

CSE636 - Fall 2006

Practice Problem

Problem

You are given two different databases, **A** and **B**, representing the same information about employees. For every employee, you need to store the **SSN**, **name**, and **salary** in both databases. Employees belong to a number of categories (not necessarily disjoint). In database **A**, there are relations **EMP(SSN,name,salary)** and **CAT(SSN,category)**. There is a tuple **(n,c)** in **CAT** for every category **c** to which an employee with **SSN n** belongs. In database **B**, there is a single **EMPLOYEE** relation containing, in addition to **SSN**, **name**, and **salary** information, and an attribute for every employee category. That attribute assumes true/false values, depending on whether an employee belongs to the given category. Do not assume any fixed set of categories.

Define in SchemaSQL the mappings between the databases **A** and **B** (in both directions).

A to B:

```
CREATE VIEW tmpCAT(SSN, category, value) AS
  (SELECT C.SSN, C.category, 'True'
   FROM A::CAT C)
 UNION
  (SELECT E.SSN, D, 'False'
   FROM A::EMP E, A::CAT.category D
   WHERE D NOT IN
    (SELECT C2.category
     FROM A:CAT C2
     WHERE E.SSN = C2.SSN))
```

```
CREATE VIEW AtoB::EMPLOYEE(SSN, name, salary, C) AS
  SELECT E.SSN, E.name, E.salary, tC.value
  FROM EMP E, tmpCAT tC, tC.category C
  WHERE E.SSN = tC.SSN
```

B to A:

```
CREATE VIEW BtoA::EMP(SSN, name, salary) AS
  SELECT E.SSN, E.name, E.salary
  FROM B::EMPLOYEE E;
```

```
CREATE VIEW BtoA::CAT(SSN, category) AS
  SELECT E.SSN, Attrs AS category
  FROM B::EMPLOYEE-> Attrs, B::EMPLOYEE E
  WHERE Attrs <> 'SSN'
    AND Attrs <> 'name'
    AND Attrs <> 'salary'
    AND E.Attrs = True
```