```
The program (P):
                                          ?-
father(fred, pebbles).
father(bamm-bamm,roxy).
                                          resolvent =
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
                                          Initialize resolvent to goal G (the query)
mother(pebbles, chip).
mother(wilma, pebbles).
                                          while resolvent not empty do
mother(betty,bamm-bamm).
                                            select a goal A from the resolvent
                                            choose a ground instance of a clause
                                               A':-B_1,...,B_n from program P
                                               such that A and A' are identical
                                               (if no such goal and clause exist, exit
                                               the while loop)
                                            replace A by B_1, ..., B_n in the resolvent
                                          If the resolvent is empty, then output yes,
                                            else output no
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent =
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1, ..., B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent =
```

Initialize resolvent to goal G (the query)

while resolvent not empty do select a goal A from the resolvent choose a ground instance of a clause $A' := B_1, ..., B_n$ from program P such that A and A' are identical (if no such goal and clause exist, exit the while loop) replace A by $B_1, ..., B_n$ in the resolvent If the resolvent is empty, then output yes, else output no

The program (*P*):

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

?- father(fred,pebbles),mother(pebbles,chip).

resolvent = father(fred,pebbles), mother(pebbles,chip)

Initialize resolvent to goal G (the query)

while resolvent not empty do select a goal A from the resolvent choose a ground instance of a clause $A' := B_1, ..., B_n$ from program P such that A and A' are identical (if no such goal and clause exist, exit the while loop) replace A by $B_1, ..., B_n$ in the resolvent If the resolvent is empty, then output yes,

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent = father(fred,pebbles),
            mother(pebbles,chip)
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1, ..., B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent = father(fred,pebbles),
            mother(pebbles,chip)
Initialize resolvent to goal G (the guery)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1, ..., B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

The program (*P*):

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

The program (*P*):

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

The program (*P*):

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent = father(fred,pebbles),
            mother(pebbles,chip)
Initialize resolvent to goal G (the guery)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1,...,B_n in the resolvent
  (huh? Well, if there is no B_1,...,B_n then
  there's an identity and goal A is true)
If the resolvent is empty, then output yes,
  else output no
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent = true,
            mother(pebbles,chip)
Initialize resolvent to goal G (the guery)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1,...,B_n in the resolvent
  (huh? Well, if there is no B_1,...,B_n then
  there's an identity and goal A is true)
If the resolvent is empty, then output yes,
  else output no
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent = mother(pebbles,chip)
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1,...,B_n in the resolvent
  (huh? Well, if there is no B_1,...,B_n then
  there's an identity and goal A is true)
If the resolvent is empty, then output yes,
  else output no
```

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent = mother(pebbles,chip)
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1, ..., B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
```

mother(wilma, pebbles).

mother(betty,bamm-bamm).

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent = mother(pebbles,chip)
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1, ..., B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
Initialize resolvent to goal G (the query)

while resolvent not empty do

select a goal A from the resolvent

choose a ground instance of a clause

A':-B<sub>1</sub>,...,B<sub>n</sub> from program P

such that A and A' are identical

(if no such goal and clause exist, exit

the while loop)

replace A by B<sub>1</sub>,...,B<sub>n</sub> in the resolvent

If the resolvent is empty, then output yes,

else output no
```

?- father(fred,pebbles),mother(pebbles,chip).

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).

resolvent = mother(pebbles,chip)

Initialize resolvent to goal G (the query)

while resolvent not empty do

select a goal A from the resolvent

choose a ground instance of a clause

A':- B<sub>1</sub>,...,B<sub>n</sub> from program P

such that A and A' are identical

(if no such goal and clause exist, exit
the while loop)
```

replace A by $B_1, ..., B_n$ in the resolvent If the resolvent is empty, then output yes,

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).

resolvent = mother(pebbles,chip)

Initialize resolvent to goal G (the query)

while resolvent not empty do

select a goal A from the resolvent

choose a ground instance of a clause

A':-B<sub>1</sub>,...,B<sub>n</sub> from program P

such that A and A' are identical

(if no such goal and clause exist, exit

the while loop)

replace A by B<sub>1</sub>,...,B<sub>n</sub> in the resolvent

If the resolvent is empty, then output yes,
```

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).

resolvent = mother(pebbles,chip)

Initialize resolvent to goal G (the query)

while resolvent not empty do

select a goal A from the resolvent

choose a ground instance of a clause

A':-B<sub>1</sub>,...,B<sub>n</sub> from program P

such that A and A' are identical
```

replace A by $B_1,...,B_n$ in the resolvent If the resolvent is empty, then output yes, else output no

the while loop)

(if no such goal and clause exist, exit

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent =
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1,...,B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
```

mother(wilma, pebbles).

mother(betty,bamm-bamm).

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent =
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1, ..., B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).
resolvent =
Initialize resolvent to goal G (the query)
while resolvent not empty do
  select a goal A from the resolvent
  choose a ground instance of a clause
     A':-B_1,...,B_n from program P
     such that A and A' are identical
     (if no such goal and clause exist, exit
     the while loop)
  replace A by B_1, ..., B_n in the resolvent
If the resolvent is empty, then output yes,
  else output no
```

```
The program (P):
```

```
father(fred,pebbles).
father(bamm-bamm,roxy).
father(barney,bamm-bamm).
father(bamm-bamm,chip).
mother(pebbles,roxy).
mother(pebbles,chip).
mother(wilma,pebbles).
mother(betty,bamm-bamm).
```

```
?- father(fred,pebbles),mother(pebbles,chip).

Yes

resolvent =

Initialize resolvent to goal G (the query)

while resolvent not empty do

select a goal A from the resolvent

choose a ground instance of a clause

A':-B<sub>1</sub>,...,B<sub>n</sub> from program P

such that A and A' are identical

(if no such goal and clause exist, exit

the while loop)

replace A by B<sub>1</sub>,...,B<sub>n</sub> in the resolvent

If the resolvent is empty, then output yes,

else output no
```

Questions?