EXERCISE 9

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Exercise 9.1[Tableau Containment] :

- D1 :{<a1,a2> | $\exists b1 \exists b2(R(a1, b1) \wedge R(b2, a2) \wedge R(b1, 5) \wedge R(5, b2))$}
  $D2 : \{< a1, a2 > | \exists b1 \exists b2 \exists b3 \exists b4 (R(a1, b2) \wedge R(a1, b4) \wedge R(b1, a2) \wedge R(b2, b3) \wedge R(b4, b3) \wedge R(b3, b1))\}$

1.

T1

a1	a2
a1	b1
b2	a2
r1	5
5	b2
5	5

T2

a1	a2
a1	b2
a1	b4
b1	a2
b2	b3
b4	b3
b3	b1

2.

To check if one is included in the other we must check that:

- T1, T2 have the same columns and entries in result rows.

- the relation computed from T1 is a subset of the one from T2 for all valid assignments of relations to rows.

T1 $\subseteq T2$:

Exercise 9.2[Tableau Minimization] :

Exercise 9.3[Join Ordering] :

1

2

3

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