Formal Definition of Tuple Relational Calculus

SLIDE 1:

A query has the form

$$\{T|p(T)\}$$

where T is the only free variable in p.

The answer includes all tuples t for which $p(T)$ is true with $T = t$.

A tuple relational calculus formula is recursively defind in similar fashion to that for the domain relational calculus.

SLIDE 2:

Atomic formulae for tuple relational calculus:

$R \in Rel$

$R.a$ op $S.b$

$R.a$ op *constant* or *constant* op $R.a$

Rel is relation name

R, S are tuple variables

a is an attribute of R

b is an attribute of S

op $\in \{<, >, =, \leq, \geq, \neq\}$