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Relatório – Lógica Aplicada: Projeto de Programação com SWI-Prolog

Instalação do SWI-Prolog realizada com sucesso, abrimos o programa e compilamos alguns códigos.

```
SWI-Prolog (Multi-threaded, version 8.0.3)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 32 bits, version 8.0.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit http://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?-
% c:/Users/gahba/OneDrive/Área de Trabalho/Faculdade/logica/teste01.pl compiled 0.00 sec, 3 clauses
?- legal('Roubo').
false.

?- ilegal('Roubo').
true.

?- ■
```

Criamos um arquivo chamado “parentes.pl” com o modelo criado em aula.

```
parentes.pl
File Edit Browse Compile Prolog Pce Help
parentes.pl
genitor('Pam','Bob').
genitor('Tom','Bob').
genitor('Tom','Liz').
genitor('Bob','Ann').
genitor('Bob','Pat').
genitor('Pat','Jim').
avo(X,Z) :- genitor(X,Y), genitor(Y,Z).

% ----- Pred -----
pred(X,Z) :- genitor(X,Z).
pred(X,Z) :- genitor(X,Y), pred(Y,Z).

% ----- Pred2 -----
pred2(X,Z) :- genitor(X,Y), pred2(Y,Z).
pred2(X,Z) :- genitor(X,Z).

% ----- Pred3 -----
pred3(X,Z) :- genitor(X,Z).
pred3(X,Z) :- pred3(Y,Z), genitor(X,Y).

% ----- Pred4 -----
pred4(X,Z) :- pred4(Y,Z), genitor(X,Y).
pred4(X,Z) :- genitor(X,Z).
```

Testes realizados em sala de aula:

```
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?-
% c:/Users/gahba/OneDrive/Documentos/Prolog/parentes.pl compiled 0.00 sec, 15 clauses
?- pred('Tom','Pat').
true.
false.

?- pred2('Tom','Pat').
true.

?- pred3('Tom','Pat').
true.

?- pred2('Moe','Bil').
false.


?- pred4('Tom','Pat').
ERROR: Stack limit (0.5Gb) exceeded
ERROR: Stack sizes: local: 0.1Gb, global: 9Kb, trail: 1Kb
ERROR: Stack depth: 1,525,083, last-call: 0%, Choice points: 1,525,078
ERROR: Probable infinite recursion (cycle):
ERROR: [1,525,083] user:pred4(_4834, 'Pat')
ERROR: [1,525,082] user:pred4(_4854, 'Pat')
Exception: (1,525,082) pred4(_4892, 'Pat') ? creep
Exception: (1,525,081) pred4(_4892, 'Pat') ? creep
Exception: (1,525,080) pred4(_4892, 'Pat') ? creep
Exception: (1,525,079) pred4(_4892, 'Pat') ? creep
Exception: (1,525,078) pred4(_4892, 'Pat') ? creep
Exception: (1,525,077) pred4(_4892, 'Pat') ? No previous search
Exception: (1,525,077) pred4(_4892, 'Pat') ? creep
Exception: (1,525,076) pred4(_4892, 'Pat') ? No previous search
Exception: (1,525,076) pred4(_4892, 'Pat') ? No previous search
Exception: (1,525,076) pred4(_4892, 'Pat') ? no debug
?-
```

Criamos novas regras de parentesco e testamos.

```
parentes.pl [modified]
File Edit Browse Compile Prolog Pce Help
parentes.pl [modified]

genitor('Pam','Bob').
genitor('Tom','Bob').
genitor('Tom','Liz').
genitor('Bob','Ann').
genitor('Bob','Pat').
genitor('Pat','Jim').
genitor('Ann','Ed').
genitor('Herold','Ed').
masculino('Tom').
masculino('Bob').
masculino('Pat').
masculino('Jim').
masculino('Ed').
masculino('Herold').

avo(X,Z) :- genitor(X,Y), genitor(Y,Z).
pai(X,Y) :- genitor(X,Y), masculino(X).
irmao(X,Y) :- genitor(Z,X), genitor(Z,Y).
primo(A,B) :- genitor(X,A), genitor(Y,B),irmao(X,Y).
tio(A,B) :- genitor(Y,B), irmao(A,Y), masculino(A).
cunhado(A,B) :- irmao(B,Y), genitor(Y,Z), genitor(A,Z), masculino(A).
sogro(A,B) :- genitor(B,X), avo(A,X), masculino(A).
```

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```
?-  
% c:/Users/gahba/OneDrive/Documentos/Prolog/parentes.pl compiled 0.00 sec, 29 clauses  
?- irmao('Ann','Pat').  
true.  
  
?- primo('Ed','Jim').  
true.  
  
?- tio('Pat','Ed').  
true.  
  
?- cunhado('Herold','Pat').  
true.  
  
?- sogro('Bob','Herold').  
true.  
  
?-
```
