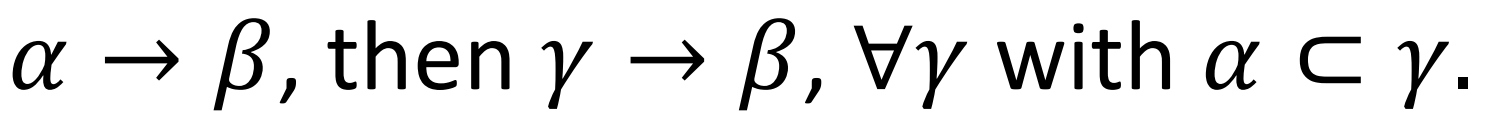
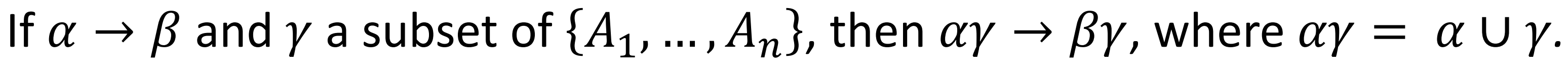
Notes lecture 5

* Properties for functional dependencies:
  1. a key in and a subset of
     + a key any subset of attributes from the relation)
     + always true, it will not be eliminated through decompositions
  2. If , then
     + a set of attributes ANY of its subsets
  3. 
     + if , then any set in which is contained
  4. 
  5. 
* **Prime** attribute = is included in a key (**non-prime** otherwise)
* is **fully functionally dependent** on if

( is the “smallest” determinant)

* **2NF** if:
  1. 1NF
  2. every *non-primary-key* attribute is fully functionally dependent on the primary key of the relation

Ex.:

A close-up of a course

Description automatically generated

Not ok because COURSE\_NO COURSE\_FEE, so COURSE\_FEE is not fully functionally dependent on {STUD\_NO, COURSE\_NO}, which is the key of the relation.

* **Decomposition**: R is decomposed in and , where:
  1. alpha proper subset of the key
  2. non-prime attr

A close-up of a test

Description automatically generatedEx.:

* **transitively dependent** on X if such that
  1. *does not hold*
* **3NF** (Def1)
  1. 2NF
  2. no non-prime attribute is transitively dependent on any key in the relation
* **3NF** (Def2) if , one of the 2 are true:
  1. X is a superkey
  2. A is a prime attribute
* **BCNF(Boyce-Codd)** = if every determinant is a key

* **Closure**
  1. of (set of functional dependencies) contains all the functional dependencies implied by
  2. of (set of attributes) contains the attributes that are functional dependent on attributes from

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