

# 1506801 Submission 2

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## Activity 3

### A

```
female(tuya).
  female(tiy).
  female(unknown).
  female(kiya).
  female(nefertiti).
  female(ankhesenamun).
  female(other1).
  female(other2).
  female(other3).
  female(other4).
  female(merytaten).
  female(stillborn1).
  female(stillborn2).
  male(yuya).
  male(amenhotepiii).
  male(ay).
  male(akhenaten).
  male(tutankhamun).
  male(smenkhkare).
  parent(tutankhamun, stillborn1).
  parent(tutankhamun, stillborn2).
  parent(ankhesenamun, stillborn1).
  parent(ankhesenamun, stillborn2).
  parent(kiya, tutankhamun).
  parent(akhenaten, tutankhamun).
  parent(akhenaten, ankheseenamun).
  parent(akhenaten, other1).
  parent(akhenaten, other2).
  parent(akhenaten, other3).
  parent(akhenaten, other4).
  parent(akhenaten, merytaten).
  parent(nefertiti, ankheseenamun).
  parent(nefertiti, other1).
  parent(nefertiti, other2).
  parent(nefertiti, other3).
  parent(nefertiti, other4).
  parent(nefertiti, merytaten).
  parent(amenhotepiii, akhenaten).
  parent(tiy, akhenaten).
  parent(ay, nefertiti).
  parent(unknown, nefertiti).
  parent(tuya, tiy).
  parent(tuya, ay).
  parent(yuya, tiy).
  parent(yuya, ay).
  partner(tuya, yuya).
  partner(yuya, tuya).
  partner(amenhotepiii, tiy).
```

partner(tiy,amenhotepiii).  
partner(ay,unknown).  
partner(unknown,ay).  
partner(kiya, akhenaten).  
partner(akhenaten, kiya).  
partner(akhenaten, nefertiti).  
partner(nefertiti, akhenaten).  
partner(tutankhamun, ankhesenamun).  
partner(ankhesenamun, tutankhamun).  
partner(merytaten, smenkhkare).  
partner(smenkhkare, merytaten).

## B

```
%Parent and partner already part of facts set.  
mother(M,X) :- parent(M,X), female(M).  
father(F,X) :- parent(F,X), male(F).  
sibling(X,Y) :- parent(A,X), parent(A,Y), not(X = Y).  
sister(W,Z) :- sibling(W,Z), female(W).  
aunt(W,Z) :- parent(A,Z), sibling(W,A), female(W).  
grandfather(W,Z) :- parent(A,Z), father(W,A).  
ancestor(W,Z) :- parent(W,Z).  
ancestor(W,Z) :- parent(W,A), ancestor(A,Z).  
nephew(W,Z) :- parent(W,A), sibling(A,Z), male(W).
```

## C

```
jack@Sloth:~/Documents/ai_CM4107/coursework/1506801_submission_2/prolog$ prolog
Welcome to SWI-Prolog (Multi-threaded, 64 bits, Version 7.2.3)
Copyright (c) 1990-2015 University of Amsterdam, VU Amsterdam
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software,
and you are welcome to redistribute it under certain conditions.
Please visit http://www.swi-prolog.org for details.
```

```
For help, use ?- help(Topic). or ?- apropos(Word).
```

```
?- [facts].
true.
```

```
?- [rules].
true.
```

```
?- parent(tuya,tiy).
true .
```

```
?- mother(tuya,tiy).
true .
```

```
?- father(yuya,tiy).
true.
```

```
?-
| .
```

```
ERROR: Stream user_input:24:1 Syntax error: Unexpected end of clause
```

```
?- sibling(stillborn1,stillborn2).
true .
```

```
?- sister(stillborn1,stillborn2).
true .
```

```
?- aunt(merytaten,stillborn1).
true .
```

```
?- grandfather(akhenaten, stillborn1).
true .
```

```
?- partner(tuya,yuya).
true.
```

```
?- ancestor(yuya,stillborn1).
true .
```

```
?- nephew(akhenaten,ay).
true .
```

```
?- _
```

Power  
GN

## Activity 4