kool.
17 9) In the middle house they drink milk.
18 10) The Norwegian lives in the first house from the left.
19 11) The Chesterfield smoker lives near the man with the fox.
20 12) In the house near the house with the horse they smoke Kool.
21 13) The Lucky Strike smoker drinks juice.
22 14) The Japanese smokes Kent.
23 15) The Norwegian lives near the blue house.
24
25 who owns the zebra and who drinks water?
26 */
27
28 % Render the houses term as a nice table.
29 :- use_rendering(table,
30     [header(h('Owner', 'Pet', 'Cigarette', 'Drink', 'Color'))]).
31
32 zebra_owner(Owner) :-
33     houses(Hs),
34     member(h(Owner, zebra, _, _, _), Hs).

```

zebra_owner(Owner).

Owner = japanese

Next 10 100 1,000 Stop

?- zebra_owner(Owner).

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Grammar

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```

1 % Render parse trees using a tree, but ignore Lists Relies on native SVG
2 % support in the browser. IF THE ANSWER LOOKS EMPTY, COMMENT OR REMOVE
3 % THE LINE BELOW.
4 :- use_rendering(svgtree, [list(false)]).
5
6 % A simple English DCG grammar
7 % =====
8
9 s(s(np, vp)) --> np(np, Num), vp(vp, Num).
10
11 np(np, Num) --> pn(np, Num).
12 np(np(det, n), Num) --> det(det, Num), n(n, Num).
13 np(np(det, n, pp), Num) --> det(det, Num), n(n, Num), pp(pp).
14
15 vp(vp(v, np), Num) --> v(v, Num), np(np, _).
16 vp(vp(v, np, pp), Num) --> v(v, Num), np(np, _), pp(pp).
17
18 pp(pp(p, np)) --> p(p), np(np, _).
19
20 det(det(a), sg) --> [a].
21 det(det(the), _) --> [the].
22
23 pn(pn(john), sg) --> [john].
24
25 n(n(man), sg) --> [man].
26 n(n(men), pl) --> [men].
27 n(n(telescope), sg) --> [telescope].
28

```

phrase(s(Tree), [john, saw, a, man, with, a, telescope]).

Tree =

```

graph TD
    s[s] --> pn1[pn]
    s --> vp1[vp]
    pn1 --> john[john]
    vp1 --> v[v]
    v --> saw[saw]
    vp1 --> np1[np]
    np1 --> det1[det]
    det1 --> a1[a]
    np1 --> n1[n]
    n1 --> man[man]
    np1 --> pp[pp]
    pp --> p[p]
    p --> with[with]
    pp --> np2[np]
    np2 --> det2[det]
    det2 --> a2[a]
    np2 --> n2[n]
    n2 --> telescope[telescope]

```

Next 10 100 1,000 Stop

?- phrase(s(Tree), [john, saw, a, man, with, a, telescope]).

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Sudoku

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```

1 %Facts
2
3 food(burger). % burger is a food
4 food(sandwich). % sandwich is a food
5 food(pizza). % pizza is a food
6 lunch(sandwich). % sandwich is a lunch
7 dinner(pizza). % pizza is a dinner
8
9
10 %Rules
11 meal(X) :- food(X).
12
13 %Every food is a meal OR
14 %Anything is a meal if it is a food
15
16
17 /* Queries / Goals
18 ?- food(pizza).
19 % Is pizza a food?
20 ?- meal(X), lunch(X).
21 % Which food is meal and lunch?
22 ?- dinner(sandwich).
23 % Is sandwich a dinner?
24 */

```

meal(pizza).
true

lunch(pizza).
false

?- lunch(pizza).

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Movies

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examples houses_puzzle grammar clpfd_sudoku movies expert_system queens lists

```

42 /* DATABASE
43
44 movie(M, Y) <- movie M came out in year Y
45 director(M, D) <- movie M was directed by director D
46 actor(M, A, R) <- actor A played role R in movie M
47 actress(M, A, R) <- actress A played role R in movie M
48
49 */
50
51 :- discontiguous
52     movie/2,
53     director/2,
54     actor/3,
55     actress/3.
56
57 movie(american_beauty, 1999).
58 director(american_beauty, sam_mendes).
59 actor(american_beauty, kevin_spacey, lester_burnham).
60 actress(american_beauty, annette_bening, carolyn_burnham).
61 actress(american_beauty, thora_birch, jane_burnham).
62 actor(american_beauty, wes_bentley, ricky_fitts).
63 actress(american_beauty, mena_suvari, angela_hayes).
64 actor(american_beauty, chris_cooper, col_frank_fitts_usac).
65 actor(american_beauty, peter_gallagher, buddy_kane).
66 actress(american_beauty, allison_janney, barbara_fitts).
67 actor(american_beauty, scott_bakula, jim_olmeyer).
68 actor(american_beauty, sam_robarde, jim_berkley).
69 actor(american_beauty, harry_del_shorean, head_dinner).

```

movie(american_beauty, Y).
Y = 1999

?- movie(american_beauty, Y).

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