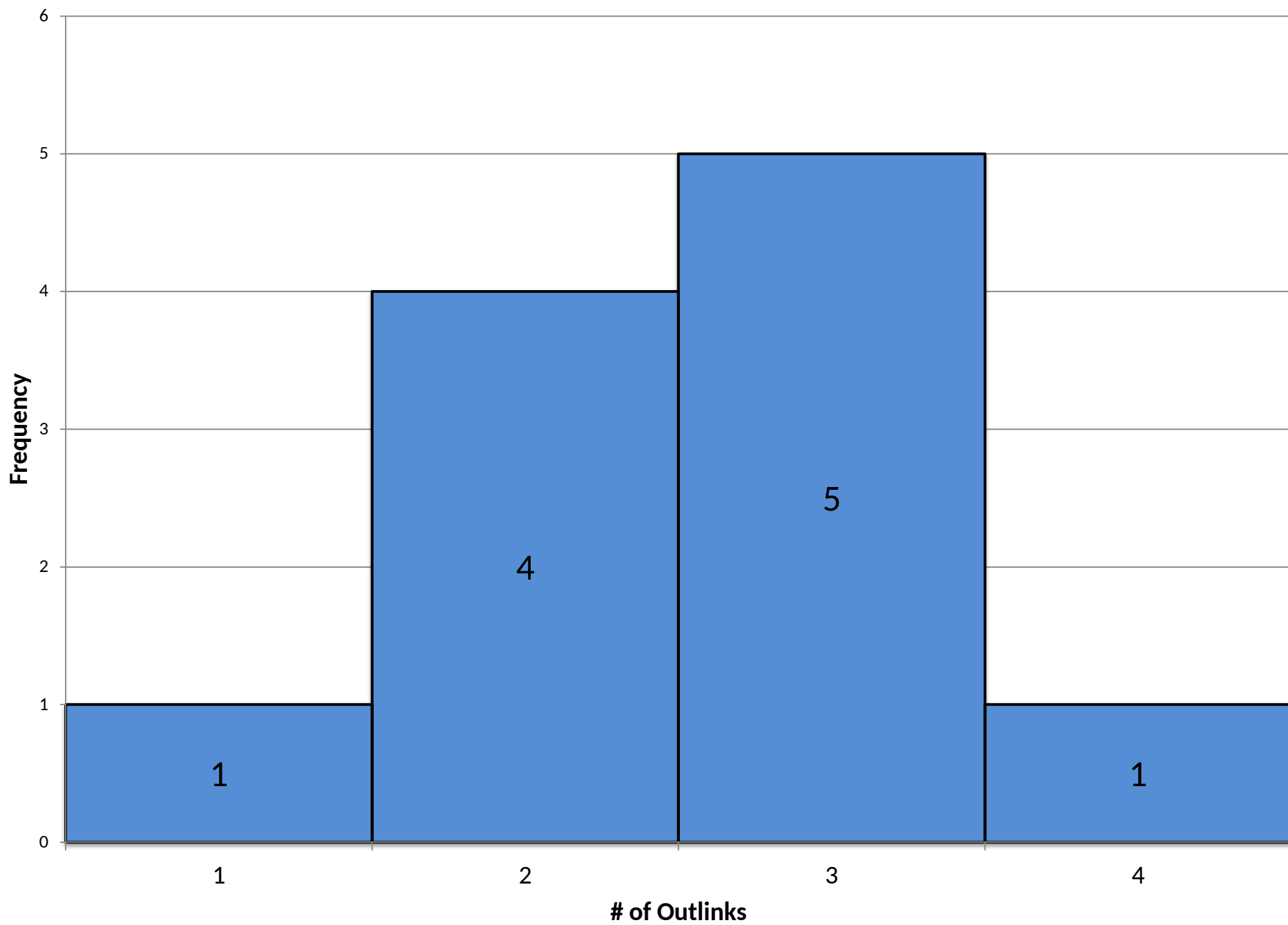
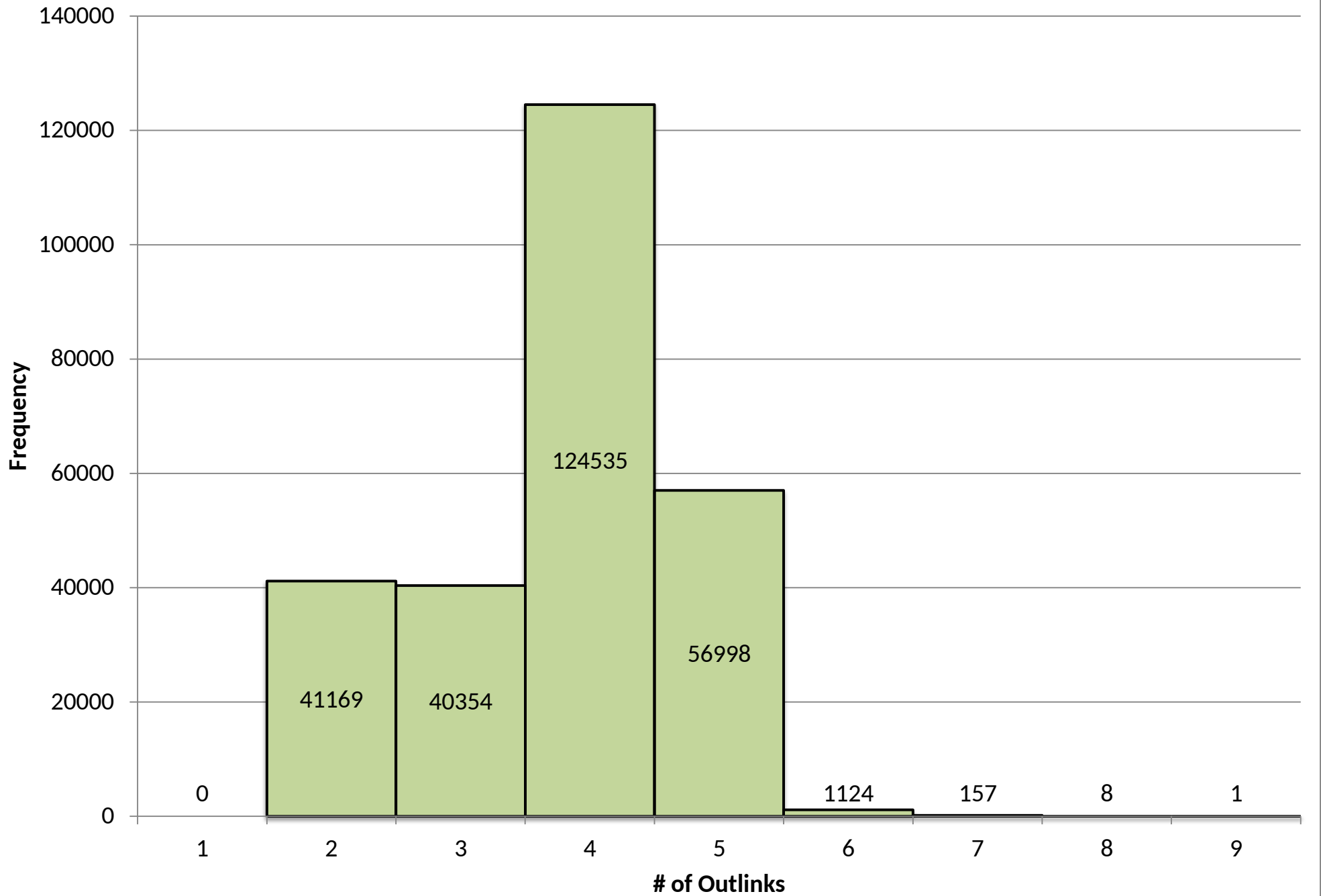


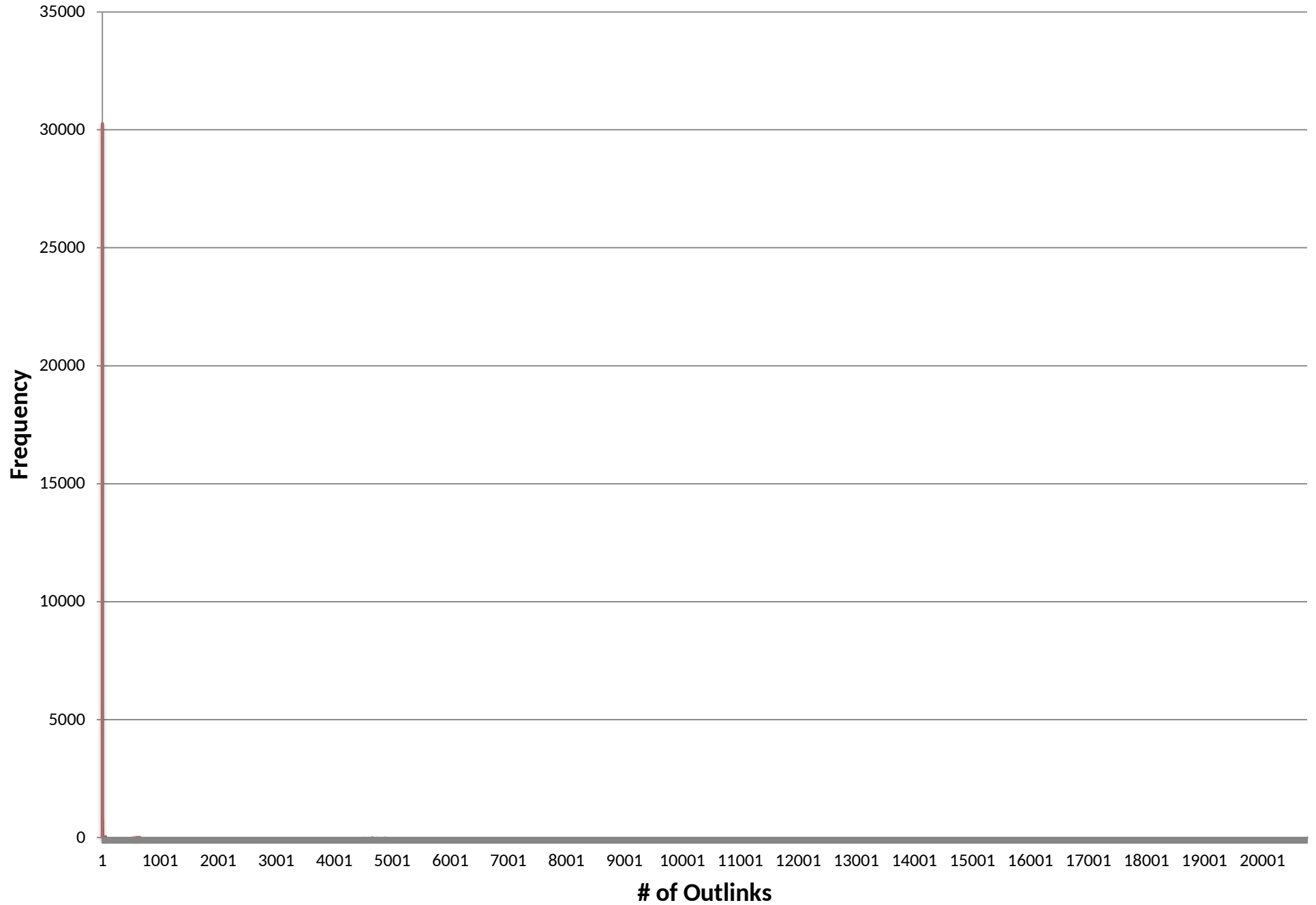
Histogram - Wiki



Histogram - NY Roads



Histogram - Rmat15



Histogram data for rmat15.dimacs

# Outlinks	# Nodes	# Outlinks	# Nodes	# Outlinks	# Nodes	# Outlinks	# Nodes	# Outlinks	# Nodes
0	30270	47	26	560	2	616	2	4507	1
1	749	48	28	562	1	617	1	4586	1
2	346	49	21	565	2	618	3	4627	1
3	286	50	32	569	1	619	2	4635	1
4	265	51	19	572	1	622	1	4655	1
5	128	52	16	573	2	623	3	4658	1
6	85	53	17	575	1	625	2	4669	1
7	34	54	21	578	1	626	4	4670	1
8	19	55	15	579	1	627	1	4678	1
9	7	56	14	582	1	629	1	4736	1
10	1	57	14	584	1	630	1	4739	1
11	2	58	13	586	3	631	3	4780	1
25	1	59	8	587	2	632	2	4859	1
28	2	60	9	589	1	633	1	4872	1
29	3	61	11	590	2	634	1	4879	1
30	1	62	1	591	1	635	3	20768	1
31	2	63	1	592	1	636	1		
32	2	64	5	594	1	637	2		
33	3	65	1	596	1	639	1		
34	4	67	2	599	2	642	1		
35	4	68	1	600	1	643	1		
36	5	69	1	602	2	644	2		
37	11	70	1	604	1	645	3		
38	8	76	1	606	3	647	1		
39	15	512	1	607	1	649	1		
40	9	526	1	608	2	651	1		
41	8	530	1	609	1	653	1		
42	20	534	1	610	1	654	1		
43	12	546	1	611	1	659	1		
44	20	547	1	612	1	660	1		
45	28	548	2	613	1	662	1		
46	19	559	2	615	1	691	1		

PageRank Values (sorted from highest rank to lowest)

wiki.dimacs:

1) Node number: 2	PageRank Value:	0.383908
2) Node number: 3	PageRank Value:	0.343403
3) Node number: 5	PageRank Value:	0.0808857
4) Node number: 4	PageRank Value:	0.0390871
5) Node number: 6	PageRank Value:	0.0390871
6) Node number: 1	PageRank Value:	0.0327815
7) Node number: 7	PageRank Value:	0.0161695
8) Node number: 8	PageRank Value:	0.0161695
9) Node number: 9	PageRank Value:	0.0161695
10) Node number: 10	PageRank Value:	0.0161695
11) Node number: 11	PageRank Value:	0.0161695

road-NY.dimacs (only top 10 nodes are shown):

1) Node number: 194461	PageRank Value:	1.45E-05
2) Node number: 263850	PageRank Value:	1.45E-05
3) Node number: 106977	PageRank Value:	1.29E-05
4) Node number: 213261	PageRank Value:	1.24E-05
5) Node number: 238974	PageRank Value:	1.24E-05
6) Node number: 243061	PageRank Value:	1.24E-05
7) Node number: 256631	PageRank Value:	1.24E-05
8) Node number: 9412	PageRank Value:	1.18E-05
9) Node number: 34767	PageRank Value:	1.18E-05
10) Node number: 91450	PageRank Value:	1.18E-05

rmat15.dimacs (only top 10 nodes shown):

1) Node number: 31906	PageRank Value:	0.000287225
2) Node number: 7221	PageRank Value:	0.00026644
3) Node number: 9414	PageRank Value:	0.0002637
4) Node number: 8652	PageRank Value:	0.000263374
5) Node number: 21713	PageRank Value:	0.000263309
6) Node number: 19311	PageRank Value:	0.000262866
7) Node number: 15264	PageRank Value:	0.00026284
8) Node number: 27504	PageRank Value:	0.00026284
9) Node number: 21269	PageRank Value:	0.000243435
10) Node number: 18396	PageRank Value:	0.000226611

PageRank Linear Equations

Linear Equations:

N (number of nodes) = 11

d (damper) = 0.85

$$PR(1) = ((1 - 0.85) * (1 / 11)) + 0.85(PR(4) / 2)$$

$$PR(2) = ((1 - 0.85) * (1 / 11)) + 0.85((PR(3) / 1) + (PR(4) / 2) + (PR(5) / 3) + (PR(6) / 2) + (PR(7) / 2) + (PR(8) / 2) + (PR(9) / 2))$$

$$PR(3) = ((1 - 0.85) * (1 / 11)) + 0.85(PR(2) / 1)$$

$$PR(4) = ((1 - 0.85) * (1 / 11)) + 0.85(PR(5) / 3)$$

$$PR(5) = ((1 - 0.85) * (1 / 11)) + 0.85((PR(6) / 2) + (PR(7) / 2) + (PR(8) / 2) + (PR(9) / 2) + PR(10) / 1) + PR(11) / 1)$$

$$PR(6) = ((1 - 0.85) * (1 / 11)) + 0.85(PR(5) / 3)$$

$$PR(7) = ((1 - 0.85) * (1 / 11))$$

$$PR(8) = ((1 - 0.85) * (1 / 11))$$

$$PR(9) = ((1 - 0.85) * (1 / 11))$$

$$PR(10) = ((1 - 0.85) * (1 / 11))$$

$$PR(11) = ((1 - 0.85) * (1 / 11))$$

Solutions:

$$PR(1) = 0.02764591621847971 = 3.278\%$$

$$PR(2) = 0.3241803247837835 = 38.44\%$$

$$PR(3) = 0.289189636066216 = 34.29\%$$

$$PR(4) = 0.03296366169054051 = 3.909\%$$

$$PR(5) = 0.06821408621847971 = 8.089\%$$

$$PR(6) = 0.03296366169054051 = 3.909\%$$

$$PR(7) = 0.01363636364 = 1.617\%$$

$$PR(8) = 0.01363636364 = 1.617\%$$

$$PR(9) = 0.01363636364 = 1.617\%$$

$$PR(10) = 0.01363636364 = 1.617\%$$

$$PR(11) = 0.01363636364 = 1.617\%$$

$$\text{Sum} = 0.8433391048 = 100\%$$

The solutions do in fact match the ranks given in the diagram after scaling.