Problem

For the information system given below, find the set of rules describing C in terms of E, F, G by following ERID algorithm. Use ½ for minimum confidence and ½ for minimum support.
Assume that Dom(E)={e1,e2}, Dom(F)={f1, f2}, Dom(C)={c1,c2}, G={g1,g2}.
Use Chase with threshold 1/3 to check if C(x3) will change its value based on discovered rules.

X	E	F	G	C
x1	e1	f1	(g1,1/2)(g2,1/2)	c2
x2	e2	f1	g2	c1
x3	(e1,1/2)(e2,1/2)	f1	g1	(c1,1/2)(c2,1/2)
x4	e2	(f1,1/2)(f2,1/2)	g2	c1
x5	e1	f2	g1	c2
x6	e2	f2	(g1,1/2)(g2,1/2)	c1

e1*={(x1,1), (x3,1/2),(x5,1)}, e2*={(x2,1),(x3,1/2)(x4,1)(x6,1)}
f1*={(x1,1),(x2,1),(x3,1),(x4,1/2)}, f2*={(x4,1/2),(x5,1)(x6,1)}
g1*={(x1,1/2),(x3,1),(x5,1)(x6,1/2)}, g2*={(x1,1/2),(x2,1),(x4,1)(x6,1/2)}
c1*={(x2,1),(x3,1/2),(x4,1)(x6,1)}, c2*={(x1,1)(x3,1/2),(x5,1)}
e1->c1 sup=1/2*1/2=1/4 e1->c2 sup=1*1+1/2+1/2+ 1*1=9/4, conf=9/4:5/2 = 18/20
e2->c1 sup= 1*1+1/2*1/2+1*1+1*1=13/4 conf=13/12:7/2 = 26/84 e2->c2 sup=1/4
f1*={(x1,1),(x2,1)(x3,1)(x4,1/2)} f2*={(x4,1/2)(x5,1)(x6,1)}
f1 -> c1 sup=1*1+1*1/2+1*1/2=2 conf = 2:7/2 f1 -> c2 sup=1*1+1*1/2=3/2, conf=3/2:7/2=6/14
f2->c1 sup= 1*1/2+1*1=3/2 conf=3/2:5/2=6/10 f2->c2 sup=1*1=1, conf=1:5/2 >1/2
g1*={(x1,1/2),((x3,1),(x5,1)(x6,1/2)} g2*={(x1,1/2),(x2,1),(x4,1),(x6,1)}
g1->c1 sup=1*1/2+1/2*1=1, conf=1:3 g1->c2 sup=1/2*1+1*1/2+1*1=2, conf=2:3
g2->c1 sup=1*1+1*1+1*1=3 , conf=3:7/2 g2->c2 sup=1*1/2 , conf=1/2:7/2

f1*g2 -> c2 sup= 1*1/2, conf=1/2:2 f2*g2 -> c2 sup=0
f1.g2*= {(x1,1/2),(x2,1),(x4,1/2)} f2.g2*={(x4,1/2),(x6,1/2)}

c(x3): c2 - ½*9/4* 18/20 + 1*2*2/3 = n1 c1 – ½*13/4*13/42 + 1*2*4/7 = n2

c(x3) = {(c2, n1/(n1+n2)), (c1,n2/(n1+n2)}