

lec 11: PROLOG.

SWI-PROLOG.

- Propositional logic.
- Predicate logic.

Two things to Note

1- facts.

2- Rules.

Ex
66

instructor(chau, math273).

instructor(patel, ee222).

instructor(grossman, cs301).

enrolled(kevin, math273).

enrolled(juana, ee222).

enrolled(juana, cs301).

enrolled(kiko, math273).

enrolled(kiko, cs301).

1- Capital letters are used for variables.

2- period at the end.

3- small case arguments/parameters/inputs for predicates indicate constants

4- predicates ideally are also small letter case.

Rules :- they are made up of
n.d.no (at the time later)

facts are predicates without variables.

instructor(X, Y).

X = chau
Y = math273.

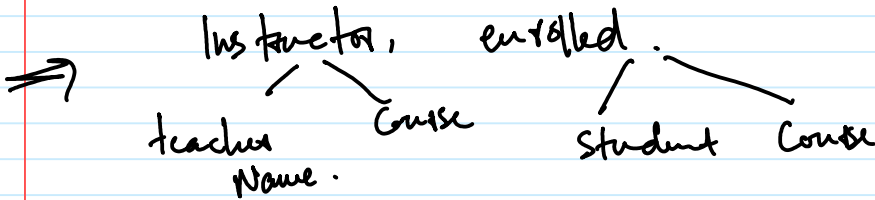
X = patel.
Y = ee222.

X = grossman.
Y = cs301.

Rules := They are made up of
 =. logical facts. Using logical
 connectives. \wedge, \vee .

$\wedge = \text{and}$

$\vee = \text{or}$



Who teaches to whom.

⇒ Tell me who are the students
 of a certain teacher.

Instructor →
 Enrolled →

P teaches S when

if P is the Instructor of a Course C
 and Student S is enrolled in Course C.

teaches(P, S) :- instructor(P, C),
 enrolled(S, C).

∴ Implicit
 i.f.

Rule. ⇒ \wedge, \vee .
 Implications.

Existential predicates.
 Variables.

teaches(P, jvanna) :- instructor(P, C),
 enrolled(jvanna, C).

instructor(P, ee222)
 instructor(P, cs301).

P = patel.
 P = grossman.

enrolled(jvanna, ee222)
 (301).

C = ee222
 C = cs301.

enrolled(jovana, e'22) | C = e'22
enrolled(jovana, CS301). | C = CS301.

likes(mary, food).

likes(mary, wine).

likes(john, mary).

1- John likes anything that mary likes. \Rightarrow Rule?

maryjohn(x) :- likes(mary, x), likes(john, x).

$P \wedge Q \Rightarrow Q \wedge P$

2- John likes anyone who likes wine \Rightarrow Rule?

johnanyone(john) :- likes(john, x), likes(x, wine).

3- John likes anyone who likes themselves. \Rightarrow Rule?

? :- likes(john, x), likes(x, x).

