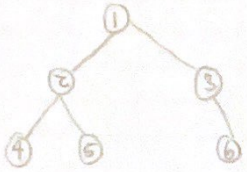
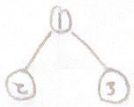
CS 245	HW #3	Jason Chapman

1.



Tree 1



Tree 2

Tree 3

a) Tree 1: 1 2 4 -1 5 -1 -1 3 6 -1 -1

Tree 2: 1 2 -1 3 -1

Tree 3: 1 5 -1 3 -1

b) Tree 2 is an induced subtree of Tree 1

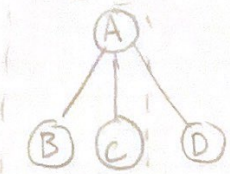
Tree 2 is an embedded subtree of Tree 1

c) Tree 3 is not an induced subtree of Tree 1

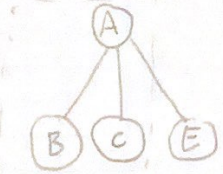
Tree 3 is an embedded subtree of Tree 1

(2)

Tree 1



Tree 2

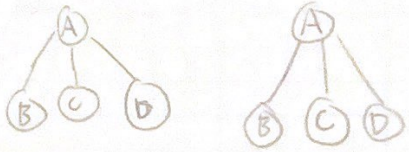


Equivalence class

Prefix A, B, -1, C

Element: (D,0), (E,0)

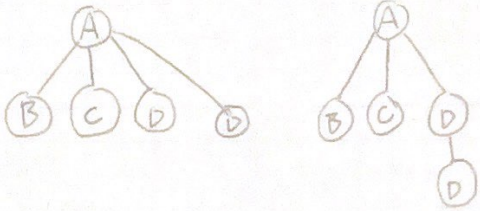
a.) Self Join



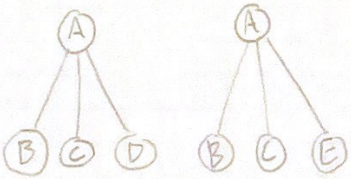
X=D Y=D

i=0 j=0

New Candidates



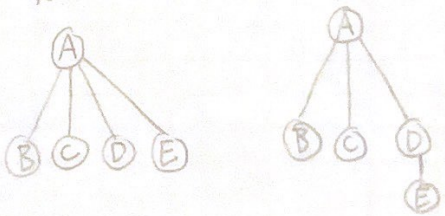
Join



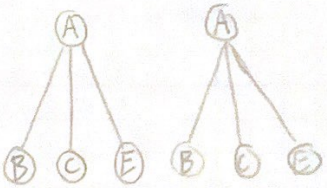
X=D Y=E

i=0 j=0

New Candidates



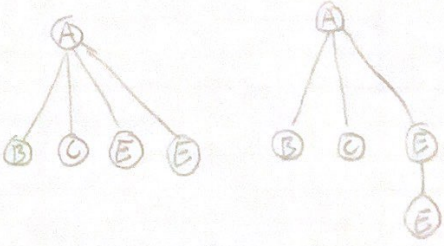
Self Join



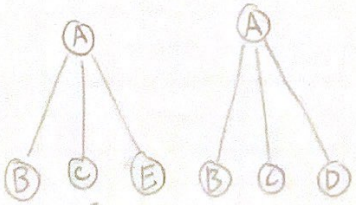
X=E Y=E

i=0 j=0

New Candidates



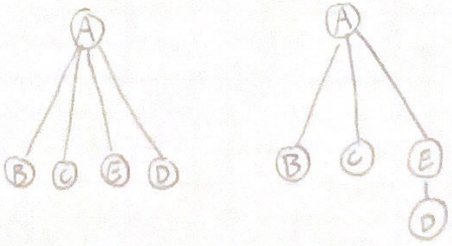
Join



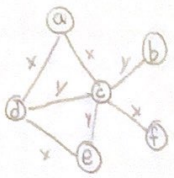
X=E Y=D

i=0 j=0

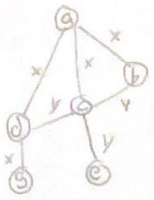
New Candidates



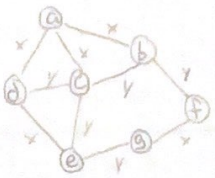
3.



G1



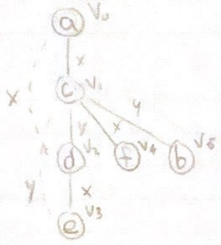
G2



G3

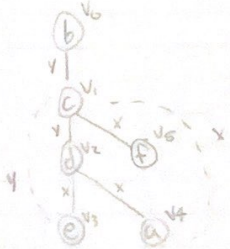
a.) * Assume a<b<c<d<e<f<g, x<y

G1: Spanning Trees.



(A)

(B)



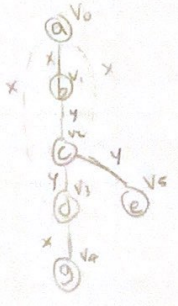
(C)

edge	A	B	C
0	0, 1, a, x, c	0, 1, d, x, a	0, 1, b, y, c
1	1, 2, c, y, d	1, 2, a, x, c	1, 2, c, y, d
2	2, 0, d, x, a	2, 0, c, y, d	2, 3, d, x, e
3	2, 3, d, x, e	2, 3, c, y, e	3, 1, e, y, c
4	3, 1, e, y, c	3, 0, e, x, d	2, 4, d, x, a
5	1, 4, c, x, f	2, 4, c, x, f	4, 1, a, x, c
6	1, 5, c, y, b	2, 5, c, y, b	1, 5, c, x, f

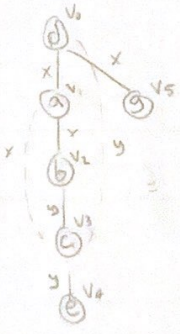
min DFS

A < C < B

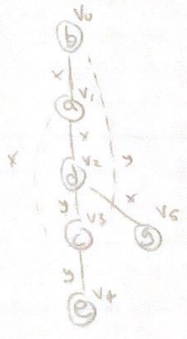
G2: Spanning Trees



(A)



(B)



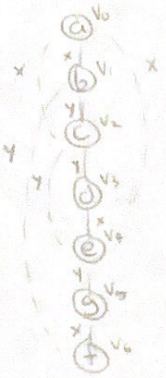
(C)

edge	A	B	C
0	0,1,a,x,b	0,1,d,x,a	0,1,b,x,a
1	1,2,b,y,c	1,2,a,x,b	1,2,a,x,d
2	2,0,c,x,a	2,3,b,y,c	2,3,d,y,c
3	2,3,c,y,d	3,0,c,y,d	3,0,c,y,b
4	3,0,d,x,a	3,1,c,x,a	3,1,c,x,a
5	3,4,d,x,y	3,4,c,y,e	3,4,c,y,e
6	2,5,c,y,e	0,5,d,x,y	2,5,d,x,y

A < C < B

minDFS

G3: Spanning Tree



(A)

(B)

(C)

edge	A	B	C
0	0,1,a,x,b	0,1,d,x,a	0,1,b,x,a
1	1,2,b,y,c	1,2,a,x,b	1,2,a,x,d
2	2,0,c,x,a	2,3,b,y,f	2,3,d,y,c
3	2,3,c,y,d	3,4,f,x,y	3,0,c,y,b
4	3,0,d,x,a	4,5,g,y,e	3,1,c,x,a
5	3,4,d,x,e	5,0,e,x,d	3,4,c,y,e
6	4,2,e,y,c	5,6,e,y,c	4,2,e,x,d
7	4,5,e,y,g	6,0,c,y,d	4,5,e,y,g
8	5,6,g,x,f	6,1,c,x,a	5,6,g,x,f
9	6,1,f,y,b	6,2,c,y,b	6,0,f,y,b

A < C < B

minDFS

b) In Lexicographic order: A from G3, A from G2, A from G1

a)

CAM for G1