Homework 4

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1. sister(sister, Sib) ←
   parent(Parent, Sister), parent(Parent, Sib),
   female(Sister), Sister ≠ Sib.

   niece(Niece, Person) ←
   sibling(Person, Parent),
   parent(Parent, Niece),
   female(Niece).

   sibling(Sib1, Sib2) ←
   male(Parent1), female(Parent2),
   parent(Parent1, Sib1), parent(Parent2, Sib1),
   parent(Parent1, Sib2), parent(Parent2, Sib2),
   Sib1 ≠ Sib2.

2. left_of(butterfly, fish).
   left_of(hourglass, butterfly).
   left_of(pencil, hourglass).
   above(camera, butterfly).
   above(bicycle, pencil).

   right_of(Object1, Object2) ← left_of(Object2, Object1).
   below(Object1, Object2) ← above(Object2, Object1).

3. left_recursion(Object1, Object2) ←
   left_of(Object1, Object2).
   left_recursion(Object1, Object2) ←
   left_of(Object1, ObjectX),
   left_recursion(ObjectX, Object2).

```
above_recursion (Object1, Object2) :-
    above (object1, object2).
above_recursion (Object1, Object2) :-
    above (object1, object X),
    above_recursion (object X, object2).
```

```
same_level (object1, object2) :-
    left_recursion (object1, object2).
same_level (object1, object2) :-
    left_recursion (object2, object1).
higher (Object1, Object2) :-
    ! same_level (object1, object2).
```

You don't really need this

4.
```
above (Block1, Block2) :-
    on (Block1, Block 2).
above (Block1, Block2) :-
    on (Block1, Block X), above (Block X, Block2).
```