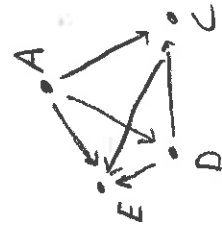
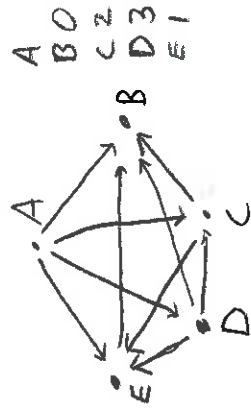


7B) Recursive

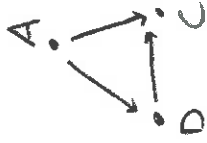
Plurality: $D > A > C > E > B$; Rd1: drop D; A with 7, Rd2: drop C with 10, Rd3: drop E with 16

Elimination: $A > D > C > E > B$; Rd1: eliminate B; E - drop A with 5, Rd2: eliminate B, drop D with 11, Rd3: eliminate B, drop C with 12, Rd4: drop E with 16

Pairwise:



A3
C1
D2
E0



A2
C0
D1



A1
D0

$w = \{E, A, B\}$

so ranking is??

8A) Condorcet = A - beats everyone head to head
Majority = none - A & D have most votes at 7 each
but neither meet majority threshold of 11

9) Ballot types
19 ballot types

Extra Credit Vote Gradesheet

Name: Investment

Setup of poll (30):	substantive question	(10)	8	
	$n \geq 5$	(10)	✓	
	$N \geq 20$	(10)	✓	
Presentation (40):	1 sheet of paper, no glue, no tape, no staples	(10)	✓	
	detailed ballots from website	(10)	✓	
	1-1 comparison results from website	(5)	0	} missing
	beatpaths results from website	(5)	0	
	few ties, and they are marked	(5)	✓	
	organized and legible, question and key	(5)	✓	
Analysis (80):	preference schedule and 1-1 comparisons	(12)	✓	
	statement of number of ballot types	(2)	✓	
	graph with margins	(12)	✓	
	Smith set	(4)	0	missing
	statement about Majority candidate	(2)	✓	
	statement about Condorcet candidate	(2)	✓	
	credit for no Condorcet candidate?	(10)	0	} Cond. cand.
	beatpath winner(s)	(8)	6	v necessary disq.
	runoff winner(s)	(4)	✓	
	plurality winner(s)	(5)	✓	
	elimination winner(s)	(8)	✓	
	pairwise winner(s)	(8)	✓	
	check on pairwise points	(3)	0	missing

Grade (of 150 possible points):

119/150