جـامعة المستقبـل
كـليـة العـلـوم

Prolog language

Lec5

By

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1. Cut and fail function

- 1. cut
- Represented as “!” is a built in function always True , used to stop
- backtracking and can be placed any where in the rule, we list the cases
- where “!” can be inserted in the rule:
- 1 .R:-f1, f2,!. “f1, f2 will be deterministic to one solution.
- 2. R:-f1,!,f2. “ f1 will be deterministic to one solution while f2 to all .
- 3. R:- !,f1,f2. “R will be deterministic to one solution.

- Example1 : program with out use cut.
- Domains
- I= integer
- Predicates
- No(I)
- Clauses
- No (5).
- No (7).
- No (10).
- Goal
- No (X).
-
- Output:
- X=5
- X=7
- X=10

- Example 2: program using cut.
- Domains
- l= integer
- Predicates
- No(l)
- Clauses
- No (5):-!.
- No (7).
- No (10).
- Goal
- No (X).
-
- Output:
- X=5.

- Example3: program with out using cut.
- Domains
- I =integer
- S = symbol
- Predicates
- a (I)
- b (s)
- c (I, s)
- Clauses
- a(10).
- a(20)
- b(a)
- b(c)
- c (X, Y):- a (X), b (Y).
- Goal
- c(X,Y).
- Output:
- X= 10 Y=a
- X=10 Y=c
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- X=20 Y=a
- X=20 Y=c

- Example 4: using cut in the end of the rule.
- Domains
- I =integer
- S = symbol
- Predicates
- a(I)
- b (s)
- c (I, s)
- Clauses
- a(10).
- a(20)
- b(a)
- b(c)
- c (X, Y):- a (X), b (Y),!.
- Goal
- c(X,Y).
- Output:
- X= 10 Y=a

- Example 5: using cut in the middle of the rule.
- Domains
- I =integer
- S = symbol
- Predicates
- a(I)
- b (s)
- c (I, s)
- Clauses
- a(10).
- a(20)
- b(a)
- b(c)
- c (X, Y):- a (X),!, b (Y).
- Goal
- c(X,Y).
- Output:
- X= 10 Y=a
- Y=c

2. Fail

- Built in function written as word “fail” used to enforce backtracking, place always in the end of rule, produce false and can be used with internal goal to produce all possible solution.
- Example 6:
- Predicates
- Student (symbol , integer)
- Printout.
- Clauses
- Student (aymen,95).
- Student(zainab,44).
- Student(ahmed,60).
- Printout:-student(N,M),write(N,” “,M),nl,fail.
- Goal
- Printout.
- Output:
- aymen 95
- zainab 44
- ahmed 60
- No

- H.w:
- 1. Trace the following clauses and find the output:
- a. clauses
- reading:- readchar(Ch),writ(Ch),Ch=’#’.
- Reading.
- b.clauses
- Go.
- Go:-go.
- Reading:- go,readchar(Ch),write(Ch),Ch=’#,!.
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- 1. Use negation to define the different relation: diff(X,Y) which is true
- when X and Y are different numbers.