```
$ pl

<...snip...>

?- consult('combosets.pro').
% combosets.pro compiled 0.00 sec, 7,080 bytes

Yes
?- combos(set(1,2,3),C,X).

C = combo(1, 2),
X = extras(3) ;

C = combo(2, 3),
X = extras(1) ;

C = combo(1, 3),
X = extras(2) ;

No
?- combos(set(apple,'Carrot',8337),C,X).

C = combo(apple, 'Carrot'),
X = extras(8337) ;

C = combo('Carrot', 8337),
X = extras(apple) ;

C = combo(apple, 8337),
X = extras('Carrot') ;

No
?- combos(set(A,B,C),combos(1,2),extras(3)).

No
?- combos(set(A,B,C),combo(1,2),extras(3)).

A = 1,
B = 2,
C = 3 ;

A = 3,
B = 1,
C = 2 ;

A = 1,
B = 3,
C = 2 ;

No
?- combos(set(1,3,5,X),combo(1,4),extras(3,5)).

X = 4 ;

No
?- combos(set(a,b,c,d),C,X).

C = combo(a, b),
X = extras(c, d)

Yes
?- combos(set(a,b,c,d,e),C,X).

C = combo(a, b),
X = extras(c, d, e) ;

C = combo(a, c),
X = extras(b, d, e) ;
```

```
C = combo(a, d),
X = extras(b, c, e) ;

C = combo(a, e),
X = extras(b, c, d) ;

C = combo(b, c),
X = extras(a, d, e) ;

C = combo(b, d),
X = extras(a, c, e) ;

C = combo(b, e),
X = extras(a, c, d) ;

C = combo(c, d),
X = extras(a, b, e) ;

C = combo(c, e),
X = extras(a, b, d) ;

C = combo(d, e),
X = extras(a, b, c) ;

No
?- perm(s(1,2),P).

P = p(1, 2) ;

P = p(2, 1) ;

No
?- perm(s(1,2,3),P).

P = p(1, 2, 3) ;

P = p(1, 3, 2) ;

P = p(2, 1, 3) ;

P = p(2, 3, 1) ;

P = p(3, 1, 2) ;

P = p(3, 2, 1) ;

No
?- perm(s(1,2,3,4),P).

P = p(1, 2, 3, 4) ;

P = p(1, 2, 4, 3) ;

P = p(1, 3, 2, 4) ;

P = p(1, 3, 4, 2) ;

P = p(1, 4, 2, 3) ;

P = p(1, 4, 3, 2) ;

P = p(2, 1, 3, 4) ;

P = p(2, 1, 4, 3) ;

P = p(2, 3, 1, 4) ;
```

```
P = p(2, 3, 4, 1) ;

P = p(2, 4, 1, 3) ;

P = p(2, 4, 3, 1) ;

P = p(3, 1, 2, 4) ;

P = p(3, 1, 4, 2) ;

P = p(3, 2, 1, 4) ;

P = p(3, 2, 4, 1) ;

P = p(3, 4, 1, 2) ;

P = p(3, 4, 2, 1) ;

P = p(4, 1, 2, 3) ;

P = p(4, 1, 3, 2) ;

P = p(4, 2, 1, 3) ;

P = p(4, 2, 3, 1) ;

P = p(4, 3, 1, 2) ;

P = p(4, 3, 2, 1) ;

No
?- perm(s(1,2,3,4,5),P),write(P),nl,fail.
p(1, 2, 3, 4, 5)
p(1, 2, 3, 5, 4)
p(1, 2, 4, 3, 5)
p(1, 2, 4, 5, 3)
p(1, 2, 5, 3, 4)
p(1, 2, 5, 4, 3)
p(1, 3, 2, 4, 5)
p(1, 3, 2, 5, 4)
p(1, 3, 4, 2, 5)
p(1, 3, 4, 5, 2)
p(1, 3, 5, 2, 4)
p(1, 3, 5, 4, 2)
p(1, 4, 2, 3, 5)
p(1, 4, 2, 5, 3)
p(1, 4, 3, 2, 5)
p(1, 4, 3, 5, 2)
p(1, 4, 5, 2, 3)
p(1, 4, 5, 3, 2)
p(1, 5, 2, 3, 4)
p(1, 5, 2, 4, 3)
p(1, 5, 3, 2, 4)
p(1, 5, 3, 4, 2)
p(1, 5, 4, 2, 3)
p(1, 5, 4, 3, 2)
p(2, 1, 3, 4, 5)
p(2, 1, 3, 5, 4)
p(2, 1, 4, 3, 5)
p(2, 1, 4, 5, 3)
p(2, 1, 5, 3, 4)
p(2, 1, 5, 4, 3)
p(2, 3, 1, 4, 5)
p(2, 3, 1, 5, 4)
p(2, 3, 4, 1, 5)
p(2, 3, 4, 5, 1)
p(2, 3, 5, 1, 4)
p(2, 3, 5, 4, 1)
```

p(2, 4, 1, 3, 5)
p(2, 4, 1, 5, 3)
p(2, 4, 3, 1, 5)
p(2, 4, 3, 5, 1)
p(2, 4, 5, 1, 3)
p(2, 4, 5, 3, 1)
p(2, 5, 1, 3, 4)
p(2, 5, 1, 4, 3)
p(2, 5, 3, 1, 4)
p(2, 5, 3, 4, 1)
p(2, 5, 4, 1, 3)
p(2, 5, 4, 3, 1)
p(3, 1, 2, 4, 5)
p(3, 1, 2, 5, 4)
p(3, 1, 4, 2, 5)
p(3, 1, 4, 5, 2)
p(3, 1, 5, 2, 4)
p(3, 1, 5, 4, 2)
p(3, 2, 1, 4, 5)
p(3, 2, 1, 5, 4)
p(3, 2, 4, 1, 5)
p(3, 2, 4, 5, 1)
p(3, 2, 5, 1, 4)
p(3, 2, 5, 4, 1)
p(3, 4, 1, 2, 5)
p(3, 4, 1, 5, 2)
p(3, 4, 2, 1, 5)
p(3, 4, 2, 5, 1)
p(3, 4, 5, 1, 2)
p(3, 4, 5, 2, 1)
p(3, 5, 1, 2, 4)
p(3, 5, 1, 4, 2)
p(3, 5, 2, 1, 4)
p(3, 5, 2, 4, 1)
p(3, 5, 4, 1, 2)
p(3, 5, 4, 2, 1)
p(4, 1, 2, 3, 5)
p(4, 1, 2, 5, 3)
p(4, 1, 3, 2, 5)
p(4, 1, 3, 5, 2)
p(4, 1, 5, 2, 3)
p(4, 1, 5, 3, 2)
p(4, 2, 1, 3, 5)
p(4, 2, 1, 5, 3)
p(4, 2, 3, 1, 5)
p(4, 2, 3, 5, 1)
p(4, 2, 5, 1, 3)
p(4, 2, 5, 3, 1)
p(4, 3, 1, 2, 5)
p(4, 3, 1, 5, 2)
p(4, 3, 2, 1, 5)
p(4, 3, 2, 5, 1)
p(4, 3, 5, 1, 2)
p(4, 3, 5, 2, 1)
p(4, 5, 1, 2, 3)
p(4, 5, 1, 3, 2)
p(4, 5, 2, 1, 3)
p(4, 5, 2, 3, 1)
p(4, 5, 3, 1, 2)
p(4, 5, 3, 2, 1)
p(5, 1, 2, 3, 4)
p(5, 1, 2, 4, 3)
p(5, 1, 3, 2, 4)
p(5, 1, 3, 4, 2)
p(5, 1, 4, 2, 3)
p(5, 1, 4, 3, 2)
p(5, 2, 1, 3, 4)
p(5, 2, 1, 4, 3)

```
p(5, 2, 3, 1, 4)
p(5, 2, 3, 4, 1)
p(5, 2, 4, 1, 3)
p(5, 2, 4, 3, 1)
p(5, 3, 1, 2, 4)
p(5, 3, 1, 4, 2)
p(5, 3, 2, 1, 4)
p(5, 3, 2, 4, 1)
p(5, 3, 4, 1, 2)
p(5, 3, 4, 2, 1)
p(5, 4, 1, 2, 3)
p(5, 4, 1, 3, 2)
p(5, 4, 2, 1, 3)
p(5, 4, 2, 3, 1)
p(5, 4, 3, 1, 2)
p(5, 4, 3, 2, 1)

No
?- perm(S,p(3,1,4,2)).

S = s(3, 1, 4, 2) ;

S = s(3, 1, 2, 4) ;

S = s(3, 4, 1, 2) ;

S = s(3, 2, 1, 4) ;

S = s(3, 4, 2, 1) ;

S = s(3, 2, 4, 1) ;

S = s(1, 3, 4, 2) ;

S = s(1, 3, 2, 4) ;

S = s(4, 3, 1, 2) ;

S = s(2, 3, 1, 4) ;

S = s(4, 3, 2, 1) ;

S = s(2, 3, 4, 1) ;

S = s(1, 4, 3, 2) ;

S = s(1, 2, 3, 4) ;

S = s(4, 1, 3, 2) ;

S = s(2, 1, 3, 4) ;

S = s(4, 2, 3, 1) ;

S = s(2, 4, 3, 1) ;

S = s(1, 4, 2, 3) ;

S = s(1, 2, 4, 3) ;

S = s(4, 1, 2, 3) ;

S = s(2, 1, 4, 3) ;

S = s(4, 2, 1, 3) ;

S = s(2, 4, 1, 3) ;
```

```
No
?- perm(S,p(carrot,'apple',8337)),write(S),nl,fail.
s(carrot, apple, 8337)
s(carrot, 8337, apple)
s(apple, carrot, 8337)
s(8337, carrot, apple)
s(apple, 8337, carrot)
s(8337, apple, carrot)

No
?- halt.
```