

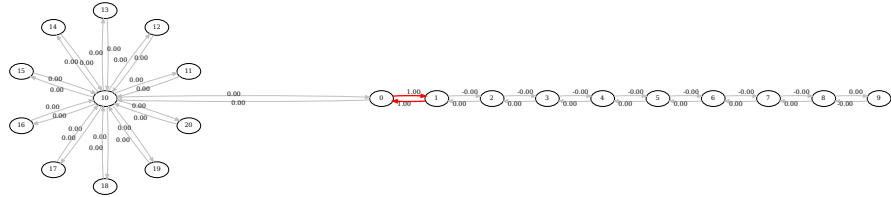
Report of running the k -connected cut algorithm

This is an automatically generated report which runs the algorithm on given graphs. There is a graph, its integer linear program solution, linear program solution and approximation result.

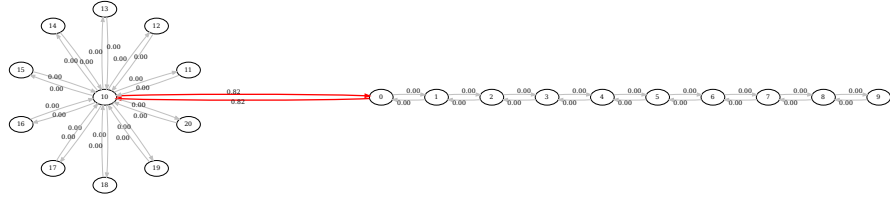
Graph	k	$ V $	ILP	LP	$e(\mathcal{B}(s, r))$	$ \mathcal{B}(s, r) $
comet	12	21	2	1.636	2	10
comet-alt	12	21	2	1.800	2	11
comet-path	6	21	4	4.000	4	6
clique	3	10	42	14.000	18	1
clique-alt	6	10	48	8.000	0	10
star	4	21	34	34.000	34	4
star-alt	8	21	26	26.000	26	8
tree	15	81	6	6.000	6	15
tree-alt	3	216	22	22.000	22	3
Petersen	6	10	12	2.667	0	10
necklace	10	20	22	5.600	4	11
necklace-alt	10	20	22	2.222	4	6
k-2-20	8	22	40	26.667	40	1
k-2-20-alt	3	22	40	36.190	40	1
k-2-20-large	14	22	32	15.238	0	22

comet

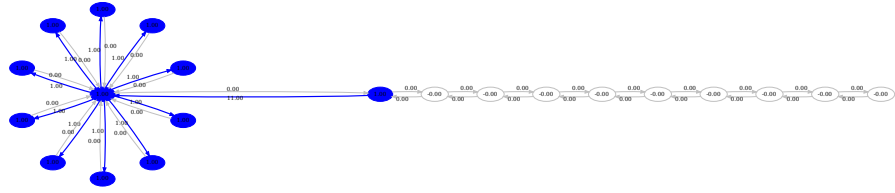
This input graph has a source vertex $s = 0$ and capacity $k = 12$. The value of mixed integer program is 2 and its linear relaxation 1.6363636363636362. The approximation yields solution with 10 vertices and 2 size of the cut.



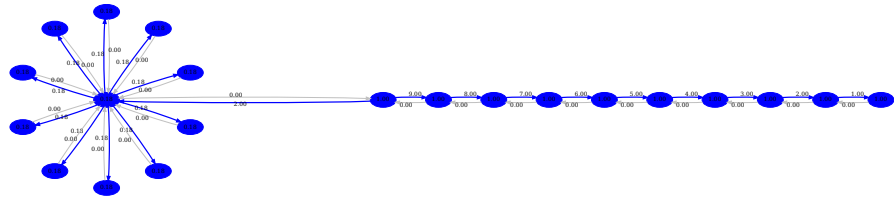
cut-ilp



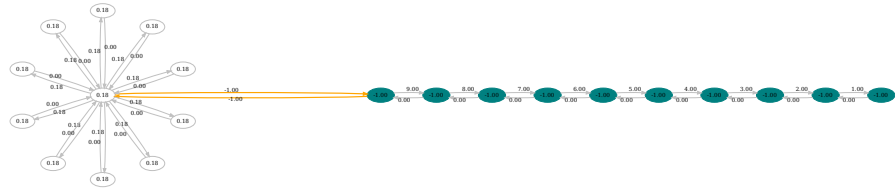
cut-lp



flow-ilp



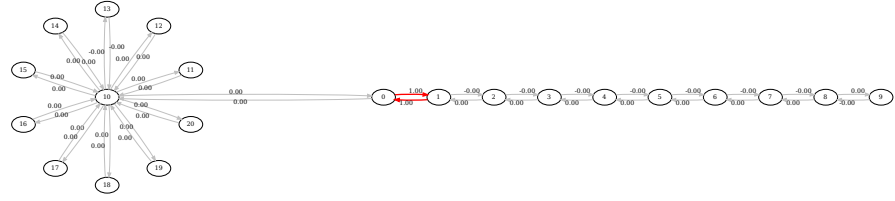
flow-lp



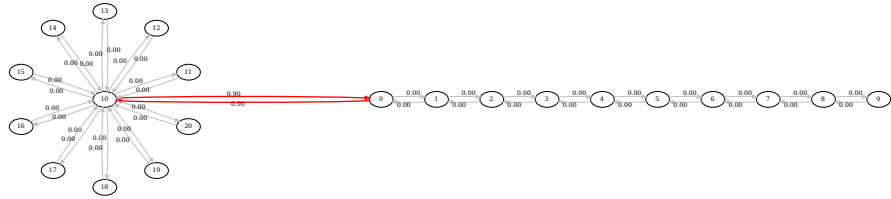
ball-0.5

comet-alt

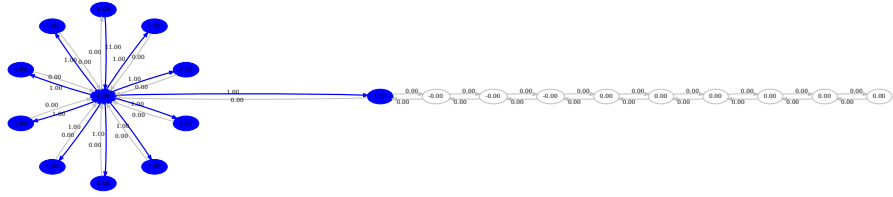
This input graph has a source vertex $s = 13$ and capacity $k = 12$. The value of mixed integer program is 2 and its linear relaxation 1.8. The approximation yields solution with 11 vertices and 2 size of the cut.



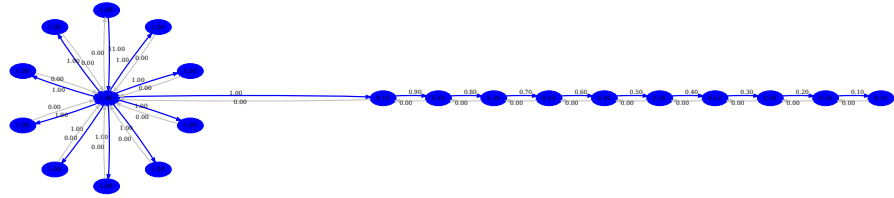
cut-ilp



cut-lp



flow-ilp



flow-lp

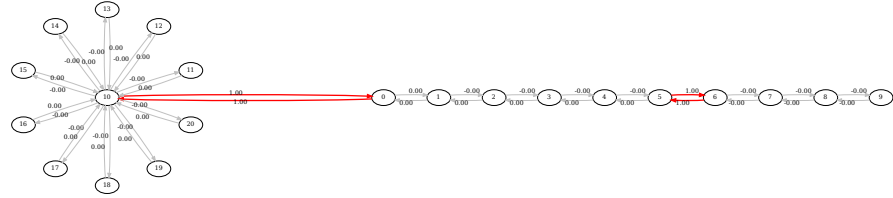


ball-0.5

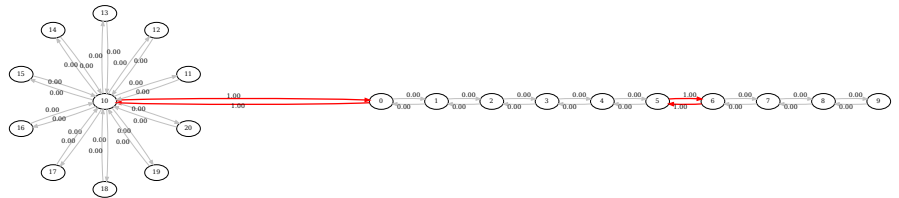
comet-path

This input graph has a source vertex $s = 0$ and capacity $k = 6$. The value of mixed integer program is 4 and its linear relaxation 4. The approximation yields

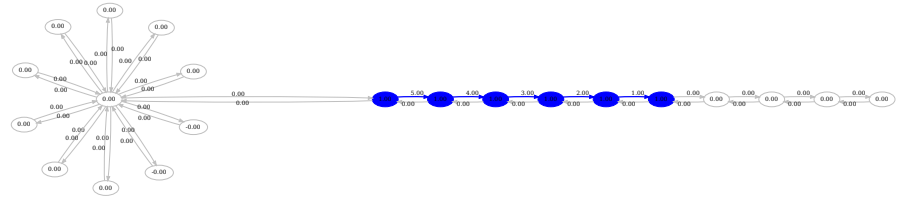
solution with 6 vertices and 4 size of the cut.



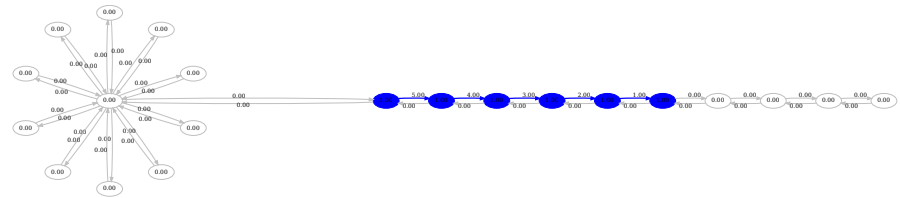
cut-ilp



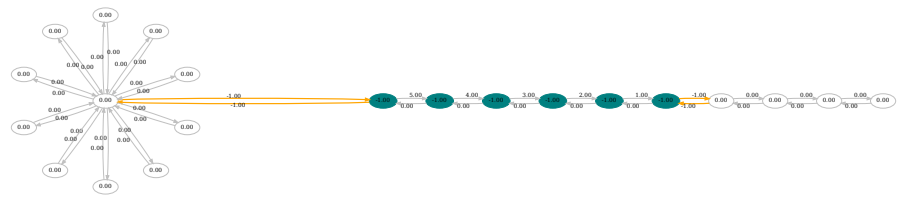
cut-lp



flow-ilp



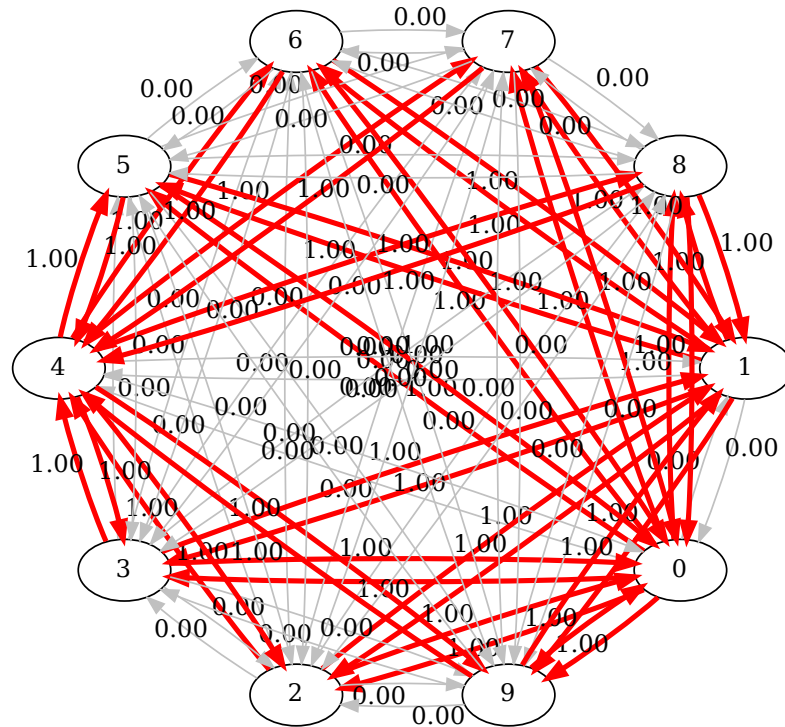
flow-lp



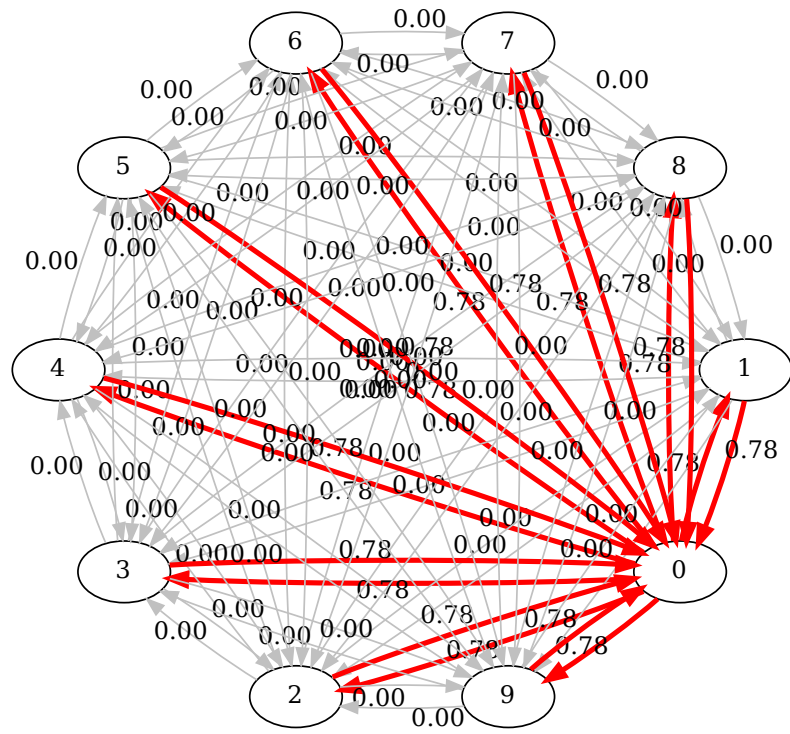
ball-0.5

clique

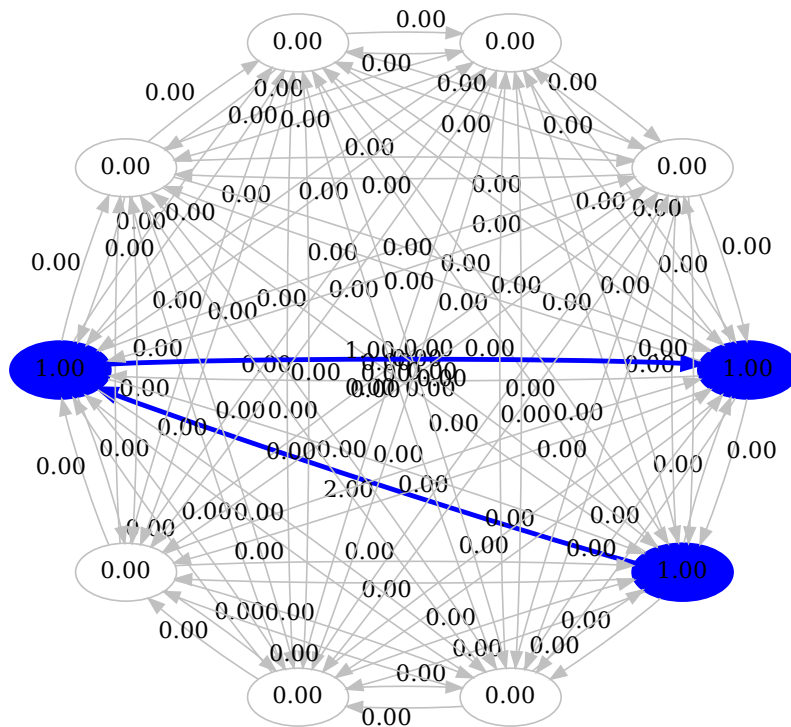
This input graph has a source vertex $s = 0$ and capacity $k = 3$. The value of mixed integer program is 42 and its linear relaxation 14.000000000000005. The approximation yields solution with 1 vertices and 18 size of the cut.



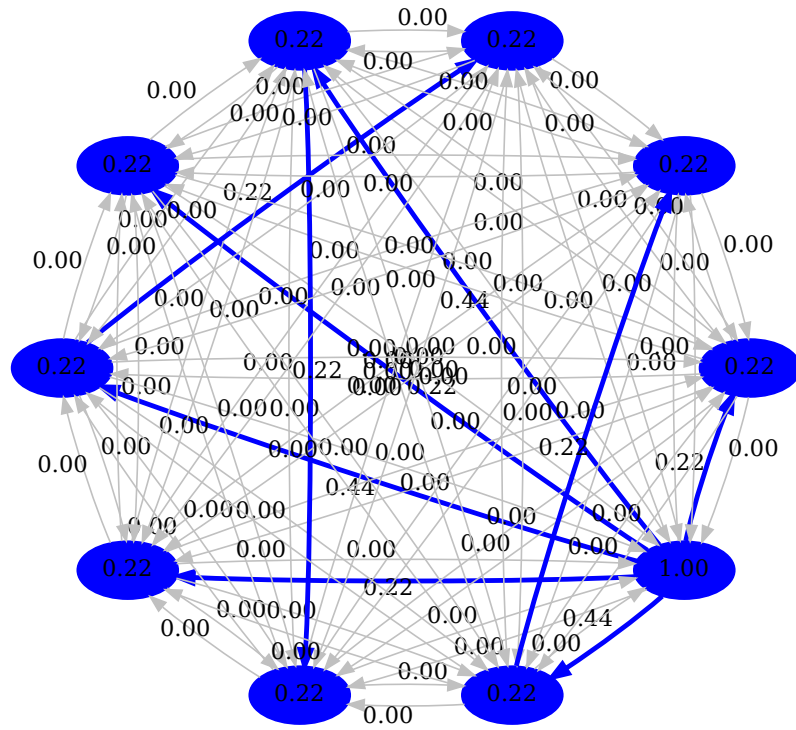
cut-ilp



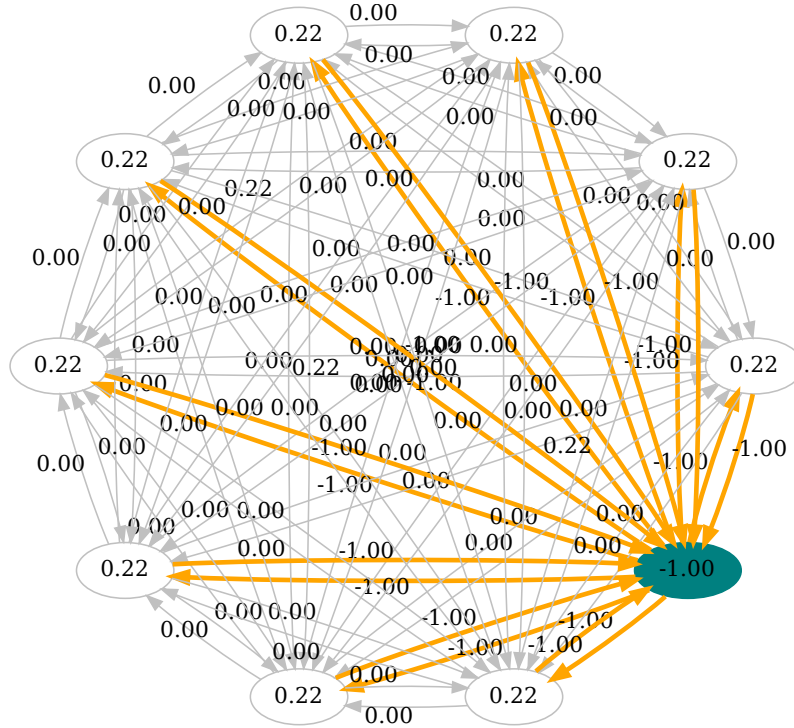
cut-lp



flow-ilp



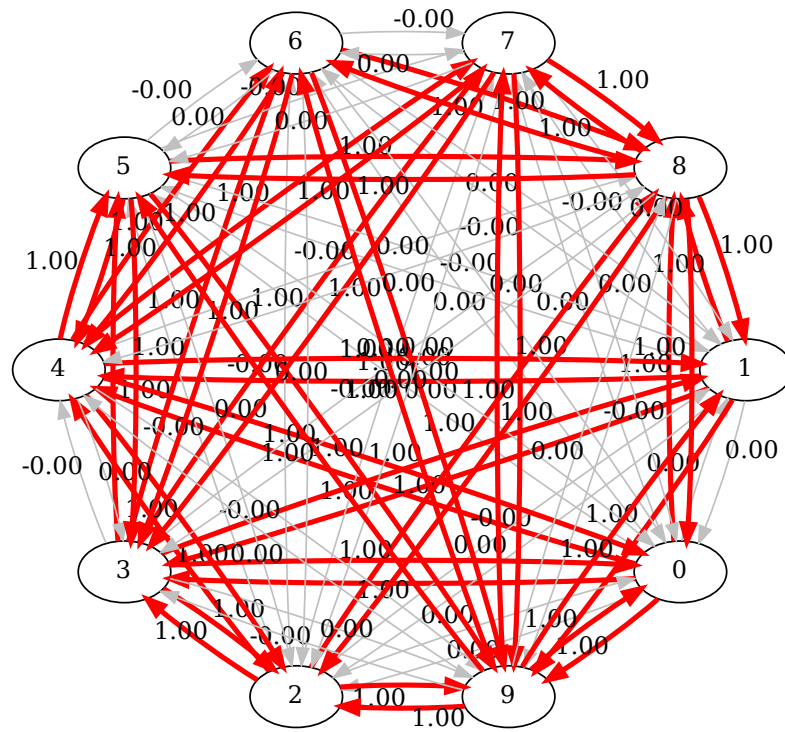
flow-lp



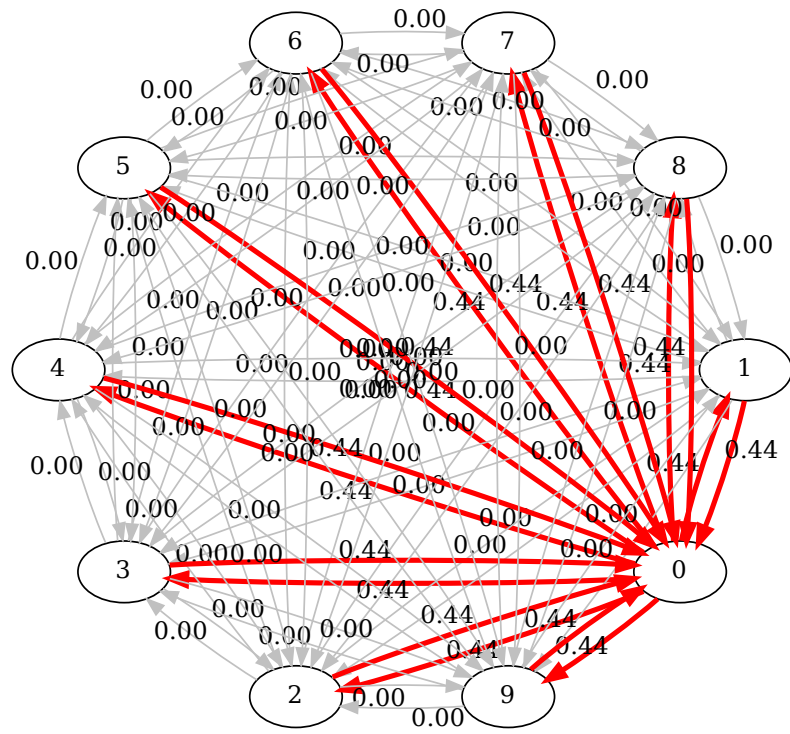
ball-0.5

clique-alt

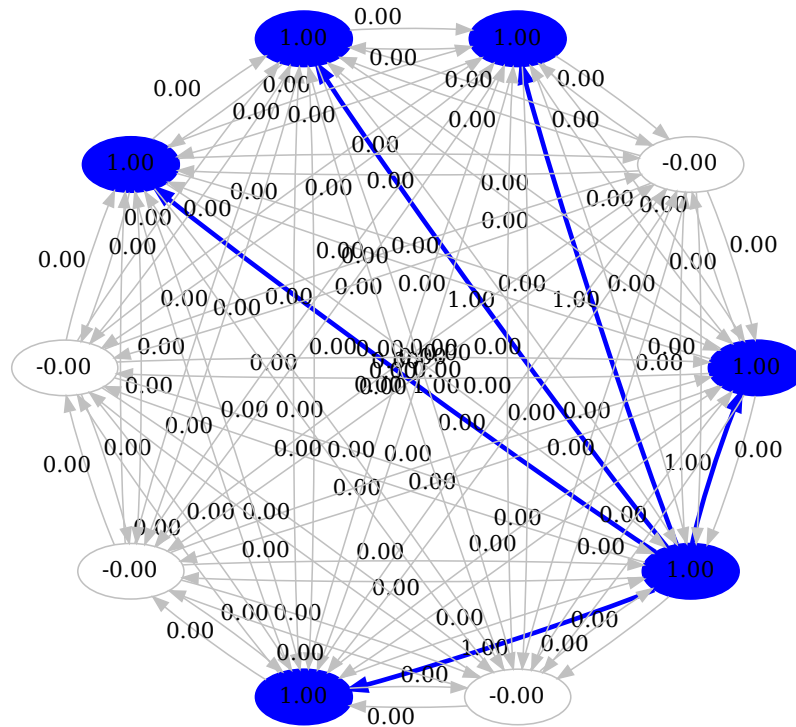
This input graph has a source vertex $s = 0$ and capacity $k = 6$. The value of mixed integer program is 48 and its linear relaxation 8.000000000000002. The approximation yields solution with 10 vertices and 0 size of the cut.



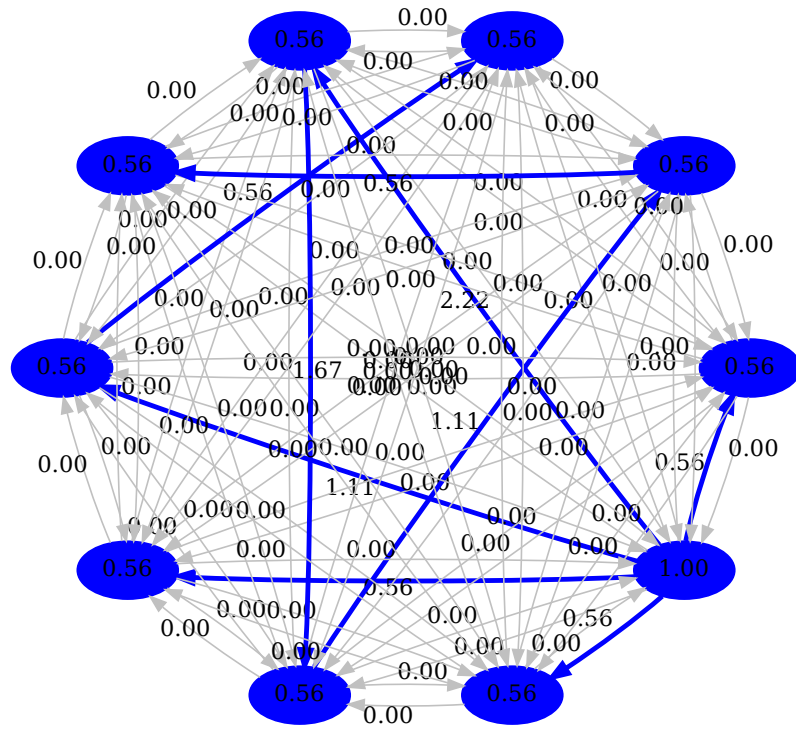
cut-ilp



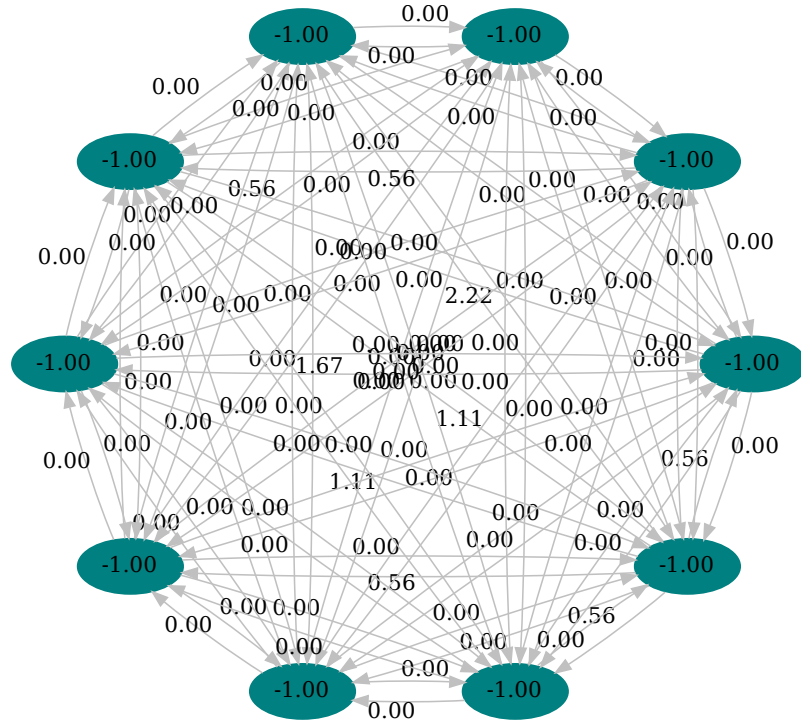
cut-lp



flow-ilp



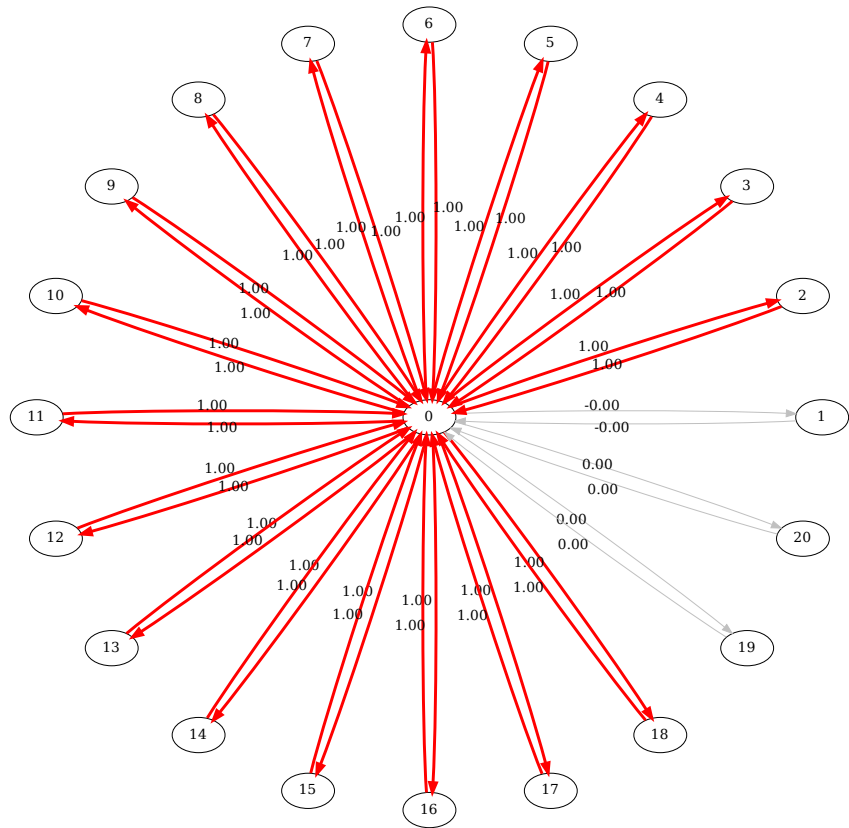
flow-lp



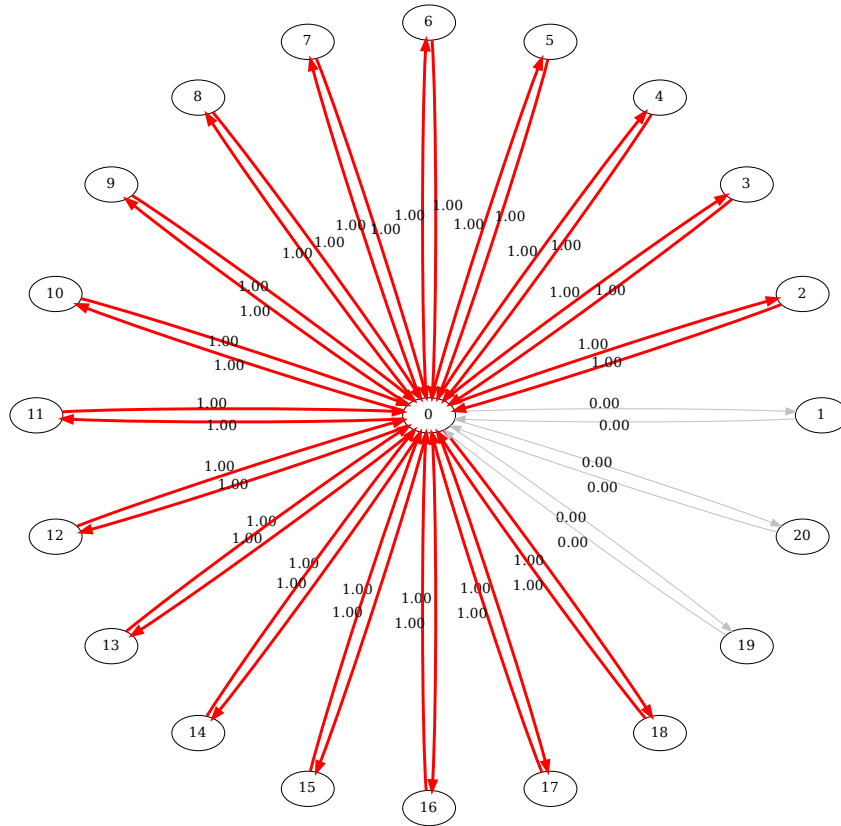
ball-0.5

star

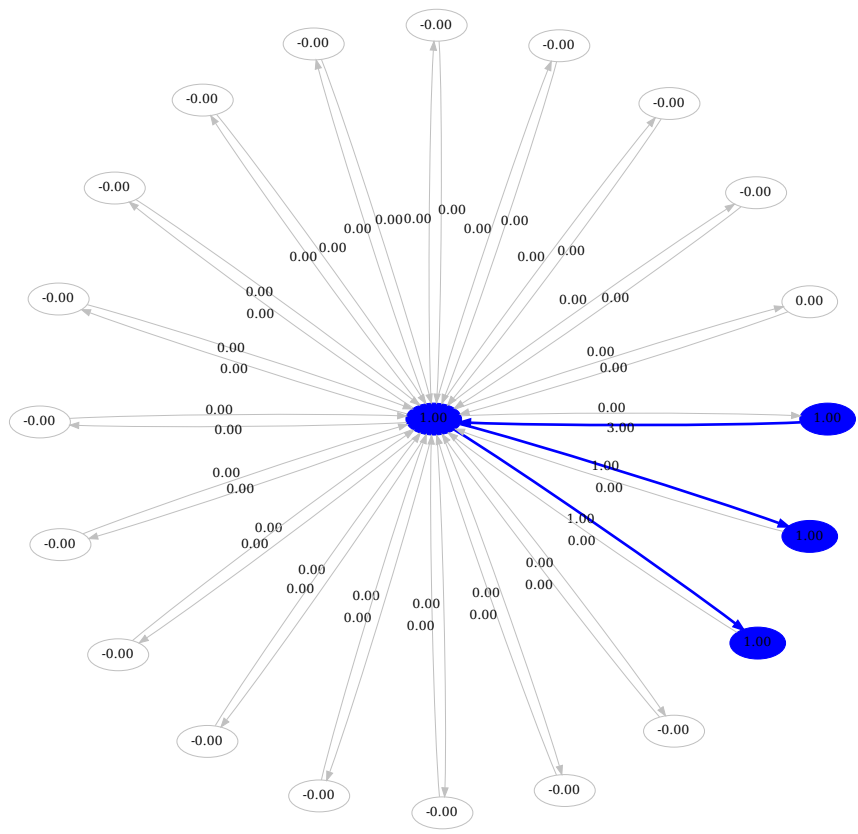
This input graph has a source vertex $s = 1$ and capacity $k = 4$. The value of mixed integer program is 34 and its linear relaxation 34. The approximation yields solution with 4 vertices and 34 size of the cut.



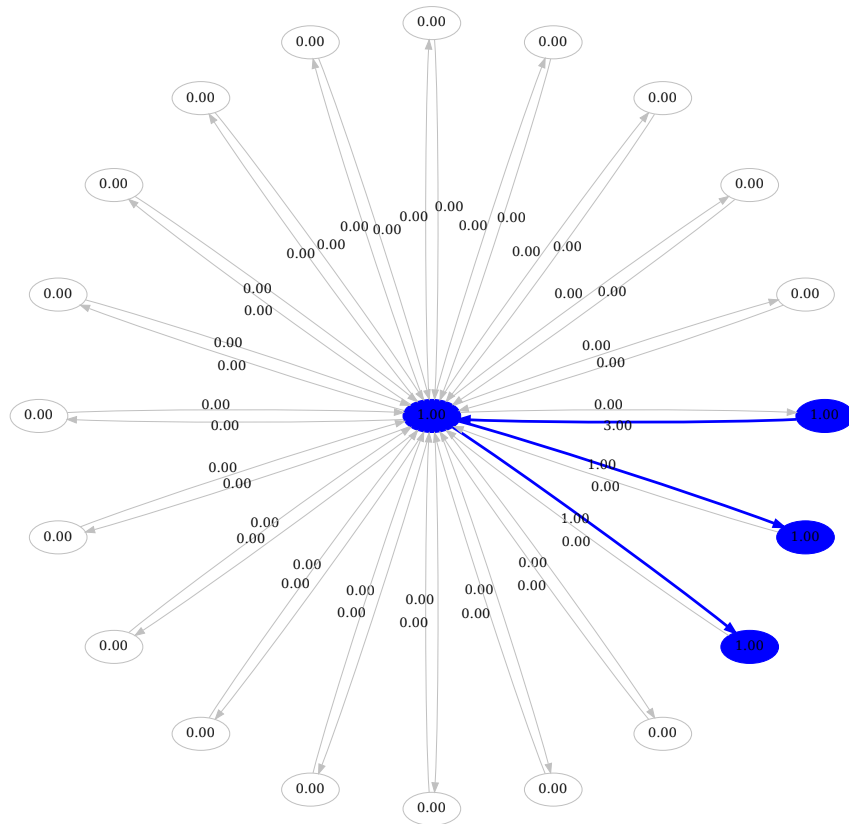
cut-ilp



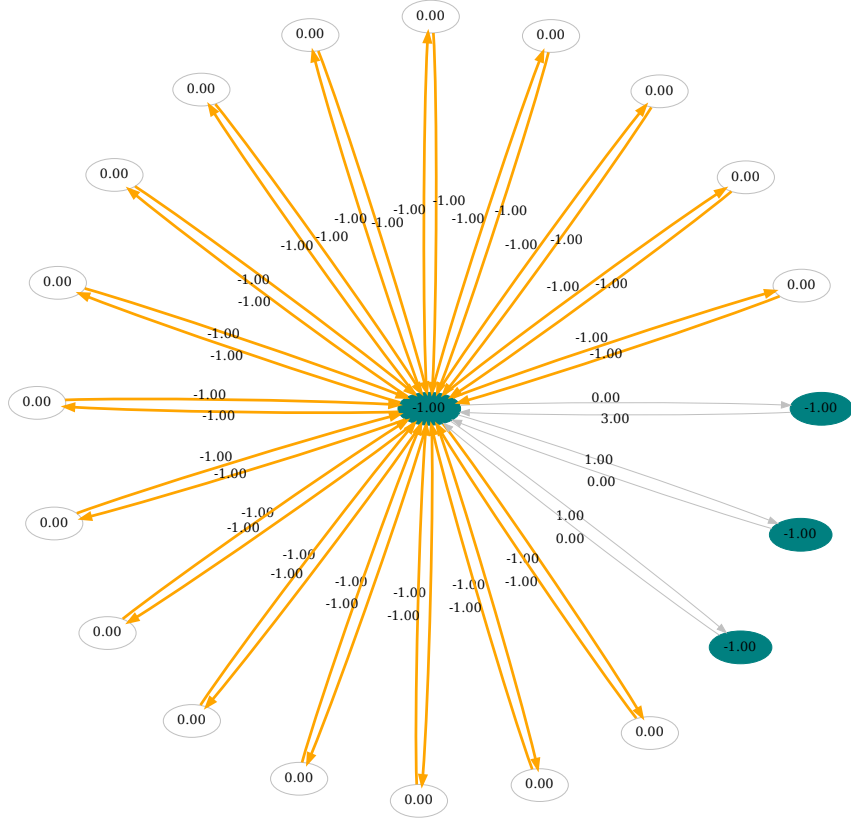
cut-lp



flow-ilp



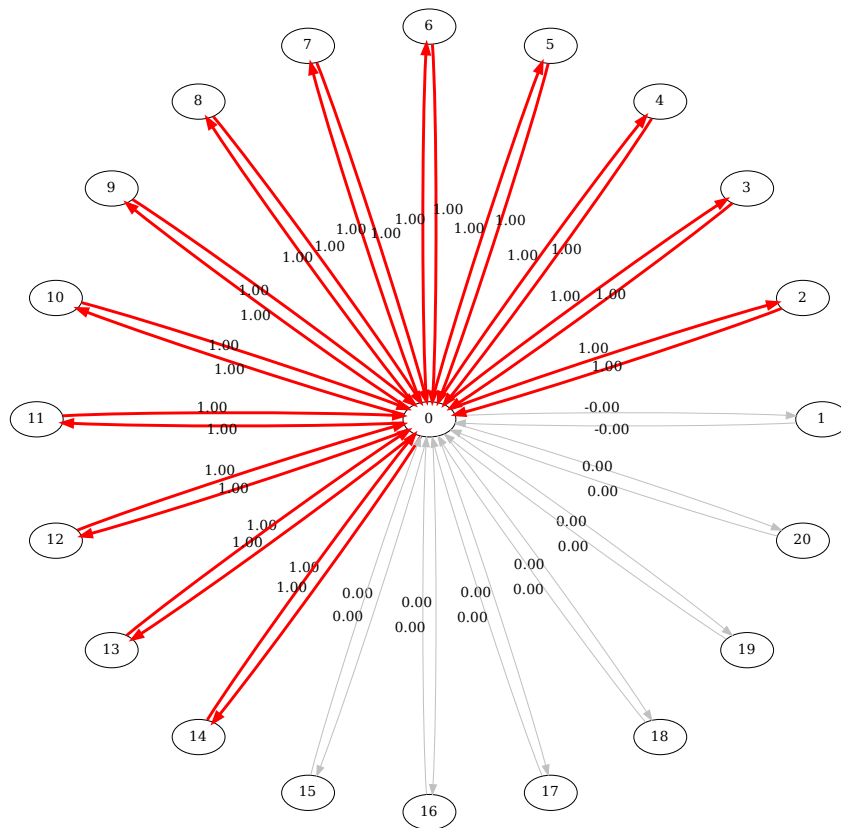
flow-lp



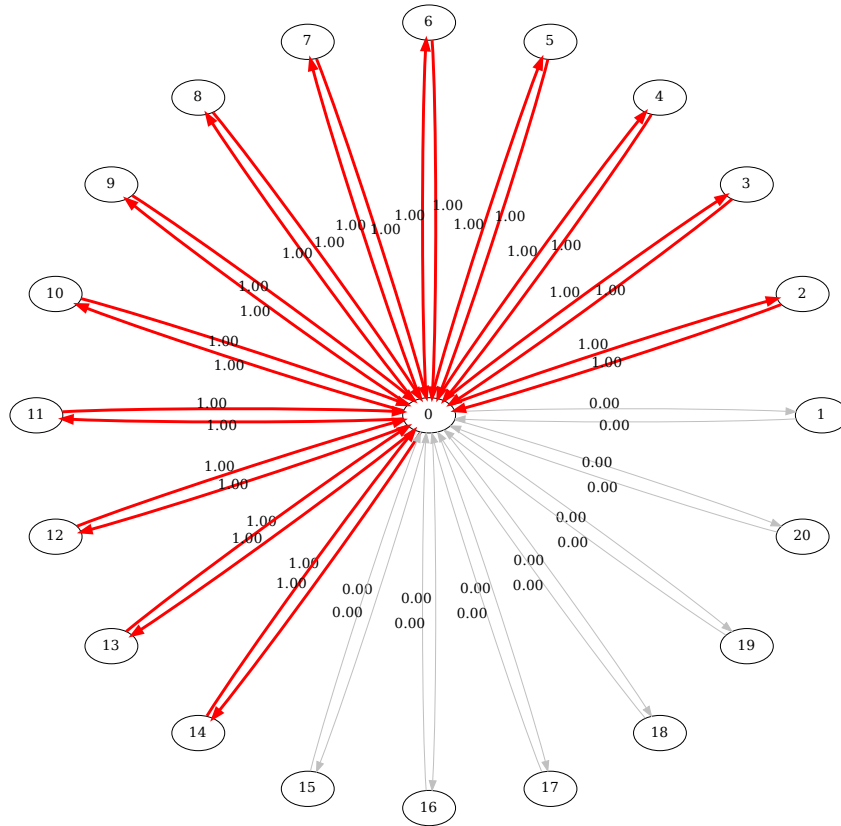
ball-0.5

star-alt

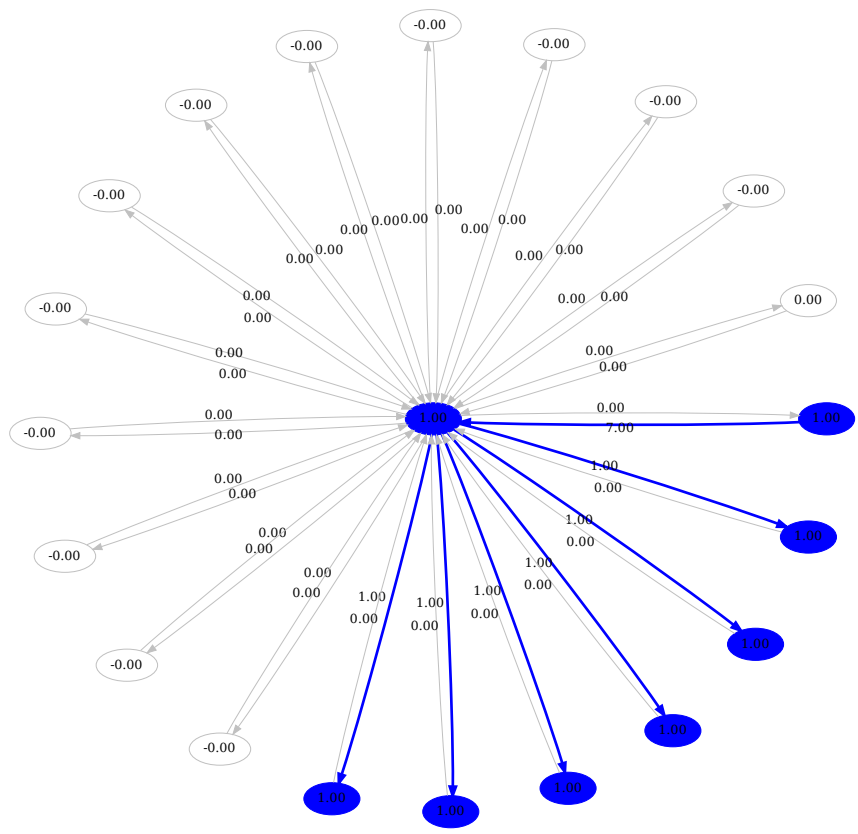
This input graph has a source vertex $s = 1$ and capacity $k = 8$. The value of mixed integer program is 26 and its linear relaxation 26. The approximation yields solution with 8 vertices and 26 size of the cut.



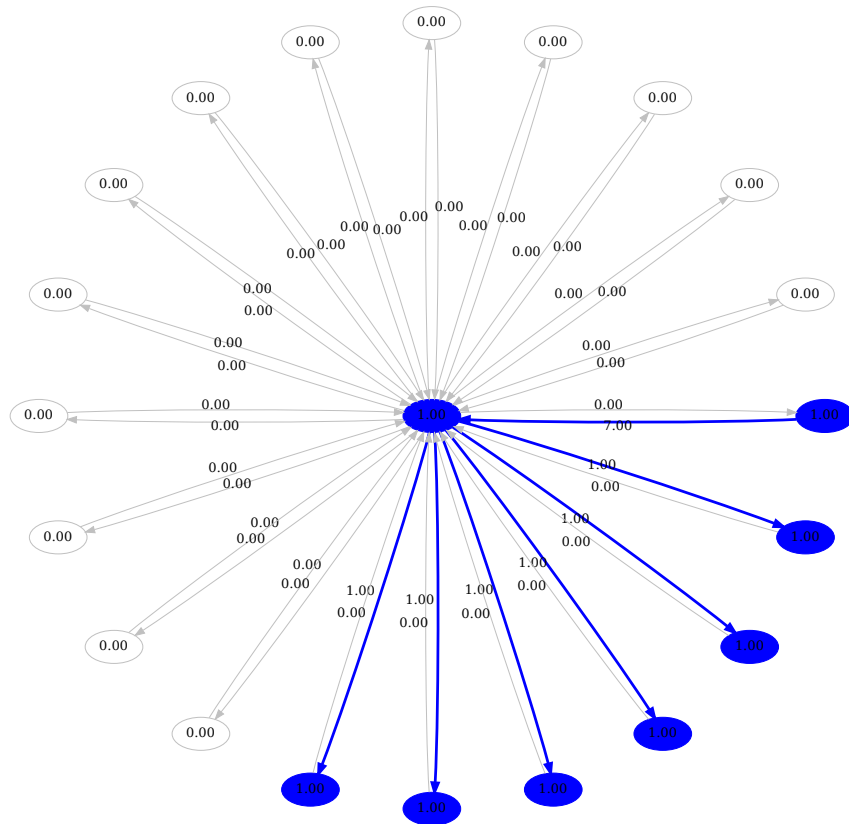
cut-ilp



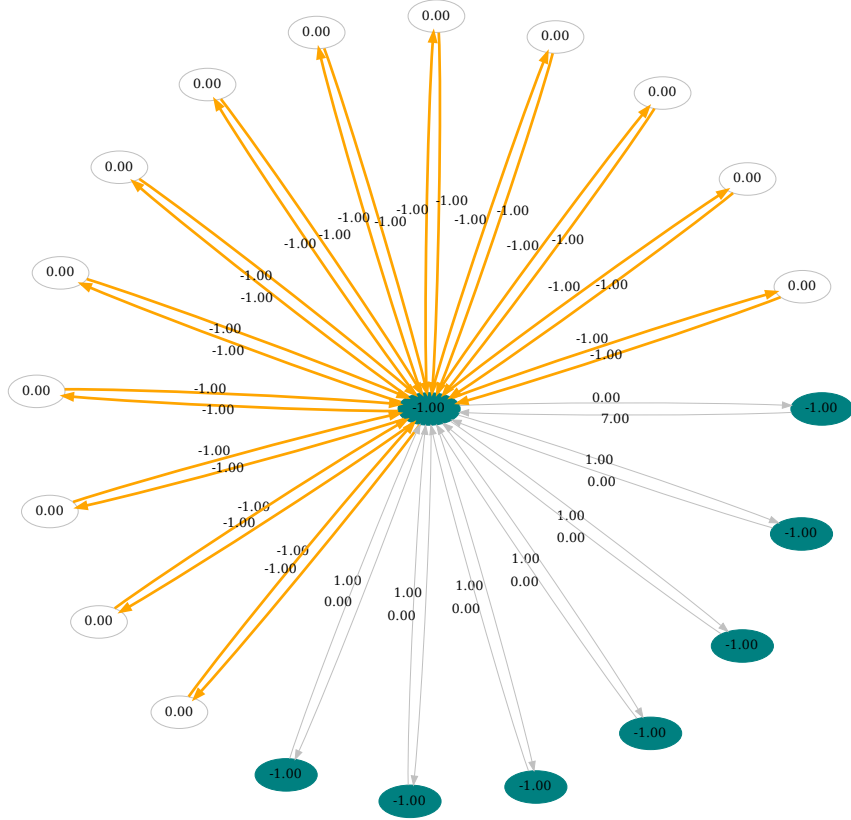
cut-lp



flow-ilp



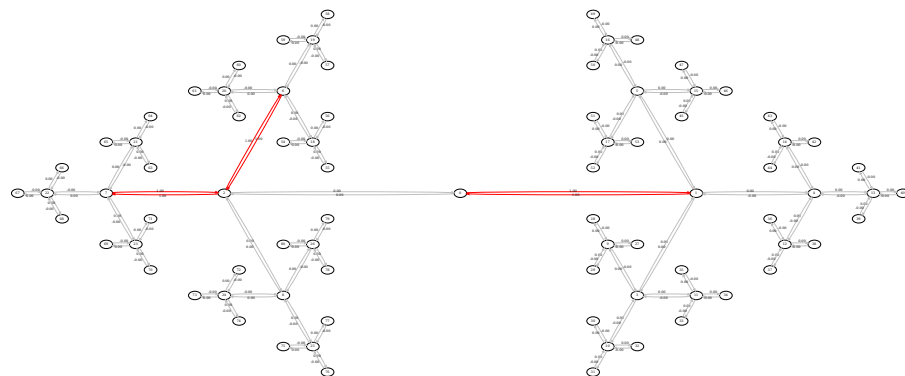
flow-lp



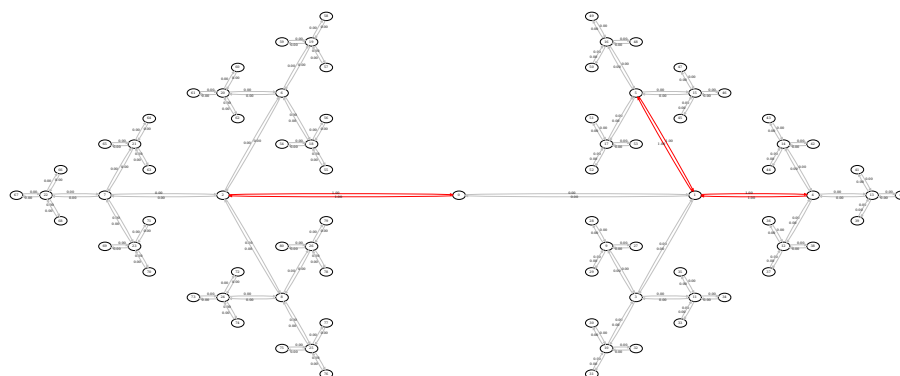
ball-0.5

tree

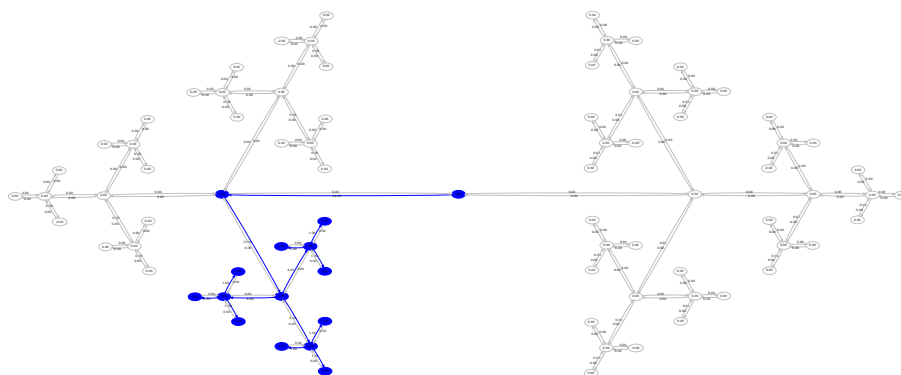
This input graph has a source vertex $s = 0$ and capacity $k = 15$. The value of mixed integer program is 6 and its linear relaxation 6. The approximation yields solution with 15 vertices and 6 size of the cut.



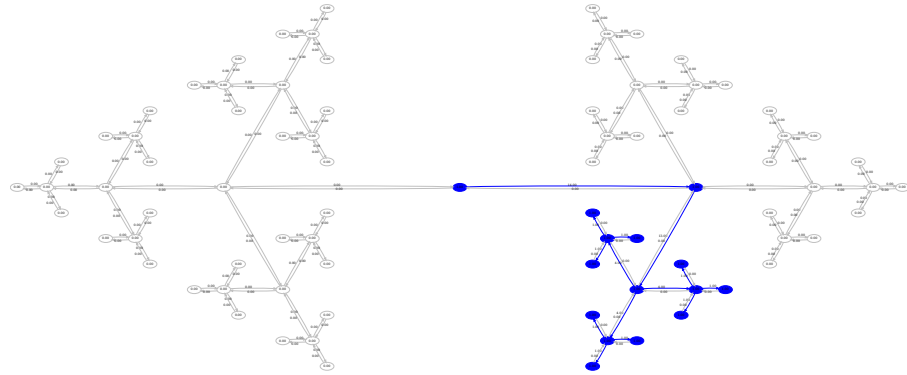
cut-ilp



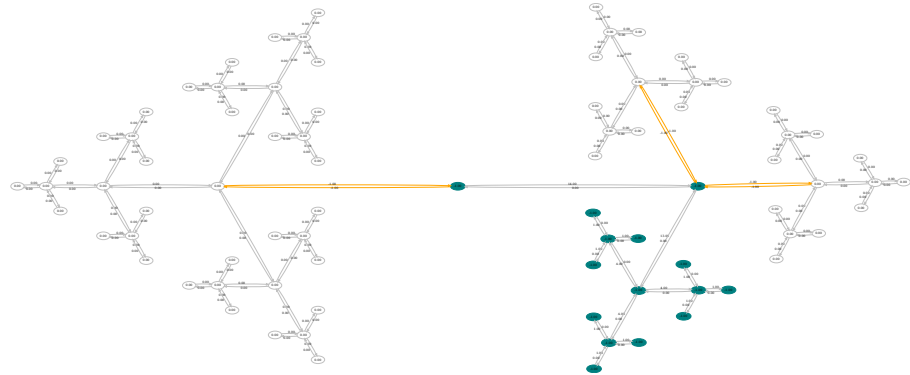
cut-lp



flow-ilp



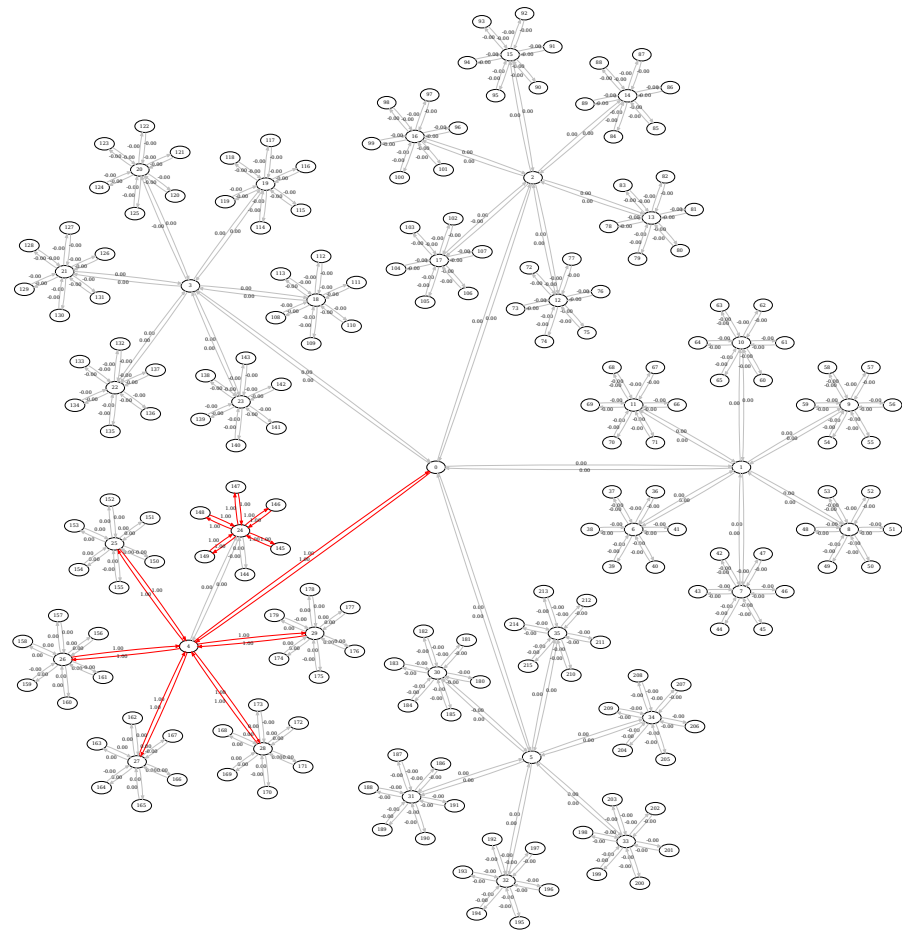
flow-lp



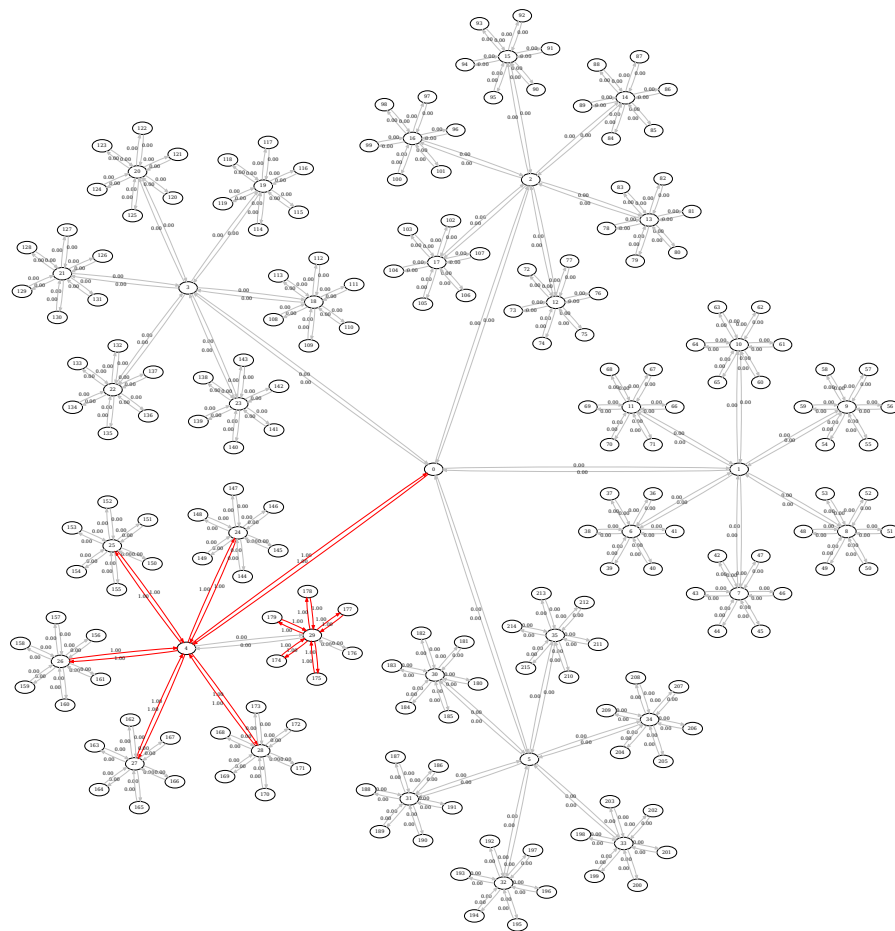
ball-0.5

tree-alt

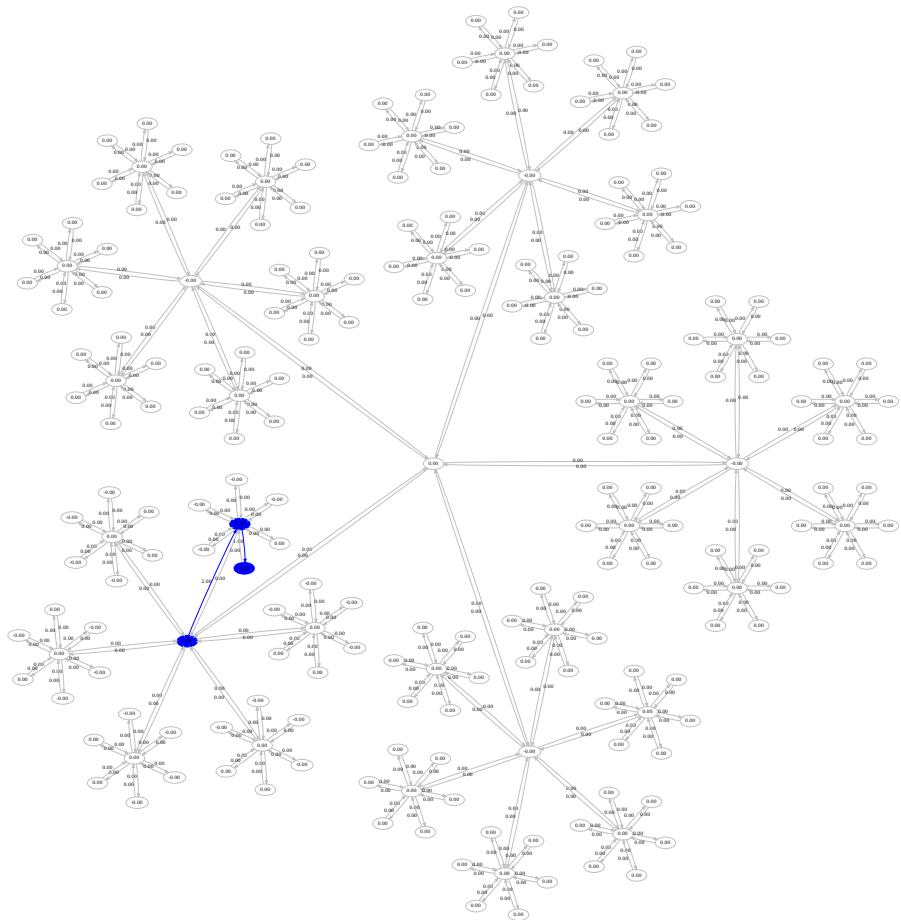
This input graph has a source vertex $s = 4$ and capacity $k = 3$. The value of mixed integer program is 22 and its linear relaxation 22. The approximation yields solution with 3 vertices and 22 size of the cut.



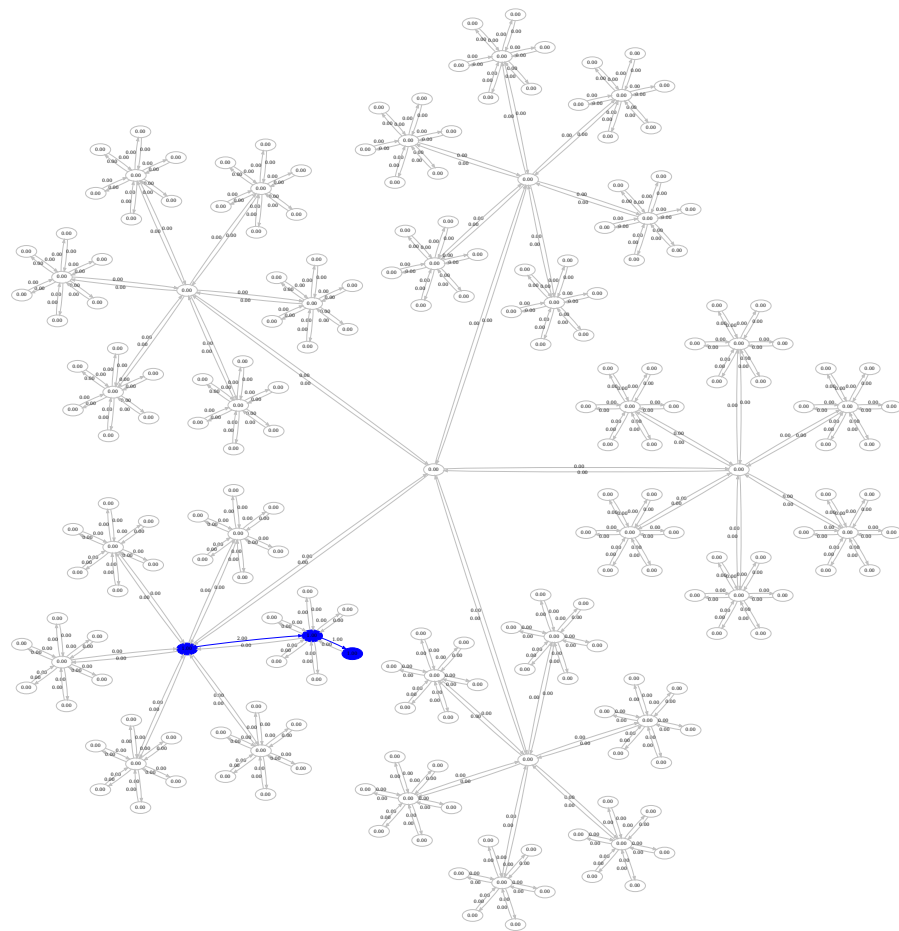
cut-ilp



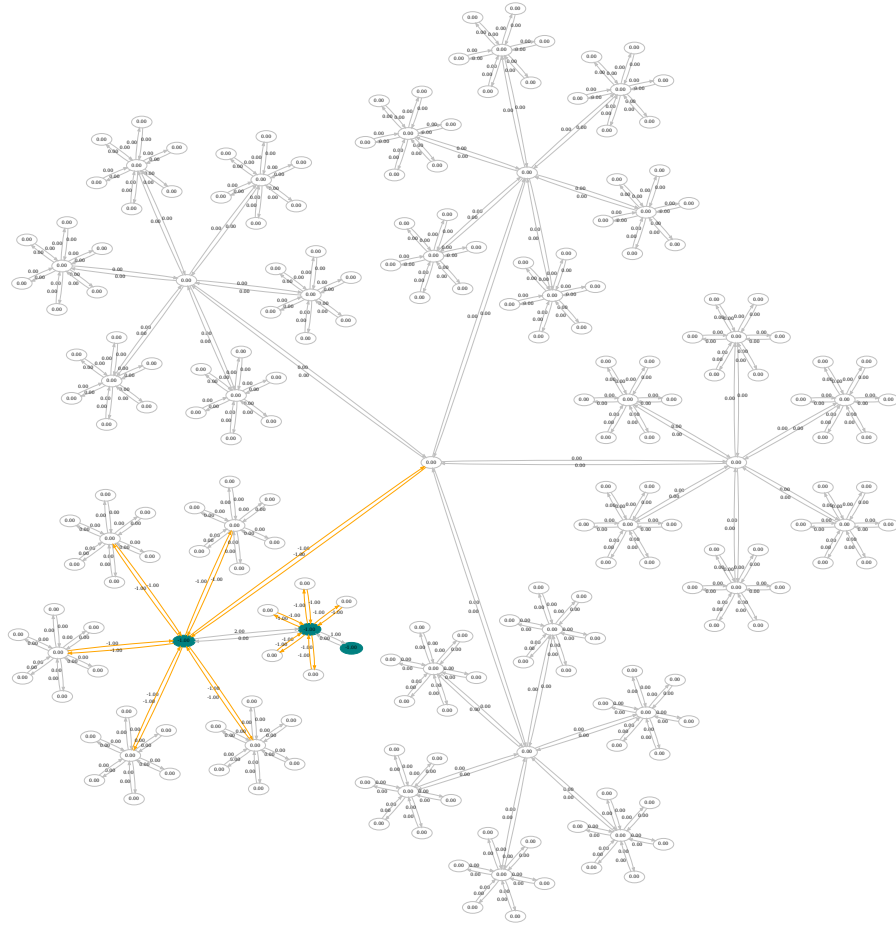
cut-lp



flow-ilp



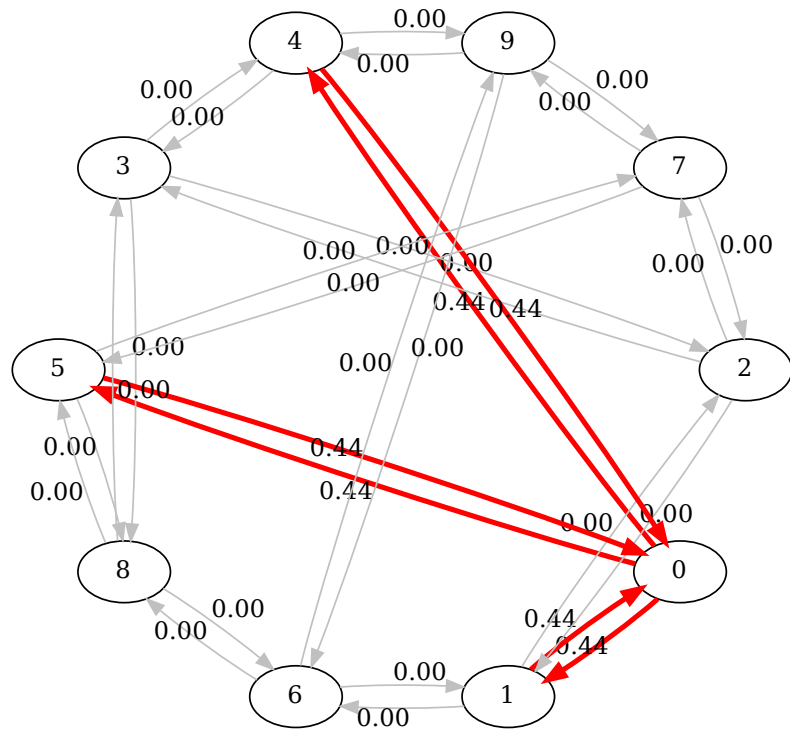
flow-lp

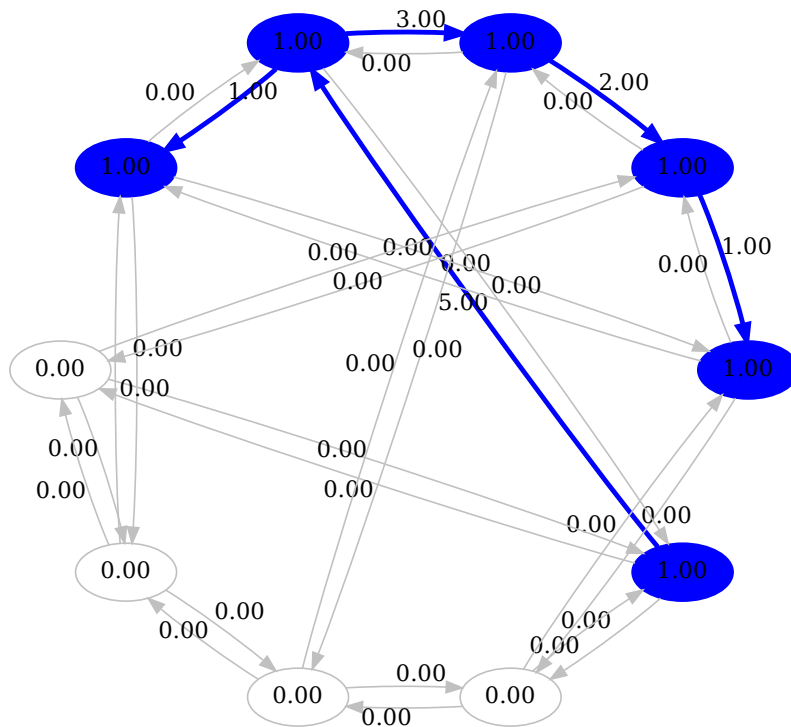


ball-0.5

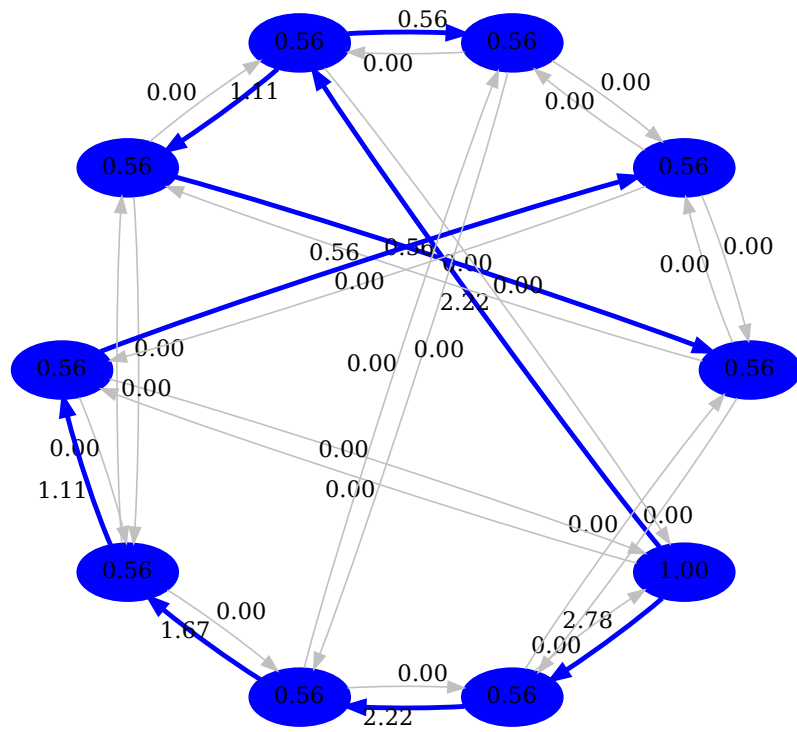
Petersen

This input graph has a source vertex $s = 0$ and capacity $k = 6$. The value of mixed integer program is 12 and its linear relaxation 2.666666666666667. The approximation yields solution with 10 vertices and 0 size of the cut.

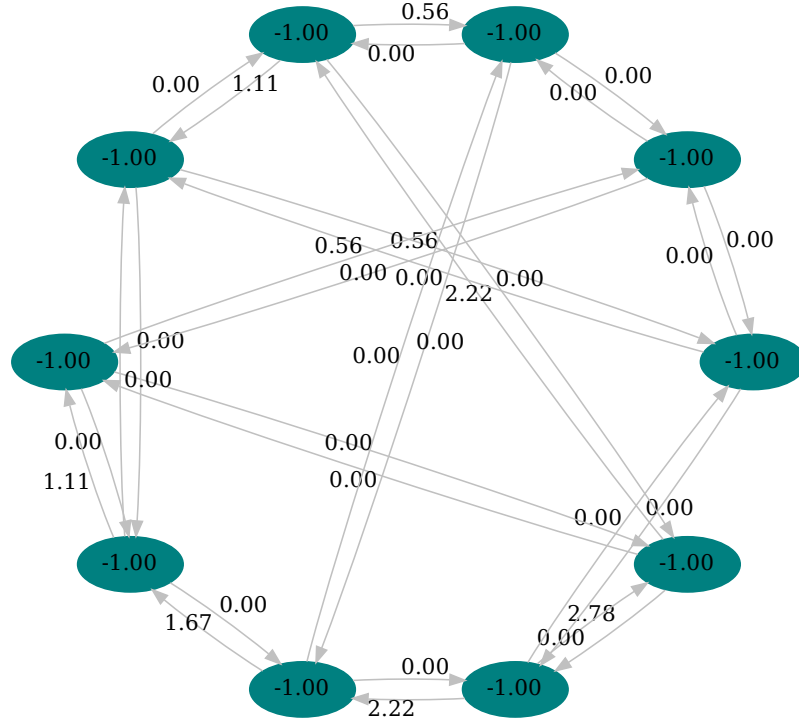




flow-ilp



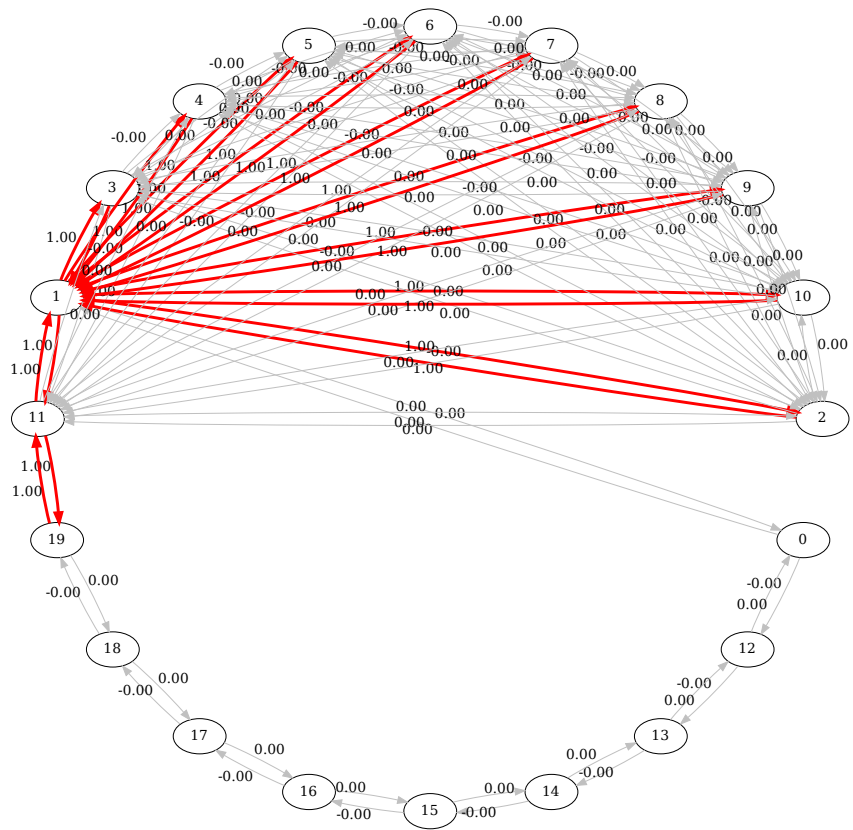
flow-lp



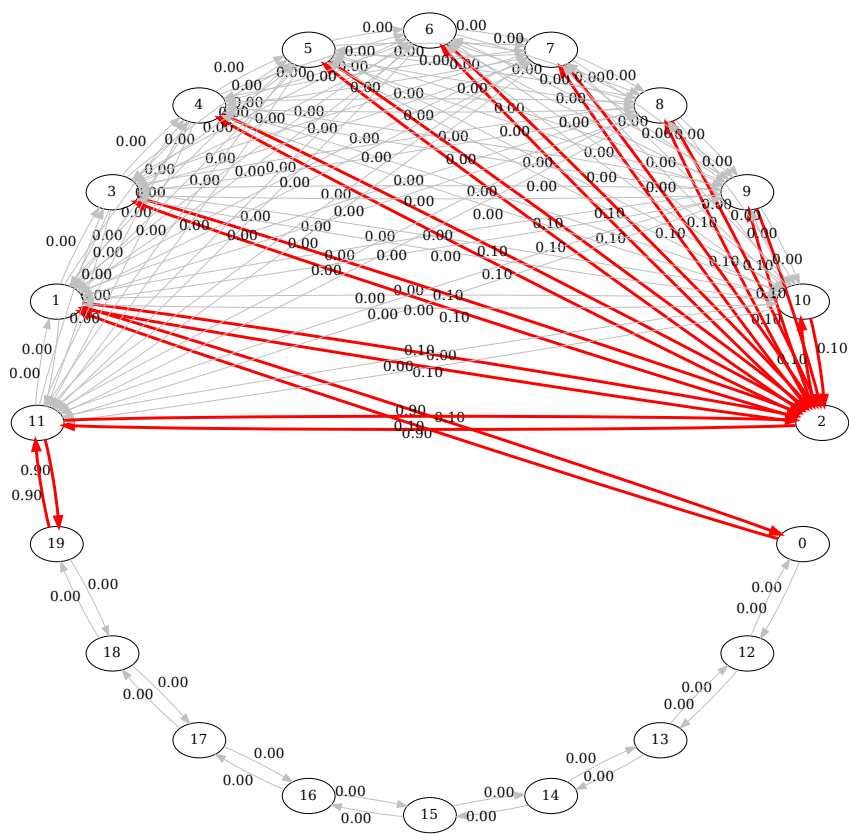
ball-0.5

necklace

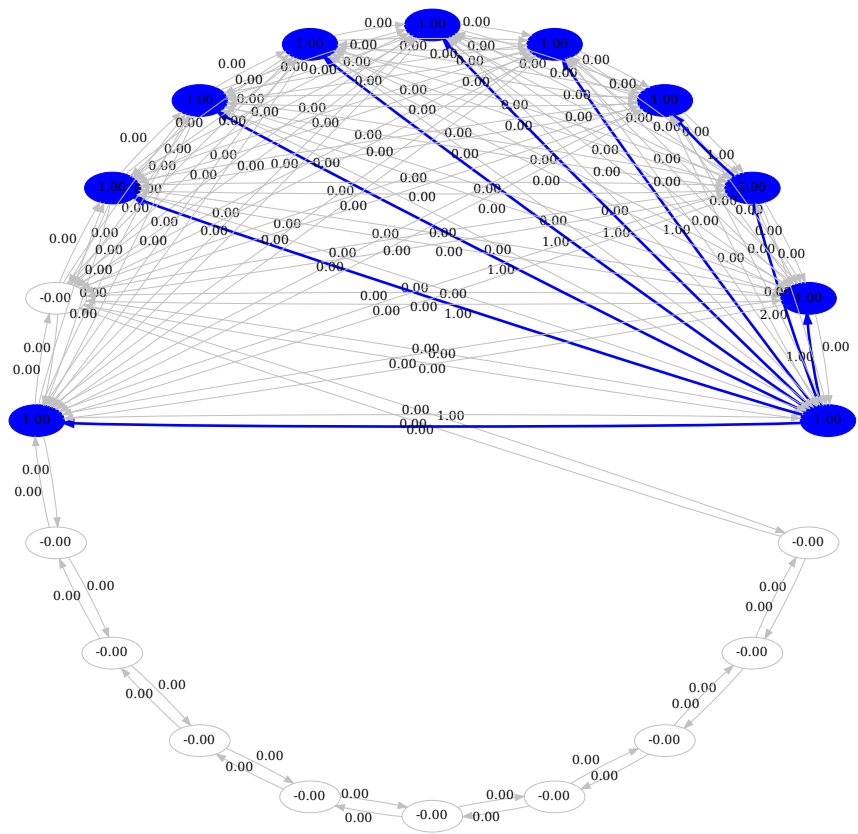
This input graph has a source vertex $s = 2$ and capacity $k = 10$. The value of mixed integer program is 22 and its linear relaxation 5.5999999999999994. The approximation yields solution with 11 vertices and 4 size of the cut.



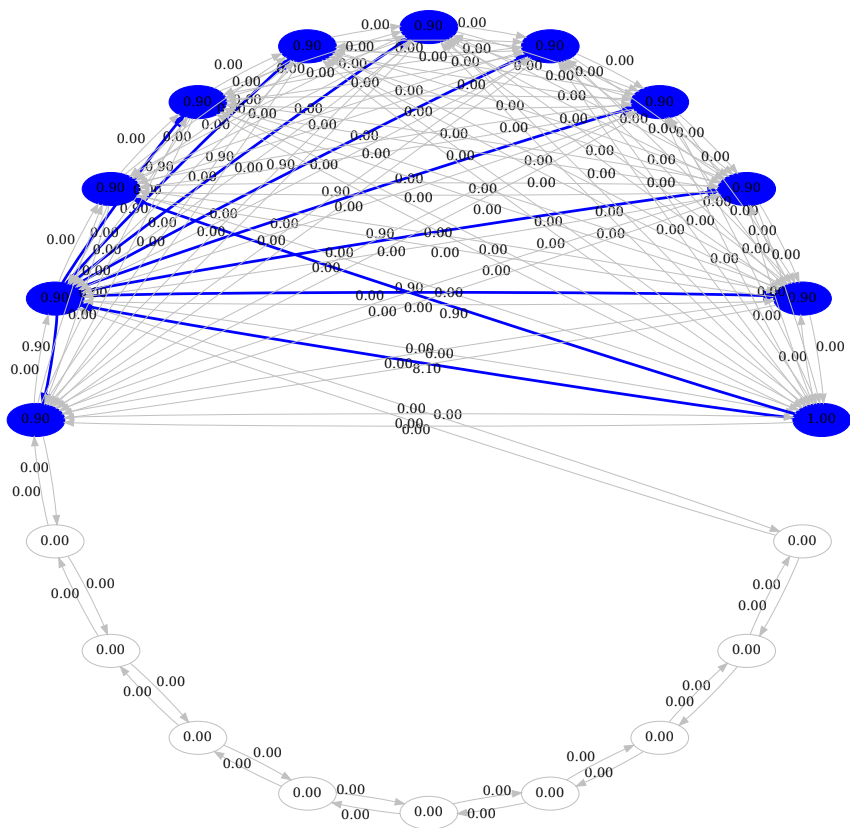
cut-ilp



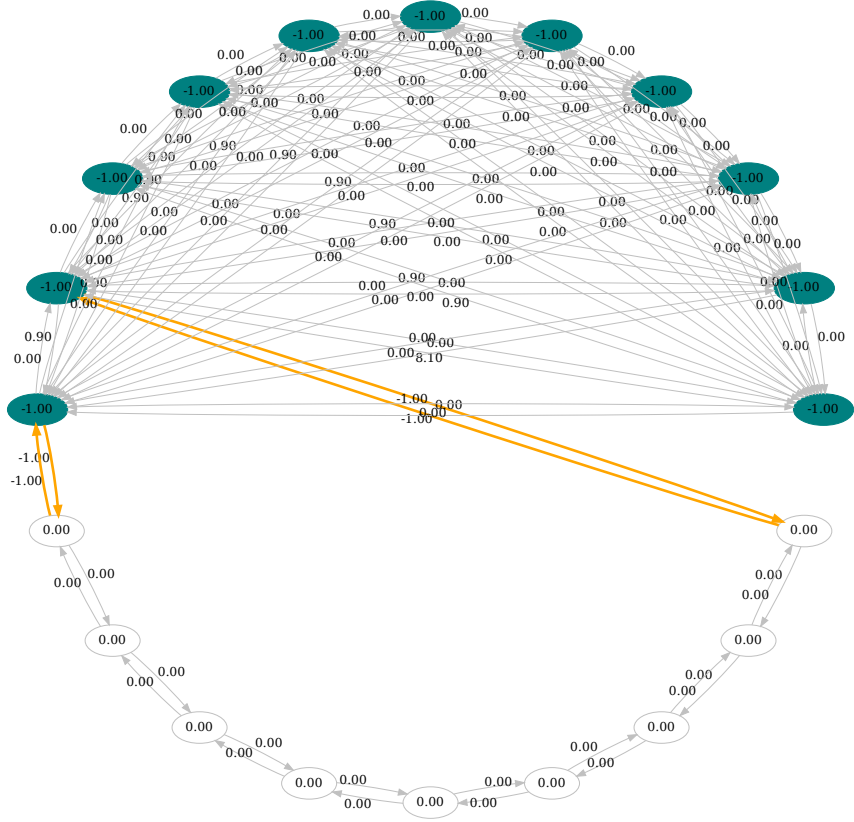
cut-lp



flow-ilp



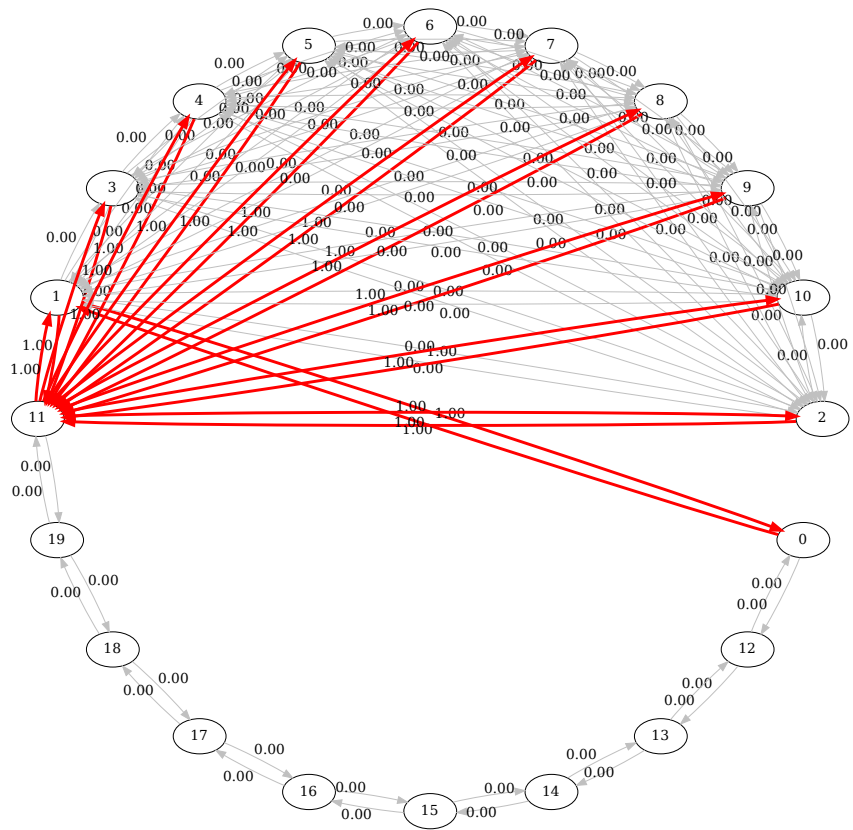
flow-lp



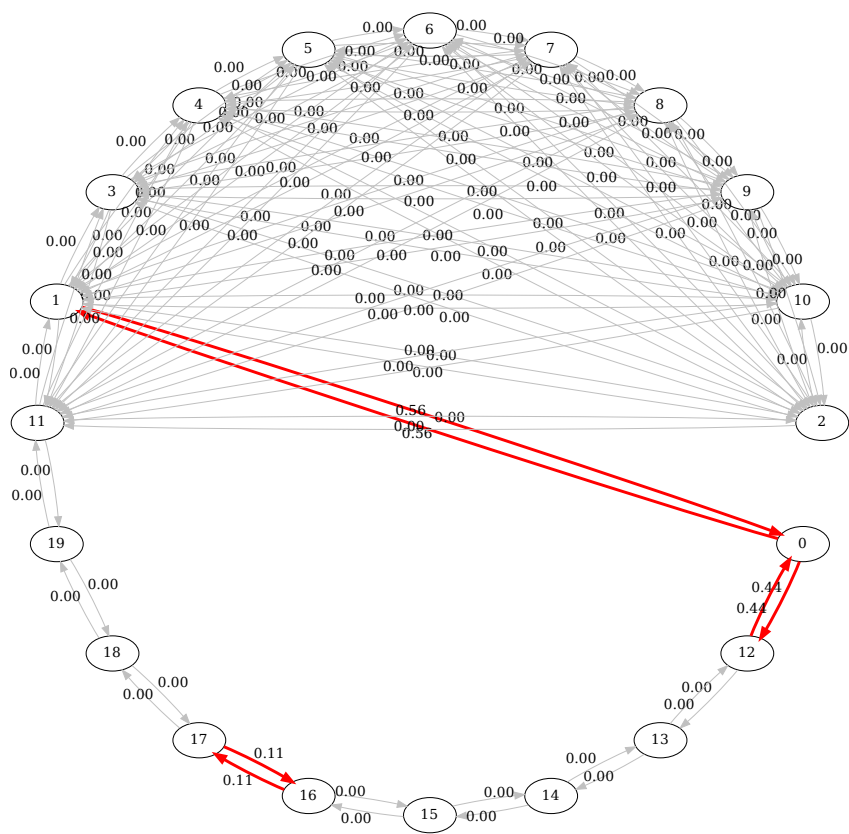
ball-0.5

necklace-alt

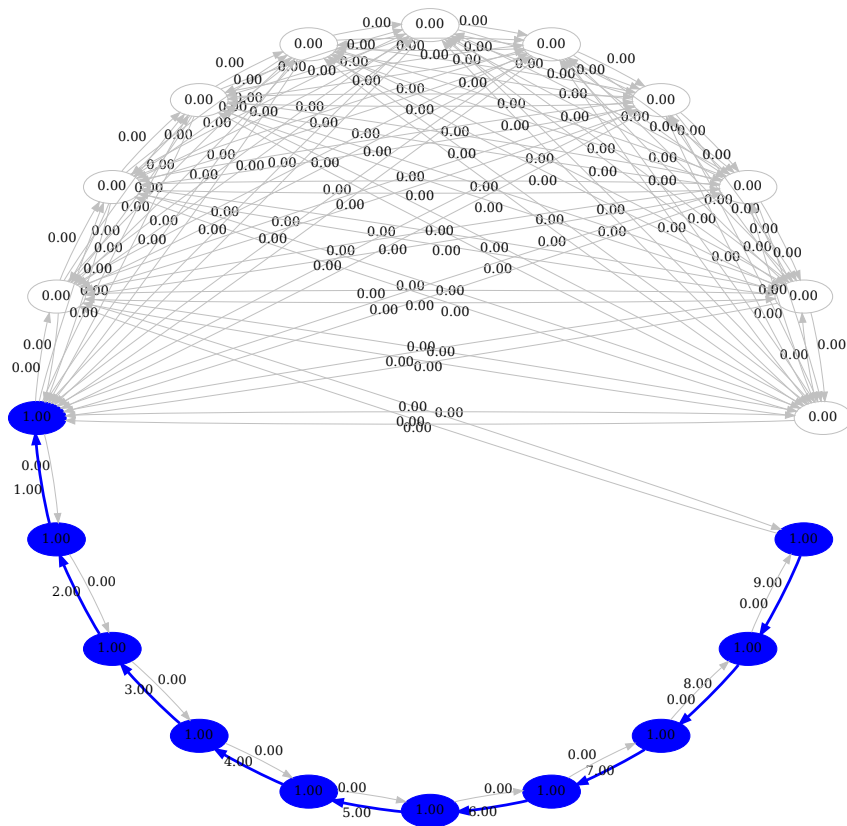
This input graph has a source vertex $s = 0$ and capacity $k = 10$. The value of mixed integer program is 22 and its linear relaxation 2.222222222222214. The approximation yields solution with 6 vertices and 4 size of the cut.



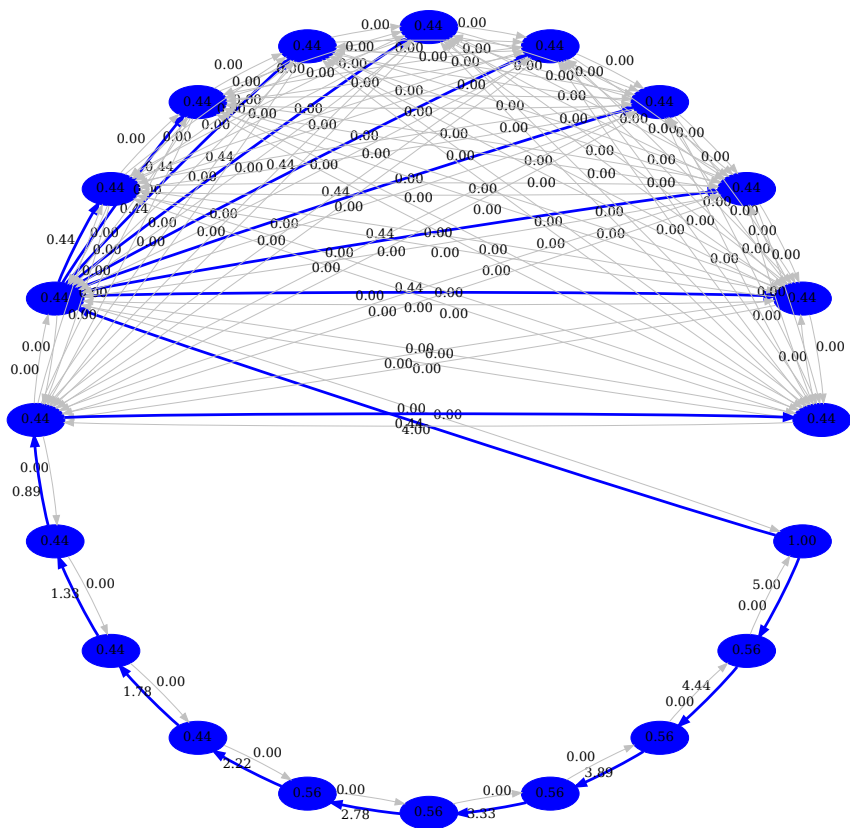
cut-ilp



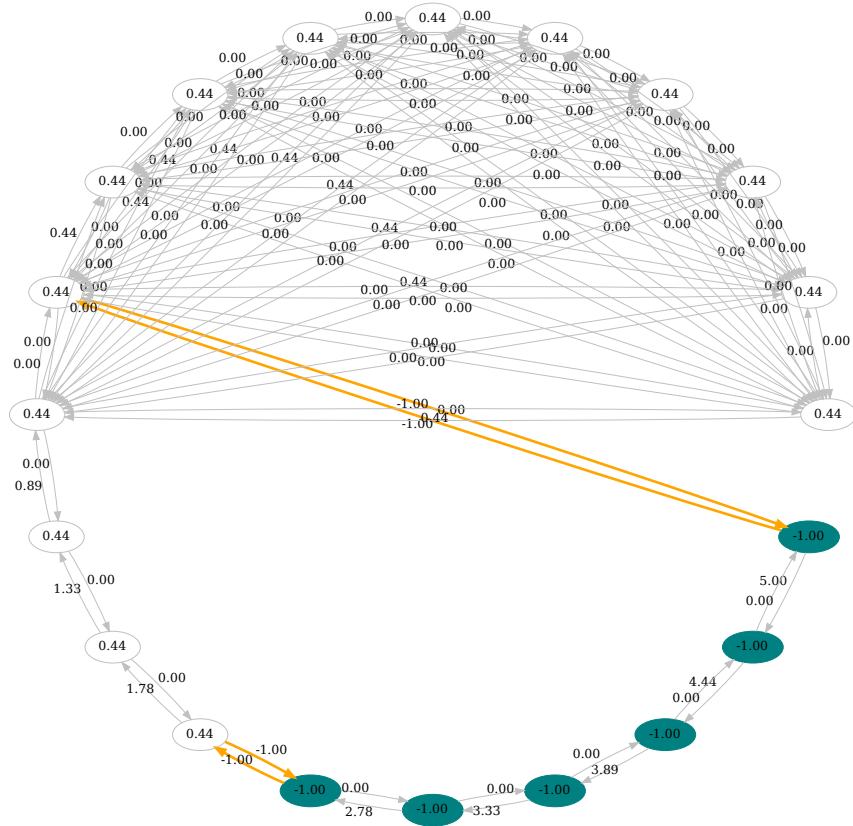
cut-lp



flow-ilp



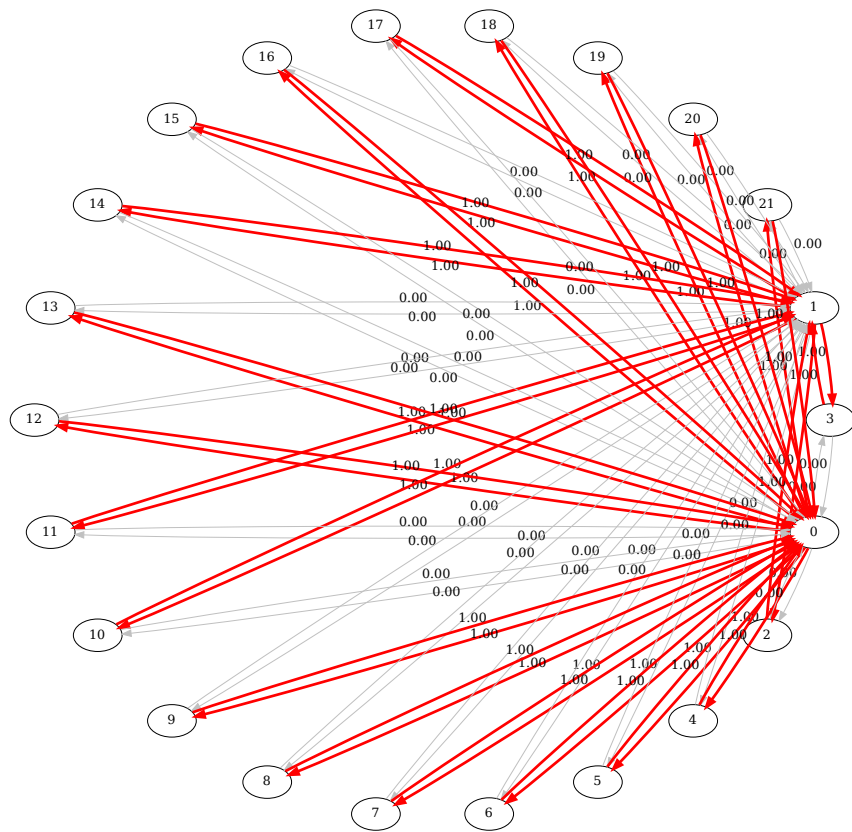
flow-lp



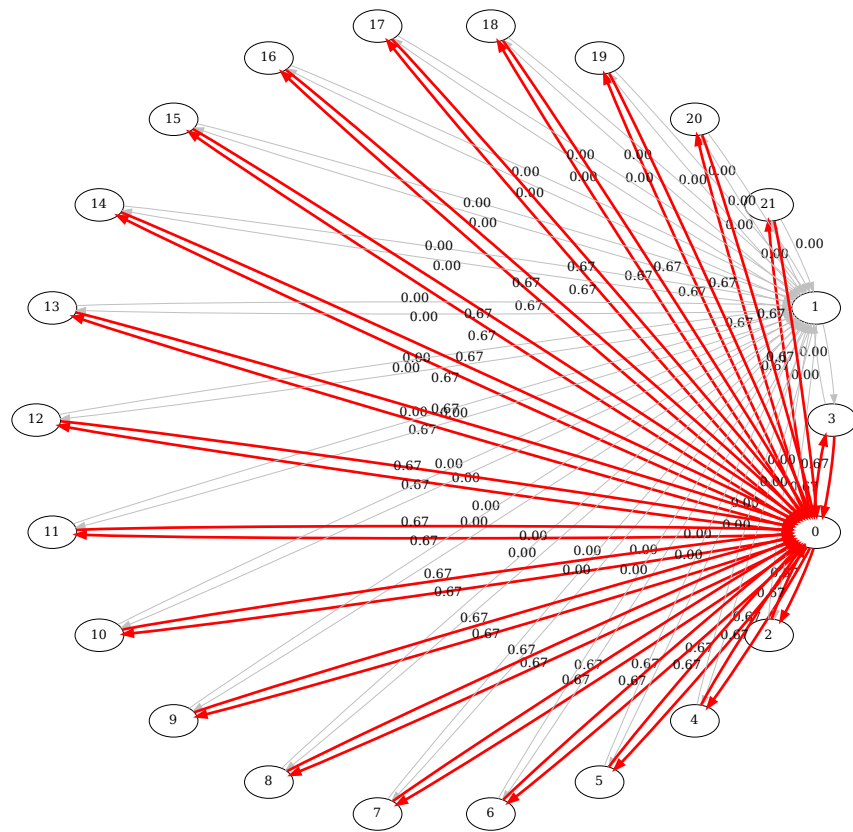
ball-0.5

k-2-20

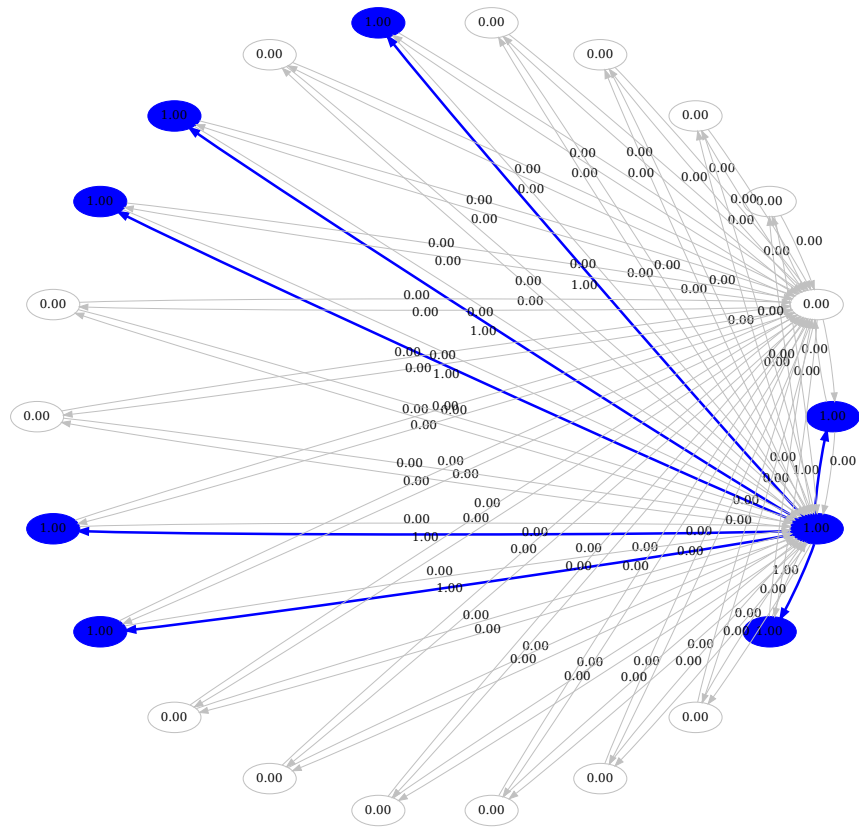
This input graph has a source vertex $s = 0$ and capacity $k = 8$. The value of mixed integer program is 40 and its linear relaxation 26.666666666666668. The approximation yields solution with 1 vertices and 40 size of the cut.



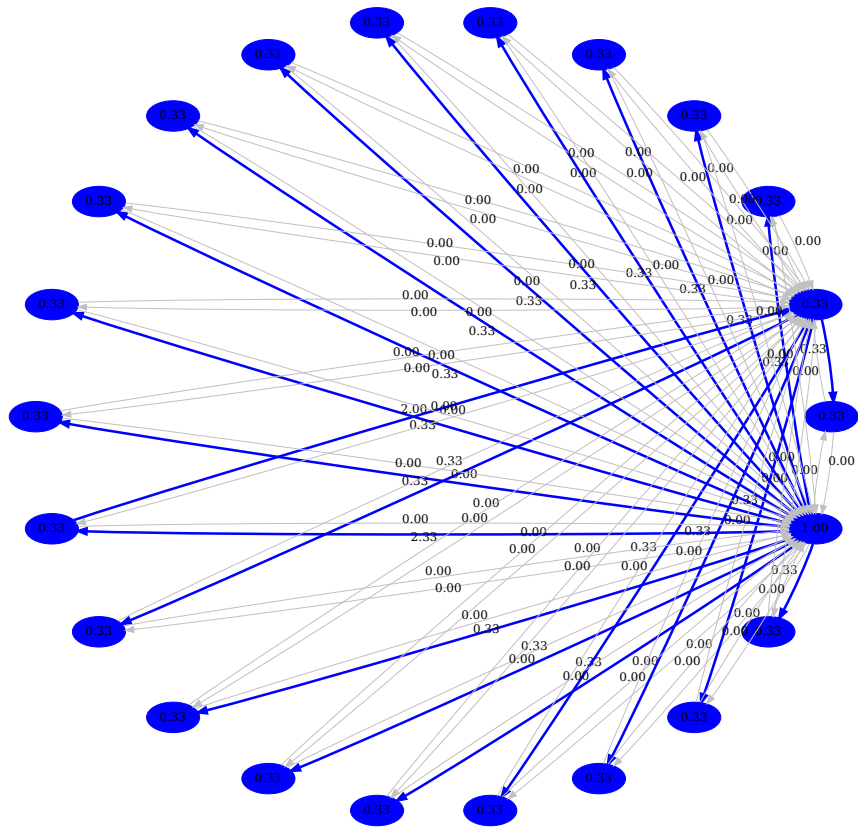
cut-ilp



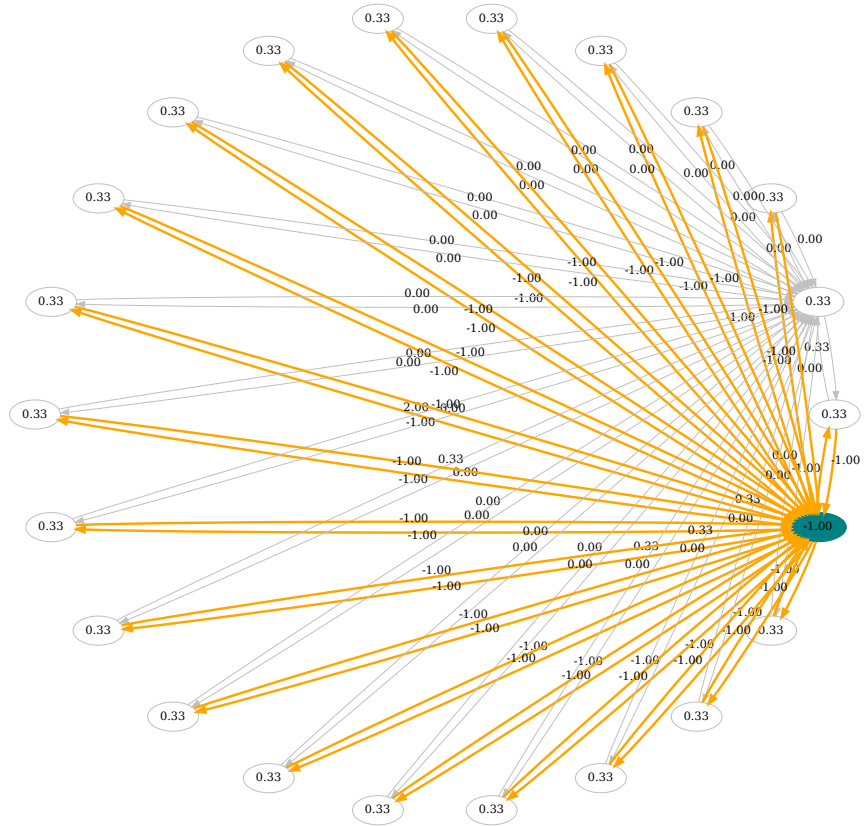
cut-lp



flow-ilp



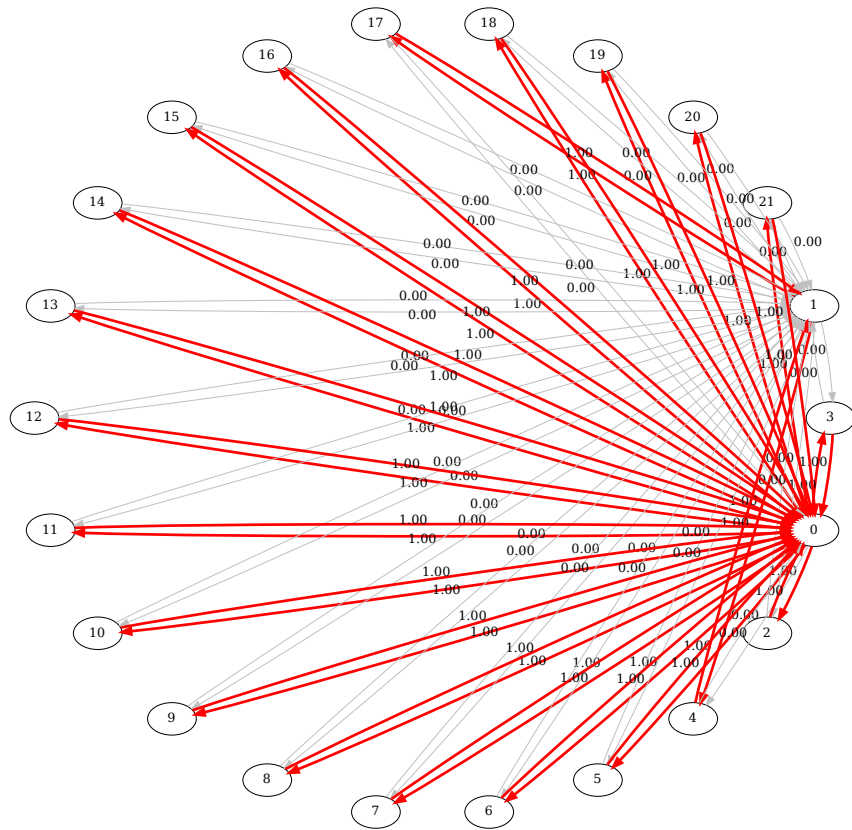
flow-lp



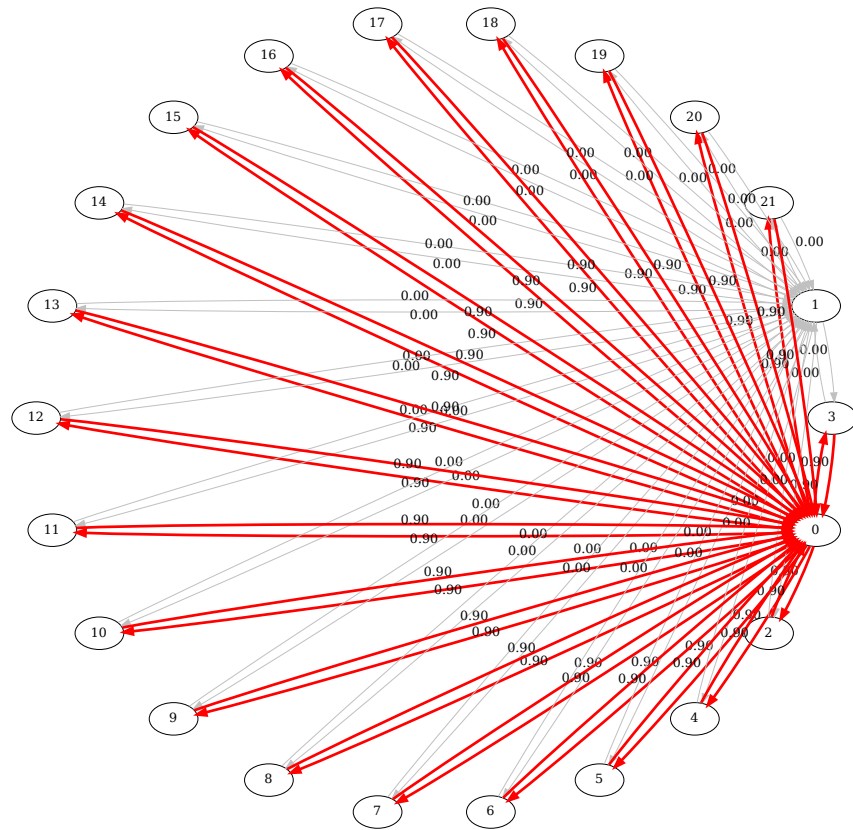
ball-0.5

k-2-20-alt

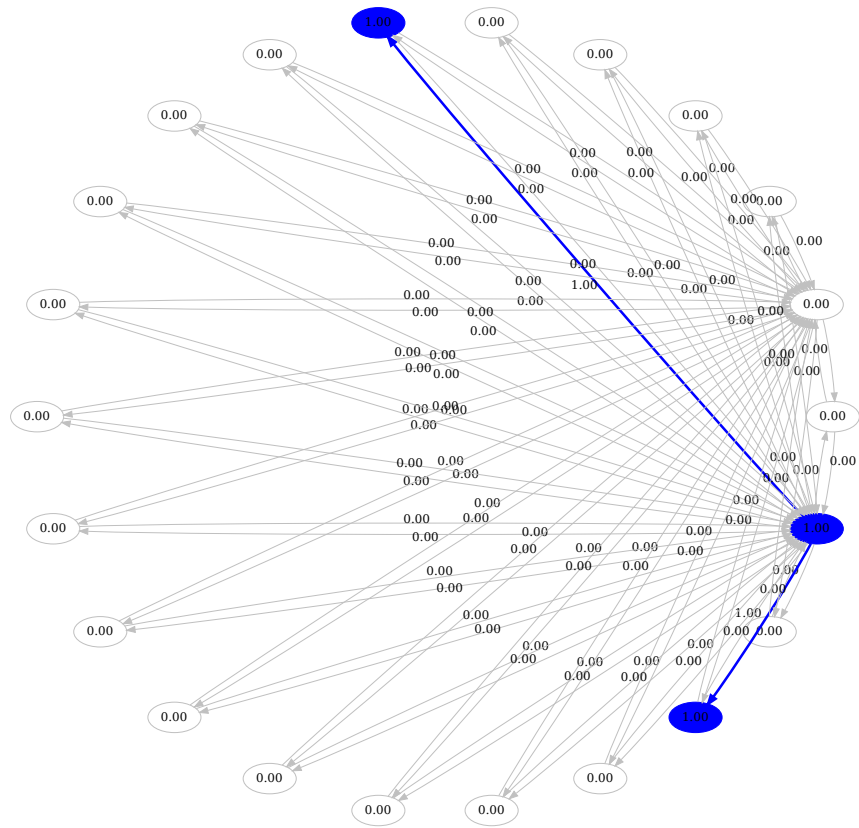
This input graph has a source vertex $s = 0$ and capacity $k = 3$. The value of mixed integer program is 40 and its linear relaxation 36.1904761904762. The approximation yields solution with 1 vertices and 40 size of the cut.



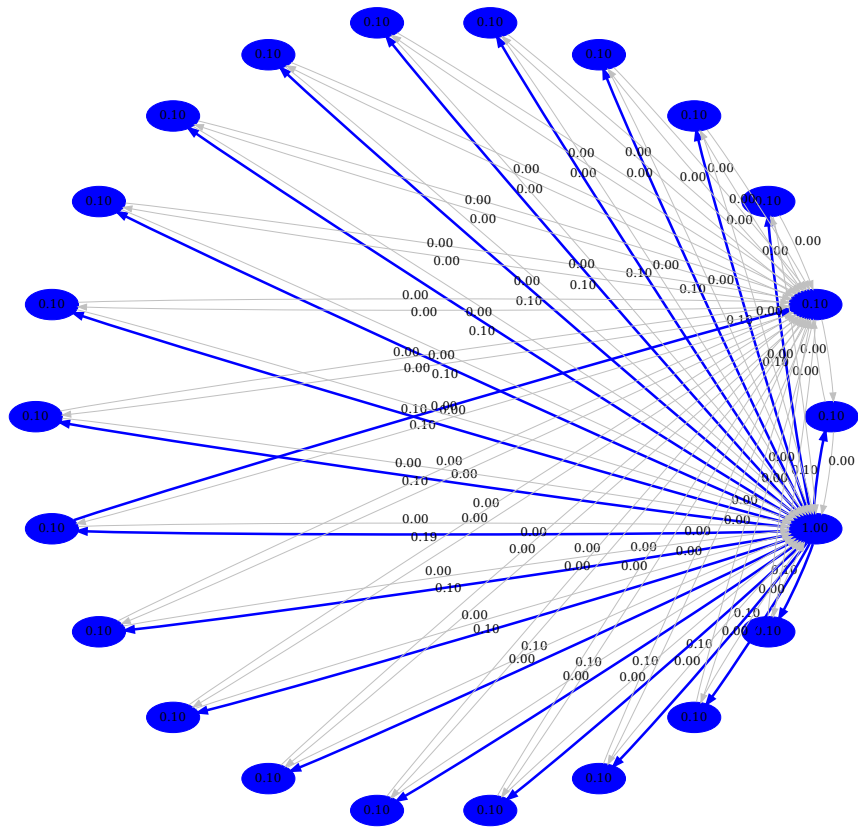
cut-ilp



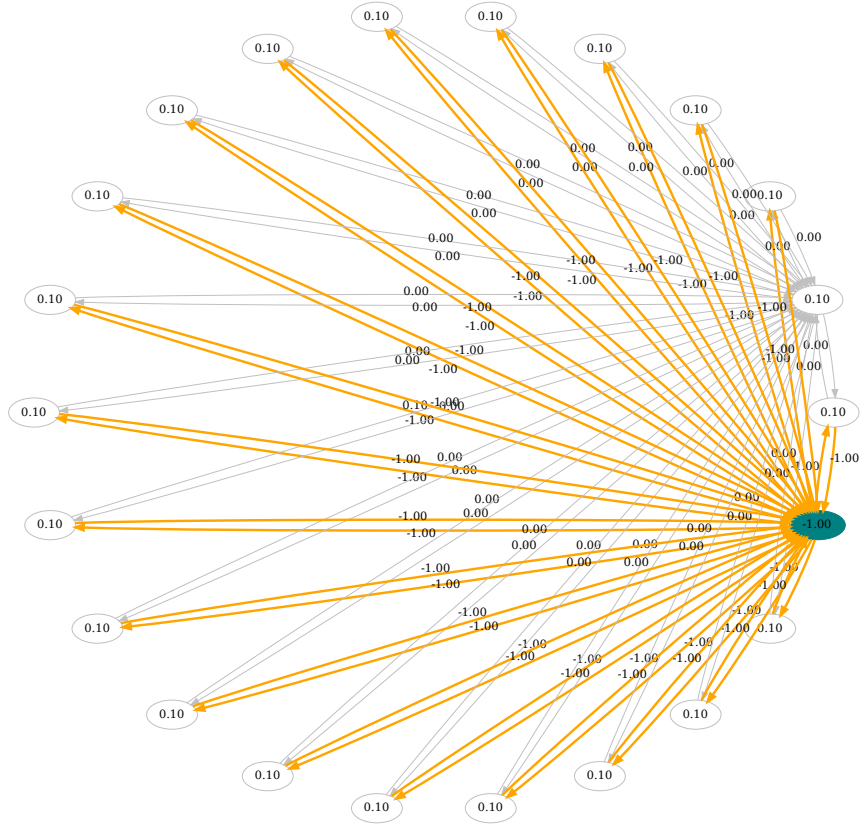
cut-lp



flow-ilp



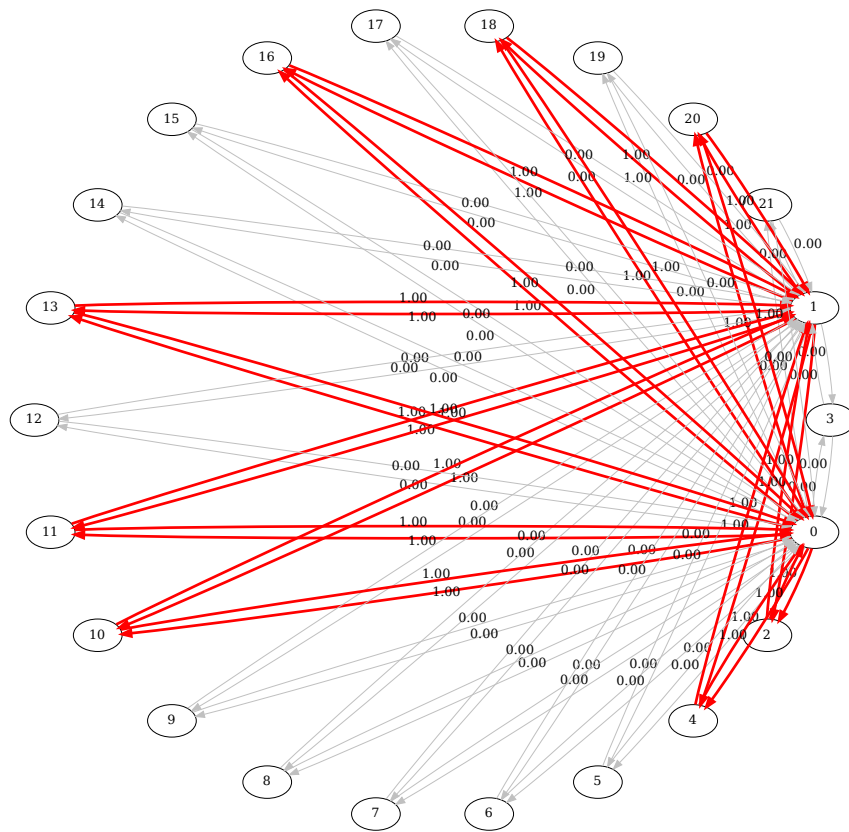
flow-lp



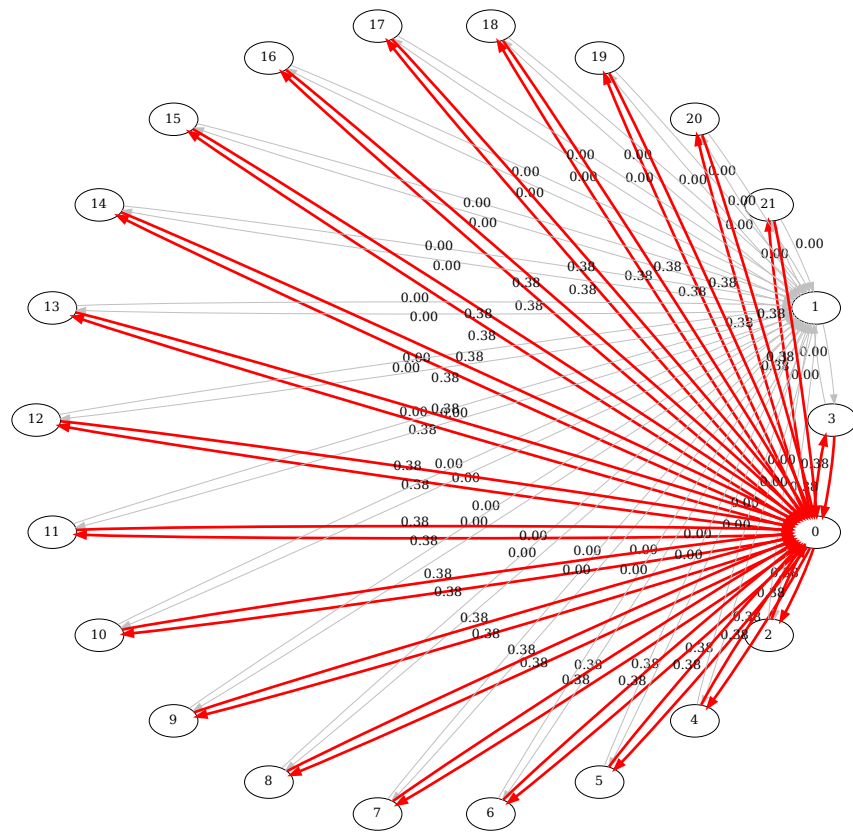
ball-0.5

k-2-20-large

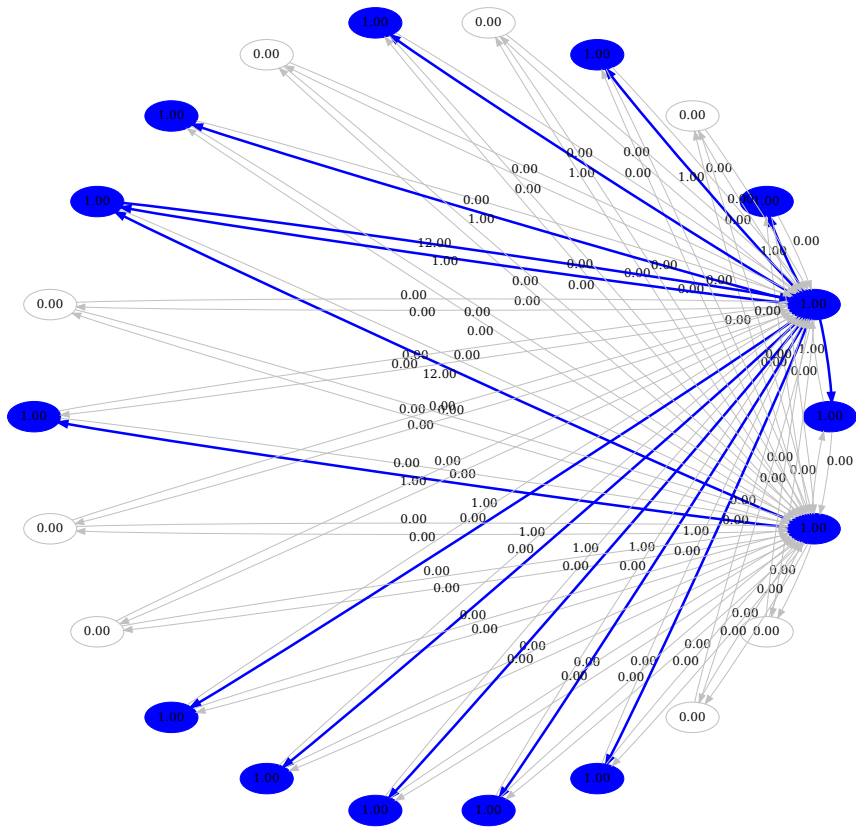
This input graph has a source vertex $s = 0$ and capacity $k = 14$. The value of mixed integer program is 32 and its linear relaxation 15.23809523809525. The approximation yields solution with 22 vertices and 0 size of the cut.



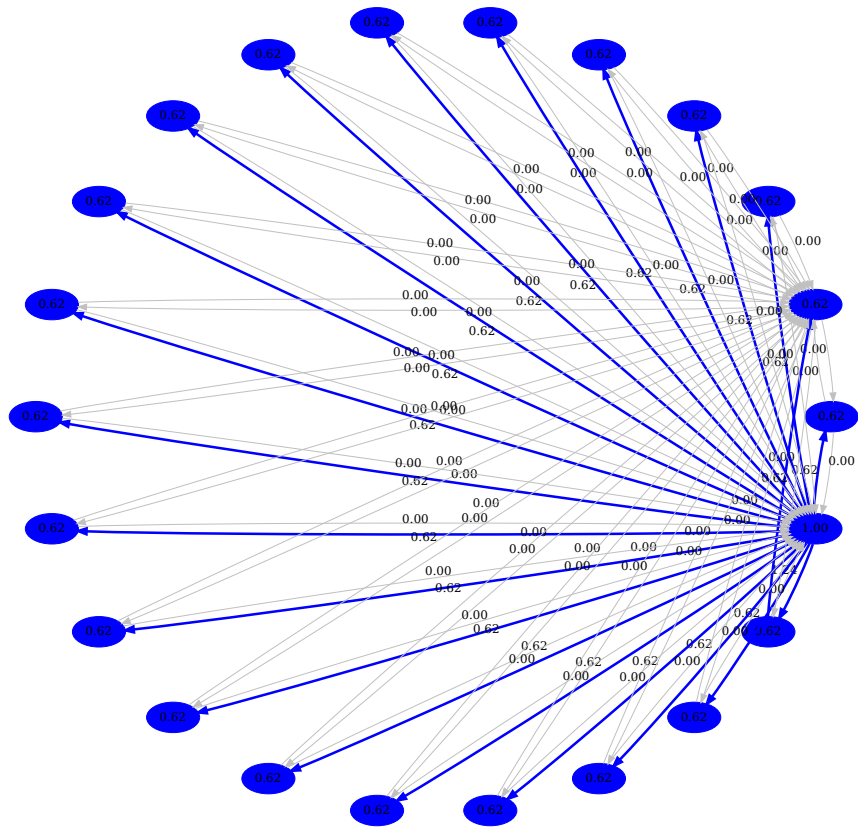
cut-ilp



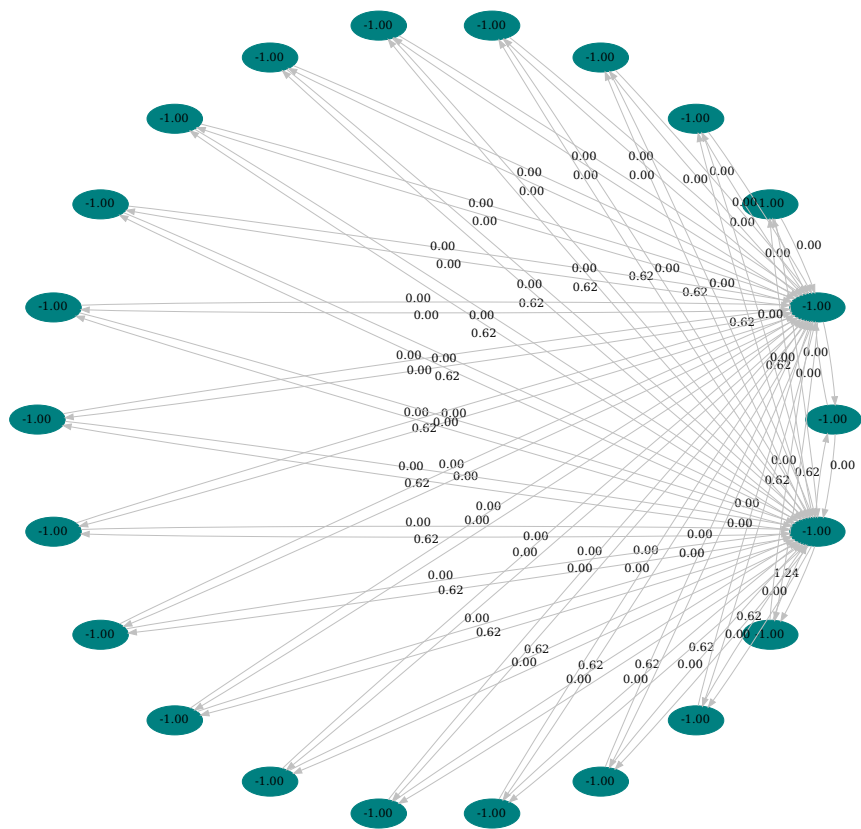
cut-lp



flow-ilp



flow-lp



ball-0.5