1)

$\Pi_{person\_name,id}(\sigma_{company\_name='BigBank'}(works \bowtie employee \bowtie company))$

$\Pi_{person\_name,id,city}(\sigma_{company\_name='BigBank'}(works \bowtie employee \bowtie company))$

$\Pi_{id,person\_name,street,address,city}(\sigma_{company\_name='BigBank\ v\ salary>=\$1000}(works \bowtie employee \bowtie company))$

$\Pi_{id,person\_name,id}(\sigma_{employee.city=company.city}(works \bowtie employee \bowtie company))$

2)

$\Pi_{person\_name,id}(\sigma_{company\_name\ \neg'BigBank'}(works \bowtie employee \bowtie company))$

$\Pi_{person\_name,id}(works \bowtie employee \bowtie company) - \sigma_{a.salary>b.salary}(company\_name))$

3)

Insert tuple: (3, Beks, Kazakh,42500) you cannot delete where the department does not have "Kazakh" department

Delete a tuple: (Russian, Beks,42500) you cannot delete where at least one has a dept name as Russian
they would violate foreign key constraint

4)

{id,person_name}