CMSC424: Database Design

Lecture 9

Relational Database Design

- Find a “good” collection of relation schemas; otherwise
  - *Repetition of Information.*
    - Leads to anomalies
  - *Inability to represent certain information.*

- Use integrity constraints to *refine* the schema

- Main refinement technique: *Decomposition*
  - *E.g. break ABCD into AB and BCD*

- Must be careful with decomposition

Decomposition

All attributes of an original schema (*R)* must appear in the decomposition (*R_1*, *R_2)*:

$$R = R_1 \cup R_2$$

Lossless-join decomposition.

For all possible *legal* relations *r* on schema *R*

$$r = \Pi_{R1}(r) \bowtie \Pi_{R2}(r)$$

How do you define *legal* ?