Sammy Diamantstein : 101060342 : Assignment 3

**Special Note to TA: QBE was barely covered in class, and the notes online lack substance. As such, doing QBE questions was close to impossible..I did the best I could)

1.

TRC:
{P.Pname | P in parts and (exists X in SP) and (exists S in Suppliers) (P.P# = X.P# and X.S#=S.S# and S.Sname = "adams") }

DRC:
{Pname | (exists P#, Pname) (Parts(P#,Pname,_,_,_) and exists(#S,#P)(SP(S#,P#,_) and exists(S#,P#)(Suppliers(S#,P#, “Adams”)}

QBE:

Suppliers

Sname	S#	...
_Sname	_S	

^

SP

S#	P#	QTY
_S	_P	

^

Parts

P#	Pname	...	...
_P	P		

-

2.

TRC:
{S.Sname | S in Suppliers and (exists X in SP) and (exists P in Parts) (p.p#=“p2” and p.p# = X.p# and X.S# = S.S#)}

DRC:
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 {Sname |
        (exists S#, Sname)(Suppliers(S1,SName,_,_)) and
        (exists P#)(Parts(P1,_,_,_,_))  and
        (exists S#,P#)(SP(S2,P2,_))   and
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(P1="p2" and P1 = P2 and S1 = S2)}

QBE:

Suppliers	^	SP	^	Parts

Sname	S#	...
P	_S	

S#	P#	QTY
_S2	_P2	

P#	Pname	. . .	. . .
_p1			

-
3.
TRC:
{S.Sname, Sum(X.QTY) | S in Suppliers and (exist X in SP) (S.S# = X.S#) }

DRC:

{Sname, Sum(Q) |
(exists Sname,S#)(Suppliers(S1,Sname,_,_)) and
(exists S#, QTY)(SP(S2,_,Q)) and
(S1 = S2)}

QBE:

Suppliers	^	SP		Parts

Sname	S#	...
P	_S	

S#	P#	Q
_S2	_P2	P

P#	Pname	. . .	. . .

-

4.

TRC:
{S.Sname | S in Suppliers and (exists X in SP) (S.s# = X.s# and qty<300)}

DRC:

{Sname |
(exist Sname,S#)(Suppliers(S1,Sname,_,_,_)) and
(exist S#,QTY)(SP(S2,_,Q) and (Q< 300))}

QBE:

Suppliers

Sname	S#	...
P	_S1	

^

SP

S#	P#	QTY
_S2		_Q

Parts

P#	Pname	...	...

-

5.

TRC: {S.Sname | S in Suppliers and (exists P in Parts) and (exists X in SP) (P.Color = “blue” or P.Color = “green”)}

DRC:
{Sname |
(exist Sname,S#) (Suppliers(S1,Sname,_,_)) and
(exist S#,P#)(SP(S2,P1,_) and
(exist P#, Color)(Parts(P2,_,C_,_) and (C = “blue” or C = “green”))}

QBE:

Suppliers			^	SP			^	Parts			
Sname	S#	...		S#	P#	QTY		P#	Pname	Color	...
P	_S1			_S2	_P1			_p		_C	

-

6.

TRC: {S.Sname, P.Pname | S in Suppliers and P in Parts and (not exists X in SP) (S.S# = X.S# and X.P# = P.p#)}

DRC:

{Sname, Pname |
(exist S#,Sname)(Suppliers(S1,Sname,_,_)))
(exist S#,P#)(SP(S2,P1,_,_))
(not exist S#,P#) Parts((S3,P2,_,_,_))
(and S1 = S2 and P1 = p2)}

QBE:

Suppliers			^	SP			∨	Parts			
Sname	S#	...		S#	P#	QTY		P#	Pname	...	...
P	_S1			_S2	_p1			_p2			

-

7.
TRC:
{S.Sname | S in Suppliers and (not exists X in SP) (S.S# = X.S#)}

DRC:

{Sname |
(exist S#, Sname)(Suppliers(S1, Sname,_,_)))
and (not exist #S)(SP(S2,_,_,_) and
(S1 = S2)}

QBE:

Suppliers			∨	SP			^	Parts			
Sname	S#	...		S#	P#	QTY		P#	Pname	...	...
P	_p			_p							

-

8.
TRC:
{S.Sname | S in Suppliers and (forall P in Parts)(exists X in SP)(S.S#= X.S# and X.P# = P.P#)}

DRC:
{Sname |
(exist S#,Sname)(Suppliers (S1,Sname,_,_)) and
(exist S#, P#)(SP(S2,P2,_)) and
(exist P#)(Parts(P2,_,_,_,_)) and
(and S1=S2 and P1 = P2)}

QBE:

Suppliers

Sname	S#	...
P	_S1	

^

SP

S#	P#	QTY
_S2	_P1	

^

Parts

P#	Pname	.. .	...
_P2			

-

9.

TRC:

{S.Sname | S in Suppliers and (forall P in Parts)(exists X in SP)(S.S#= X.S# and X.P# = P.P# and P.P# != “P2”)}

DRC:

{Sname |
(exist S#, Sname)(Suppliers(S1,Sname,_,_)
(exist S#,P#)(SP(S2,P1,_,_)) and
(exist P#)(Parts(P2,_,_,_,_)) and
(and P1 = P2 and P2 != “P2”)}

-

10.

TRC:
{S.Sname, Sum(X.QTY), Count(X.P#) | S in Suppliers and P in Parts and X in SP (S.S#= X.S# and X.P# = P.P#)}

DRC:
{Sname, Sum(Q), Count(P1) |
(exist S#, Sname)(Suppliers(S1,Sname,_,_)) and
(exist S#,P#,QTY)(SP(S2,P1,Q)) and
(exist P#)(Parts(P2,_,_,_,_)) and
(S1 = S2 and P1 = P2)}

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11.

TRC:

{S.Sname | S in Suppliers and (exists X in SP) and (exists P in Parts) (P.P# = X.P# and X.S#=S.S# and S.Sname = "Jones") }

DRC:

{Sname|
(exist S#,Sname)(Suppliers(S1,Sname,_,_)))
(exist S#,P#)(SP(S2,P1,_,_))
(exist S#,P#) Parts((S3,P2,_,_,_))
(and S1 = S2 and P1 = p2 and Sname = “jones”)}

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12.

TRC: {S.Sname | S in Suppliers and P in Parts and (not exists X in SP) (S.S# = X.S# and X.P# = P.p#)}

DRC:

{Sname|
(exist S#,Sname)(Suppliers(S1,Sname,_,_)))

(exist S#,P#)(SP(S2,P1,_,_))
(not exist S#,P#) Parts((S3,P2,_,_,_))
(and S1 = S2 and P1 = p2 and Sname = “jones”)}