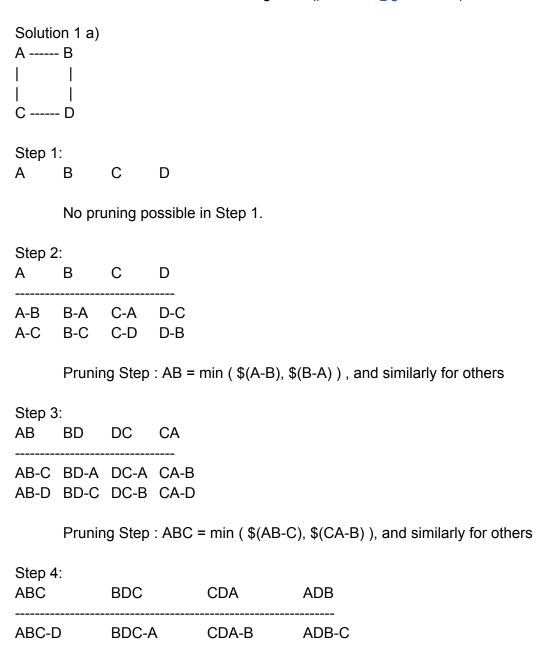
HW - 1 Database

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Pruning Step: ABCD = min ((ABC-D), (BDC-A), (CDA-B), (ADB-C))

Solution 1b)

System R optimizer doesn't examine bushy joins and only looks for linear sequences. Bushy joins expand the cost of enumerating the search space considerably.

Solution 2) [2nd Pick - Total plans]

Assuming linear sequence means: A --- B --- C --- D --- E

Step 1: # of L.A.P. trees with relations is : n

After pruning: n

Step 2: # of LAP trees with relations is : 2n - 2

After pruning: n-1

Step 2: # of LAP trees with relations is : 2(n-1) - 2

After pruning: n-2

Total number of plans = n + (2n-2) + (2(n-1)-2) + = $n + \sum_{1}^{n} 2x - 2$ = n + (n^2 + n) - 2n

Solution 3)

(a) B=3 or B=4

Index on 'B', as it has an index.

(b) B= 66 and C=12

Index on C or index on B, either of them.

(c) B>3 and C>77

No index. Full table scan happens.

(d) B=22 and A=15

Index on B, as average number of tuples returned by B will be lesser than A

(e) D=44 and B>34

No index. Full table scan happens.

Solution 4)

select *

from a, b

where a.X = b.X or a.Y=b.Y

Let J be (J1 and J2), J1 => a.X = b.X and J2 => a.Y = b.Y

So, in case of OR, <u>cross product of the join streams</u> (J1 and J2) can be examined for System R algorithm.