Prolog

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Prolog is a general-purpose logic programming language associated with artificial intelligence and computational linguistics

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Prolog has its roots in first-order logic, a formal logic, and unlike many other programming languages, Prolog is intended primarily as a ***declarative*** programming language: the program logic is expressed in terms of relations, represented as facts and rules. A computation is initiated by running a *query*over these relations.

Prolog was one of the first logic programming languages, and remains the most popular among such languages today, with several free and commercial implementations available.

Data types

Prolog's single data type is the *term*. Terms are either *atoms*, *numbers*, *variables* or *compound terms*

An ***atom*** is a general-purpose name with no inherent meaning. Examples of atoms include x, red, 'Taco', and 'some atom'.

Numbers can be floats or integers. ISO standard compatible Prolog systems can check the Prolog flag "bounded". Most of the major Prolog systems support arbitrary length integer numbers.

Data types

Variables are denoted by a string consisting of letters, numbers and underscore characters, and beginning with an upper-case letter or underscore. Variables closely resemble variables in logic in that they are placeholders for arbitrary terms.

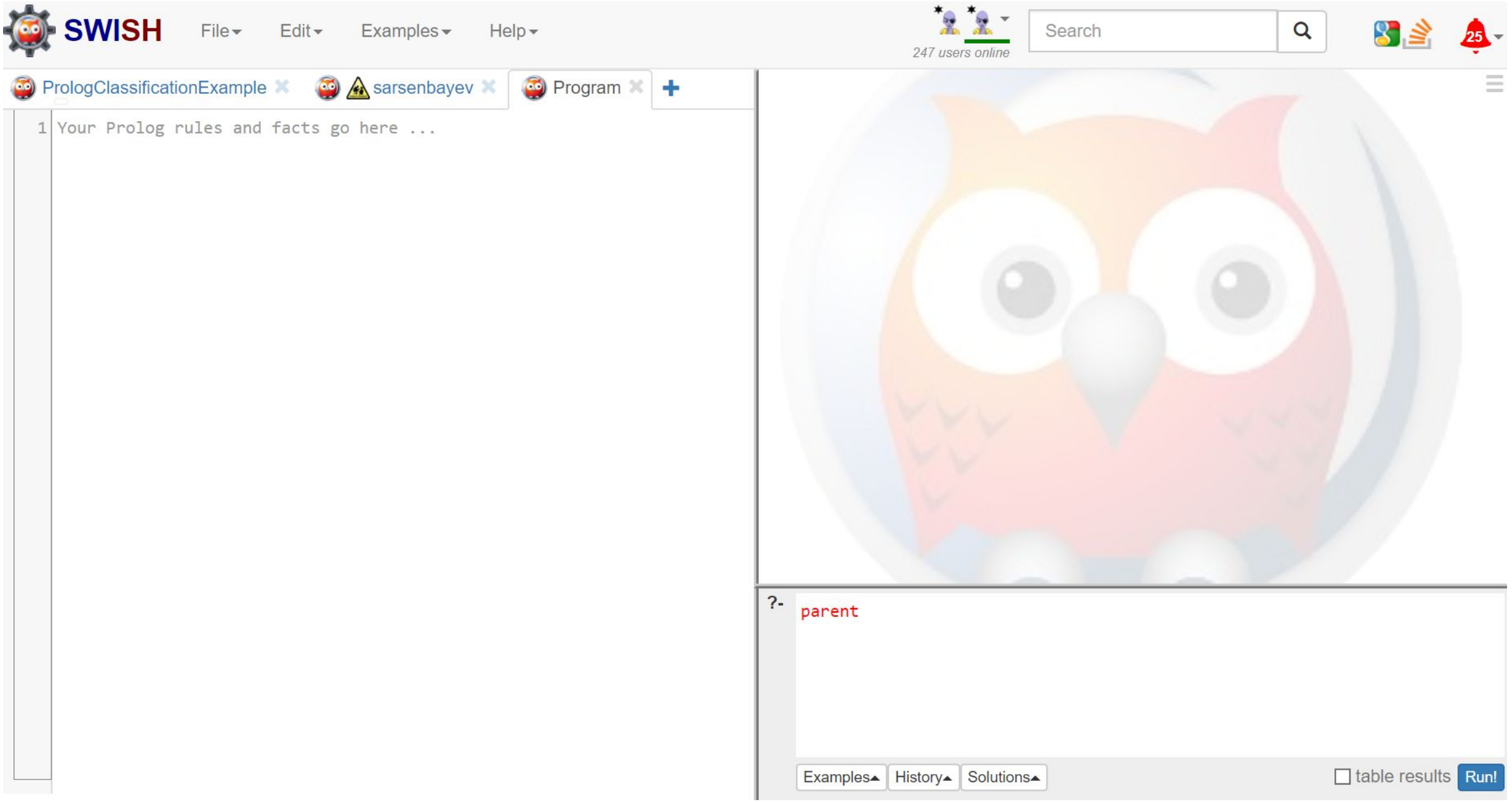
A ***compound term*** is composed of an atom called a "functor" and a number of "arguments", which are again terms. Compound terms are ordinarily written as a functor followed by a comma-separated list of argument terms, which is contained in parentheses. The number of arguments is called the term's arity. An atom can be regarded as a compound term with arity zero. Examples of compound terms are truck_year('Mazda', 1986) and 'Person_Friends'(zelda,[tom,jim]).

Rules and facts

Prolog programs describe relations, defined by means of clauses.
Pure Prolog is restricted to Horn clauses. There are two types of clauses: facts and rules. A rule is of the form

Head :- Body.

and is read as "Head is true if Body is true". A rule's body consists of calls to predicates, which are called the rule's goals. The built-in predicate , /2 (meaning a 2-arity operator with name ,) denotes conjunction of goals, and ;/2 denotes disjunction. Conjunctions and disjunctions can only appear in the body, not in the head of a rule.


SWISH
File
Edit
Examples
Help
247 users online
Search
25
PrologClassificationExample
sarsenbayev
Program
1
Your Prolog rules and facts go here ...
?-
parent
Examples
History
Solutions
table results
Run!

```
male(mike).
male(john).
male(ron).

female(kate).
female(clare).
female(alice).
```

```
parent(ron,john).
parent(john,mike).
parent(john,clare).
parent(john,alice).
parent(kate,mike).
parent(kate,clare).
parent(kate,alice).
```

```
father(X,Y) :- male(X), parent(X,Y).
mother(X,Y) :- female(X), parent(X,Y).

siblings(X,Y) :- parent(Z, X), parent(Z, Y).

grandfather(X,Z) :- male(X), parent(X,Y), parent(Y,Z).
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