

1.  $\sigma_{(\text{year}(\text{EMPLOYEE.EStartDate}) = 2005)} (\text{EMPLOYEE})$

2.  $\rho_{(\text{deptname, empname})} ($   
     $\pi_{(\text{DName, EName})} ($   
        EMPLOYEE  
         $\bowtie_{(\text{Employee.DNum} = \text{DEPARTMENT.Dnumber})}$   
        DEPARTMENT  
    )  
)

3.  $\pi_{(\text{empname, num\_pro})} ($   
     $\rho_{(\text{ESSN, empname, num\_pro})} ($   
         $\text{count}^* \mathbf{F}_{(\text{EMPLOYEE.ESSN, EMPLOYEE.ENAME})} ($   
            EMPLOYEE  
             $\bowtie_{(\text{EMPLOYEE.ESSN} = \text{WORKSON.ESSN})}$   
            WORKSON  
        )  
    )  
)

4.  $\pi_{(\text{depname, num\_emp})} ($   
     $\rho_{(\text{DNumber, depname, num\_emp})} ($   
         $\text{Count}^* \mathbf{F}_{(\text{DEPARTMENT.DNumber, DEPARTMENT.Dname})} ($   
            EMPLOYEE  
             $\bowtie_{(\text{EMPLOYEE.DNum} = \text{DEPARTMENT.DNumber})}$   
            DEPARTMENT  
        )  
    )  
)

5.

```

π (praname, num_emp) (
  ρ (PNumber, praname, num_emp) (
    count(*) F (PNumber, PName) (
      EMPLOYEE
      ⋈ (EMPLOYEE.ESSN = WORKSON.ESSN)
      WORKSON
    )
    ⋈ (WORKSON.PNum = PROJECT.PNumber)
    (PROJECT)
  )
)

```

6.

```

π locname (
  σ (num > 2) (
    ρ (locname, num) (
      count(*) F (Project.PLocation) (PROJECT)
    )
  )
)

```

7.

```

ρ empname (
  π EName (
    σ EMPLOYEE.ESex='F' and year(now)-year(EMPLOYEE.EBirthDate)=55
    or EMPLOYEE.ESex='M' and year(now) - year(EMPLOYEE.EBirthDate)=60
    (EMPLOYEE)
  )
)

```

