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Foundations of Query Languages
Summer semester 2010
June 1, 2010

6. Exercise Set: Evaluation of Join Queries

Exercise 1
Show that global consistency implies pairwise consistency consistency.

Exercise 2
Let the following relation schema $R = \{S_1(ABC), S_2(CDE), S_3(AFE), S_4(ACE)\}$ be given.

a) Draw the associated hypergraph and apply the GYO algorithm.

b) Draw a join tree for this schema.

Exercise 3
Let $\mathcal{R} := \{S_1(ABC), S_2(BCDE), S_3(BCDG), S_4(CDEF)\}$ be a relational schema.

a) Draw the hypergraph for $\mathcal{R}$.

b) Apply the GYO algorithm. In each step specify the eliminated ear and a witness for this ear. Propose at least three different orders in which ears can be eliminated. Is $\mathcal{R}$ acyclic?

c) Draw a join tree for R and explain the connection between the GYO-algorithm and join trees using this example.

Exercise 4
Give a full reducer for the query $S_1 \bowtie S_2 \bowtie S_3 \bowtie S_4$, where the schema is $S_1[ABC], S_2[CDE], S_3[AFE], S_4[ACE]$.

Due by: June 9, 2010 before the tutorial starts.