



# ESCUELA SUPERIOR DE COMPÚTO

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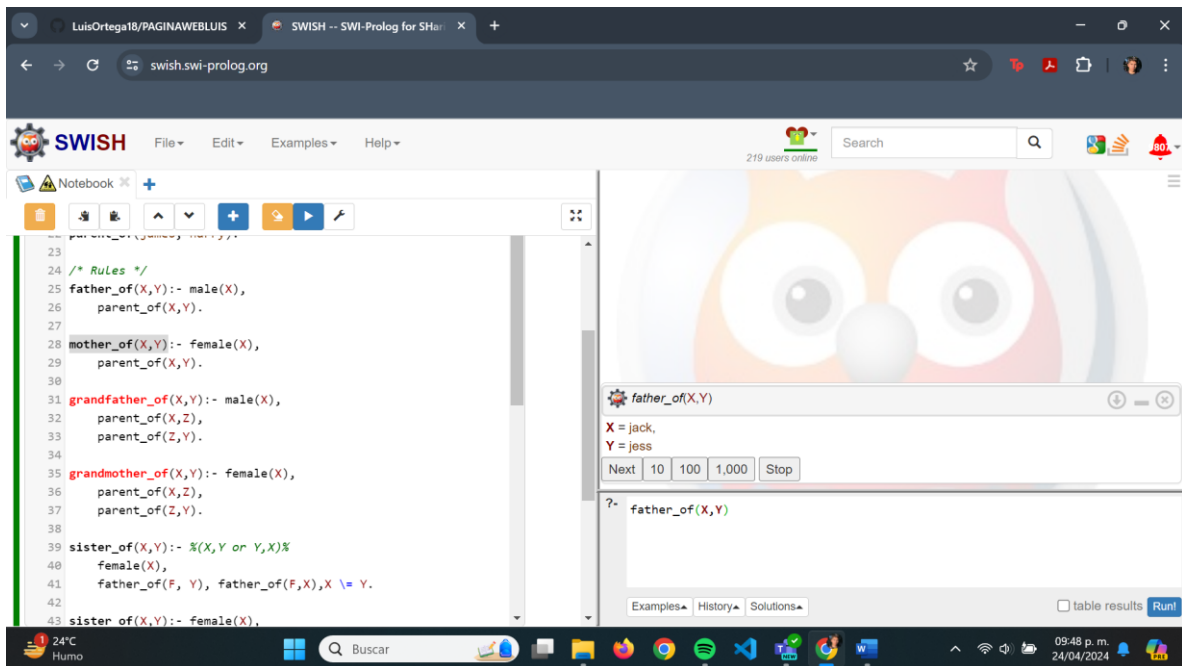
Grupo:  
3CV1

Materia:  
Paradigmas de programación

Actividad:  
Práctica 5

Profesor:  
García Floriano Andrés

# Father

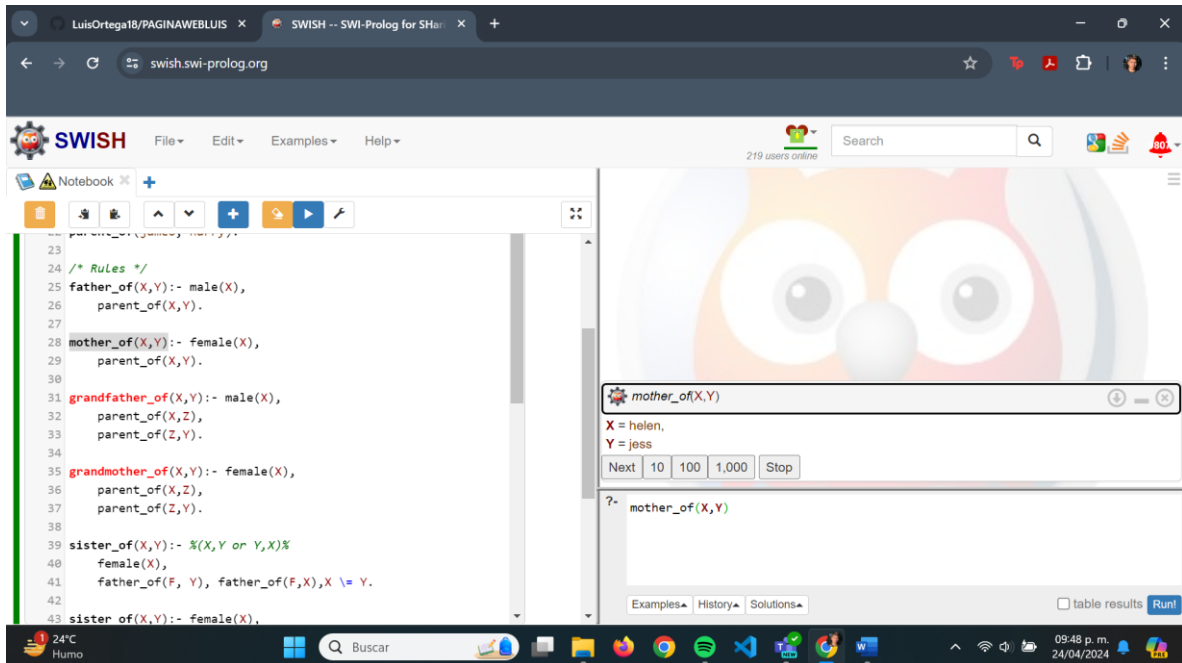


The screenshot shows the SWISH web interface for Prolog. The notebook contains the following code:

```
23
24 /* Rules */
25 father_of(X,Y):- male(X),
26   parent_of(X,Y).
27
28 mother_of(X,Y):- female(X),
29   parent_of(X,Y).
30
31 grandfather_of(X,Y):- male(X),
32   parent_of(X,Z),
33   parent_of(Z,Y).
34
35 grandmother_of(X,Y):- female(X),
36   parent_of(X,Z),
37   parent_of(Z,Y).
38
39 sister_of(X,Y):- ~(X,Y or Y,X)%
40   female(X),
41   father_of(F, Y), father_of(F,X),X \= Y.
42
43 sister_of(X,Y):- female(X),
```

The console shows the query `?- father_of(X,Y)` and the solution `X = jack, Y = jess`. The console also has buttons for `Next`, `10`, `100`, `1,000`, and `Stop`.

# Mother



The screenshot shows the SWISH web interface for Prolog. The notebook contains the following code:

```
23
24 /* Rules */
25 father_of(X,Y):- male(X),
26   parent_of(X,Y).
27
28 mother_of(X,Y):- female(X),
29   parent_of(X,Y).
30
31 grandfather_of(X,Y):- male(X),
32   parent_of(X,Z),
33   parent_of(Z,Y).
34
35 grandmother_of(X,Y):- female(X),
36   parent_of(X,Z),
37   parent_of(Z,Y).
38
39 sister_of(X,Y):- ~(X,Y or Y,X)%
40   female(X),
41   father_of(F, Y), father_of(F,X),X \= Y.
42
43 sister_of(X,Y):- female(X),
```

The console shows the query `?- mother_of(X,Y)` and the solution `X = helen, Y = jess`. The console also has buttons for `Next`, `10`, `100`, `1,000`, and `Stop`.

# GRANFATHER

The screenshot shows the SWISH Prolog environment with the following components:

- Browser Tabs:** LuisOrtega18/PAGINAWEBLUI5, SWISH -- SWI-Prolog for SHar...
- Address Bar:** swish.swi-prolog.org
- SWISH Interface:** File, Edit, Examples, Help menus; 219 users online; Search bar.
- Notebook:** Contains Prolog rules for family relationships:

```
23
24 /* Rules */
25 father_of(X,Y):- male(X),
26   parent_of(X,Y).
27
28 mother_of(X,Y):- female(X),
29   parent_of(X,Y).
30
31 grandfather_of(X,Y):- male(X),
32   parent_of(X,Z),
33   parent_of(Z,Y).
34
35 grandmother_of(X,Y):- female(X),
36   parent_of(X,Z),
37   parent_of(Z,Y).
38
39 sister_of(X,Y):- %(X,Y or Y,X)%
40   female(X),
41   father_of(F, Y), father_of(F,X),X \= Y.
42
43 sister_of(X,Y):- female(X),
```
- Execution Window:** Shows the query `grandfather_of(X,Y)` with bindings `X = jack,` and `Y = simon`. It includes a progress bar and buttons for Next, 10, 100, 1,000, and Stop.
- Bottom Bar:** Windows taskbar showing 24°C, Humo, and the date 24/04/2024.

# GRANDMOTHER

The screenshot shows the SWISH Prolog environment with the following components:

- Browser Tabs:** LuisOrtega18/PAGINAWEBLUI5, SWISH -- SWI-Prolog for SHar...
- Address Bar:** swish.swi-prolog.org
- SWISH Interface:** File, Edit, Examples, Help menus; 219 users online; Search bar.
- Notebook:** Contains the same Prolog rules as the first screenshot.
- Execution Window:** Shows the query `grandmother_of(X,Y)` with bindings `X = helen,` and `Y = simon`. It includes a progress bar and buttons for Next, 10, 100, 1,000, and Stop.
- Bottom Bar:** Windows taskbar showing 24°C, Humo, and the date 24/04/2024.

# SISTER

The screenshot shows the SWISH Prolog IDE interface. The left pane contains a Prolog program with the following rules:

```
34 grandmother_of(X,Y):- female(X),
35   parent_of(X,Z),
36   parent_of(Z,Y).
37
38
39 sister_of(X,Y):- %(X,Y or Y,X)%
40   female(X),
41   father_of(F, Y), father_of(F,X),X \= Y.
42
43 sister_of(X,Y):- female(X),
44   mother_of(M, Y), mother_of(M,X),X \= Y.
45
46 aunt_of(X,Y):- female(X),
47   parent_of(Z,Y), sister_of(Z,X),!.
48
49 brother_of(X,Y):- %(X,Y or Y,X)%
50   male(X),
51   father_of(F, Y), father_of(F,X),X \= Y.
52
53 brother_of(X,Y):- male(X),
54   mother_of(M, Y), mother_of(M,X),X \= Y.
```

The right pane shows a query window for `sister_of(X,Y)` with the following results:

X	Y
jess	lily
lily	jess
jess	lily
lily	jess

The bottom status bar shows the system clock as 09:52 p.m. on 24/04/2024.

# AUNT

The screenshot shows the same SWISH Prolog IDE interface as the previous one, but with a different query. The left pane contains the same Prolog program. The right pane shows a query window for `aunt_of(X,Y)` with the following results:

X	Y
jess	harry

The bottom status bar shows the system clock as 09:54 p.m. on 24/04/2024.

# BROTHER

The screenshot shows the SWISH web interface at [swish.swi-prolog.org](http://swish.swi-prolog.org). The notebook contains the following Prolog code:

```
39 sister_of(X,Y):- %(X,Y or Y,X)%
40    female(X),
41    father_of(F, Y), father_of(F,X),X \= Y.
42
43 sister_of(X,Y):- female(X),
44    mother_of(M, Y), mother_of(M,X),X \= Y.
45
46 aunt_of(X,Y):- female(X),
47    parent_of(Z,Y), sister_of(Z,X),!.
48
49 brother_of(X,Y):- %(X,Y or Y,X)%
50    male(X),
51    father_of(F, Y), father_of(F,X),X \= Y.
52
53 brother_of(X,Y):- male(X),
54    mother_of(M, Y), mother_of(M,X),X \= Y.
55
56 uncle_of(X,Y):-
57    parent_of(Z,Y), brother_of(Z,X).
58
59 ancestor_of(X,Y):- parent_of(X,Y).
```

The query `?- brother_of(X,Y)` is entered in the console, and the result is `false`. The interface also shows a search bar, a user profile icon, and a notification bell.

# UNCLE

The screenshot shows the SWISH web interface at [swish.swi-prolog.org](http://swish.swi-prolog.org). The notebook contains the following Prolog code:

```
54 mother_of(M, Y), mother_of(M,X),X \= Y.
55
56 uncle_of(X,Y):-
57    parent_of(Z,Y), brother_of(Z,X).
58
59 ancestor_of(X,Y):- parent_of(X,Y).
60 ancestor_of(X,Y):- parent_of(X,Z),
61    ancestor_of(Z,Y).
62 /*Otras tres reglas*/
63 sibling_of(A,B):-
64    parent_of(P,A), parent_of(P,B),
65    A \= B. % A y B no son la misma persona
66
67 cousin_of(X,Y):-
68    parent_of(PX, X), parent_of(PY, Y),
69    sibling_of(PX, PY),
70    \+sibling_of(X, Y),
71    X \= Y.
72 grandson_of(X,Y):-
73    male(X),
74    parent_of(PX,X), parent_of(Y,PX).
```

The query `?- uncle_of(X,Y)` is entered in the console, and the result is `false`. The interface also shows a search bar, a user profile icon, and a notification bell.

# ANCESTOR

The screenshot shows the SWISH Prolog environment with the following code in the notebook:

```
54 mother_of(M, Y), mother_of(M,X),X \= Y.  
55  
56 uncle_of(X,Y):-  
57   parent_of(Z,Y), brother_of(Z,X).  
58  
59 ancestor_of(X,Y):- parent_of(X,Y).  
60 ancestor_of(X,Y):- parent_of(X,Z),  
61   ancestor_of(Z,Y).  
62 /*Otras tres reglas*/  
63 sibling_of(A,B):-  
64   parent_of(P,A), parent_of(P,B),  
65   A \= B. % A y B no son la misma persona  
66  
67 cousin_of(X,Y):-  
68   parent_of(PX, X), parent_of(PY, Y),  
69   sibling_of(PX, PY),  
70   \+sibling_of(X, Y),  
71   X \= Y.  
72 grandson_of(X,Y):-  
73   male(X),  
74   parent_of(PX,X), parent_of(Y,PX).
```

The right panel shows the execution of the query `ancestor_of(X,Y)` with the following results:

```
X = jack,  
Y = jess  
Next 10 100 1,000 Stop
```

The bottom status bar shows the temperature as 24°C and the time as 09:56 p.m. on 24/04/2024.

# COUSIN

The screenshot shows the SWISH Prolog environment with the following code in the notebook:

```
63 sibling_of(A,B):-  
64   parent_of(P,A), parent_of(P,B),  
65   A \= B. % A y B no son la misma persona  
66  
67 cousin_of(X,Y):-  
68   parent_of(PX, X), parent_of(PY, Y),  
69   sibling_of(PX, PY),  
70   \+sibling_of(X, Y),  
71   X \= Y.  
72 grandson_of(X,Y):-  
73   male(X),  
74   parent_of(PX,X), parent_of(Y,PX).
```

The right panel shows the execution of the query `cousin_of(X,Y)` with the following results:

```
X = simon,  
Y = harry  
Next 10 100 1,000 Stop
```

The bottom status bar shows the temperature as 24°C and the time as 09:58 p.m. on 24/04/2024.

# GRANDSOME

The screenshot shows the SWISH web interface for the 'GRANDSOME' exercise. The notebook contains the following Prolog rules:

```
63 sibling_of(A,B):-
64     parent_of(P,A), parent_of(P,B),
65     A \= B. % A y B no son la misma persona
66
67 cousin_of(X,Y):-
68     parent_of(PX,X), parent_of(PY,Y),
69     sibling_of(PX,PY),
70     \sibling_of(X,Y),
71     X \= Y.
72 grandson_of(X,Y):-
73     male(X),
74     parent_of(PX,X), parent_of(Y,PX).
```

The 'grandson\_of(X,Y)' window shows the results:

```
X = simon,
Y = jack
```

Buttons: Next, 10, 100, 1,000, Stop

Query input: `?- grandson_of(X,Y)`

Buttons: Examples, History, Solutions, table results, Run!

# SIBLING

The screenshot shows the SWISH web interface for the 'SIBLING' exercise. The notebook contains the following Prolog rules:

```
69 male(X),
70 parent_of(PX,X), parent_of(Y,PX).
71 sibling_of(A,B):-
72     parent_of(P,A), parent_of(P,B),
73     A \= B. % A y B no son la misma persona
74
75
```

The 'sibling\_of(X,Y)' window shows the results:

```
X = jess,
Y = ily
```

Buttons: Next, 10, 100, 1,000, Stop

Query input: `?- sibling_of(X,Y)`

Buttons: Examples, History, Solutions, table results, Run!