

# Solution Overview Report for Scenario nogamma

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## 1 Introduction

This report gives an overview of the solution found for the Irish Constituency Reassignment problem, it also presents details of selected solutions. The problem, a model and the relevant data are described in a companion report.

This version of the analysis considers solutions for a fixed number of seats, and a variable  $\pm$  delta in the population per seat for each county.

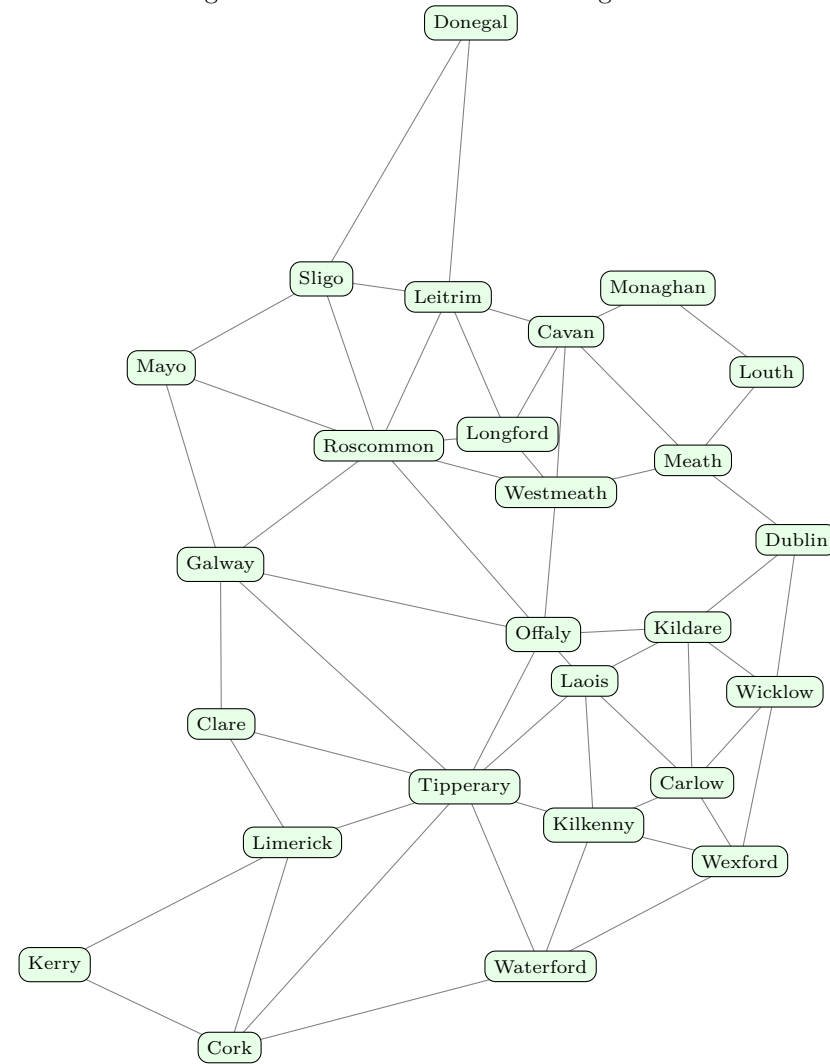
This scenario has 174 seats in total. The scenario does not assign a cost to the different sizes of constituencies, i.e. the gamma weight factors are zero.

Figure 1 shows a schematic map of the counties in Ireland, with lines indicating that two counties are neighbors, and a reassignment of population from one county to the neighbor can be considered. The positions of the county labels are based on the centroid point of the counties in the map of Ireland.

We also use this map layout in the visualization of the results. We draw two versions, one shows the number of seats allocated, and the number of constituencies of different types created. The nodes are colored by the number of seats given. Transfers between counties are marked by arrows, arrows colored in red indicate that the complete county is transferred to another county. Arrows in gray also show the percentage of the population of the 'from' county transferred to the 'to' county.

The second type of map shows the variation in the number of persons per seat, expressed as a percentage of the overall target average. A green color indicates that the number is below the average, a yellow color indicates that the value is above average. Counties for which the achieved variation is within 1 percent of the maximum delta allowed are outlined in red.

Figure 1: Ireland: Counties and Neighbors



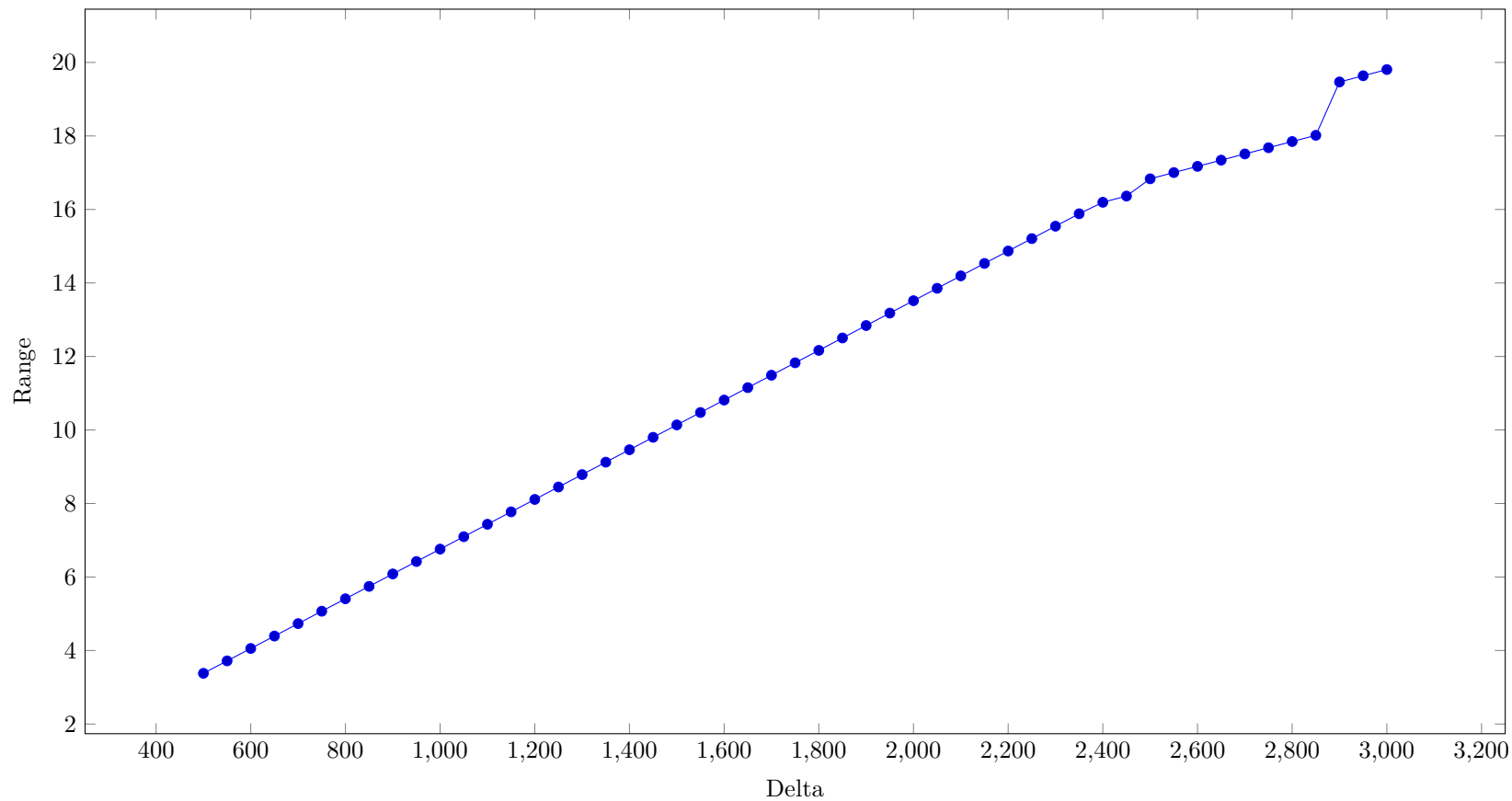
## Solution Overview

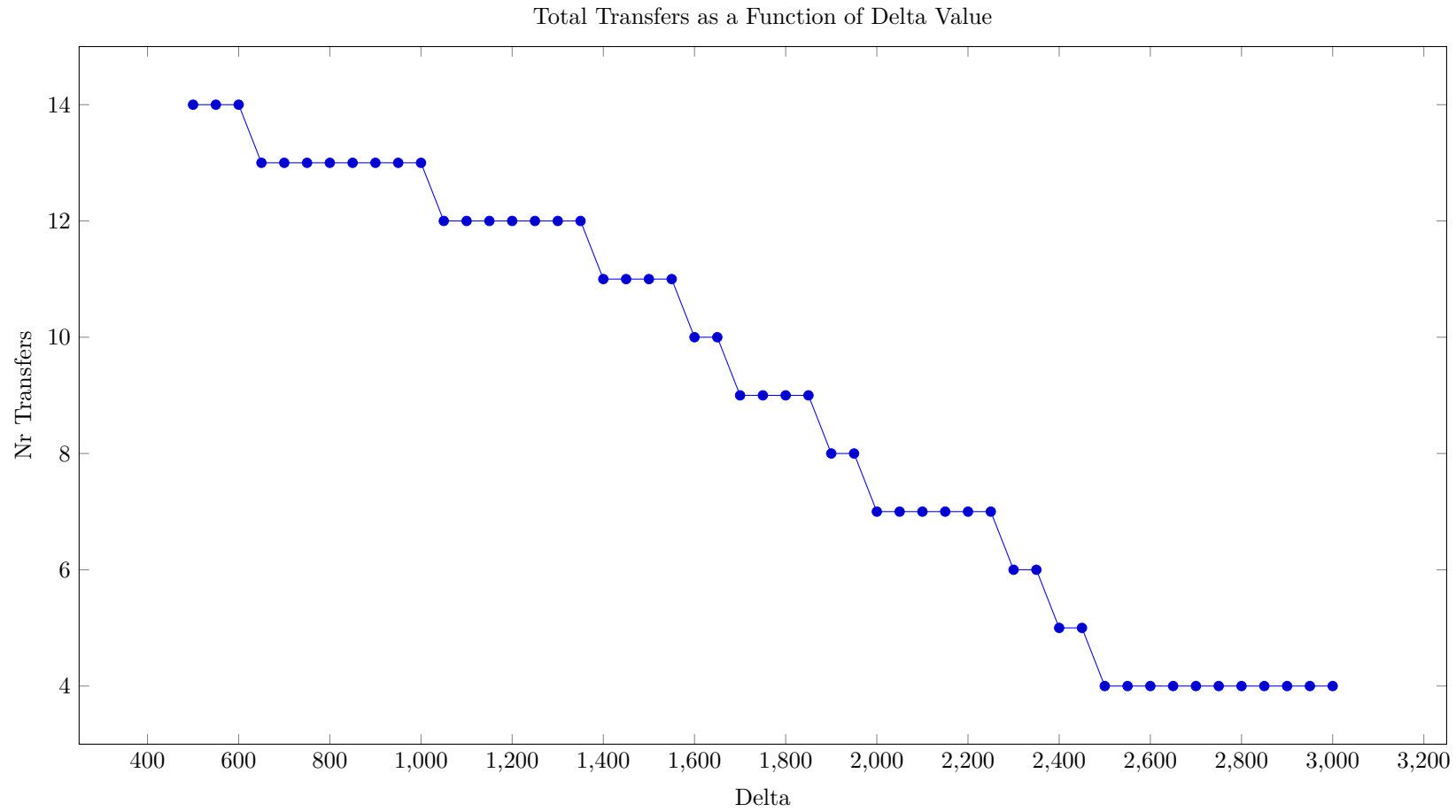
Table 1: Solutions

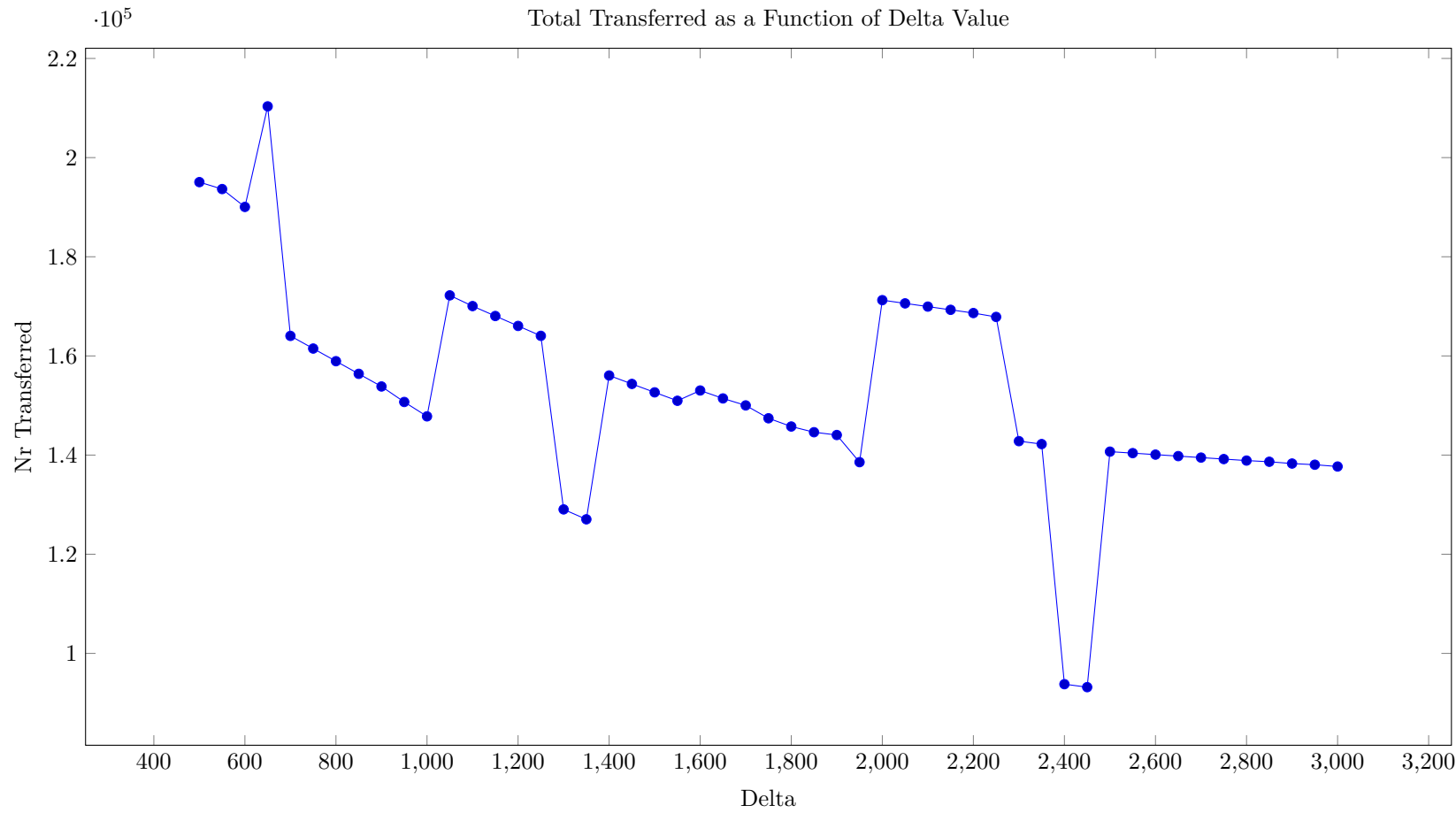
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol1	174	500	1.69	3.38	29,092.00	30,092.00	29,596.74	118,044.23	14	195,056	51	36/9/6	3.41	Optimal	262.23	14,195,056.00	0.0100
Sol2	174	550	1.86	3.72	29,042.00	30,142.00	29,597.24	132,658.11	14	193,654	48	29/8/11	3.63	Optimal	176.21	14,193,654.00	0.0100
Sol3	174	600	2.03	4.06	28,992.00	30,192.00	29,598.63	173,677.46	14	190,051	50	33/10/7	3.48	Solution	302.70	14,190,051.00	6.3562
Sol4	174	650	2.20	4.39	28,942.00	30,242.00	29,598.71	175,911.50	13	210,337	45	14/23/8	3.87	Optimal	16.24	13,210,337.00	0.0100
Sol5	174	700	2.37	4.73	28,892.00	30,292.00	29,600.15	218,280.01	13	164,037	51	33/15/3	3.41	Optimal	60.58	13,164,037.00	0.0100
Sol6	174	750	2.53	5.07	28,842.00	30,342.00	29,600.96	242,129.17	13	161,487	45	16/19/10	3.87	Optimal	12.85	13,161,487.00	0.0026
Sol7	174	800	2.70	5.41	28,792.00	30,392.00	29,601.43	256,027.71	13	158,937	46	23/10/13	3.78	Optimal	49.38	13,158,937.00	0.0100
Sol8	174	850	2.87	5.74	28,742.00	30,442.00	29,602.95	300,612.44	13	156,387	51	36/9/6	3.41	Optimal	39.87	13,156,387.00	0.0093
Sol9	174	900	3.04	6.08	28,692.00	30,492.00	29,604.13	335,251.49	13	153,837	51	36/9/6	3.41	Optimal	97.08	13,153,837.00	0.0098
Sol10	174	950	3.21	6.42	28,642.00	30,542.00	29,607.53	436,781.56	13	150,711	51	36/9/6	3.41	Optimal	121.70	13,150,711.00	0.0100
Sol11	174	1,000	3.38	6.76	28,592.00	30,592.00	29,608.72	470,879.87	13	147,811	51	36/9/6	3.41	Optimal	32.25	13,147,811.00	0.0099
Sol12	174	1,050	3.55	7.10	28,542.00	30,642.00	29,607.60	437,006.96	12	172,213	48	28/10/10	3.63	Optimal	1.98	12,172,213.00	0.0000
Sol13	174	1,100	3.72	7.43	28,492.00	30,692.00	29,609.15	483,262.17	12	170,051	51	35/11/5	3.41	Optimal	2.86	12,170,051.00	0.0000
Sol14	174	1,150	3.89	7.77	28,442.00	30,742.00	29,611.33	546,460.82	12	168,051	51	35/11/5	3.41	Optimal	2.55	12,168,051.00	0.0053
Sol15	174	1,200	4.06	8.11	28,392.00	30,792.00	29,611.87	562,481.13	12	166,051	50	34/8/8	3.48	Optimal	2.56	12,166,051.00	0.0094
Sol16	174	1,250	4.22	8.45	28,342.00	30,842.00	29,619.93	805,409.62	12	164,051	51	36/9/6	3.41	Optimal	3.65	12,164,051.00	0.0037
Sol17	174	1,300	4.39	8.79	28,292.00	30,892.00	29,633.64	1,211,541.06	12	129,044	50	33/10/7	3.48	Optimal	10.76	12,129,044.00	0.0047
Sol18	174	1,350	4.56	9.12	28,242.00	30,942.00	29,635.30	1,260,320.32	12	127,044	48	23/20/5	3.63	Optimal	11.80	12,127,044.00	0.0094
Sol19	174	1,400	4.73	9.46	28,192.00	30,992.00	29,621.50	858,591.03	11	156,052	52	39/8/5	3.35	Optimal	1.00	11,156,052.00	0.0000
Sol20	174	1,450	4.90	9.80	28,142.00	31,042.00	29,623.54	919,277.74	11	154,352	45	18/15/12	3.87	Optimal	1.63	11,154,352.00	0.0006
Sol21	174	1,500	5.07	10.14	28,092.00	31,092.00	29,637.30	1,325,062.12	11	152,652	53	41/9/3	3.28	Optimal	0.86	11,152,652.00	0.0000
Sol22	174	1,550	5.24	10.48	28,042.00	31,142.00	29,626.74	1,013,773.08	11	150,952	46	18/20/8	3.78	Optimal	1.56	11,150,952.00	0.0000
Sol23	174	1,600	5.41	10.81	27,992.00	31,192.00	29,627.58	1,041,758.43	10	153,027	43	16/9/18	4.05	Optimal	1.08	10,153,027.00	0.0049
Sol24	174	1,650	5.58	11.15	27,942.00	31,242.00	29,629.00	1,083,530.76	10	151,427	44	15/16/13	3.95	Optimal	0.88	10,151,427.00	0.0025
Sol25	174	1,700	5.74	11.49	27,892.00	31,292.00	29,630.22	1,119,730.68	9	150,019	45	19/13/13	3.87	Optimal	0.56	9,150,019.00	0.0000
Sol26	174	1,750	5.91	11.83	27,842.00	31,342.00	29,640.31	1,400,727.80	9	147,423	51	33/15/3	3.41	Optimal	0.73	9,147,423.00	0.0056
Sol27	174	1,800	6.08	12.17	27,792.00	31,392.00	29,644.21	1,507,658.59	9	145,762	52	39/8/5	3.35	Optimal	0.90	9,145,762.00	0.0051
Sol28	174	1,850	6.25	12.50	27,742.00	31,442.00	29,646.93	1,585,379.40	9	144,612	52	38/10/4	3.35	Optimal	1.68	9,144,612.00	0.0000
Sol29	174	1,900	6.42	12.84	27,692.00	31,492.00	29,653.84	1,776,785.85	8	144,047	52	37/12/3	3.35	Optimal	1.04	8,144,047.00	-0.0000
Sol30	174	1,950	6.59	13.18	27,642.00	31,542.00	29,659.55	1,942,692.02	8	138,572	53	41/9/3	3.28	Optimal	1.40	8,138,572.00	0.0000
Sol31	174	2,000	6.76	13.52	27,592.00	31,592.00	29,659.42	1,930,694.01	7	171,249	44	21/4/19	3.95	Optimal	0.49	7,171,249.00	0.0089
Sol32	174	2,050	6.93	13.86	27,542.00	31,642.00	29,659.18	1,925,118.37	7	170,599	44	20/6/18	3.95	Optimal	0.44	7,170,599.00	0.0000
Sol33	174	2,100	7.10	14.19	27,492.00	31,692.00	29,661.88	1,999,020.98	7	169,949	51	37/7/7	3.41	Optimal	1.68	7,169,949.00	0.0000
Sol34	174	2,150	7.27	14.53	27,442.00	31,742.00	29,703.84	3,284,901.03	7	169,299	46	26/4/16	3.78	Optimal	1.28	7,169,299.00	0.0047
Sol35	174	2,200	7.43	14.87	27,392.00	31,792.00	29,666.40	2,146,349.23	7	168,649	51	38/5/8	3.41	Optimal	0.81	7,168,649.00	0.0049
Sol36	174	2,250	7.60	15.21	27,342.00	31,842.00	29,656.56	1,868,913.15	7	167,866	45	13/25/7	3.87	Optimal	1.20	7,167,866.00	0.0000
Sol37	174	2,300	7.77	15.54	27,292.00	31,892.00	29,672.03	2,293,168.82	6	142,808	46	25/6/15	3.78	Optimal	0.96	6,142,808.00	0.0060
Sol38	174	2,350	7.94	15.88	27,242.00	31,942.00	29,663.90	2,067,264.31	6	142,219	46	26/4/16	3.78	Optimal	0.52	6,142,219.00	0.0088
Sol39	174	2,400	8.11	16.20	27,192.00	31,984.50	29,716.98	3,656,166.69	5	93,790	49	33/5/11	3.55	Optimal	0.88	5,093,790.00	0.0070
Sol40	174	2,450	8.28	16.36	27,142.00	31,984.50	29,692.19	2,889,530.54	5	93,190	53	43/5/5	3.28	Optimal	0.43	5,093,190.00	0.0000
Sol41	174	2,500	8.45	16.83	27,092.00	32,073.67	29,716.23	3,641,141.72	4	140,693	47	28/5/14	3.70	Optimal	0.25	4,140,693.00	0.0000
Sol42	174	2,550	8.62	17.00	27,042.00	32,073.67	29,691.13	2,865,838.34	4	140,393	52	41/4/7	3.35	Optimal	0.26	4,140,393.00	0.0068
Sol43	174	2,600	8.79	17.17	26,992.00	32,073.67	29,716.84	3,657,310.49	4	140,093	53	43/5/5	3.28	Optimal	0.30	4,140,093.00	0.0000
Sol44	174	2,650	8.96	17.34	26,942.00	32,073.67	29,691.76	2,882,586.49	4	139,793	52	41/4/7	3.35	Optimal	0.23	4,139,793.00	0.0000
Sol45	174	2,700	9.12	17.51	26,892.00	32,073.67	29,666.84	2,148,974.61	4	139,493	48	24/18/6	3.63	Optimal	0.28	4,139,493.00	0.0000
Sol46	174	2,750	9.29	17.68	26,842.00	32,073.67	29,675.99	2,403,638.09	4	139,193	47	28/5/14	3.70	Optimal	0.24	4,139,193.00	0.0000

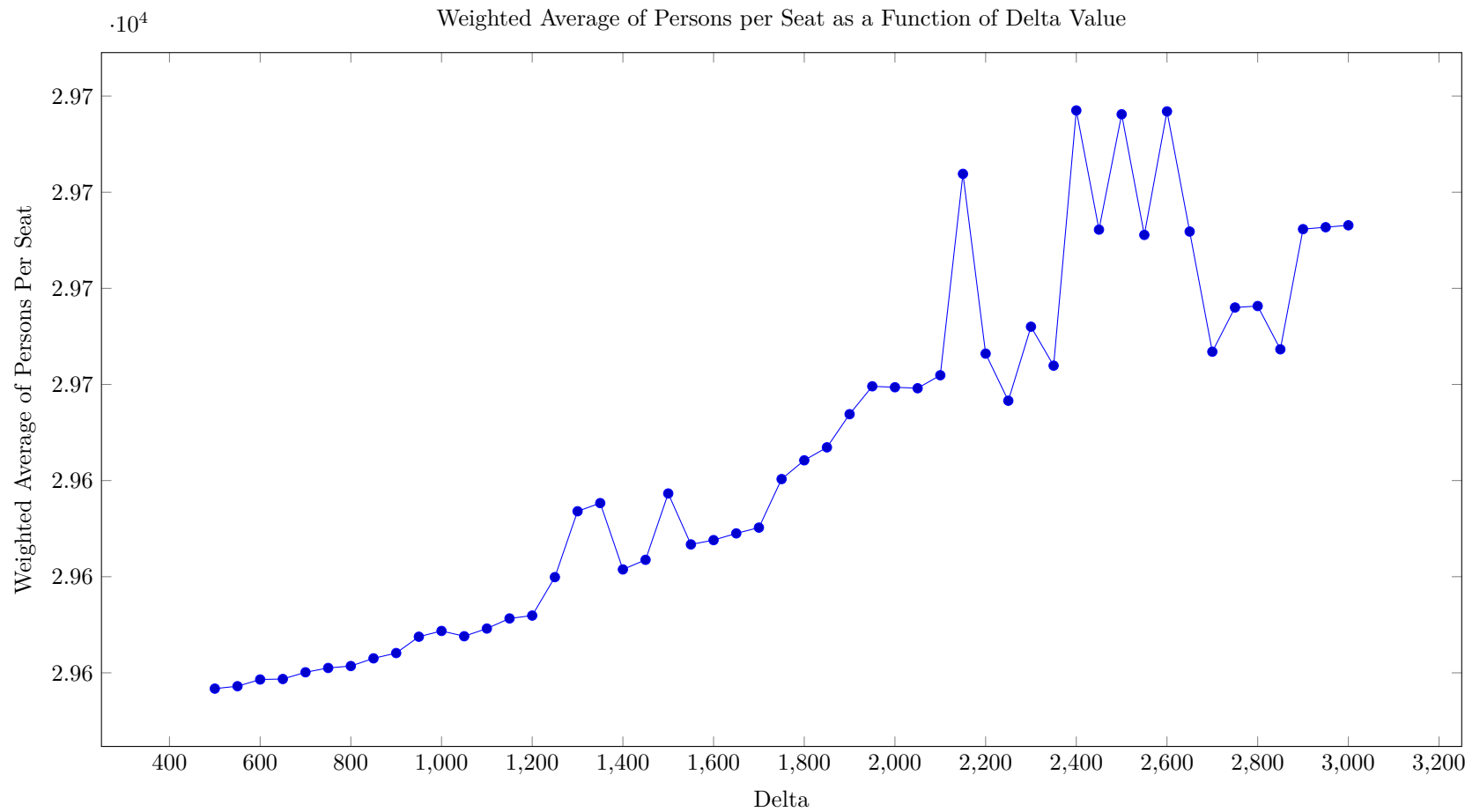
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol47	174	2,800	9.46	17.85	26,792.00	32,073.67	29,676.34	2,412,982.03	4	138,893	47	28/5/14	3.70	Optimal	0.24	4,138,893.00	0.0000
Sol48	174	2,850	9.63	18.02	26,742.00	32,073.67	29,667.31	2,182,475.73	4	138,654	45	21/9/15	3.87	Optimal	0.29	4,138,654.00	0.0015
Sol49	174	2,900	9.80	19.47	26,692.00	32,453.11	29,692.34	2,971,656.19	4	138,293	46	26/4/16	3.78	Optimal	0.33	4,138,293.00	0.0000
Sol50	174	2,950	9.97	19.64	26,642.00	32,453.11	29,692.73	2,981,808.66	4	138,054	46	26/4/16	3.78	Optimal	0.30	4,138,054.00	0.0015
Sol51	174	3,000	10.14	19.81	26,592.00	32,453.11	29,693.13	2,992,233.81	4	137,693	46	26/4/16	3.78	Optimal	0.34	4,137,693.00	0.0067

Range as a Function of Delta Value

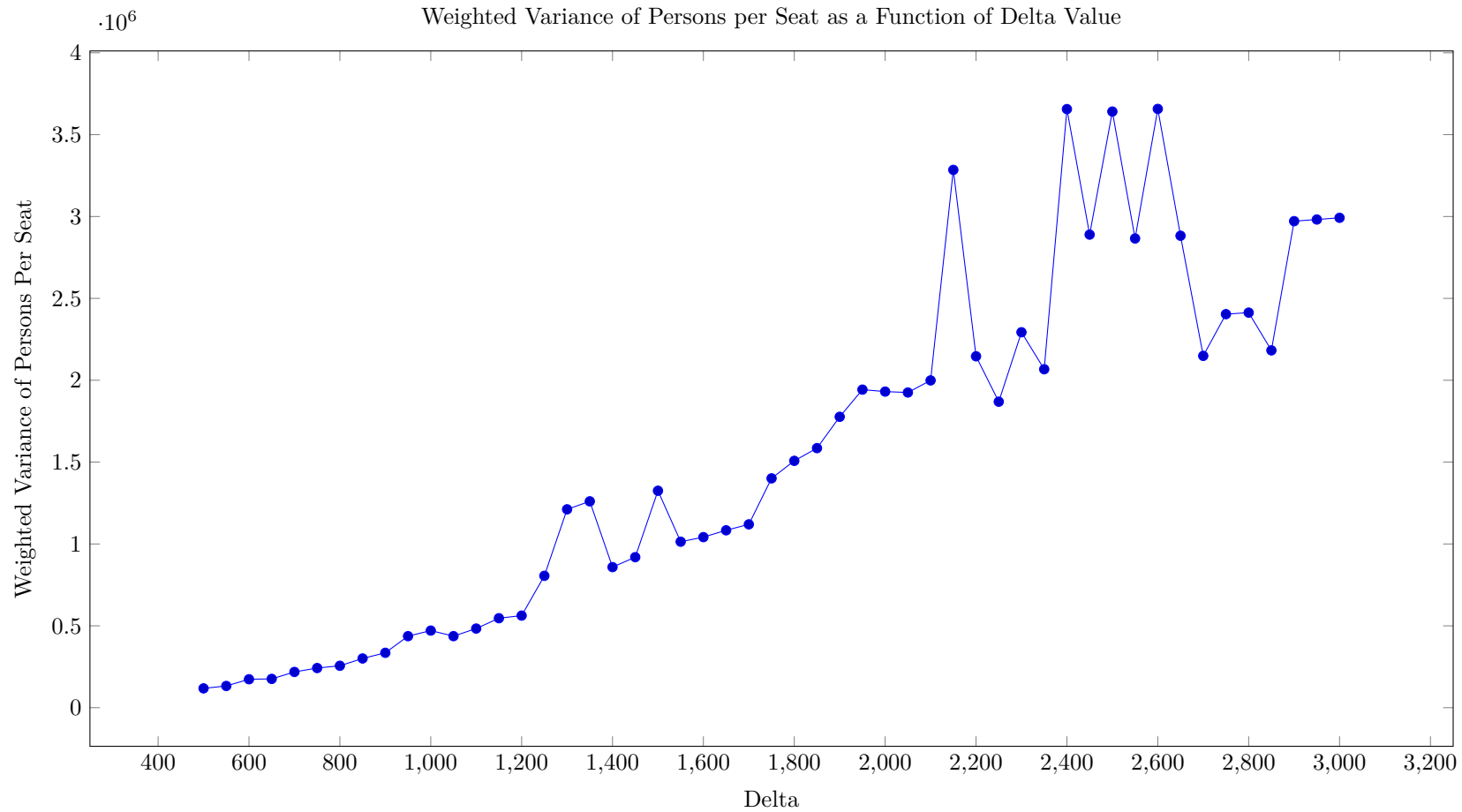












### 3 Details of Selected Solutions

### 3.1 Solution Sol1

Table 2: Solution 1

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol1	174	500	1.69	3.38	29,092.00	30,092.00	29,596.74	118,044.23	14	195,056	51	36/9/6	3.41	Optimal	262.23	14,195,056.00	0.0100

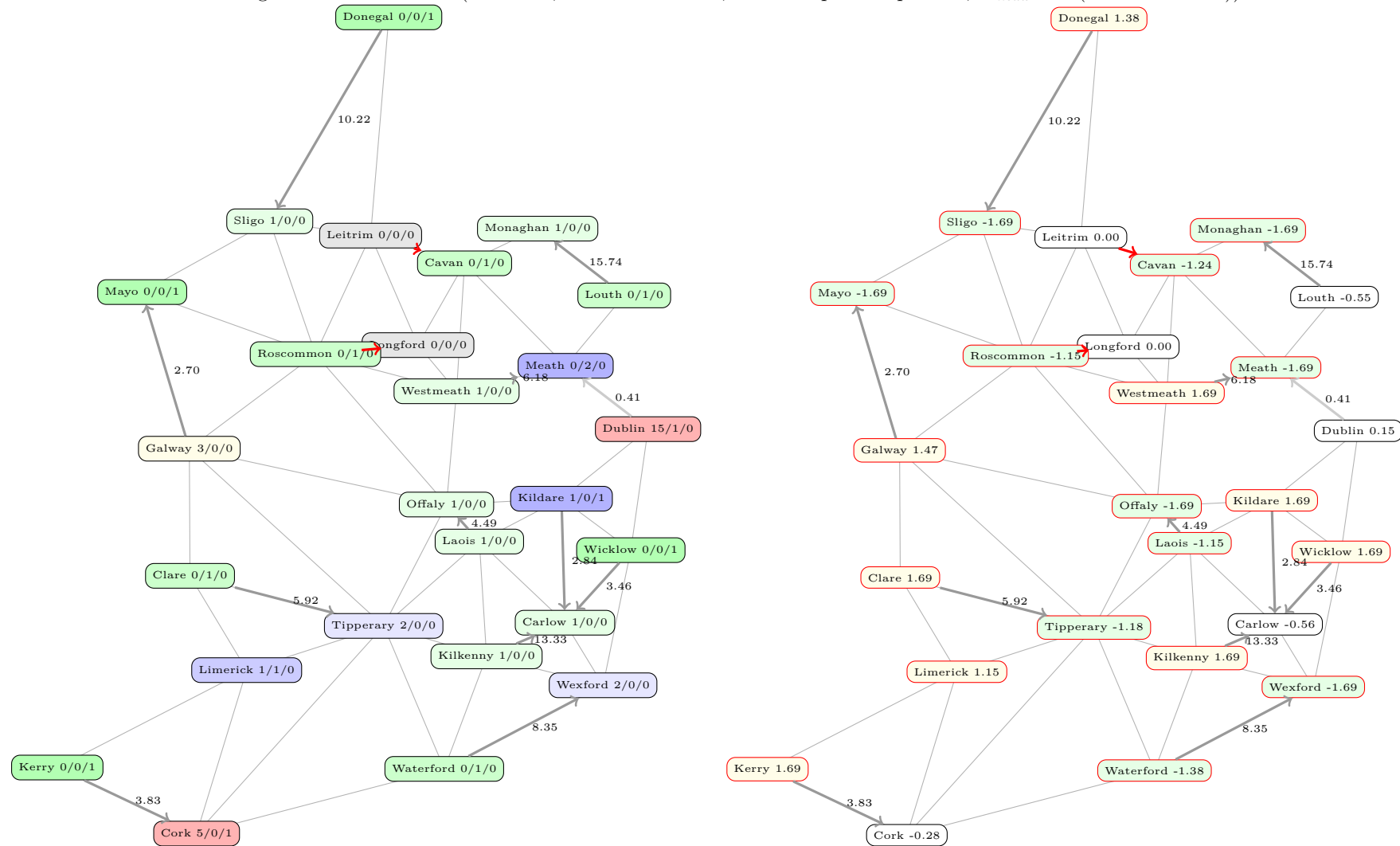
Table 3: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	26,313	88,281	1	1/0/0	3	29,427.00	-0.56
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	7,570	0	120,368	1	0/1/0	4	30,092.00	1.69
Cork	584,156	19.74	0	5,998	590,154	6	5/0/1	20	29,507.70	-0.28
Donegal	167,084	5.65	17,078	0	150,006	1	0/0/1	5	30,001.20	1.38
Dublin	1,458,154	49.28	5,965	0	1,452,189	16	15/1/0	49	29,636.51	0.15
Galway	277,737	9.39	7,490	0	270,247	3	3/0/0	9	30,027.44	1.47
Kerry	156,458	5.29	5,998	0	150,460	1	0/0/1	5	30,092.00	1.69
Kildare	247,774	8.37	7,038	0	240,736	2	1/0/1	8	30,092.00	1.69
Kilkenny	104,160	3.52	13,884	0	90,276	1	1/0/0	3	30,092.00	1.69
Laois	91,877	3.10	4,126	0	87,751	1	1/0/0	3	29,250.33	-1.15
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	21,988	0	117,715	1	0/1/0	4	29,428.75	-0.55
Mayo	137,970	4.66	0	7,490	145,460	1	0/0/1	5	29,092.00	-1.69
Meath	220,826	7.46	0	11,910	232,736	2	0/2/0	8	29,092.00	-1.69
Monaghan	65,288	2.21	0	21,988	87,276	1	1/0/0	3	29,092.00	-1.69
Offaly	83,150	2.81	0	4,126	87,276	1	1/0/0	3	29,092.00	-1.69
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	17,078	87,276	1	1/0/0	3	29,092.00	-1.69
Tipperary	167,895	5.67	0	7,570	175,465	2	2/0/0	6	29,244.17	-1.18
Waterford	127,363	4.30	10,633	0	116,730	1	0/1/0	4	29,182.50	-1.38

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	5,945	0	90,276	1	1/0/0	3	30,092.00	1.69
Wexford	163,919	5.54	0	10,633	174,552	2	2/0/0	6	29,092.00	-1.69
Wicklow	155,851	5.27	5,391	0	150,460	1	0/0/1	5	30,092.00	1.69

Table 4: 14 Transfers (Total 195056)

From	To	Volume	Percent of From
Dublin	Meath	5,965	0.41
Kildare	Carlow	7,038	2.84
Kilkenny	Carlow	13,884	13.33
Laois	Offaly	4,126	4.49
Longford	Roscommon	46,751	100.00
Louth	Monaghan	21,988	15.74
Westmeath	Meath	5,945	6.18
Wicklow	Carlow	5,391	3.46
Clare	Tipperary	7,570	5.92
Kerry	Cork	5,998	3.83
Waterford	Wexford	10,633	8.35
Galway	Mayo	7,490	2.70
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	17,078	10.22

Figure 2: Solution Sol1 (174 seats, 51 constituencies, 29596.74 persons per TD,  $\Delta_{max}$  500 (1.69% of 29592))

### 3.2 Solution Sol2

Table 5: Solution 2

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol2	174	550	1.86	3.72	29,042.00	30,142.00	29,597.24	132,658.11	14	193,654	48	29/8/11	3.63	Optimal	176.21	14,193,654.00	0.0100

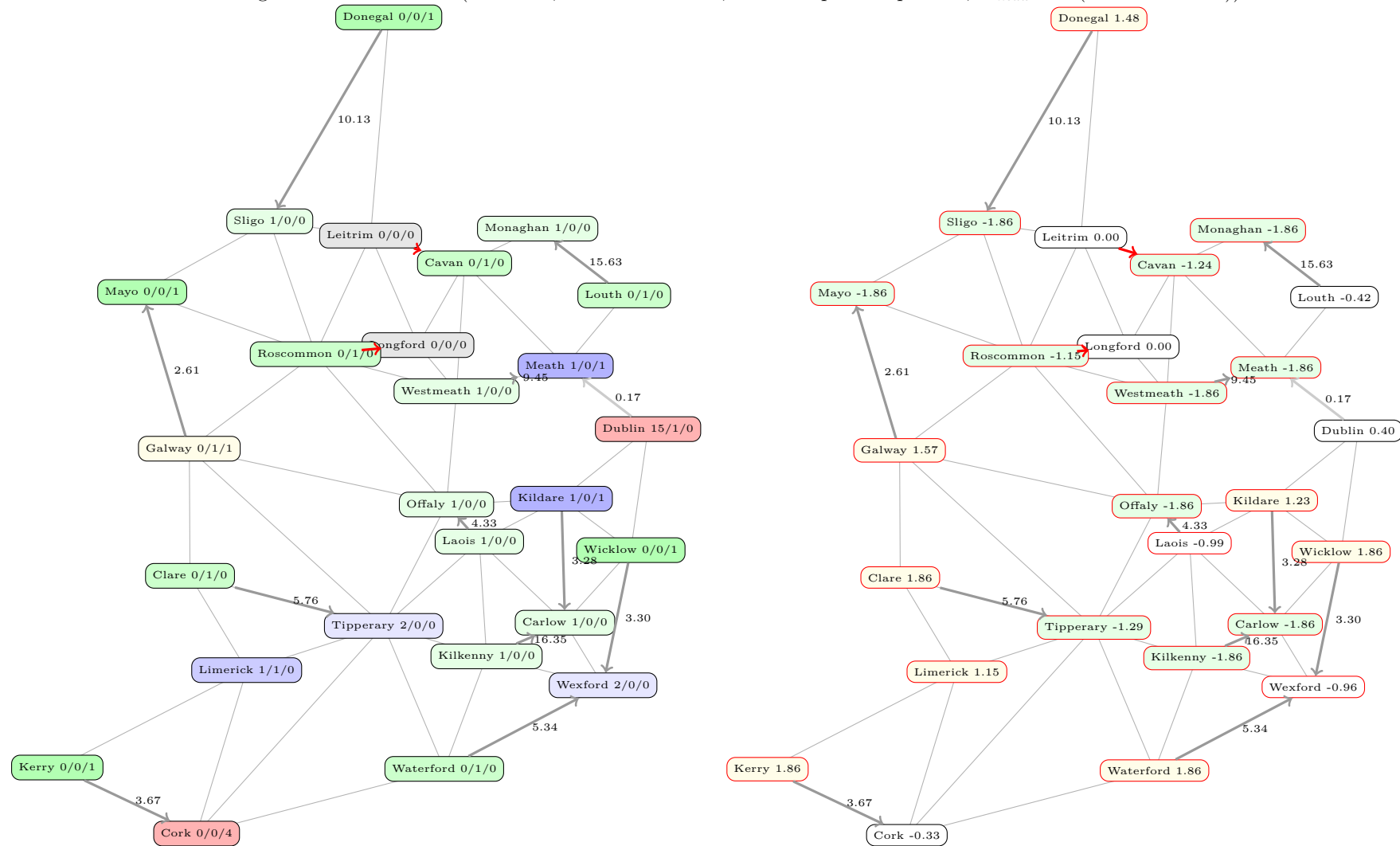
Table 6: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	25,158	87,126	1	1/0/0	3	29,042.00	-1.86
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	7,370	0	120,568	1	0/1/0	4	30,142.00	1.86
Cork	584,156	19.74	0	5,748	589,904	4	0/0/4	20	29,495.20	-0.33
Donegal	167,084	5.65	16,928	0	150,156	1	0/0/1	5	30,031.20	1.48
Dublin	1,458,154	49.28	2,415	0	1,455,739	16	15/1/0	49	29,708.96	0.40
Galway	277,737	9.39	7,240	0	270,497	2	0/1/1	9	30,055.22	1.57
Kerry	156,458	5.29	5,748	0	150,710	1	0/0/1	5	30,142.00	1.86
Kildare	247,774	8.37	8,124	0	239,650	2	1/0/1	8	29,956.25	1.23
Kilkenny	104,160	3.52	17,034	0	87,126	1	1/0/0	3	29,042.00	-1.86
Laois	91,877	3.10	3,976	0	87,901	1	1/0/0	3	29,300.33	-0.99
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	21,838	0	117,865	1	0/1/0	4	29,466.25	-0.42
Mayo	137,970	4.66	0	7,240	145,210	1	0/0/1	5	29,042.00	-1.86
Meath	220,826	7.46	0	11,510	232,336	2	1/0/1	8	29,042.00	-1.86
Monaghan	65,288	2.21	0	21,838	87,126	1	1/0/0	3	29,042.00	-1.86
Offaly	83,150	2.81	0	3,976	87,126	1	1/0/0	3	29,042.00	-1.86
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	16,928	87,126	1	1/0/0	3	29,042.00	-1.86
Tipperary	167,895	5.67	0	7,370	175,265	2	2/0/0	6	29,210.83	-1.29
Waterford	127,363	4.30	6,795	0	120,568	1	0/1/0	4	30,142.00	1.86

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	9,095	0	87,126	1	1/0/0	3	29,042.00	-1.86
Wexford	163,919	5.54	0	11,936	175,855	2	2/0/0	6	29,309.17	-0.96
Wicklow	155,851	5.27	5,141	0	150,710	1	0/0/1	5	30,142.00	1.86

Table 7: 14 Transfers (Total 193654)

From	To	Volume	Percent of From
Dublin	Meath	2,415	0.17
Kildare	Carlow	8,124	3.28
Kilkenny	Carlow	17,034	16.35
Laois	Offaly	3,976	4.33
Longford	Roscommon	46,751	100.00
Louth	Monaghan	21,838	15.63
Westmeath	Meath	9,095	9.45
Wicklow	Wexford	5,141	3.30
Clare	Tipperary	7,370	5.76
Kerry	Cork	5,748	3.67
Waterford	Wexford	6,795	5.34
Galway	Mayo	7,240	2.61
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	16,928	10.13

Figure 3: Solution Sol2 (174 seats, 48 constituencies, 29597.24 persons per TD,  $\Delta_{max}$  550 (1.86% of 29592))

### 3.3 Solution Sol3

Table 8: Solution 3

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol3	174	600	2.03	4.06	28,992.00	30,192.00	29,598.63	173,677.46	14	190,051	50	33/10/7	3.48	Solution	302.70	14,190,051.00	6.3562

Table 9: Counties

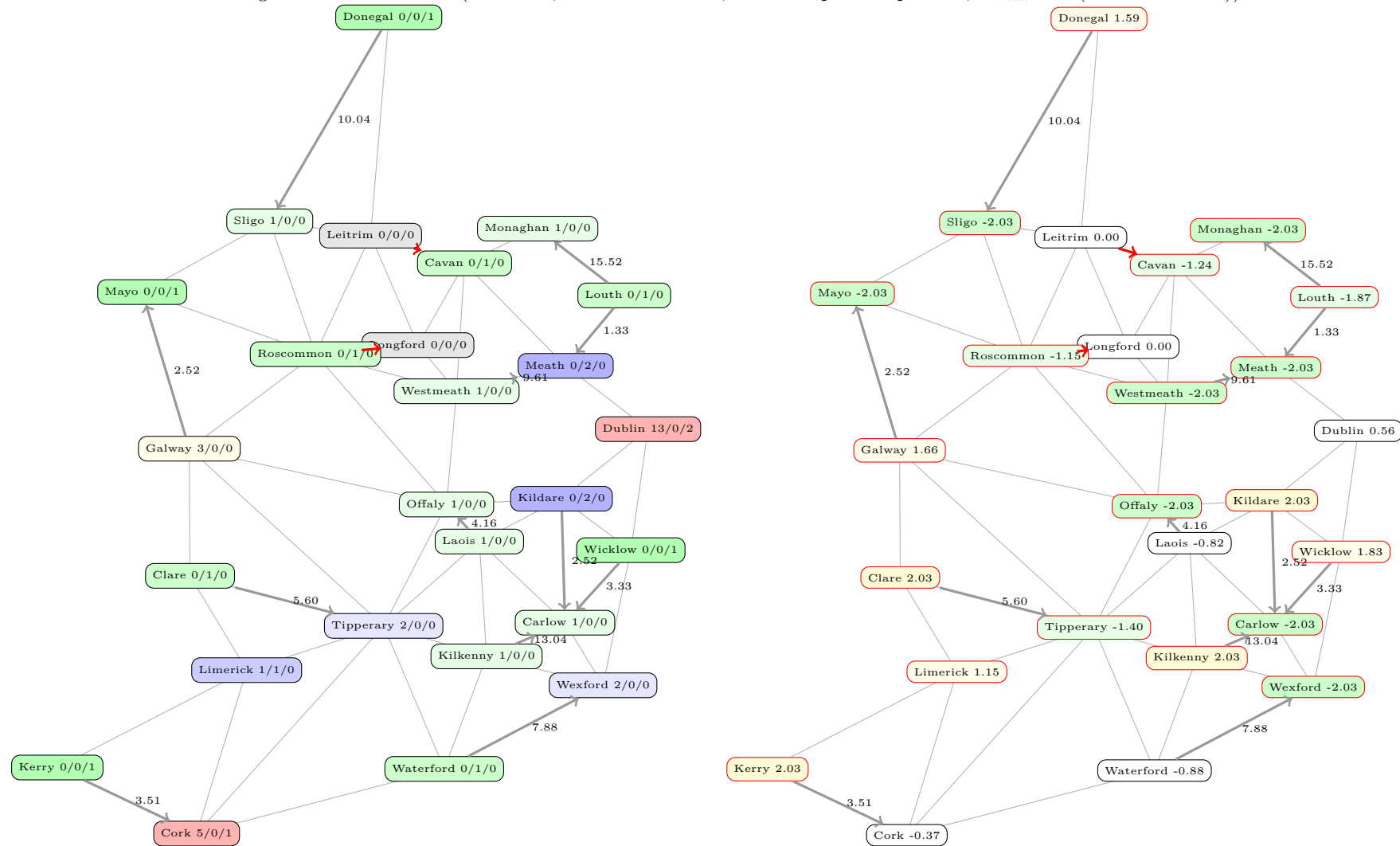
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	25,008	86,976	1	1/0/0	3	28,992.00	-2.03
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	7,170	0	120,768	1	0/1/0	4	30,192.00	2.03
Cork	584,156	19.74	0	5,498	589,654	6	5/0/1	20	29,482.70	-0.37
Donegal	167,084	5.65	16,778	0	150,306	1	0/0/1	5	30,061.20	1.59
Dublin	1,458,154	49.28	0	0	1,458,154	15	13/0/2	49	29,758.24	0.56
Galway	277,737	9.39	6,990	0	270,747	3	3/0/0	9	30,083.00	1.66
Kerry	156,458	5.29	5,498	0	150,960	1	0/0/1	5	30,192.00	2.03
Kildare	247,774	8.37	6,238	0	241,536	2	0/2/0	8	30,192.00	2.03
Kilkenny	104,160	3.52	13,584	0	90,576	1	1/0/0	3	30,192.00	2.03
Laois	91,877	3.10	3,826	0	88,051	1	1/0/0	3	29,350.33	-0.82
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	23,553	0	116,150	1	0/1/0	4	29,037.50	-1.87
Mayo	137,970	4.66	0	6,990	144,960	1	0/0/1	5	28,992.00	-2.03
Meath	220,826	7.46	0	11,110	231,936	2	0/2/0	8	28,992.00	-2.03
Monaghan	65,288	2.21	0	21,688	86,976	1	1/0/0	3	28,992.00	-2.03
Offaly	83,150	2.81	0	3,826	86,976	1	1/0/0	3	28,992.00	-2.03
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	16,778	86,976	1	1/0/0	3	28,992.00	-2.03
Tipperary	167,895	5.67	0	7,170	175,065	2	2/0/0	6	29,177.50	-1.40
Waterford	127,363	4.30	10,033	0	117,330	1	0/1/0	4	29,332.50	-0.88



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	9,245	0	86,976	1	1/0/0	3	28,992.00	-2.03
Wexford	163,919	5.54	0	10,033	173,952	2	2/0/0	6	28,992.00	-2.03
Wicklow	155,851	5.27	5,186	0	150,665	1	0/0/1	5	30,133.00	1.83

Table 10: 14 Transfers (Total 190051)

From	To	Volume	Percent of From
Kildare	Carlow	6,238	2.52
Kilkenny	Carlow	13,584	13.04
Laois	Offaly	3,826	4.16
Longford	Roscommon	46,751	100.00
Louth	Meath	1,865	1.33
Louth	Monaghan	21,688	15.52
Westmeath	Meath	9,245	9.61
Wicklow	Carlow	5,186	3.33
Clare	Tipperary	7,170	5.60
Kerry	Cork	5,498	3.51
Waterford	Wexford	10,033	7.88
Galway	Mayo	6,990	2.52
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	16,778	10.04

Figure 4: Solution Sol3 (174 seats, 50 constituencies, 29598.63 persons per TD,  $\Delta_{max}$  600 (2.03% of 29592))

### 3.4 Solution Sol4

Table 11: Solution 4

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol4	174	650	2.20	4.39	28,942.00	30,242.00	29,598.71	175,911.50	13	210,337	45	14/23/8	3.87	Optimal	16.24	13,210,337.00	0.0100

Table 12: Counties

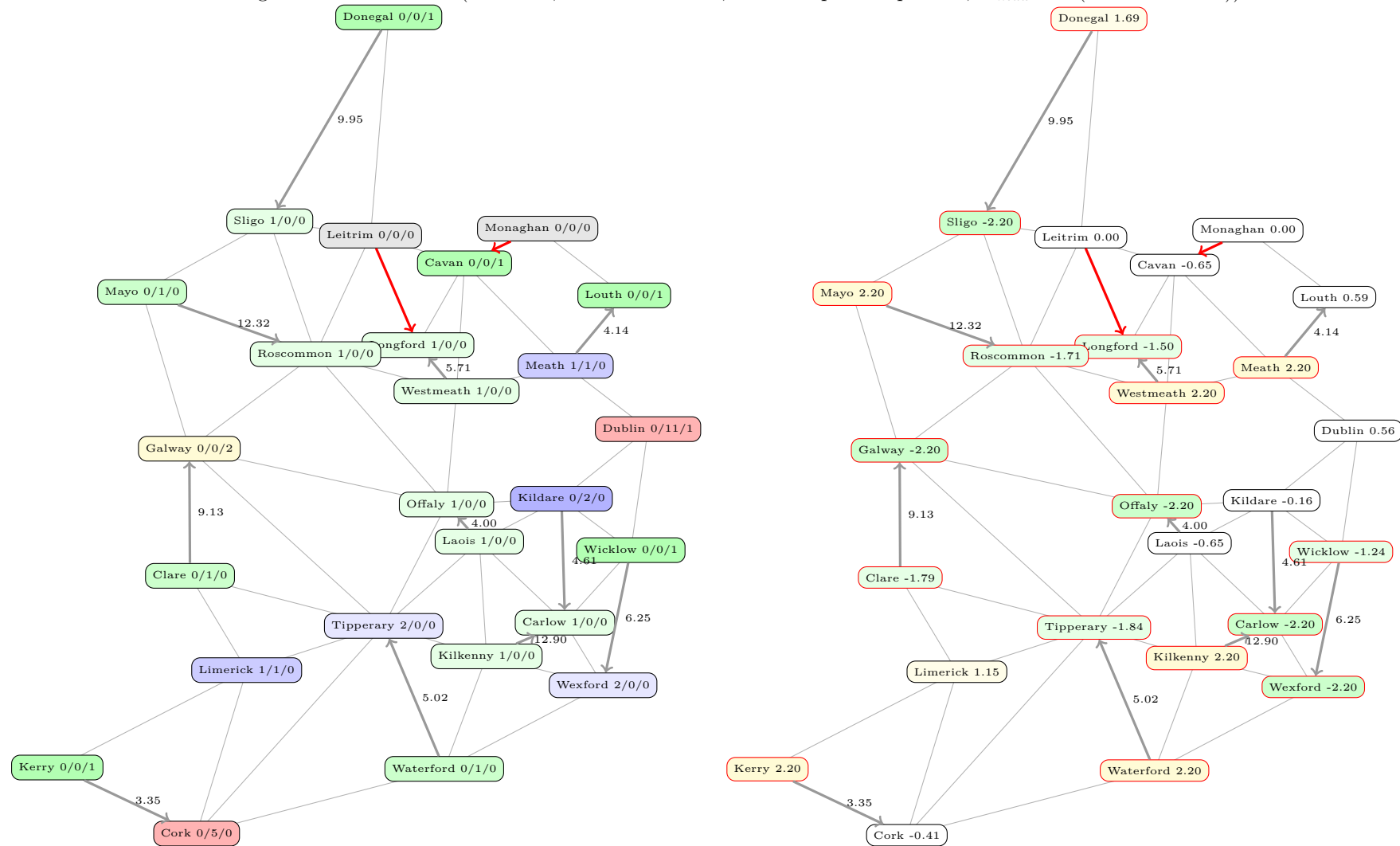
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	24,858	86,826	1	1/0/0	3	28,942.00	-2.20
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	11,683	0	116,255	1	0/1/0	4	29,063.75	-1.79
Cork	584,156	19.74	0	5,248	589,404	5	0/5/0	20	29,470.20	-0.41
Donegal	167,084	5.65	16,628	0	150,456	1	0/0/1	5	30,091.20	1.69
Dublin	1,458,154	49.28	0	0	1,458,154	12	0/11/1	49	29,758.24	0.56
Galway	277,737	9.39	0	11,683	289,420	2	0/0/2	10	28,942.00	-2.20
Kerry	156,458	5.29	5,248	0	151,210	1	0/0/1	5	30,242.00	2.20
Kildare	247,774	8.37	11,424	0	236,350	2	0/2/0	8	29,543.75	-0.16
Kilkenny	104,160	3.52	13,434	0	90,726	1	1/0/0	3	30,242.00	2.20
Laois	91,877	3.10	3,676	0	88,201	1	1/0/0	3	29,400.33	-0.65
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	40,694	87,445	1	1/0/0	3	29,148.33	-1.50
Louth	139,703	4.72	0	9,132	148,835	1	0/0/1	5	29,767.00	0.59
Mayo	137,970	4.66	17,002	0	120,968	1	0/1/0	4	30,242.00	2.20
Meath	220,826	7.46	9,132	0	211,694	2	1/1/0	7	30,242.00	2.20
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	3,676	86,826	1	1/0/0	3	28,942.00	-2.20
Roscommon	70,259	2.37	0	17,002	87,261	1	1/0/0	3	29,087.00	-1.71
Sligo	70,198	2.37	0	16,628	86,826	1	1/0/0	3	28,942.00	-2.20
Tipperary	167,895	5.67	0	6,395	174,290	2	2/0/0	6	29,048.33	-1.84
Waterford	127,363	4.30	6,395	0	120,968	1	0/1/0	4	30,242.00	2.20

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	5,495	0	90,726	1	1/0/0	3	30,242.00	2.20
Wexford	163,919	5.54	0	9,733	173,652	2	2/0/0	6	28,942.00	-2.20
Wicklow	155,851	5.27	9,733	0	146,118	1	0/0/1	5	29,223.60	-1.24

Table 13: 13 Transfers (Total 210337)

From	To	Volume	Percent of From
Kildare	Carlow	11,424	4.61
Kilkenny	Carlow	13,434	12.90
Laois	Offaly	3,676	4.00
Meath	Louth	9,132	4.14
Westmeath	Longford	5,495	5.71
Wicklow	Wexford	9,733	6.25
Clare	Galway	11,683	9.13
Kerry	Cork	5,248	3.35
Waterford	Tipperary	6,395	5.02
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	17,002	12.32
Donegal	Sligo	16,628	9.95
Monaghan	Cavan	65,288	100.00

Figure 5: Solution Sol4 (174 seats, 45 constituencies, 29598.71 persons per TD,  $\Delta_{max}$  650 (2.20% of 29592))



### 3.5 Solution Sol5

Table 14: Solution 5

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol5	174	700	2.37	4.73	28,892.00	30,292.00	29,600.15	218,280.01	13	164,037	51	33/15/3	3.41	Optimal	60.58	13,164,037.00	0.0100

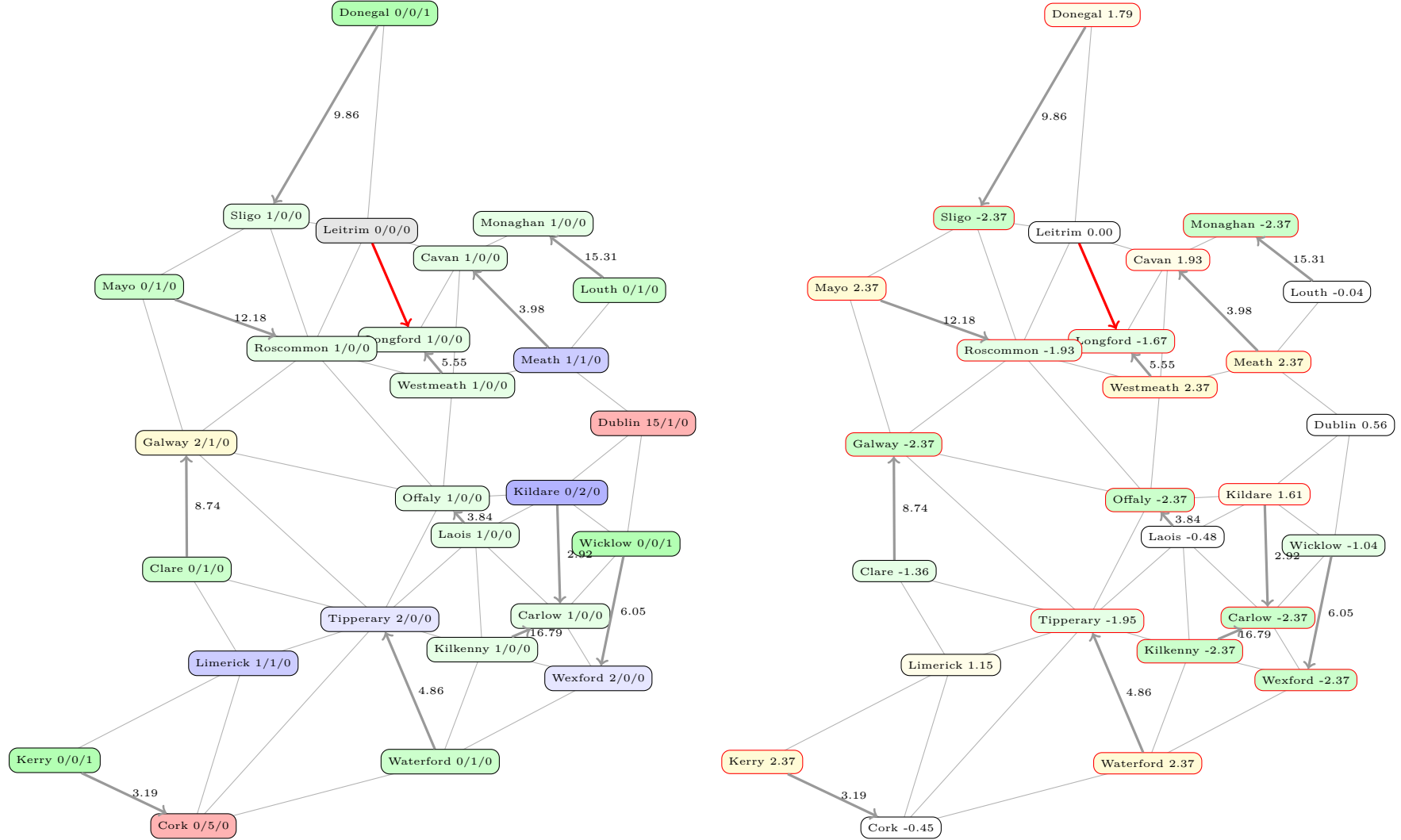
Table 15: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	24,708	86,676	1	1/0/0	3	28,892.00	-2.37
Cavan	81,704	2.76	0	8,782	90,486	1	1/0/0	3	30,162.00	1.93
Clare	127,938	4.32	11,183	0	116,755	1	0/1/0	4	29,188.75	-1.36
Cork	584,156	19.74	0	4,998	589,154	5	0/5/0	20	29,457.70	-0.45
Donegal	167,084	5.65	16,478	0	150,606	1	0/0/1	5	30,121.20	1.79
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	0	11,183	288,920	3	2/1/0	10	28,892.00	-2.37
Kerry	156,458	5.29	4,998	0	151,460	1	0/0/1	5	30,292.00	2.37
Kildare	247,774	8.37	7,224	0	240,550	2	0/2/0	8	30,068.75	1.61
Kilkenny	104,160	3.52	17,484	0	86,676	1	1/0/0	3	28,892.00	-2.37
Laois	91,877	3.10	3,526	0	88,351	1	1/0/0	3	29,450.33	-0.48
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	40,544	87,295	1	1/0/0	3	29,098.33	-1.67
Louth	139,703	4.72	21,388	0	118,315	1	0/1/0	4	29,578.75	-0.04
Mayo	137,970	4.66	16,802	0	121,168	1	0/1/0	4	30,292.00	2.37
Meath	220,826	7.46	8,782	0	212,044	2	1/1/0	7	30,292.00	2.37
Monaghan	65,288	2.21	0	21,388	86,676	1	1/0/0	3	28,892.00	-2.37
Offaly	83,150	2.81	0	3,526	86,676	1	1/0/0	3	28,892.00	-2.37
Roscommon	70,259	2.37	0	16,802	87,061	1	1/0/0	3	29,020.33	-1.93
Sligo	70,198	2.37	0	16,478	86,676	1	1/0/0	3	28,892.00	-2.37
Tipperary	167,895	5.67	0	6,195	174,090	2	2/0/0	6	29,015.00	-1.95
Waterford	127,363	4.30	6,195	0	121,168	1	0/1/0	4	30,292.00	2.37

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	5,345	0	90,876	1	1/0/0	3	30,292.00	2.37
Wexford	163,919	5.54	0	9,433	173,352	2	2/0/0	6	28,892.00	-2.37
Wicklow	155,851	5.27	9,433	0	146,418	1	0/0/1	5	29,283.60	-1.04

Table 16: 13 Transfers (Total 164037)

From	To	Volume	Percent of From
Kildare	Carlow	7,224	2.92
Kilkenny	Carlow	17,484	16.79
Laois	Offaly	3,526	3.84
Louth	Monaghan	21,388	15.31
Meath	Cavan	8,782	3.98
Westmeath	Longford	5,345	5.55
Wicklow	Wexford	9,433	6.05
Clare	Galway	11,183	8.74
Kerry	Cork	4,998	3.19
Waterford	Tipperary	6,195	4.86
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	16,802	12.18
Donegal	Sligo	16,478	9.86

Figure 6: Solution Sol5 (174 seats, 51 constituencies, 29600.15 persons per TD,  $\Delta_{max}$  700 (2.37% of 29592))



### 3.6 Solution Sol6

Table 17: Solution 6

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol6	174	750	2.53	5.07	28,842.00	30,342.00	29,600.96	242,129.17	13	161,487	45	16/19/10	3.87	Optimal	12.85	13,161,487.00	0.0026

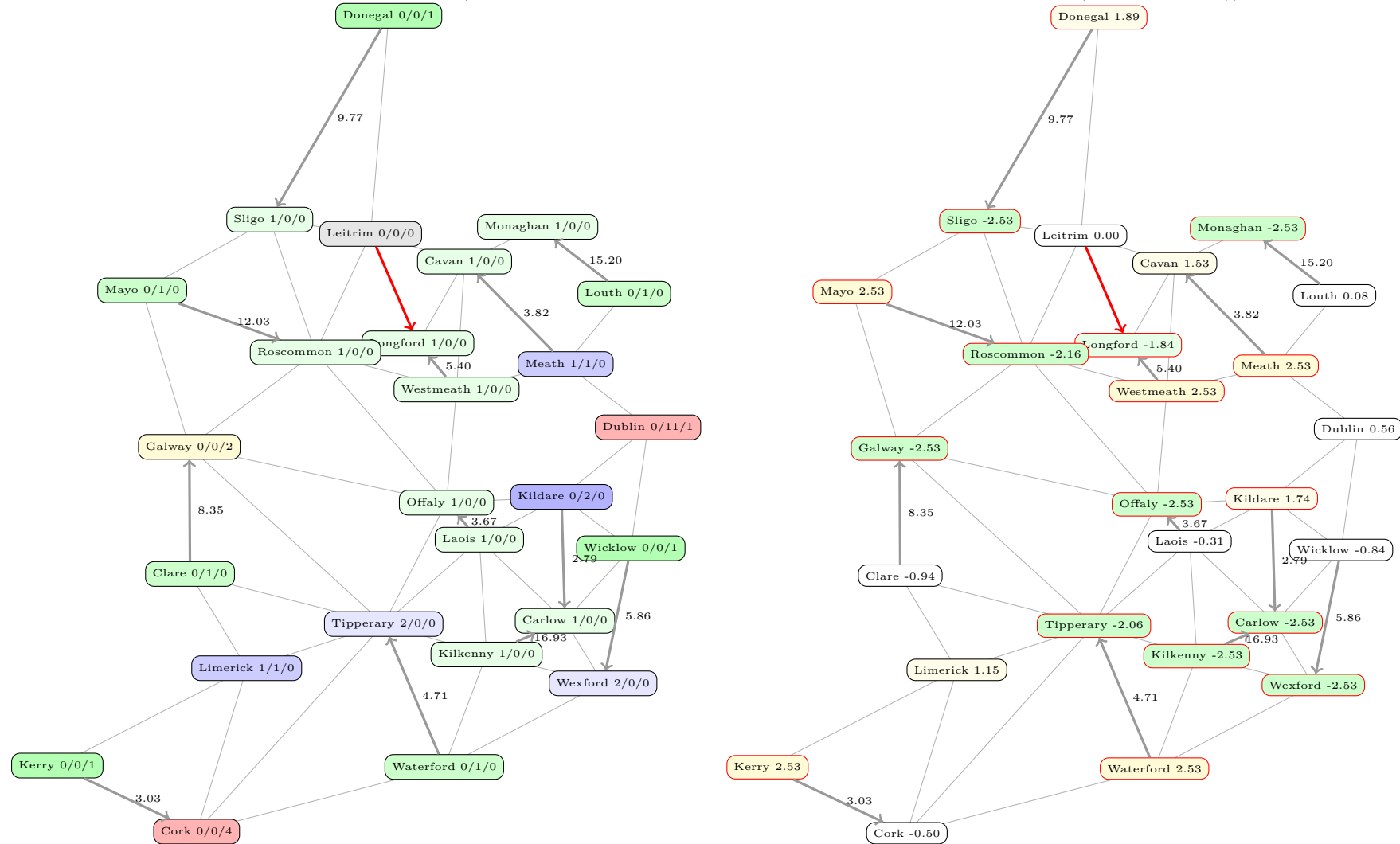
Table 18: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	24,558	86,526	1	1/0/0	3	28,842.00	-2.53
Cavan	81,704	2.76	0	8,432	90,136	1	1/0/0	3	30,045.33	1.53
Clare	127,938	4.32	10,683	0	117,255	1	0/1/0	4	29,313.75	-0.94
Cork	584,156	19.74	0	4,748	588,904	4	0/0/4	20	29,445.20	-0.50
Donegal	167,084	5.65	16,328	0	150,756	1	0/0/1	5	30,151.20	1.89
Dublin	1,458,154	49.28	0	0	1,458,154	12	0/11/1	49	29,758.24	0.56
Galway	277,737	9.39	0	10,683	288,420	2	0/0/2	10	28,842.00	-2.53
Kerry	156,458	5.29	4,748	0	151,710	1	0/0/1	5	30,342.00	2.53
Kildare	247,774	8.37	6,924	0	240,850	2	0/2/0	8	30,106.25	1.74
Kilkenny	104,160	3.52	17,634	0	86,526	1	1/0/0	3	28,842.00	-2.53
Laois	91,877	3.10	3,376	0	88,501	1	1/0/0	3	29,500.33	-0.31
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	40,394	87,145	1	1/0/0	3	29,048.33	-1.84
Louth	139,703	4.72	21,238	0	118,465	1	0/1/0	4	29,616.25	0.08
Mayo	137,970	4.66	16,602	0	121,368	1	0/1/0	4	30,342.00	2.53
Meath	220,826	7.46	8,432	0	212,394	2	1/1/0	7	30,342.00	2.53
Monaghan	65,288	2.21	0	21,238	86,526	1	1/0/0	3	28,842.00	-2.53
Offaly	83,150	2.81	0	3,376	86,526	1	1/0/0	3	28,842.00	-2.53
Roscommon	70,259	2.37	0	16,602	86,861	1	1/0/0	3	28,953.67	-2.16
Sligo	70,198	2.37	0	16,328	86,526	1	1/0/0	3	28,842.00	-2.53
Tipperary	167,895	5.67	0	5,995	173,890	2	2/0/0	6	28,981.67	-2.06
Waterford	127,363	4.30	5,995	0	121,368	1	0/1/0	4	30,342.00	2.53

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	5,195	0	91,026	1	1/0/0	3	30,342.00	2.53
Wexford	163,919	5.54	0	9,133	173,052	2	2/0/0	6	28,842.00	-2.53
Wicklow	155,851	5.27	9,133	0	146,718	1	0/0/1	5	29,343.60	-0.84

Table 19: 13 Transfers (Total 161487)

From	To	Volume	Percent of From
Kildare	Carlow	6,924	2.79
Kilkenny	Carlow	17,634	16.93
Laois	Offaly	3,376	3.67
Louth	Monaghan	21,238	15.20
Meath	Cavan	8,432	3.82
Westmeath	Longford	5,195	5.40
Wicklow	Wexford	9,133	5.86
Clare	Galway	10,683	8.35
Kerry	Cork	4,748	3.03
Waterford	Tipperary	5,995	4.71
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	16,602	12.03
Donegal	Sligo	16,328	9.77

Figure 7: Solution Sol6 (174 seats, 45 constituencies, 29600.96 persons per TD,  $\Delta_{max}$  750 (2.53% of 29592))

### 3.7 Solution Sol7

Table 20: Solution 7

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol7	174	800	2.70	5.41	28,792.00	30,392.00	29,601.43	256,027.71	13	158,937	46	23/10/13	3.78	Optimal	49.38	13,158,937.00	0.0100

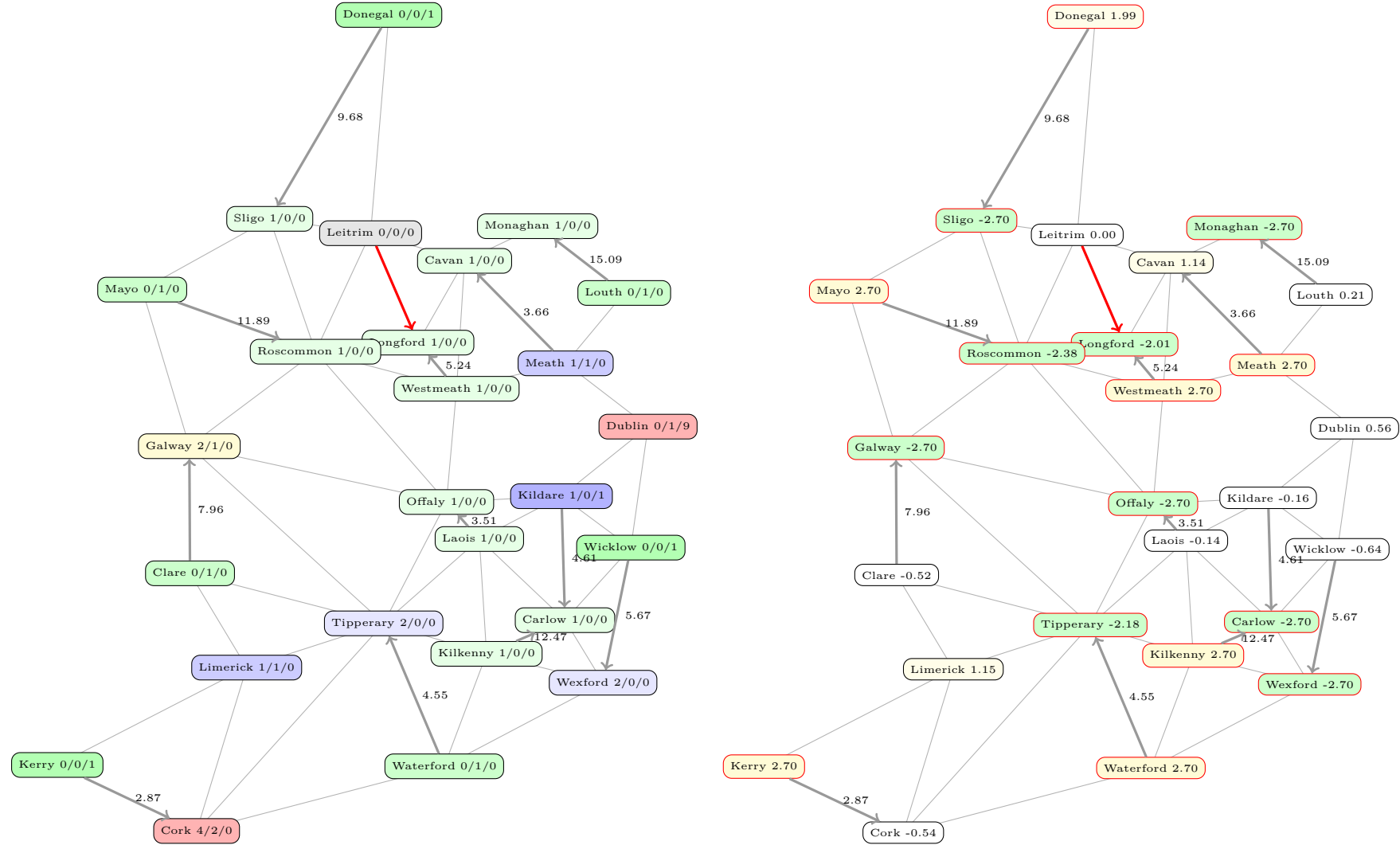
Table 21: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	24,408	86,376	1	1/0/0	3	28,792.00	-2.70
Cavan	81,704	2.76	0	8,082	89,786	1	1/0/0	3	29,928.67	1.14
Clare	127,938	4.32	10,183	0	117,755	1	0/1/0	4	29,438.75	-0.52
Cork	584,156	19.74	0	4,498	588,654	6	4/2/0	20	29,432.70	-0.54
Donegal	167,084	5.65	16,178	0	150,906	1	0/0/1	5	30,181.20	1.99
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	10,183	287,920	3	2/1/0	10	28,792.00	-2.70
Kerry	156,458	5.29	4,498	0	151,960	1	0/0/1	5	30,392.00	2.70
Kildare	247,774	8.37	11,424	0	236,350	2	1/0/1	8	29,543.75	-0.16
Kilkenny	104,160	3.52	12,984	0	91,176	1	1/0/0	3	30,392.00	2.70
Laois	91,877	3.10	3,226	0	88,651	1	1/0/0	3	29,550.33	-0.14
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	40,244	86,995	1	1/0/0	3	28,998.33	-2.01
Louth	139,703	4.72	21,088	0	118,615	1	0/1/0	4	29,653.75	0.21
Mayo	137,970	4.66	16,402	0	121,568	1	0/1/0	4	30,392.00	2.70
Meath	220,826	7.46	8,082	0	212,744	2	1/1/0	7	30,392.00	2.70
Monaghan	65,288	2.21	0	21,088	86,376	1	1/0/0	3	28,792.00	-2.70
Offaly	83,150	2.81	0	3,226	86,376	1	1/0/0	3	28,792.00	-2.70
Roscommon	70,259	2.37	0	16,402	86,661	1	1/0/0	3	28,887.00	-2.38
Sligo	70,198	2.37	0	16,178	86,376	1	1/0/0	3	28,792.00	-2.70
Tipperary	167,895	5.67	0	5,795	173,690	2	2/0/0	6	28,948.33	-2.18
Waterford	127,363	4.30	5,795	0	121,568	1	0/1/0	4	30,392.00	2.70

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	5,045	0	91,176	1	1/0/0	3	30,392.00	2.70
Wexford	163,919	5.54	0	8,833	172,752	2	2/0/0	6	28,792.00	-2.70
Wicklow	155,851	5.27	8,833	0	147,018	1	0/0/1	5	29,403.60	-0.64

Table 22: 13 Transfers (Total 158937)

From	To	Volume	Percent of From
Kildare	Carlow	11,424	4.61
Kilkenny	Carlow	12,984	12.47
Laois	Offaly	3,226	3.51
Louth	Monaghan	21,088	15.09
Meath	Cavan	8,082	3.66
Westmeath	Longford	5,045	5.24
Wicklow	Wexford	8,833	5.67
Clare	Galway	10,183	7.96
Kerry	Cork	4,498	2.87
Waterford	Tipperary	5,795	4.55
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	16,402	11.89
Donegal	Sligo	16,178	9.68

Figure 8: Solution Sol7 (174 seats, 46 constituencies, 29601.43 persons per TD,  $\Delta_{max}$  800 (2.70% of 29592))

### 3.8 Solution Sol8

Table 23: Solution 8

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol8	174	850	2.87	5.74	28,742.00	30,442.00	29,602.95	300,612.44	13	156,387	51	36/9/6	3.41	Optimal	39.87	13,156,387.00	0.0093

Table 24: Counties

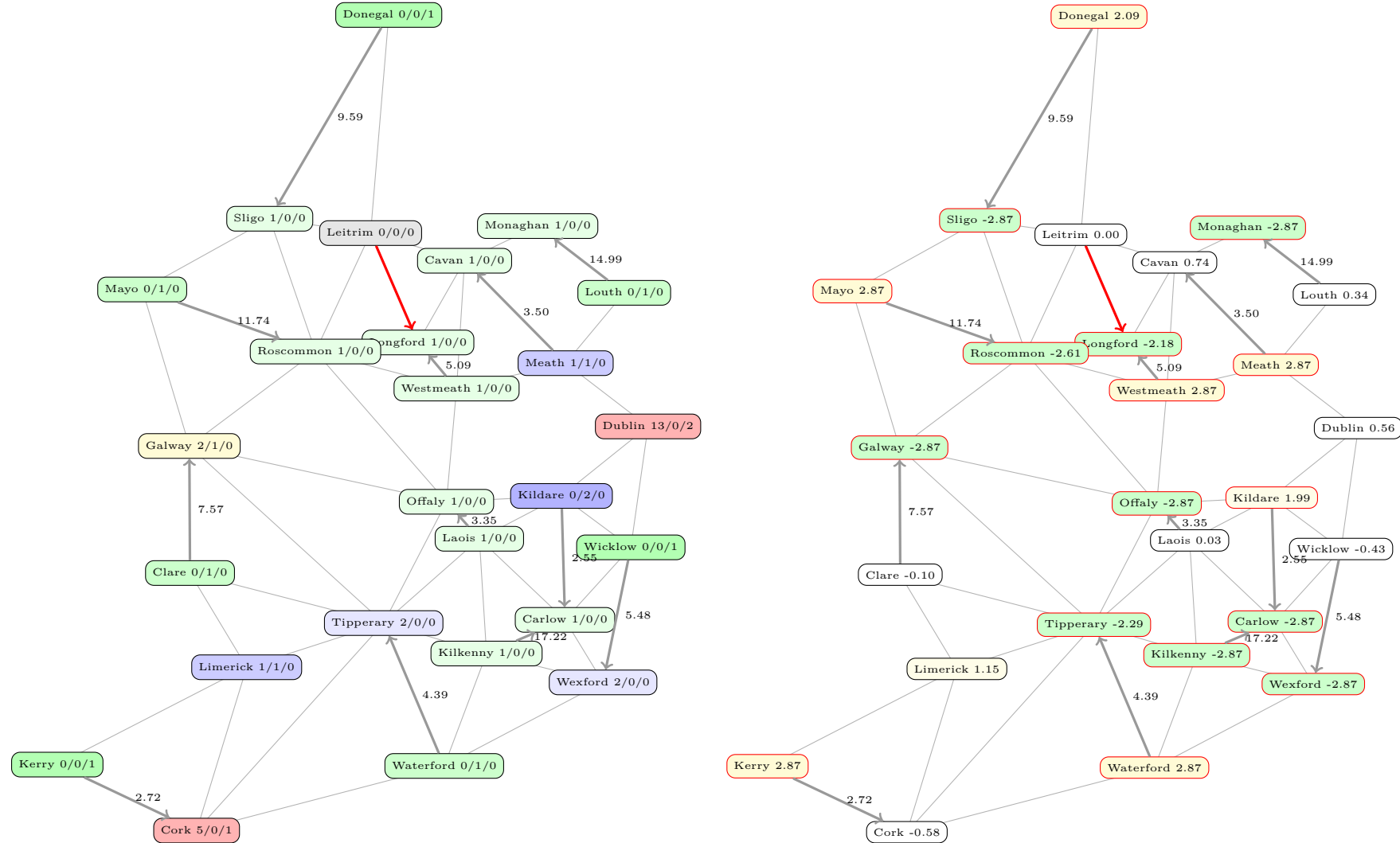
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	24,258	86,226	1	1/0/0	3	28,742.00	-2.87
Cavan	81,704	2.76	0	7,732	89,436	1	1/0/0	3	29,812.00	0.74
Clare	127,938	4.32	9,683	0	118,255	1	0/1/0	4	29,563.75	-0.10
Cork	584,156	19.74	0	4,248	588,404	6	5/0/1	20	29,420.20	-0.58
Donegal	167,084	5.65	16,028	0	151,056	1	0/0/1	5	30,211.20	2.09
Dublin	1,458,154	49.28	0	0	1,458,154	15	13/0/2	49	29,758.24	0.56
Galway	277,737	9.39	0	9,683	287,420	3	2/1/0	10	28,742.00	-2.87
Kerry	156,458	5.29	4,248	0	152,210	1	0/0/1	5	30,442.00	2.87
Kildare	247,774	8.37	6,324	0	241,450	2	0/2/0	8	30,181.25	1.99
Kilkenny	104,160	3.52	17,934	0	86,226	1	1/0/0	3	28,742.00	-2.87
Laois	91,877	3.10	3,076	0	88,801	1	1/0/0	3	29,600.33	0.03
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	40,094	86,845	1	1/0/0	3	28,948.33	-2.18
Louth	139,703	4.72	20,938	0	118,765	1	0/1/0	4	29,691.25	0.34
Mayo	137,970	4.66	16,202	0	121,768	1	0/1/0	4	30,442.00	2.87
Meath	220,826	7.46	7,732	0	213,094	2	1/1/0	7	30,442.00	2.87
Monaghan	65,288	2.21	0	20,938	86,226	1	1/0/0	3	28,742.00	-2.87
Offaly	83,150	2.81	0	3,076	86,226	1	1/0/0	3	28,742.00	-2.87
Roscommon	70,259	2.37	0	16,202	86,461	1	1/0/0	3	28,820.33	-2.61
Sligo	70,198	2.37	0	16,028	86,226	1	1/0/0	3	28,742.00	-2.87
Tipperary	167,895	5.67	0	5,595	173,490	2	2/0/0	6	28,915.00	-2.29
Waterford	127,363	4.30	5,595	0	121,768	1	0/1/0	4	30,442.00	2.87

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	4,895	0	91,326	1	1/0/0	3	30,442.00	2.87
Wexford	163,919	5.54	0	8,533	172,452	2	2/0/0	6	28,742.00	-2.87
Wicklow	155,851	5.27	8,533	0	147,318	1	0/0/1	5	29,463.60	-0.43

Table 25: 13 Transfers (Total 156387)

From	To	Volume	Percent of From
Kildare	Carlow	6,324	2.55
Kilkenny	Carlow	17,934	17.22
Laois	Offaly	3,076	3.35
Louth	Monaghan	20,938	14.99
Meath	Cavan	7,732	3.50
Westmeath	Longford	4,895	5.09
Wicklow	Wexford	8,533	5.48
Clare	Galway	9,683	7.57
Kerry	Cork	4,248	2.72
Waterford	Tipperary	5,595	4.39
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	16,202	11.74
Donegal	Sligo	16,028	9.59



Figure 9: Solution Sol8 (174 seats, 51 constituencies, 29602.95 persons per TD,  $\Delta_{max}$  850 (2.87% of 29592))

### 3.9 Solution Sol9

Table 26: Solution 9

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol9	174	900	3.04	6.08	28,692.00	30,492.00	29,604.13	335,251.49	13	153,837	51	36/9/6	3.41	Optimal	97.08	13,153,837.00	0.0098

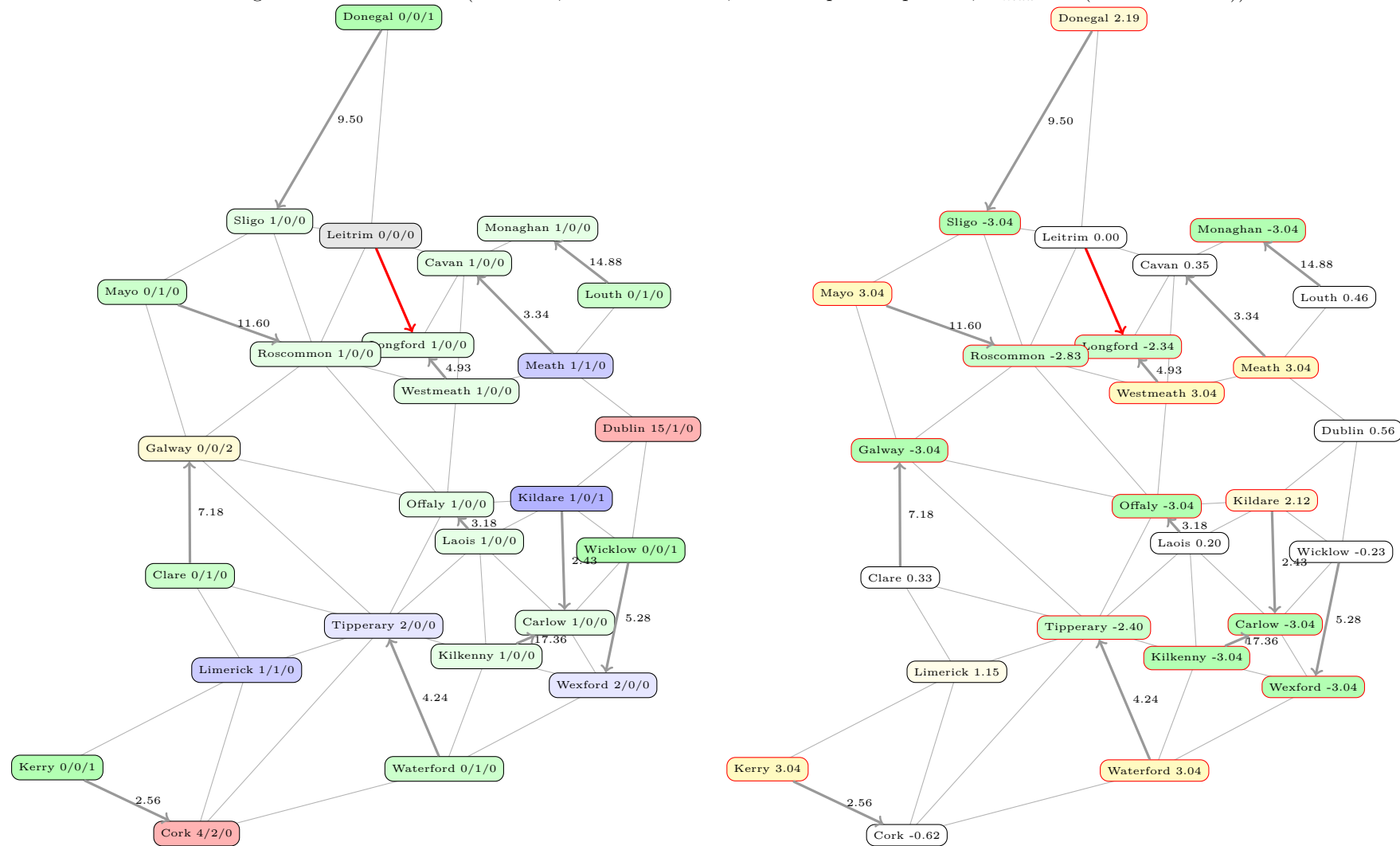
Table 27: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	24,108	86,076	1	1/0/0	3	28,692.00	-3.04
Cavan	81,704	2.76	0	7,382	89,086	1	1/0/0	3	29,695.33	0.35
Clare	127,938	4.32	9,183	0	118,755	1	0/1/0	4	29,688.75	0.33
Cork	584,156	19.74	0	3,998	588,154	6	4/2/0	20	29,407.70	-0.62
Donegal	167,084	5.65	15,878	0	151,206	1	0/0/1	5	30,241.20	2.19
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	0	9,183	286,920	2	0/0/2	10	28,692.00	-3.04
Kerry	156,458	5.29	3,998	0	152,460	1	0/0/1	5	30,492.00	3.04
Kildare	247,774	8.37	6,024	0	241,750	2	1/0/1	8	30,218.75	2.12
Kilkenny	104,160	3.52	18,084	0	86,076	1	1/0/0	3	28,692.00	-3.04
Laois	91,877	3.10	2,926	0	88,951	1	1/0/0	3	29,650.33	0.20
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	39,944	86,695	1	1/0/0	3	28,898.33	-2.34
Louth	139,703	4.72	20,788	0	118,915	1	0/1/0	4	29,728.75	0.46
Mayo	137,970	4.66	16,002	0	121,968	1	0/1/0	4	30,492.00	3.04
Meath	220,826	7.46	7,382	0	213,444	2	1/1/0	7	30,492.00	3.04
Monaghan	65,288	2.21	0	20,788	86,076	1	1/0/0	3	28,692.00	-3.04
Offaly	83,150	2.81	0	2,926	86,076	1	1/0/0	3	28,692.00	-3.04
Roscommon	70,259	2.37	0	16,002	86,261	1	1/0/0	3	28,753.67	-2.83
Sligo	70,198	2.37	0	15,878	86,076	1	1/0/0	3	28,692.00	-3.04
Tipperary	167,895	5.67	0	5,395	173,290	2	2/0/0	6	28,881.67	-2.40
Waterford	127,363	4.30	5,395	0	121,968	1	0/1/0	4	30,492.00	3.04

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	4,745	0	91,476	1	1/0/0	3	30,492.00	3.04
Wexford	163,919	5.54	0	8,233	172,152	2	2/0/0	6	28,692.00	-3.04
Wicklow	155,851	5.27	8,233	0	147,618	1	0/0/1	5	29,523.60	-0.23

Table 28: 13 Transfers (Total 153837)

From	To	Volume	Percent of From
Kildare	Carlow	6,024	2.43
Kilkenny	Carlow	18,084	17.36
Laois	Offaly	2,926	3.18
Louth	Monaghan	20,788	14.88
Meath	Cavan	7,382	3.34
Westmeath	Longford	4,745	4.93
Wicklow	Wexford	8,233	5.28
Clare	Galway	9,183	7.18
Kerry	Cork	3,998	2.56
Waterford	Tipperary	5,395	4.24
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	16,002	11.60
Donegal	Sligo	15,878	9.50

Figure 10: Solution Sol9 (174 seats, 51 constituencies, 29604.13 persons per TD,  $\Delta_{max}$  900 (3.04% of 29592))

### 3.10 Solution Sol10

Table 29: Solution 10

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol10	174	950	3.21	6.42	28,642.00	30,542.00	29,607.53	436,781.56	13	150,711	51	36/9/6	3.41	Optimal	121.70	13,150,711.00	0.0100

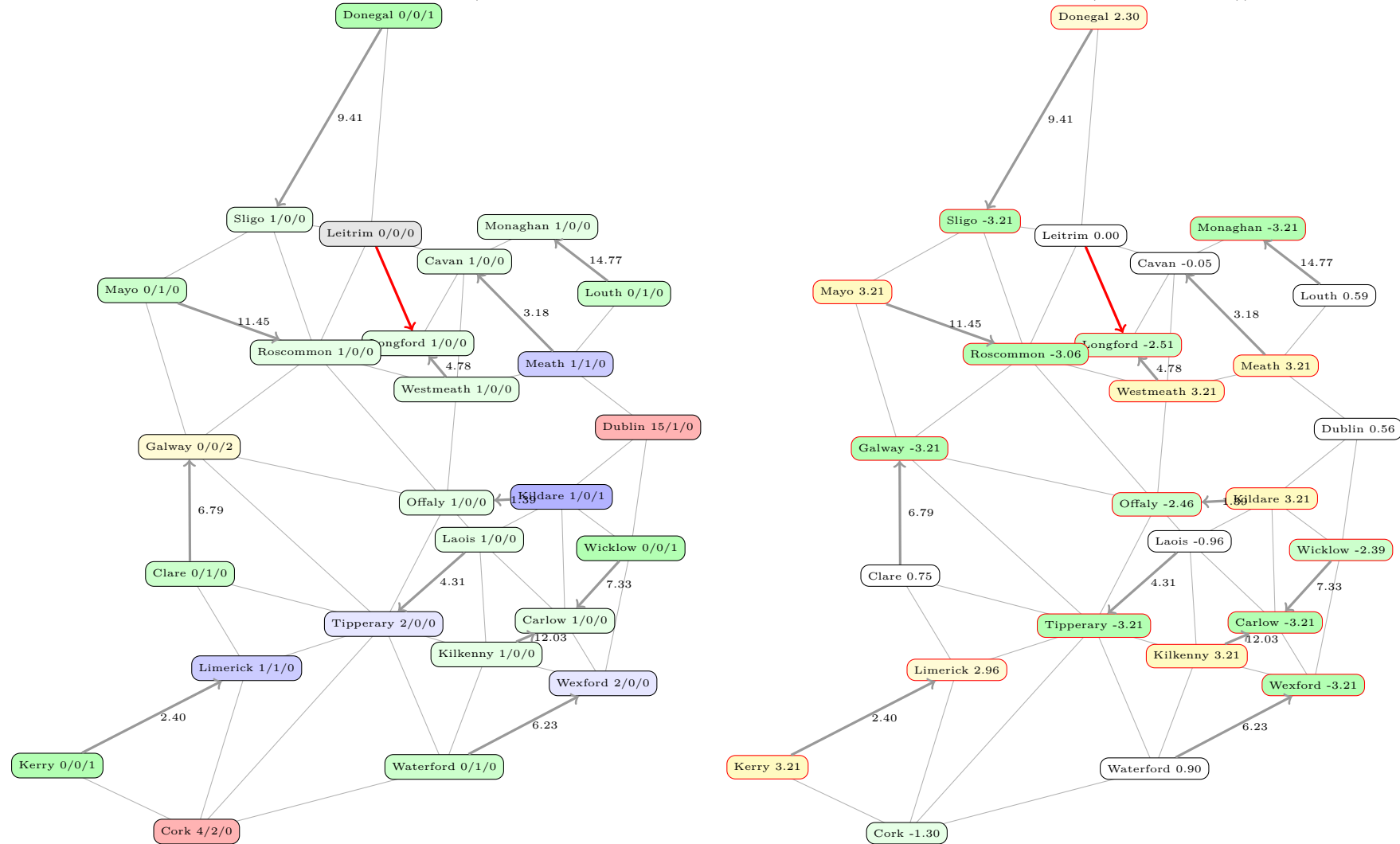
Table 30: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	23,958	85,926	1	1/0/0	3	28,642.00	-3.21
Cavan	81,704	2.76	0	7,032	88,736	1	1/0/0	3	29,578.67	-0.05
Clare	127,938	4.32	8,683	0	119,255	1	0/1/0	4	29,813.75	0.75
Cork	584,156	19.74	0	0	584,156	6	4/2/0	20	29,207.80	-1.30
Donegal	167,084	5.65	15,728	0	151,356	1	0/0/1	5	30,271.20	2.30
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	0	8,683	286,420	2	0/0/2	10	28,642.00	-3.21
Kerry	156,458	5.29	3,748	0	152,710	1	0/0/1	5	30,542.00	3.21
Kildare	247,774	8.37	3,438	0	244,336	2	1/0/1	8	30,542.00	3.21
Kilkenny	104,160	3.52	12,534	0	91,626	1	1/0/0	3	30,542.00	3.21
Laois	91,877	3.10	3,957	0	87,920	1	1/0/0	3	29,306.67	-0.96
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	3,748	213,284	2	1/1/0	7	30,469.14	2.96
Longford	46,751	1.58	0	39,794	86,545	1	1/0/0	3	28,848.33	-2.51
Louth	139,703	4.72	20,638	0	119,065	1	0/1/0	4	29,766.25	0.59
Mayo	137,970	4.66	15,802	0	122,168	1	0/1/0	4	30,542.00	3.21
Meath	220,826	7.46	7,032	0	213,794	2	1/1/0	7	30,542.00	3.21
Monaghan	65,288	2.21	0	20,638	85,926	1	1/0/0	3	28,642.00	-3.21
Offaly	83,150	2.81	0	3,438	86,588	1	1/0/0	3	28,862.67	-2.46
Roscommon	70,259	2.37	0	15,802	86,061	1	1/0/0	3	28,687.00	-3.06
Sligo	70,198	2.37	0	15,728	85,926	1	1/0/0	3	28,642.00	-3.21
Tipperary	167,895	5.67	0	3,957	171,852	2	2/0/0	6	28,642.00	-3.21
Waterford	127,363	4.30	7,933	0	119,430	1	0/1/0	4	29,857.50	0.90

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	4,595	0	91,626	1	1/0/0	3	30,542.00	3.21
Wexford	163,919	5.54	0	7,933	171,852	2	2/0/0	6	28,642.00	-3.21
Wicklow	155,851	5.27	11,424	0	144,427	1	0/0/1	5	28,885.40	-2.39

Table 31: 13 Transfers (Total 150711)

From	To	Volume	Percent of From
Kildare	Offaly	3,438	1.39
Kilkenny	Carlow	12,534	12.03
Laois	Tipperary	3,957	4.31
Louth	Monaghan	20,638	14.77
Meath	Cavan	7,032	3.18
Westmeath	Longford	4,595	4.78
Wicklow	Carlow	11,424	7.33
Clare	Galway	8,683	6.79
Kerry	Limerick	3,748	2.40
Waterford	Wexford	7,933	6.23
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	15,802	11.45
Donegal	Sligo	15,728	9.41

Figure 11: Solution Sol10 (174 seats, 51 constituencies, 29607.53 persons per TD,  $\Delta_{max}$  950 (3.21% of 29592))

### 3.11 Solution Sol11

Table 32: Solution 11

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol11	174	1,000	3.38	6.76	28,592.00	30,592.00	29,608.72	470,879.87	13	147,811	51	36/9/6	3.41	Optimal	32.25	13,147,811.00	0.0099

Table 33: Counties

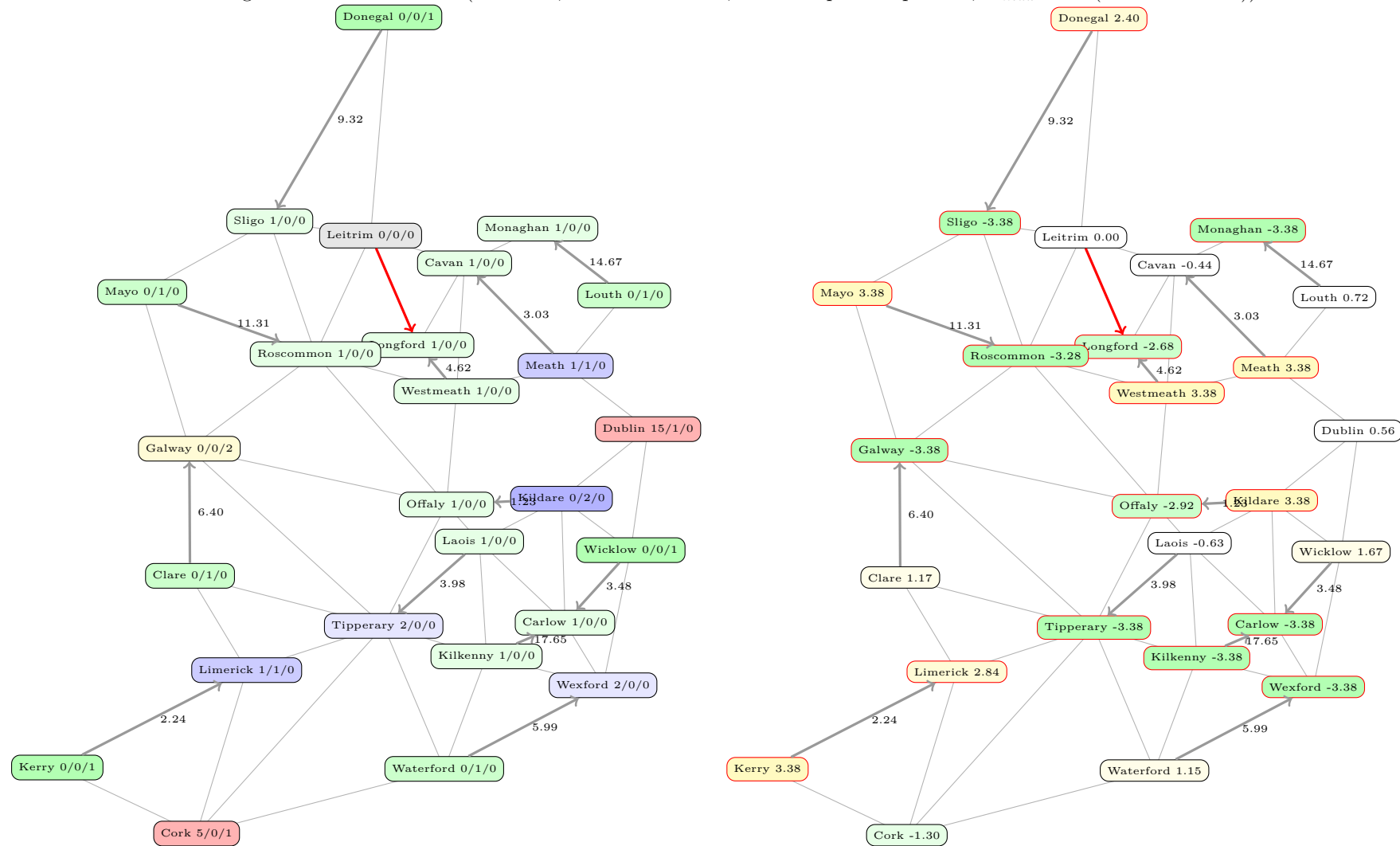
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	23,808	85,776	1	1/0/0	3	28,592.00	-3.38
Cavan	81,704	2.76	0	6,682	88,386	1	1/0/0	3	29,462.00	-0.44
Clare	127,938	4.32	8,183	0	119,755	1	0/1/0	4	29,938.75	1.17
Cork	584,156	19.74	0	0	584,156	6	5/0/1	20	29,207.80	-1.30
Donegal	167,084	5.65	15,578	0	151,506	1	0/0/1	5	30,301.20	2.40
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	0	8,183	285,920	2	0/0/2	10	28,592.00	-3.38
Kerry	156,458	5.29	3,498	0	152,960	1	0/0/1	5	30,592.00	3.38
Kildare	247,774	8.37	3,038	0	244,736	2	0/2/0	8	30,592.00	3.38
Kilkenny	104,160	3.52	18,384	0	85,776	1	1/0/0	3	28,592.00	-3.38
Laois	91,877	3.10	3,657	0	88,220	1	1/0/0	3	29,406.67	-0.63
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	3,498	213,034	2	1/1/0	7	30,433.43	2.84
Longford	46,751	1.58	0	39,644	86,395	1	1/0/0	3	28,798.33	-2.68
Louth	139,703	4.72	20,488	0	119,215	1	0/1/0	4	29,803.75	0.72
Mayo	137,970	4.66	15,602	0	122,368	1	0/1/0	4	30,592.00	3.38
Meath	220,826	7.46	6,682	0	214,144	2	1/1/0	7	30,592.00	3.38
Monaghan	65,288	2.21	0	20,488	85,776	1	1/0/0	3	28,592.00	-3.38
Offaly	83,150	2.81	0	3,038	86,188	1	1/0/0	3	28,729.33	-2.92
Roscommon	70,259	2.37	0	15,602	85,861	1	1/0/0	3	28,620.33	-3.28
Sligo	70,198	2.37	0	15,578	85,776	1	1/0/0	3	28,592.00	-3.38
Tipperary	167,895	5.67	0	3,657	171,552	2	2/0/0	6	28,592.00	-3.38
Waterford	127,363	4.30	7,633	0	119,730	1	0/1/0	4	29,932.50	1.15



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	4,445	0	91,776	1	1/0/0	3	30,592.00	3.38
Wexford	163,919	5.54	0	7,633	171,552	2	2/0/0	6	28,592.00	-3.38
Wicklow	155,851	5.27	5,424	0	150,427	1	0/0/1	5	30,085.40	1.67

Table 34: 13 Transfers (Total 147811)

From	To	Volume	Percent of From
Kildare	Offaly	3,038	1.23
Kilkenny	Carlow	18,384	17.65
Laois	Tipperary	3,657	3.98
Louth	Monaghan	20,488	14.67
Meath	Cavan	6,682	3.03
Westmeath	Longford	4,445	4.62
Wicklow	Carlow	5,424	3.48
Clare	Galway	8,183	6.40
Kerry	Limerick	3,498	2.24
Waterford	Wexford	7,633	5.99
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	15,602	11.31
Donegal	Sligo	15,578	9.32

Figure 12: Solution Sol11 (174 seats, 51 constituencies, 29608.72 persons per TD,  $\Delta_{max}$  1000 (3.38% of 29592))

### 3.12 Solution Sol12

Table 35: Solution 12

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol12	174	1,050	3.55	7.10	28,542.00	30,642.00	29,607.60	437,006.96	12	172,213	48	28/10/10	3.63	Optimal	1.98	12,172,213.00	0.0000

Table 36: Counties

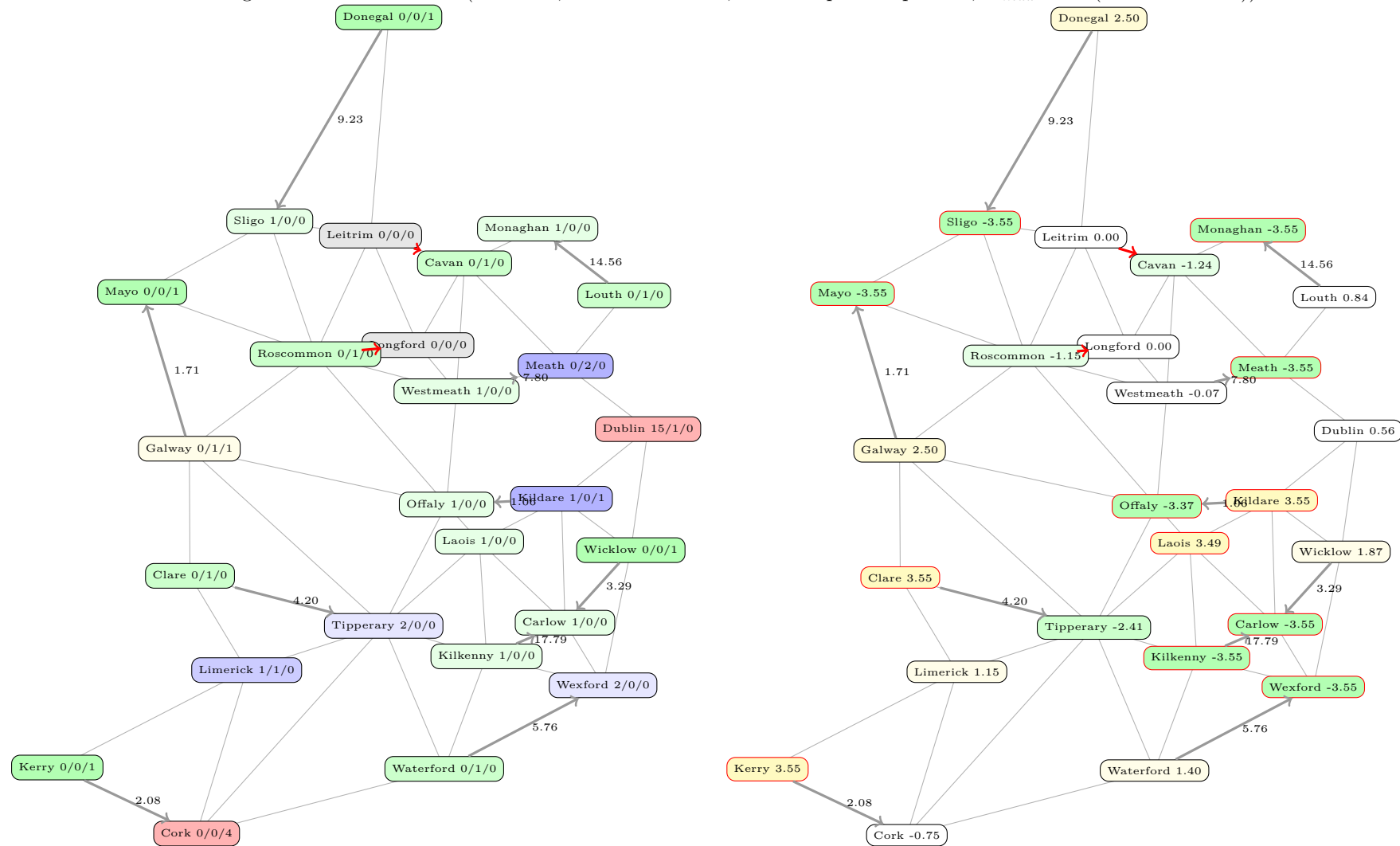
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	23,658	85,626	1	1/0/0	3	28,542.00	-3.55
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	5,370	0	122,568	1	0/1/0	4	30,642.00	3.55
Cork	584,156	19.74	0	3,248	587,404	4	0/0/4	20	29,370.20	-0.75
Donegal	167,084	5.65	15,428	0	151,656	1	0/0/1	5	30,331.20	2.50
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	4,740	0	272,997	2	0/1/1	9	30,333.00	2.50
Kerry	156,458	5.29	3,248	0	153,210	1	0/0/1	5	30,642.00	3.55
Kildare	247,774	8.37	2,638	0	245,136	2	1/0/1	8	30,642.00	3.55
Kilkenny	104,160	3.52	18,534	0	85,626	1	1/0/0	3	28,542.00	-3.55
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	20,338	0	119,365	1	0/1/0	4	29,841.25	0.84
Mayo	137,970	4.66	0	4,740	142,710	1	0/0/1	5	28,542.00	-3.55
Meath	220,826	7.46	0	7,510	228,336	2	0/2/0	8	28,542.00	-3.55
Monaghan	65,288	2.21	0	20,338	85,626	1	1/0/0	3	28,542.00	-3.55
Offaly	83,150	2.81	0	2,638	85,788	1	1/0/0	3	28,596.00	-3.37
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	15,428	85,626	1	1/0/0	3	28,542.00	-3.55
Tipperary	167,895	5.67	0	5,370	173,265	2	2/0/0	6	28,877.50	-2.41
Waterford	127,363	4.30	7,333	0	120,030	1	0/1/0	4	30,007.50	1.40

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	7,510	0	88,711	1	1/0/0	3	29,570.33	-0.07
Wexford	163,919	5.54	0	7,333	171,252	2	2/0/0	6	28,542.00	-3.55
Wicklow	155,851	5.27	5,124	0	150,727	1	0/0/1	5	30,145.40	1.87

Table 37: 12 Transfers (Total 172213)

From	To	Volume	Percent of From
Kildare	Offaly	2,638	1.06
Kilkenny	Carlow	18,534	17.79
Longford	Roscommon	46,751	100.00
Louth	Monaghan	20,338	14.56
Westmeath	Meath	7,510	7.80
Wicklow	Carlow	5,124	3.29
Clare	Tipperary	5,370	4.20
Kerry	Cork	3,248	2.08
Waterford	Wexford	7,333	5.76
Galway	Mayo	4,740	1.71
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	15,428	9.23

Figure 13: Solution Sol12 (174 seats, 48 constituencies, 29607.60 persons per TD,  $\Delta_{max}$  1050 (3.55% of 29592))



### 3.13 Solution Sol13

Table 38: Solution 13

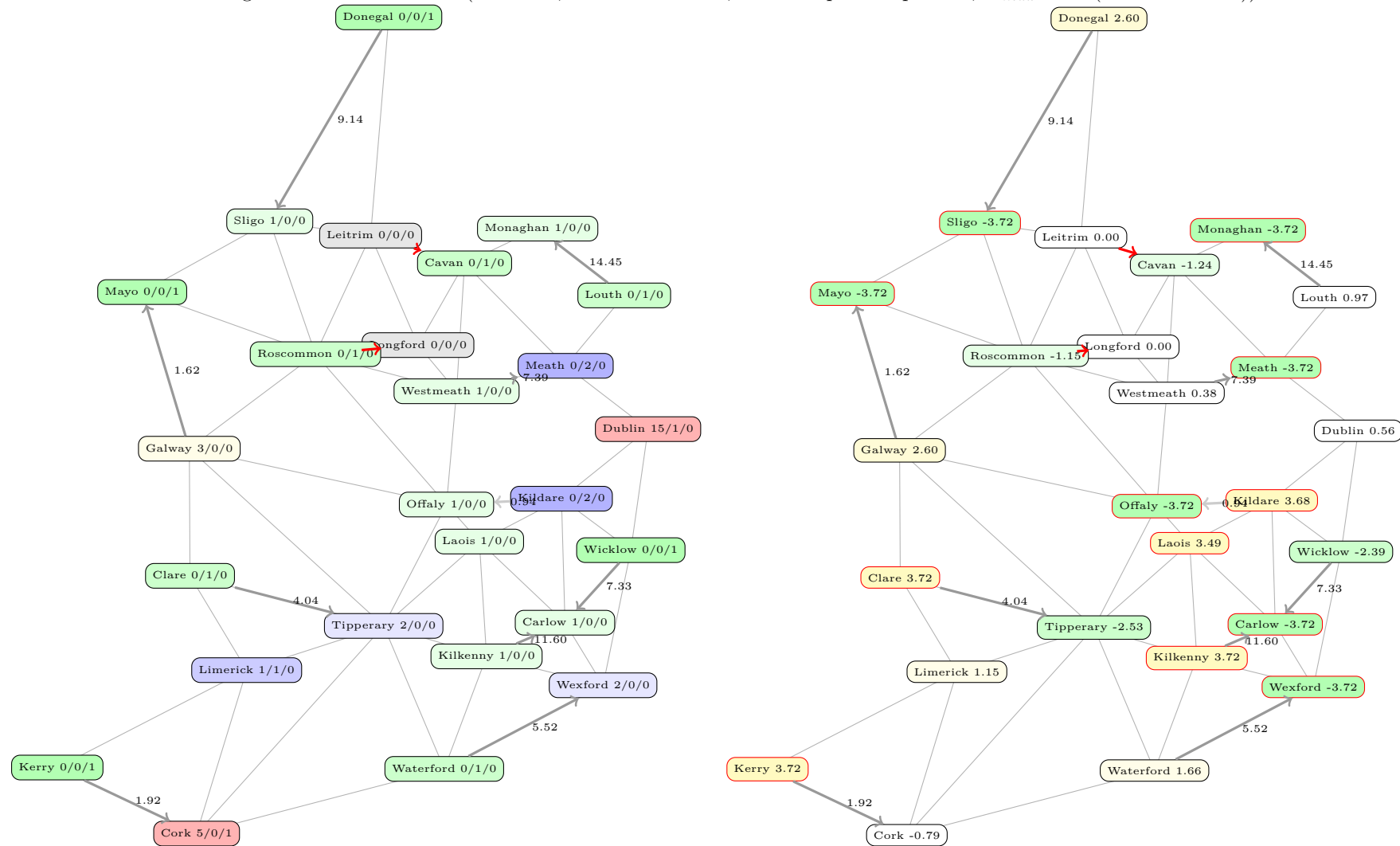
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol13	174	1,100	3.72	7.43	28,492.00	30,692.00	29,609.15	483,262.17	12	170,051	51	35/11/5	3.41	Optimal	2.86	12,170,051.00	0.0000

Table 39: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	23,508	85,476	1	1/0/0	3	28,492.00	-3.72
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	5,170	0	122,768	1	0/1/0	4	30,692.00	3.72
Cork	584,156	19.74	0	2,998	587,154	6	5/0/1	20	29,357.70	-0.79
Donegal	167,084	5.65	15,278	0	151,806	1	0/0/1	5	30,361.20	2.60
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	4,490	0	273,247	3	3/0/0	9	30,360.78	2.60
Kerry	156,458	5.29	2,998	0	153,460	1	0/0/1	5	30,692.00	3.72
Kildare	247,774	8.37	2,326	0	245,448	2	0/2/0	8	30,681.00	3.68
Kilkenny	104,160	3.52	12,084	0	92,076	1	1/0/0	3	30,692.00	3.72
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	20,188	0	119,515	1	0/1/0	4	29,878.75	0.97
Mayo	137,970	4.66	0	4,490	142,460	1	0/0/1	5	28,492.00	-3.72
Meath	220,826	7.46	0	7,110	227,936	2	0/2/0	8	28,492.00	-3.72
Monaghan	65,288	2.21	0	20,188	85,476	1	1/0/0	3	28,492.00	-3.72
Offaly	83,150	2.81	0	2,326	85,476	1	1/0/0	3	28,492.00	-3.72
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	15,278	85,476	1	1/0/0	3	28,492.00	-3.72
Tipperary	167,895	5.67	0	5,170	173,065	2	2/0/0	6	28,844.17	-2.53
Waterford	127,363	4.30	7,033	0	120,330	1	0/1/0	4	30,082.50	1.66

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	7,110	0	89,111	1	1/0/0	3	29,703.67	0.38
Wexford	163,919	5.54	0	7,033	170,952	2	2/0/0	6	28,492.00	-3.72
Wicklow	155,851	5.27	11,424	0	144,427	1	0/0/1	5	28,885.40	-2.39

Table 40: 12 Transfers (Total 170051)			
From	To	Volume	Percent of From
Kildare	Offaly	2,326	0.94
Kilkenny	Carlow	12,084	11.60
Longford	Roscommon	46,751	100.00
Louth	Monaghan	20,188	14.45
Westmeath	Meath	7,110	7.39
Wicklow	Carlow	11,424	7.33
Clare	Tipperary	5,170	4.04
Kerry	Cork	2,998	1.92
Waterford	Wexford	7,033	5.52
Galway	Mayo	4,490	1.62
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	15,278	9.14

Figure 14: Solution Sol13 (174 seats, 51 constituencies, 29609.15 persons per TD,  $\Delta_{max}$  1100 (3.72% of 29592))



### 3.14 Solution Sol14

Table 41: Solution 14

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol14	174	1,150	3.89	7.77	28,442.00	30,742.00	29,611.33	546,460.82	12	168,051	51	35/11/5	3.41	Optimal	2.55	12,168,051.00	0.0053

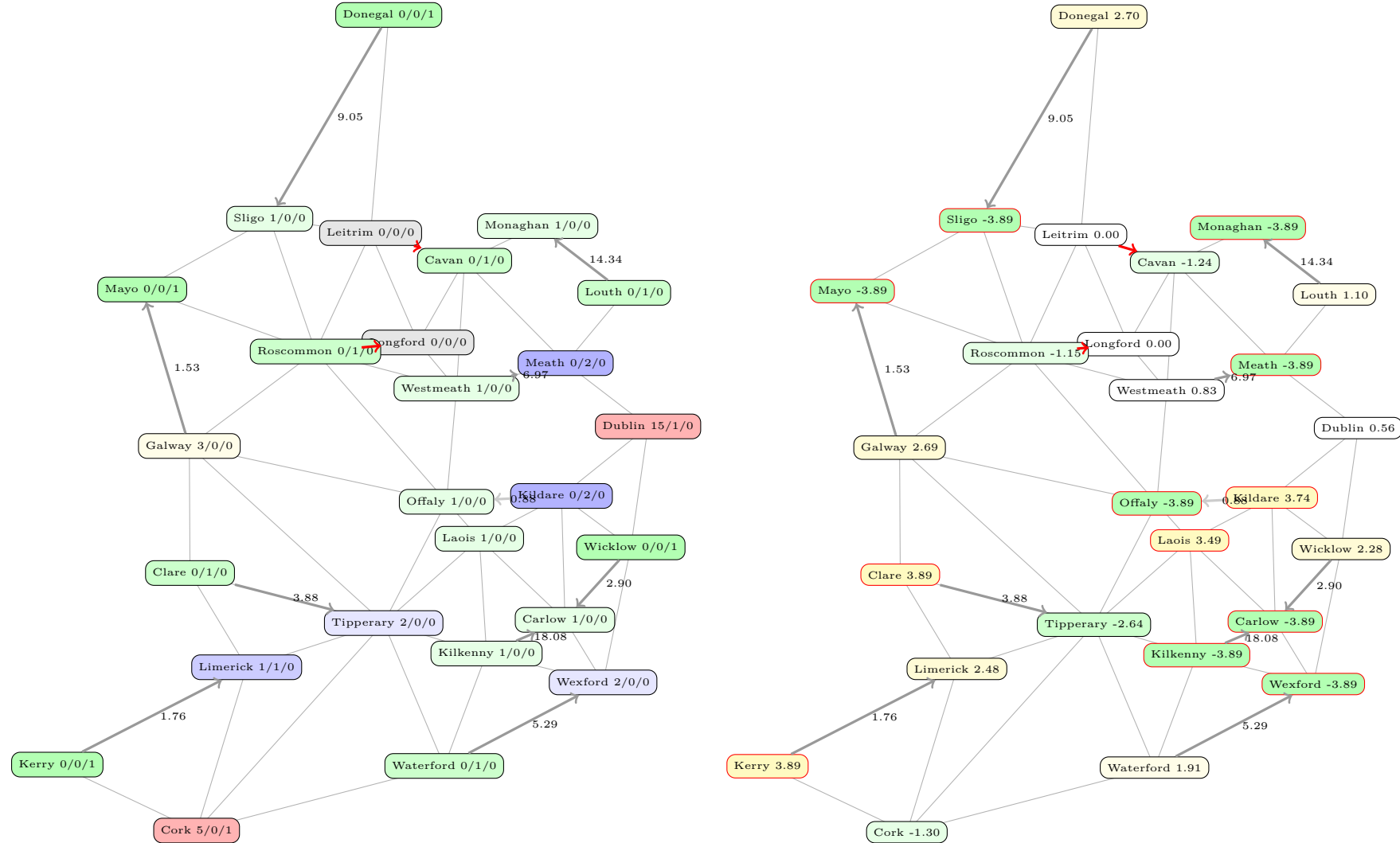
Table 42: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	23,358	85,326	1	1/0/0	3	28,442.00	-3.89
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	4,970	0	122,968	1	0/1/0	4	30,742.00	3.89
Cork	584,156	19.74	0	0	584,156	6	5/0/1	20	29,207.80	-1.30
Donegal	167,084	5.65	15,128	0	151,956	1	0/0/1	5	30,391.20	2.70
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	4,240	0	273,497	3	3/0/0	9	30,388.56	2.69
Kerry	156,458	5.29	2,748	0	153,710	1	0/0/1	5	30,742.00	3.89
Kildare	247,774	8.37	2,176	0	245,598	2	0/2/0	8	30,699.75	3.74
Kilkenny	104,160	3.52	18,834	0	85,326	1	1/0/0	3	28,442.00	-3.89
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	2,748	212,284	2	1/1/0	7	30,326.29	2.48
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	20,038	0	119,665	1	0/1/0	4	29,916.25	1.10
Mayo	137,970	4.66	0	4,240	142,210	1	0/0/1	5	28,442.00	-3.89
Meath	220,826	7.46	0	6,710	227,536	2	0/2/0	8	28,442.00	-3.89
Monaghan	65,288	2.21	0	20,038	85,326	1	1/0/0	3	28,442.00	-3.89
Offaly	83,150	2.81	0	2,176	85,326	1	1/0/0	3	28,442.00	-3.89
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	15,128	85,326	1	1/0/0	3	28,442.00	-3.89
Tipperary	167,895	5.67	0	4,970	172,865	2	2/0/0	6	28,810.83	-2.64
Waterford	127,363	4.30	6,733	0	120,630	1	0/1/0	4	30,157.50	1.91

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	6,710	0	89,511	1	1/0/0	3	29,837.00	0.83
Wexford	163,919	5.54	0	6,733	170,652	2	2/0/0	6	28,442.00	-3.89
Wicklow	155,851	5.27	4,524	0	151,327	1	0/0/1	5	30,265.40	2.28

Table 43: 12 Transfers (Total 168051)

From	To	Volume	Percent of From
Kildare	Offaly	2,176	0.88
Kilkenny	Carlow	18,834	18.08
Longford	Roscommon	46,751	100.00
Louth	Monaghan	20,038	14.34
Westmeath	Meath	6,710	6.97
Wicklow	Carlow	4,524	2.90
Clare	Tipperary	4,970	3.88
Kerry	Limerick	2,748	1.76
Waterford	Wexford	6,733	5.29
Galway	Mayo	4,240	1.53
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	15,128	9.05

Figure 15: Solution Sol14 (174 seats, 51 constituencies, 29611.33 persons per TD,  $\Delta_{max}$  1150 (3.89% of 29592))

### 3.15 Solution Sol15

Table 44: Solution 15

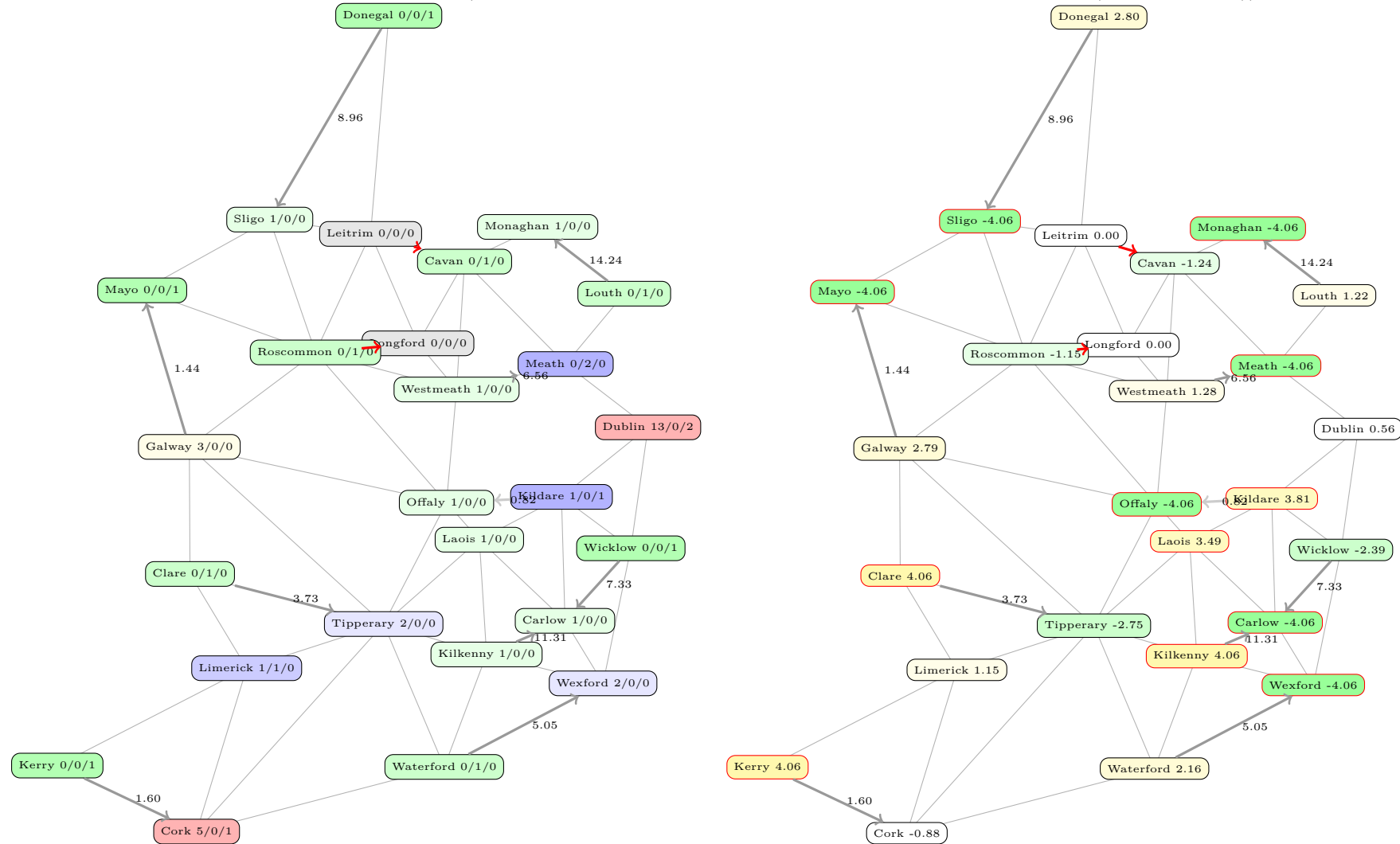
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol15	174	1,200	4.06	8.11	28,392.00	30,792.00	29,611.87	562,481.13	12	166,051	50	34/8/8	3.48	Optimal	2.56	12,166,051.00	0.0094

Table 45: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	23,208	85,176	1	1/0/0	3	28,392.00	-4.06
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	4,770	0	123,168	1	0/1/0	4	30,792.00	4.06
Cork	584,156	19.74	0	2,498	586,654	6	5/0/1	20	29,332.70	-0.88
Donegal	167,084	5.65	14,978	0	152,106	1	0/0/1	5	30,421.20	2.80
Dublin	1,458,154	49.28	0	0	1,458,154	15	13/0/2	49	29,758.24	0.56
Galway	277,737	9.39	3,990	0	273,747	3	3/0/0	9	30,416.33	2.79
Kerry	156,458	5.29	2,498	0	153,960	1	0/0/1	5	30,792.00	4.06
Kildare	247,774	8.37	2,026	0	245,748	2	1/0/1	8	30,718.50	3.81
Kilkenny	104,160	3.52	11,784	0	92,376	1	1/0/0	3	30,792.00	4.06
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	19,888	0	119,815	1	0/1/0	4	29,953.75	1.22
Mayo	137,970	4.66	0	3,990	141,960	1	0/0/1	5	28,392.00	-4.06
Meath	220,826	7.46	0	6,310	227,136	2	0/2/0	8	28,392.00	-4.06
Monaghan	65,288	2.21	0	19,888	85,176	1	1/0/0	3	28,392.00	-4.06
Offaly	83,150	2.81	0	2,026	85,176	1	1/0/0	3	28,392.00	-4.06
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	14,978	85,176	1	1/0/0	3	28,392.00	-4.06
Tipperary	167,895	5.67	0	4,770	172,665	2	2/0/0	6	28,777.50	-2.75
Waterford	127,363	4.30	6,433	0	120,930	1	0/1/0	4	30,232.50	2.16

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	6,310	0	89,911	1	1/0/0	3	29,970.33	1.28
Wexford	163,919	5.54	0	6,433	170,352	2	2/0/0	6	28,392.00	-4.06
Wicklow	155,851	5.27	11,424	0	144,427	1	0/0/1	5	28,885.40	-2.39

Table 46: 12 Transfers (Total 166051)			
From	To	Volume	Percent of From
Kildare	Offaly	2,026	0.82
Kilkenny	Carlow	11,784	11.31
Longford	Roscommon	46,751	100.00
Louth	Monaghan	19,888	14.24
Westmeath	Meath	6,310	6.56
Wicklow	Carlow	11,424	7.33
Clare	Tipperary	4,770	3.73
Kerry	Cork	2,498	1.60
Waterford	Wexford	6,433	5.05
Galway	Mayo	3,990	1.44
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	14,978	8.96

Figure 16: Solution Sol15 (174 seats, 50 constituencies, 29611.87 persons per TD,  $\Delta_{max}$  1200 (4.06% of 29592))

### 3.16 Solution Sol16

Table 47: Solution 16

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol16	174	1,250	4.22	8.45	28,342.00	30,842.00	29,619.93	805,409.62	12	164,051	51	36/9/6	3.41	Optimal	3.65	12,164,051.00	0.0037

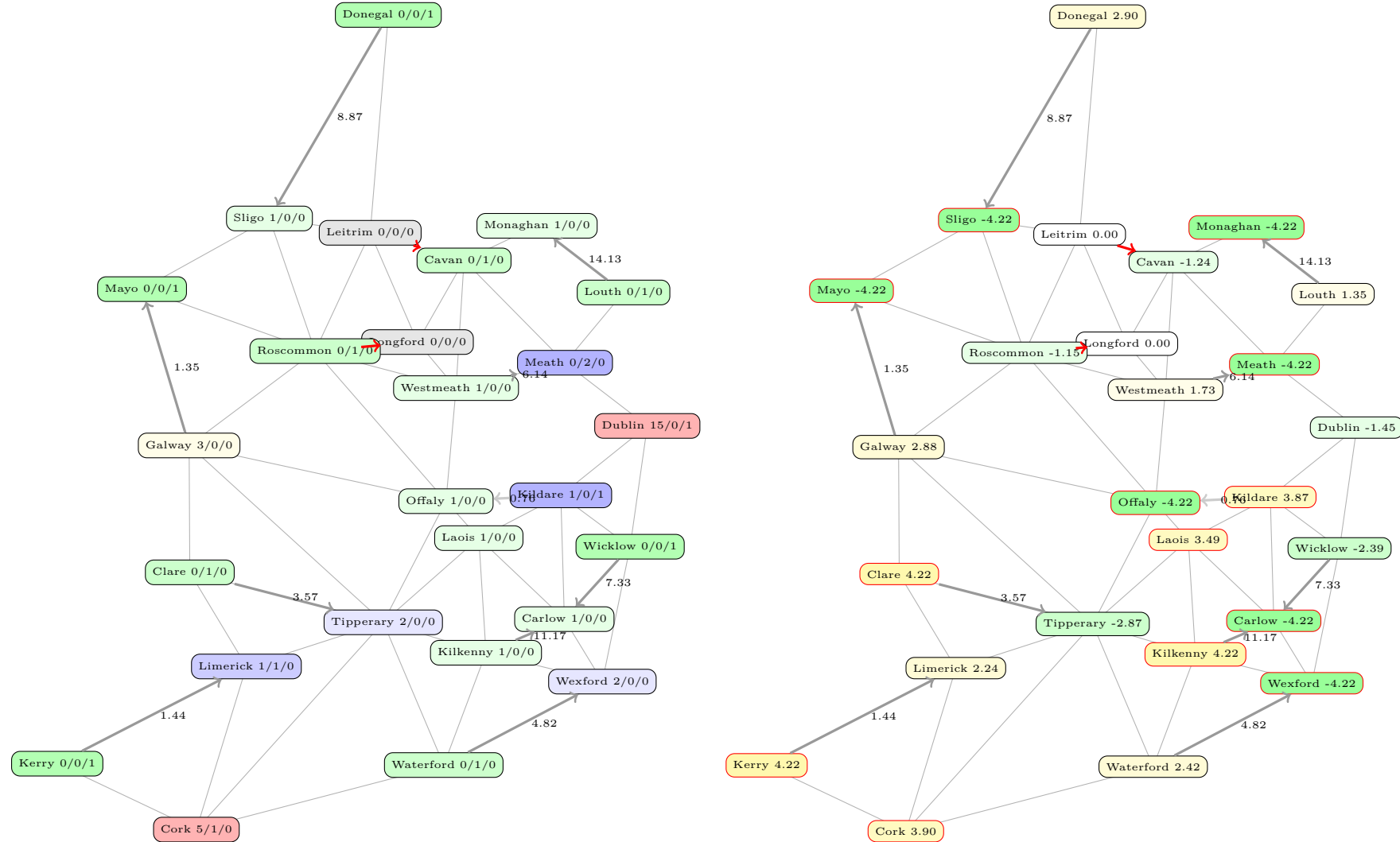
Table 48: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	23,058	85,026	1	1/0/0	3	28,342.00	-4.22
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	4,570	0	123,368	1	0/1/0	4	30,842.00	4.22
Cork	584,156	19.74	0	0	584,156	6	5/1/0	19	30,745.05	3.90
Donegal	167,084	5.65	14,828	0	152,256	1	0/0/1	5	30,451.20	2.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/0/1	50	29,163.08	-1.45
Galway	277,737	9.39	3,740	0	273,997	3	3/0/0	9	30,444.11	2.88
Kerry	156,458	5.29	2,248	0	154,210	1	0/0/1	5	30,842.00	4.22
Kildare	247,774	8.37	1,876	0	245,898	2	1/0/1	8	30,737.25	3.87
Kilkenny	104,160	3.52	11,634	0	92,526	1	1/0/0	3	30,842.00	4.22
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	2,248	211,784	2	1/1/0	7	30,254.86	2.24
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	19,738	0	119,965	1	0/1/0	4	29,991.25	1.35
Mayo	137,970	4.66	0	3,740	141,710	1	0/0/1	5	28,342.00	-4.22
Meath	220,826	7.46	0	5,910	226,736	2	0/2/0	8	28,342.00	-4.22
Monaghan	65,288	2.21	0	19,738	85,026	1	1/0/0	3	28,342.00	-4.22
Offaly	83,150	2.81	0	1,876	85,026	1	1/0/0	3	28,342.00	-4.22
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	14,828	85,026	1	1/0/0	3	28,342.00	-4.22
Tipperary	167,895	5.67	0	4,570	172,465	2	2/0/0	6	28,744.17	-2.87
Waterford	127,363	4.30	6,133	0	121,230	1	0/1/0	4	30,307.50	2.42

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	5,910	0	90,311	1	1/0/0	3	30,103.67	1.73
Wexford	163,919	5.54	0	6,133	170,052	2	2/0/0	6	28,342.00	-4.22
Wicklow	155,851	5.27	11,424	0	144,427	1	0/0/1	5	28,885.40	-2.39

Table 49: 12 Transfers (Total 164051)			
From	To	Volume	Percent of From
Kildare	Offaly	1,876	0.76
Kilkenny	Carlow	11,634	11.17
Longford	Roscommon	46,751	100.00
Louth	Monaghan	19,738	14.13
Westmeath	Meath	5,910	6.14
Wicklow	Carlow	11,424	7.33
Clare	Tipperary	4,570	3.57
Kerry	Limerick	2,248	1.44
Waterford	Wexford	6,133	4.82
Galway	Mayo	3,740	1.35
Leitrim	Cavan	35,199	100.00
Donegal	Sligo	14,828	8.87



Figure 17: Solution Sol16 (174 seats, 51 constituencies, 29619.93 persons per TD,  $\Delta_{max}$  1250 (4.22% of 29592))

### 3.17 Solution Sol17

Table 50: Solution 17

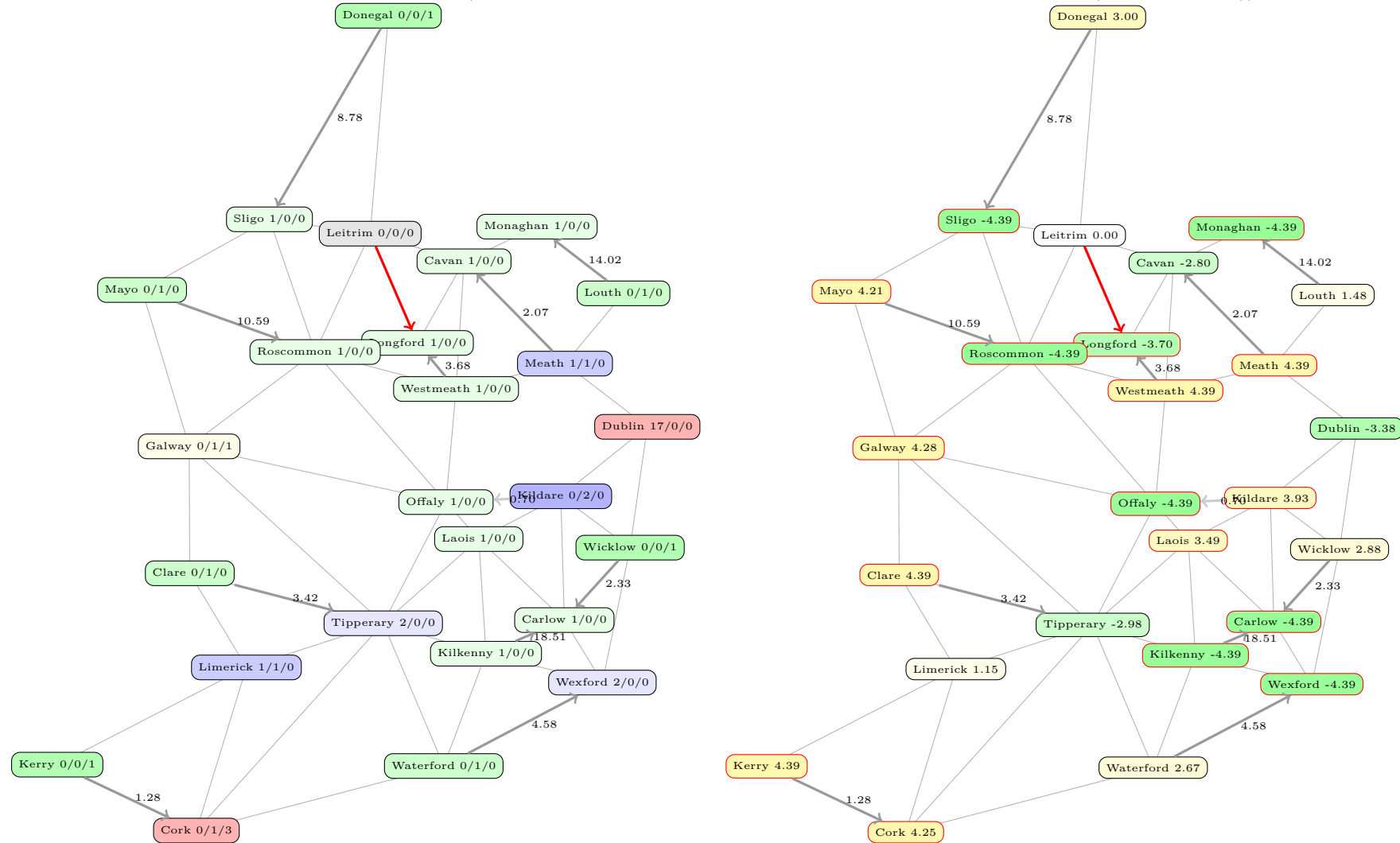
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol17	174	1,300	4.39	8.79	28,292.00	30,892.00	29,633.64	1,211,541.06	12	129,044	50	33/10/7	3.48	Optimal	10.76	12,129,044.00	0.0047

Table 51: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	22,908	84,876	1	1/0/0	3	28,292.00	-4.39
Cavan	81,704	2.76	0	4,582	86,286	1	1/0/0	3	28,762.00	-2.80
Clare	127,938	4.32	4,370	0	123,568	1	0/1/0	4	30,892.00	4.39
Cork	584,156	19.74	0	1,998	586,154	4	0/1/3	19	30,850.21	4.25
Donegal	167,084	5.65	14,678	0	152,406	1	0/0/1	5	30,481.20	3.00
Dublin	1,458,154	49.28	0	0	1,458,154	17	17/0/0	51	28,591.25	-3.38
Galway	277,737	9.39	0	0	277,737	2	0/1/1	9	30,859.67	4.28
Kerry	156,458	5.29	1,998	0	154,460	1	0/0/1	5	30,892.00	4.39
Kildare	247,774	8.37	1,726	0	246,048	2	0/2/0	8	30,756.00	3.93
Kilkenny	104,160	3.52	19,284	0	84,876	1	1/0/0	3	28,292.00	-4.39
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	38,744	85,495	1	1/0/0	3	28,498.33	-3.70
Louth	139,703	4.72	19,588	0	120,115	1	0/1/0	4	30,028.75	1.48
Mayo	137,970	4.66	14,617	0	123,353	1	0/1/0	4	30,838.25	4.21
Meath	220,826	7.46	4,582	0	216,244	2	1/1/0	7	30,892.00	4.39
Monaghan	65,288	2.21	0	19,588	84,876	1	1/0/0	3	28,292.00	-4.39
Offaly	83,150	2.81	0	1,726	84,876	1	1/0/0	3	28,292.00	-4.39
Roscommon	70,259	2.37	0	14,617	84,876	1	1/0/0	3	28,292.00	-4.39
Sligo	70,198	2.37	0	14,678	84,876	1	1/0/0	3	28,292.00	-4.39
Tipperary	167,895	5.67	0	4,370	172,265	2	2/0/0	6	28,710.83	-2.98
Waterford	127,363	4.30	5,833	0	121,530	1	0/1/0	4	30,382.50	2.67

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	3,545	0	92,676	1	1/0/0	3	30,892.00	4.39
Wexford	163,919	5.54	0	5,833	169,752	2	2/0/0	6	28,292.00	-4.39
Wicklow	155,851	5.27	3,624	0	152,227	1	0/0/1	5	30,445.40	2.88

Table 52: 12 Transfers (Total 129044)			
From	To	Volume	Percent of From
Kildare	Offaly	1,726	0.70
Kilkenny	Carlow	19,284	18.51
Louth	Monaghan	19,588	14.02
Meath	Cavan	4,582	2.07
Westmeath	Longford	3,545	3.68
Wicklow	Carlow	3,624	2.33
Clare	Tipperary	4,370	3.42
Kerry	Cork	1,998	1.28
Waterford	Wexford	5,833	4.58
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	14,617	10.59
Donegal	Sligo	14,678	8.78

Figure 18: Solution Sol17 (174 seats, 50 constituencies, 29633.64 persons per TD,  $\Delta_{max}$  1300 (4.39% of 29592))

### 3.18 Solution Sol18

Table 53: Solution 18

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol18	174	1,350	4.56	9.12	28,242.00	30,942.00	29,635.30	1,260,320.32	12	127,044	48	23/20/5	3.63	Optimal	11.80	12,127,044.00	0.0094

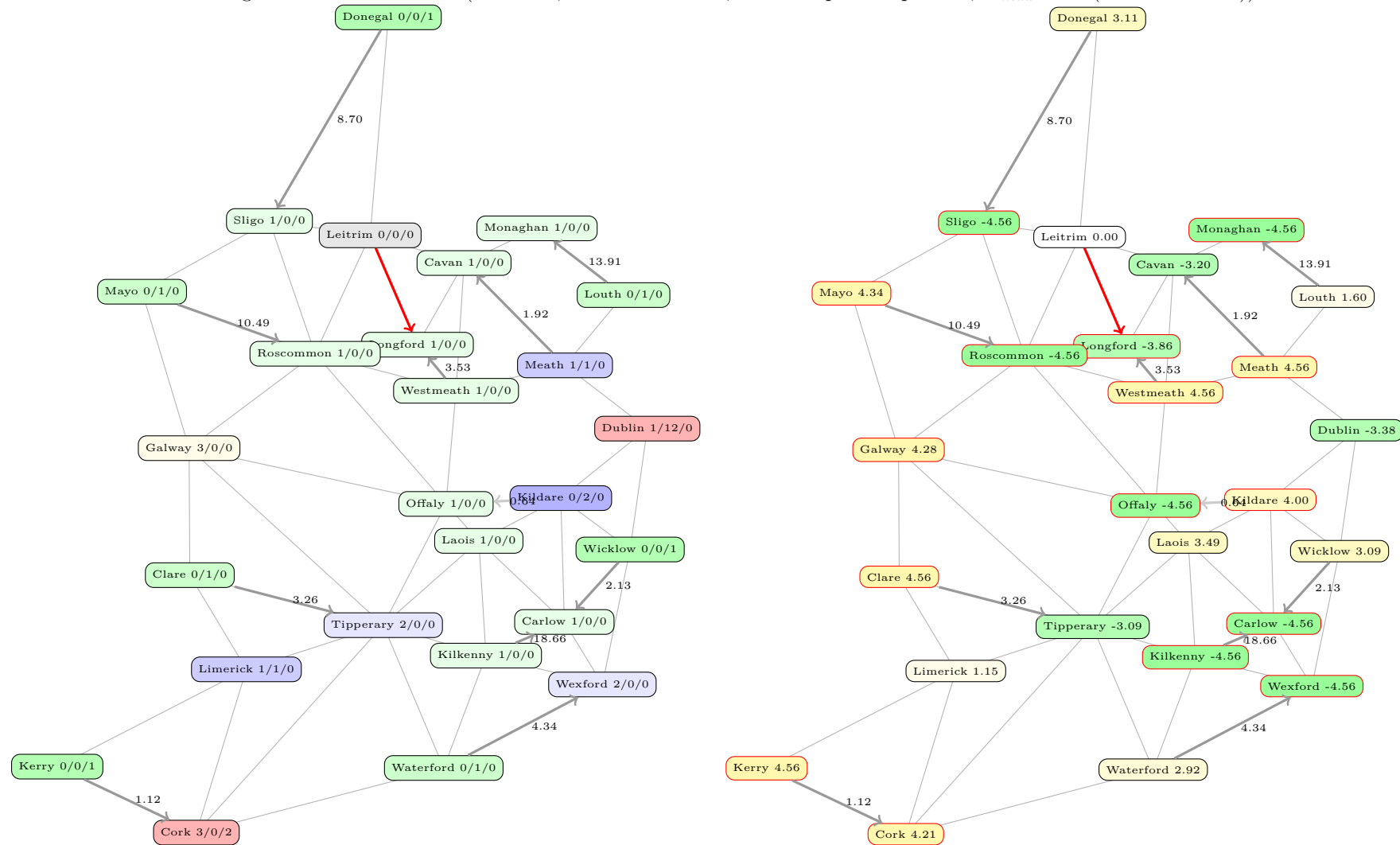
Table 54: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	22,758	84,726	1	1/0/0	3	28,242.00	-4.56
Cavan	81,704	2.76	0	4,232	85,936	1	1/0/0	3	28,645.33	-3.20
Clare	127,938	4.32	4,170	0	123,768	1	0/1/0	4	30,942.00	4.56
Cork	584,156	19.74	0	1,748	585,904	5	3/0/2	19	30,837.05	4.21
Donegal	167,084	5.65	14,528	0	152,556	1	0/0/1	5	30,511.20	3.11
Dublin	1,458,154	49.28	0	0	1,458,154	13	1/12/0	51	28,591.25	-3.38
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	1,748	0	154,710	1	0/0/1	5	30,942.00	4.56
Kildare	247,774	8.37	1,576	0	246,198	2	0/2/0	8	30,774.75	4.00
Kilkenny	104,160	3.52	19,434	0	84,726	1	1/0/0	3	28,242.00	-4.56
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	38,594	85,345	1	1/0/0	3	28,448.33	-3.86
Louth	139,703	4.72	19,438	0	120,265	1	0/1/0	4	30,066.25	1.60
Mayo	137,970	4.66	14,467	0	123,503	1	0/1/0	4	30,875.75	4.34
Meath	220,826	7.46	4,232	0	216,594	2	1/1/0	7	30,942.00	4.56
Monaghan	65,288	2.21	0	19,438	84,726	1	1/0/0	3	28,242.00	-4.56
Offaly	83,150	2.81	0	1,576	84,726	1	1/0/0	3	28,242.00	-4.56
Roscommon	70,259	2.37	0	14,467	84,726	1	1/0/0	3	28,242.00	-4.56
Sligo	70,198	2.37	0	14,528	84,726	1	1/0/0	3	28,242.00	-4.56
Tipperary	167,895	5.67	0	4,170	172,065	2	2/0/0	6	28,677.50	-3.09
Waterford	127,363	4.30	5,533	0	121,830	1	0/1/0	4	30,457.50	2.92

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	3,395	0	92,826	1	1/0/0	3	30,942.00	4.56
Wexford	163,919	5.54	0	5,533	169,452	2	2/0/0	6	28,242.00	-4.56
Wicklow	155,851	5.27	3,324	0	152,527	1	0/0/1	5	30,505.40	3.09

Table 55: 12 Transfers (Total 127044)

From	To	Volume	Percent of From
Kildare	Offaly	1,576	0.64
Kilkenny	Carlow	19,434	18.66
Louth	Monaghan	19,438	13.91
Meath	Cavan	4,232	1.92
Westmeath	Longford	3,395	3.53
Wicklow	Carlow	3,324	2.13
Clare	Tipperary	4,170	3.26
Kerry	Cork	1,748	1.12
Waterford	Wexford	5,533	4.34
Leitrim	Longford	35,199	100.00
Mayo	Roscommon	14,467	10.49
Donegal	Sligo	14,528	8.70

Figure 19: Solution Sol18 (174 seats, 48 constituencies, 29635.30 persons per TD,  $\Delta_{max}$  1350 (4.56% of 29592))

### 3.19 Solution Sol19

Table 56: Solution 19

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol19	174	1,400	4.73	9.46	28,192.00	30,992.00	29,621.50	858,591.03	11	156,052	52	39/8/5	3.35	Optimal	1.00	11,156,052.00	0.0000

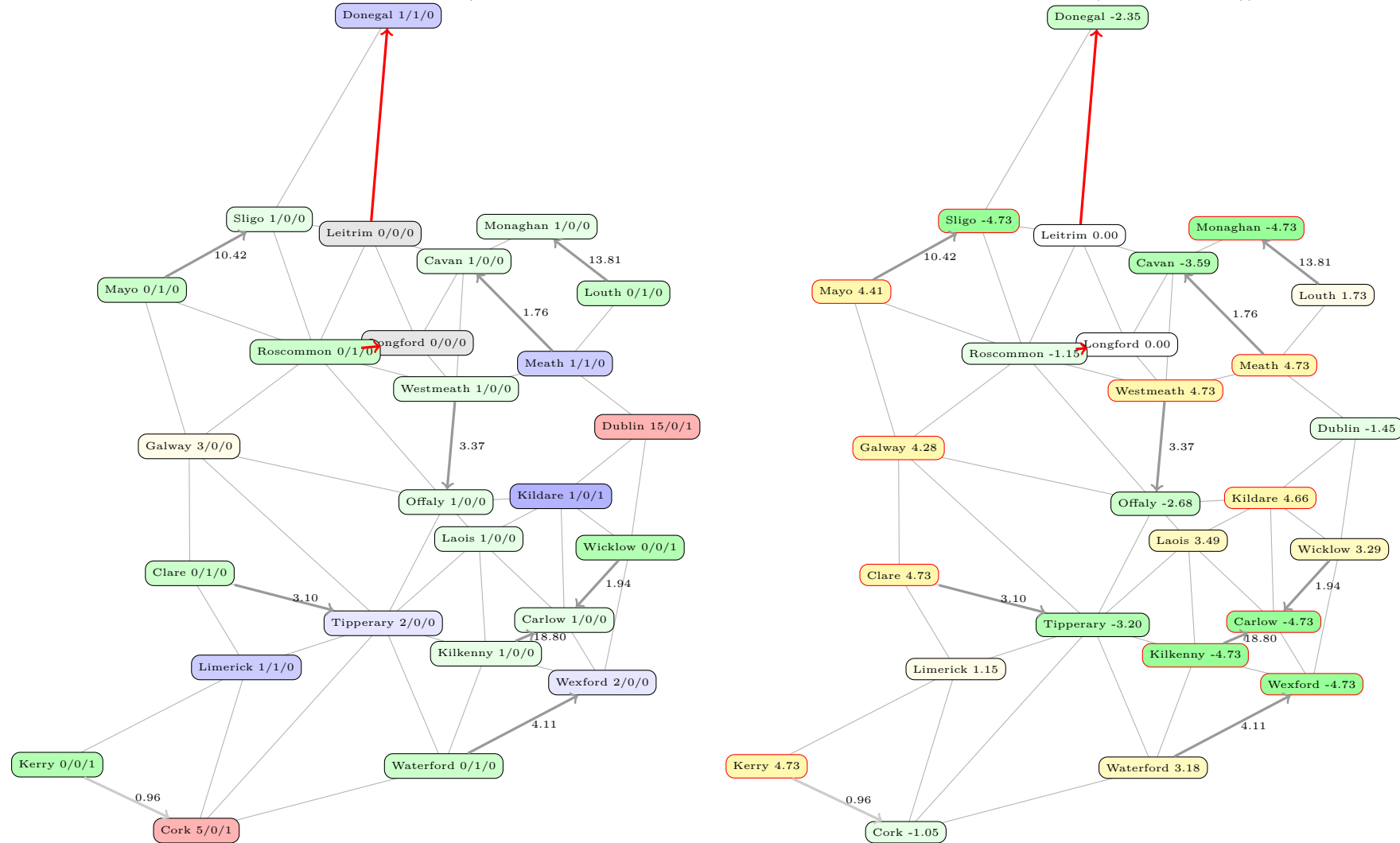
Table 57: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	22,608	84,576	1	1/0/0	3	28,192.00	-4.73
Cavan	81,704	2.76	0	3,882	85,586	1	1/0/0	3	28,528.67	-3.59
Clare	127,938	4.32	3,970	0	123,968	1	0/1/0	4	30,992.00	4.73
Cork	584,156	19.74	0	1,498	585,654	6	5/0/1	20	29,282.70	-1.05
Donegal	167,084	5.65	0	35,199	202,283	2	1/1/0	7	28,897.57	-2.35
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/0/1	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	1,498	0	154,960	1	0/0/1	5	30,992.00	4.73
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	19,584	0	84,576	1	1/0/0	3	28,192.00	-4.73
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	19,288	0	120,415	1	0/1/0	4	30,103.75	1.73
Mayo	137,970	4.66	14,378	0	123,592	1	0/1/0	4	30,898.00	4.41
Meath	220,826	7.46	3,882	0	216,944	2	1/1/0	7	30,992.00	4.73
Monaghan	65,288	2.21	0	19,288	84,576	1	1/0/0	3	28,192.00	-4.73
Offaly	83,150	2.81	0	3,245	86,395	1	1/0/0	3	28,798.33	-2.68
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	14,378	84,576	1	1/0/0	3	28,192.00	-4.73
Tipperary	167,895	5.67	0	3,970	171,865	2	2/0/0	6	28,644.17	-3.20
Waterford	127,363	4.30	5,233	0	122,130	1	0/1/0	4	30,532.50	3.18



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	3,245	0	92,976	1	1/0/0	3	30,992.00	4.73
Wexford	163,919	5.54	0	5,233	169,152	2	2/0/0	6	28,192.00	-4.73
Wicklow	155,851	5.27	3,024	0	152,827	1	0/0/1	5	30,565.40	3.29

Table 58: 11 Transfers (Total 156052)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,584	18.80
Longford	Roscommon	46,751	100.00
Louth	Monaghan	19,288	13.81
Meath	Cavan	3,882	1.76
Westmeath	Offaly	3,245	3.37
Wicklow	Carlow	3,024	1.94
Clare	Tipperary	3,970	3.10
Kerry	Cork	1,498	0.96
Waterford	Wexford	5,233	4.11
Leitrim	Donegal	35,199	100.00
Mayo	Sligo	14,378	10.42

Figure 20: Solution Sol19 (174 seats, 52 constituencies, 29621.50 persons per TD,  $\Delta_{max}$  1400 (4.73% of 29592))

### 3.20 Solution Sol20

Table 59: Solution 20

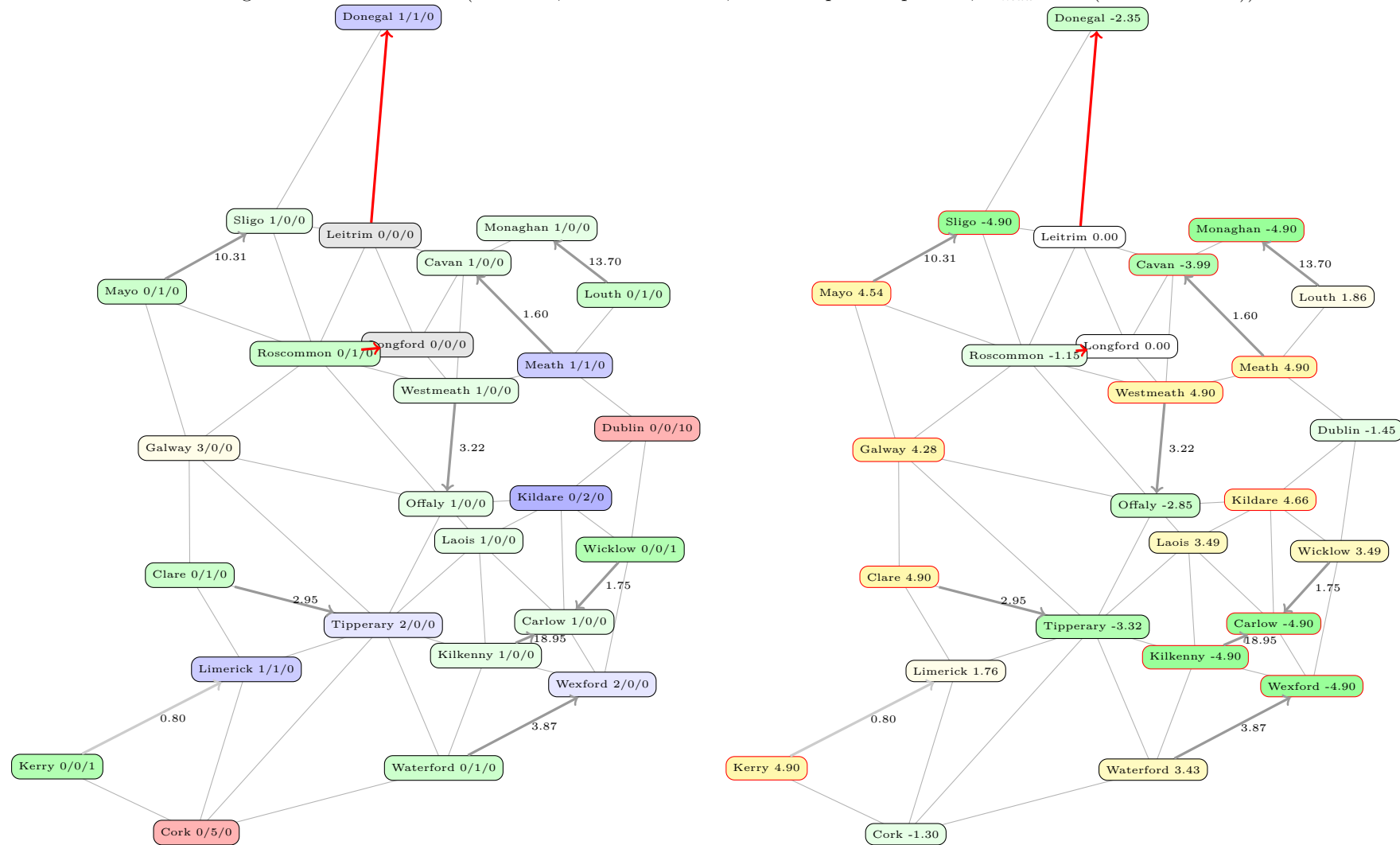
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol20	174	1,450	4.90	9.80	28,142.00	31,042.00	29,623.54	919,277.74	11	154,352	45	18/15/12	3.87	Optimal	1.63	11,154,352.00	0.0006

Table 60: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	22,458	84,426	1	1/0/0	3	28,142.00	-4.90
Cavan	81,704	2.76	0	3,532	85,236	1	1/0/0	3	28,412.00	-3.99
Clare	127,938	4.32	3,770	0	124,168	1	0/1/0	4	31,042.00	4.90
Cork	584,156	19.74	0	0	584,156	5	0/5/0	20	29,207.80	-1.30
Donegal	167,084	5.65	0	35,199	202,283	2	1/1/0	7	28,897.57	-2.35
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	1,248	0	155,210	1	0/0/1	5	31,042.00	4.90
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	19,734	0	84,426	1	1/0/0	3	28,142.00	-4.90
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	1,248	210,784	2	1/1/0	7	30,112.00	1.76
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	19,138	0	120,565	1	0/1/0	4	30,141.25	1.86
Mayo	137,970	4.66	14,228	0	123,742	1	0/1/0	4	30,935.50	4.54
Meath	220,826	7.46	3,532	0	217,294	2	1/1/0	7	31,042.00	4.90
Monaghan	65,288	2.21	0	19,138	84,426	1	1/0/0	3	28,142.00	-4.90
Offaly	83,150	2.81	0	3,095	86,245	1	1/0/0	3	28,748.33	-2.85
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	14,228	84,426	1	1/0/0	3	28,142.00	-4.90
Tipperary	167,895	5.67	0	3,770	171,665	2	2/0/0	6	28,610.83	-3.32
Waterford	127,363	4.30	4,933	0	122,430	1	0/1/0	4	30,607.50	3.43

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	3,095	0	93,126	1	1/0/0	3	31,042.00	4.90
Wexford	163,919	5.54	0	4,933	168,852	2	2/0/0	6	28,142.00	-4.90
Wicklow	155,851	5.27	2,724	0	153,127	1	0/0/1	5	30,625.40	3.49

Table 61: 11 Transfers (Total 154352)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,734	18.95
Longford	Roscommon	46,751	100.00
Louth	Monaghan	19,138	13.70
Meath	Cavan	3,532	1.60
Westmeath	Offaly	3,095	3.22
Wicklow	Carlow	2,724	1.75
Clare	Tipperary	3,770	2.95
Kerry	Limerick	1,248	0.80
Waterford	Wexford	4,933	3.87
Leitrim	Donegal	35,199	100.00
Mayo	Sligo	14,228	10.31

Figure 21: Solution Sol20 (174 seats, 45 constituencies, 29623.54 persons per TD,  $\Delta_{max}$  1450 (4.90% of 29592))

### 3.21 Solution Sol21

Table 62: Solution 21

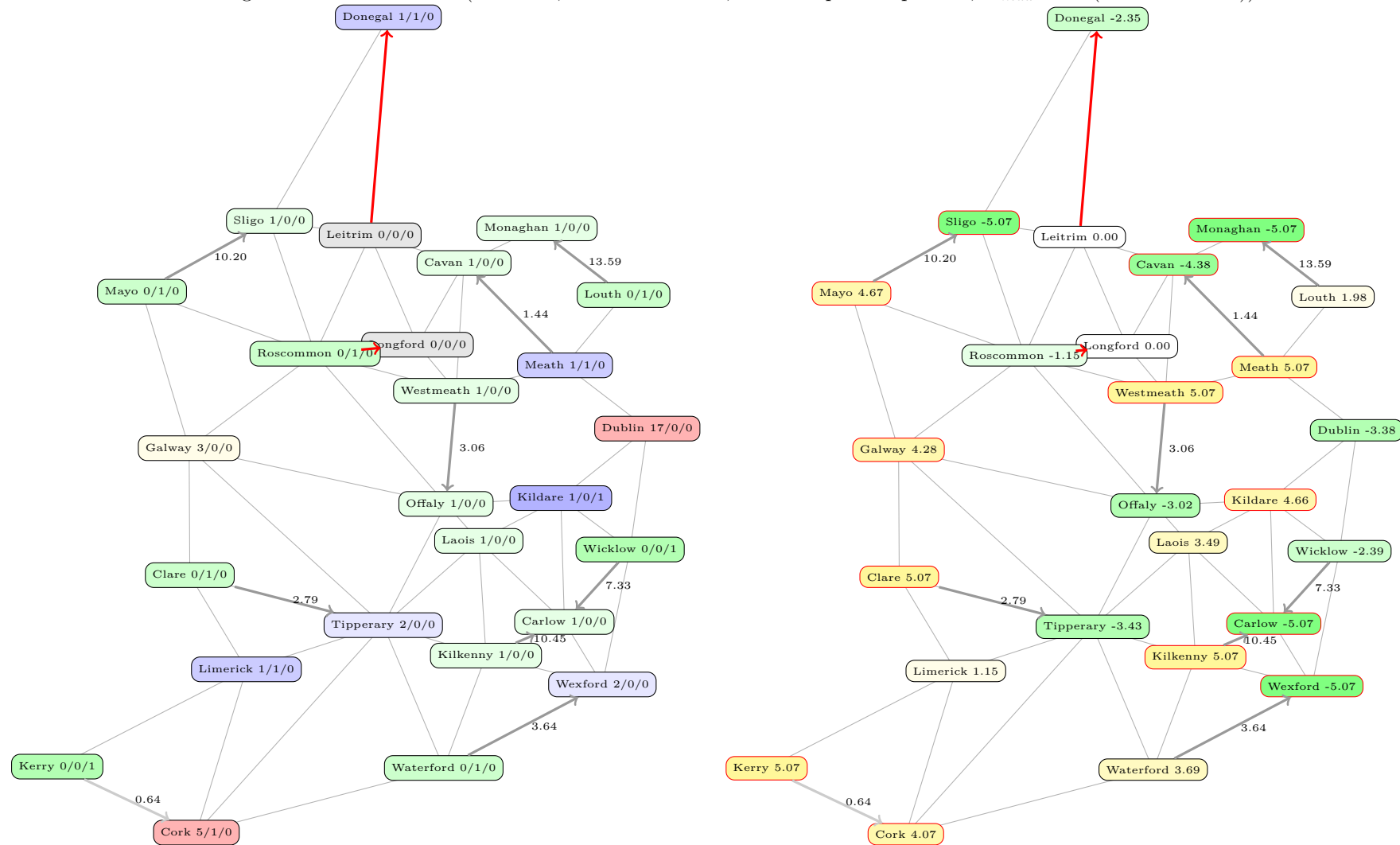
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol21	174	1,500	5.07	10.14	28,092.00	31,092.00	29,637.30	1,325,062.12	11	152,652	53	41/9/3	3.28	Optimal	0.86	11,152,652.00	0.0000

Table 63: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	22,308	84,276	1	1/0/0	3	28,092.00	-5.07
Cavan	81,704	2.76	0	3,182	84,886	1	1/0/0	3	28,295.33	-4.38
Clare	127,938	4.32	3,570	0	124,368	1	0/1/0	4	31,092.00	5.07
Cork	584,156	19.74	0	998	585,154	6	5/1/0	19	30,797.58	4.07
Donegal	167,084	5.65	0	35,199	202,283	2	1/1/0	7	28,897.57	-2.35
Dublin	1,458,154	49.28	0	0	1,458,154	17	17/0/0	51	28,591.25	-3.38
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	998	0	155,460	1	0/0/1	5	31,092.00	5.07
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	10,884	0	93,276	1	1/0/0	3	31,092.00	5.07
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	18,988	0	120,715	1	0/1/0	4	30,178.75	1.98
Mayo	137,970	4.66	14,078	0	123,892	1	0/1/0	4	30,973.00	4.67
Meath	220,826	7.46	3,182	0	217,644	2	1/1/0	7	31,092.00	5.07
Monaghan	65,288	2.21	0	18,988	84,276	1	1/0/0	3	28,092.00	-5.07
Offaly	83,150	2.81	0	2,945	86,095	1	1/0/0	3	28,698.33	-3.02
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	14,078	84,276	1	1/0/0	3	28,092.00	-5.07
Tipperary	167,895	5.67	0	3,570	171,465	2	2/0/0	6	28,577.50	-3.43
Waterford	127,363	4.30	4,633	0	122,730	1	0/1/0	4	30,682.50	3.69

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	2,945	0	93,276	1	1/0/0	3	31,092.00	5.07
Wexford	163,919	5.54	0	4,633	168,552	2	2/0/0	6	28,092.00	-5.07
Wicklow	155,851	5.27	11,424	0	144,427	1	0/0/1	5	28,885.40	-2.39

Table 64: 11 Transfers (Total 152652)			
From	To	Volume	Percent of From
Kilkenny	Carlow	10,884	10.45
Longford	Roscommon	46,751	100.00
Louth	Monaghan	18,988	13.59
Meath	Cavan	3,182	1.44
Westmeath	Offaly	2,945	3.06
Wicklow	Carlow	11,424	7.33
Clare	Tipperary	3,570	2.79
Kerry	Cork	998	0.64
Waterford	Wexford	4,633	3.64
Leitrim	Donegal	35,199	100.00
Mayo	Sligo	14,078	10.20

Figure 22: Solution Sol21 (174 seats, 53 constituencies, 29637.30 persons per TD,  $\Delta_{max}$  1500 (5.07% of 29592))



### 3.22 Solution Sol22

Table 65: Solution 22

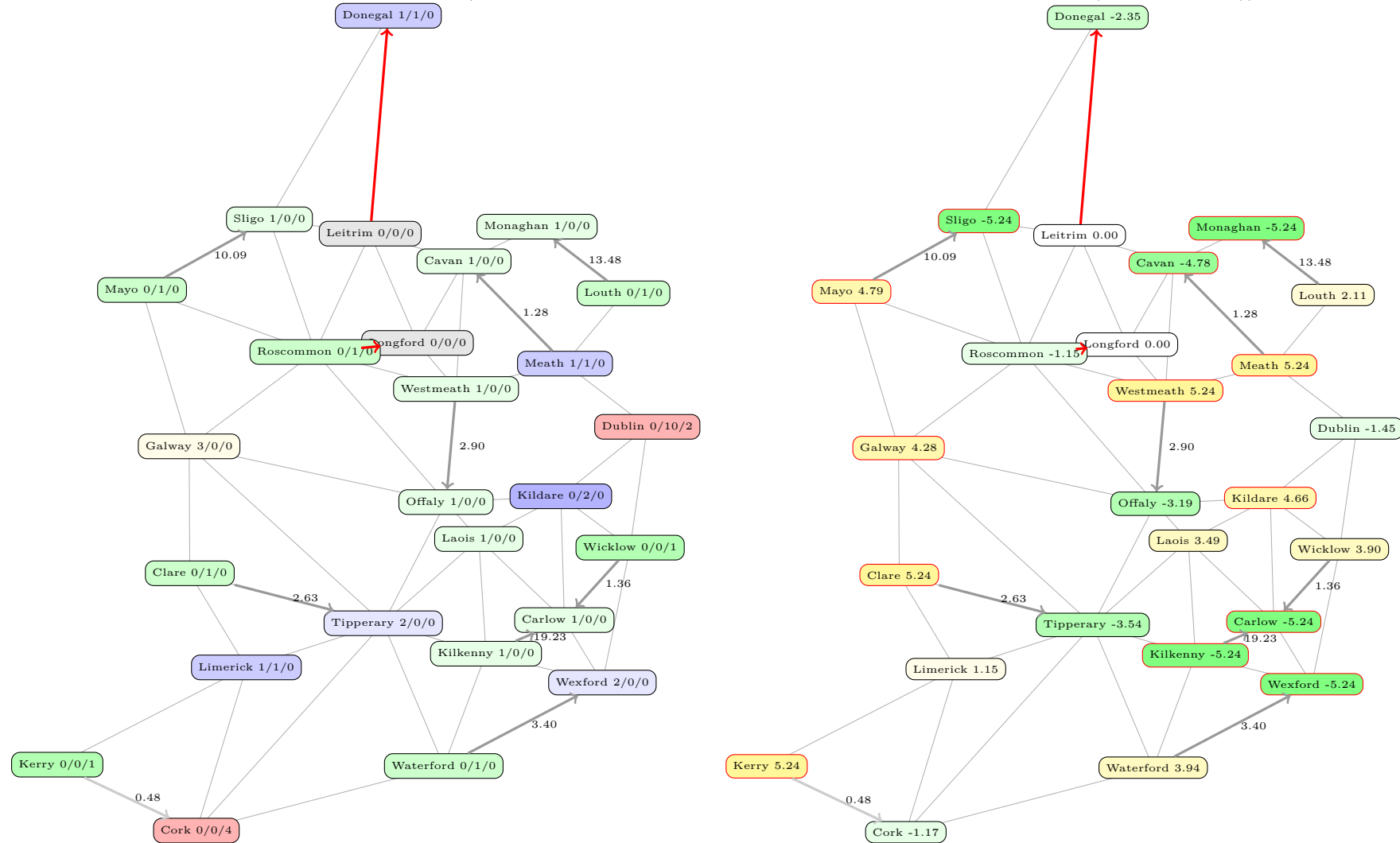
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol22	174	1,550	5.24	10.48	28,042.00	31,142.00	29,626.74	1,013,773.08	11	150,952	46	18/20/8	3.78	Optimal	1.56	11,150,952.00	0.0000

Table 66: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	22,158	84,126	1	1/0/0	3	28,042.00	-5.24
Cavan	81,704	2.76	0	2,832	84,536	1	1/0/0	3	28,178.67	-4.78
Clare	127,938	4.32	3,370	0	124,568	1	0/1/0	4	31,142.00	5.24
Cork	584,156	19.74	0	748	584,904	4	0/0/4	20	29,245.20	-1.17
Donegal	167,084	5.65	0	35,199	202,283	2	1/1/0	7	28,897.57	-2.35
Dublin	1,458,154	49.28	0	0	1,458,154	12	0/10/2	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	748	0	155,710	1	0/0/1	5	31,142.00	5.24
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	20,034	0	84,126	1	1/0/0	3	28,042.00	-5.24
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	18,838	0	120,865	1	0/1/0	4	30,216.25	2.11
Mayo	137,970	4.66	13,928	0	124,042	1	0/1/0	4	31,010.50	4.79
Meath	220,826	7.46	2,832	0	217,994	2	1/1/0	7	31,142.00	5.24
Monaghan	65,288	2.21	0	18,838	84,126	1	1/0/0	3	28,042.00	-5.24
Offaly	83,150	2.81	0	2,795	85,945	1	1/0/0	3	28,648.33	-3.19
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	13,928	84,126	1	1/0/0	3	28,042.00	-5.24
Tipperary	167,895	5.67	0	3,370	171,265	2	2/0/0	6	28,544.17	-3.54
Waterford	127,363	4.30	4,333	0	123,030	1	0/1/0	4	30,757.50	3.94

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	2,795	0	93,426	1	1/0/0	3	31,142.00	5.24
Wexford	163,919	5.54	0	4,333	168,252	2	2/0/0	6	28,042.00	-5.24
Wicklow	155,851	5.27	2,124	0	153,727	1	0/0/1	5	30,745.40	3.90

Table 67: 11 Transfers (Total 150952)			
From	To	Volume	Percent of From
Kilkenny	Carlow	20,034	19.23
Longford	Roscommon	46,751	100.00
Louth	Monaghan	18,838	13.48
Meath	Cavan	2,832	1.28
Westmeath	Offaly	2,795	2.90
Wicklow	Carlow	2,124	1.36
Clare	Tipperary	3,370	2.63
Kerry	Cork	748	0.48
Waterford	Wexford	4,333	3.40
Leitrim	Donegal	35,199	100.00
Mayo	Sligo	13,928	10.09

Figure 23: Solution Sol22 (174 seats, 46 constituencies, 29626.74 persons per TD,  $\Delta_{max}$  1550 (5.24% of 29592))

### 3.23 Solution Sol23

Table 68: Solution 23

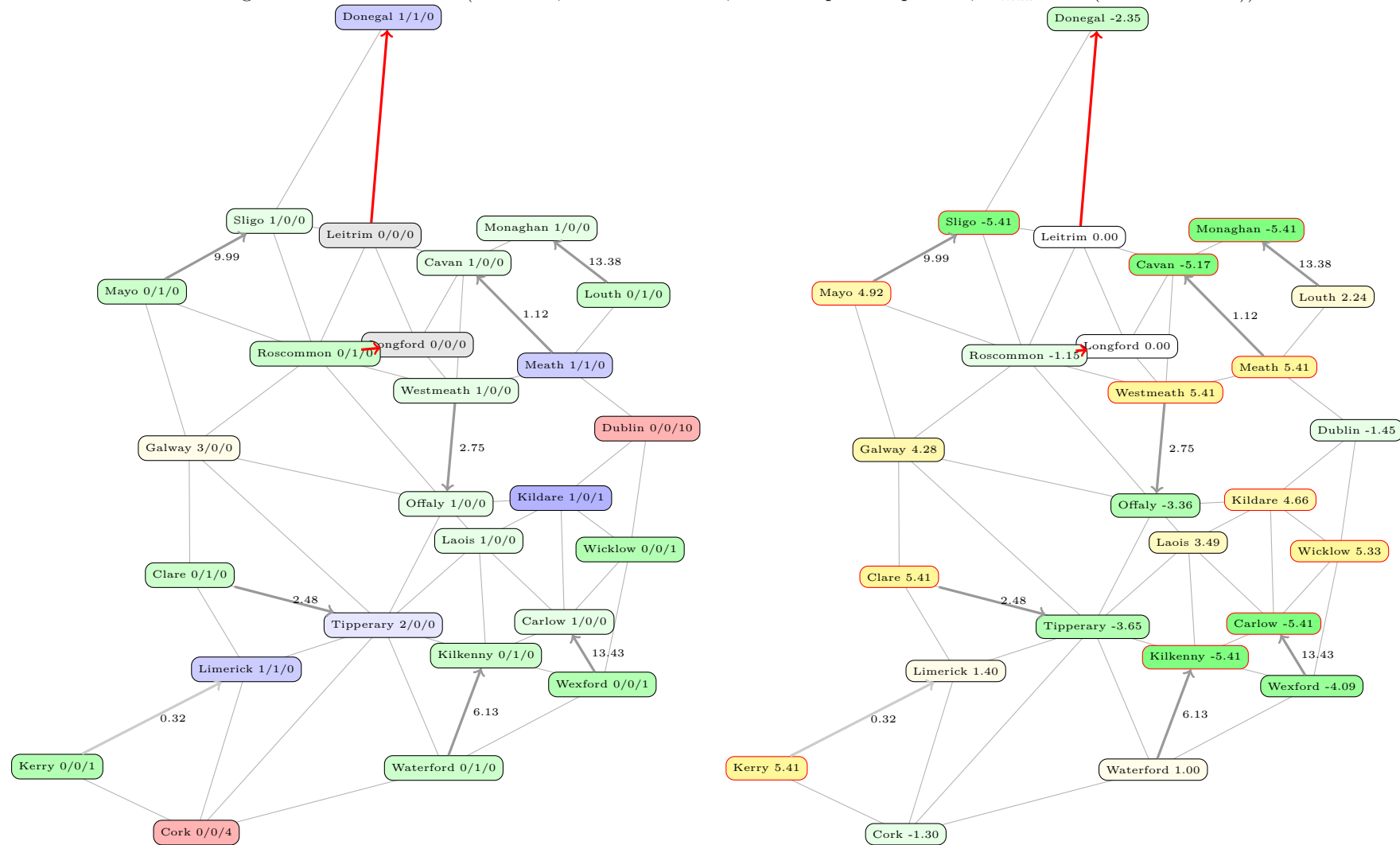
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol23	174	1,600	5.41	10.81	27,992.00	31,192.00	29,627.58	1,041,758.43	10	153,027	43	16/9/18	4.05	Optimal	1.08	10,153,027.00	0.0049

Table 69: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	22,008	83,976	1	1/0/0	3	27,992.00	-5.41
Cavan	81,704	2.76	0	2,482	84,186	1	1/0/0	3	28,062.00	-5.17
Clare	127,938	4.32	3,170	0	124,768	1	0/1/0	4	31,192.00	5.41
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	0	35,199	202,283	2	1/1/0	7	28,897.57	-2.35
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	498	0	155,960	1	0/0/1	5	31,192.00	5.41
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	7,808	111,968	1	0/1/0	4	27,992.00	-5.41
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	498	210,034	2	1/1/0	7	30,004.86	1.40
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	18,688	0	121,015	1	0/1/0	4	30,253.75	2.24
Mayo	137,970	4.66	13,778	0	124,192	1	0/1/0	4	31,048.00	4.92
Meath	220,826	7.46	2,482	0	218,344	2	1/1/0	7	31,192.00	5.41
Monaghan	65,288	2.21	0	18,688	83,976	1	1/0/0	3	27,992.00	-5.41
Offaly	83,150	2.81	0	2,645	85,795	1	1/0/0	3	28,598.33	-3.36
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	13,778	83,976	1	1/0/0	3	27,992.00	-5.41
Tipperary	167,895	5.67	0	3,170	171,065	2	2/0/0	6	28,510.83	-3.65
Waterford	127,363	4.30	7,808	0	119,555	1	0/1/0	4	29,888.75	1.00

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	2,645	0	93,576	1	1/0/0	3	31,192.00	5.41
Wexford	163,919	5.54	22,008	0	141,911	1	0/0/1	5	28,382.20	-4.09
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 70: 10 Transfers (Total 153027)			
From	To	Volume	Percent of From
Longford	Roscommon	46,751	100.00
Louth	Monaghan	18,688	13.38
Meath	Cavan	2,482	1.12
Westmeath	Offaly	2,645	2.75
Wexford	Carlow	22,008	13.43
Clare	Tipperary	3,170	2.48
Kerry	Limerick	498	0.32
Waterford	Kilkenny	7,808	6.13
Leitrim	Donegal	35,199	100.00
Mayo	Sligo	13,778	9.99

Figure 24: Solution Sol23 (174 seats, 43 constituencies, 29627.58 persons per TD,  $\Delta_{max}$  1600 (5.41% of 29592))

### 3.24 Solution Sol24

Table 71: Solution 24

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol24	174	1,650	5.58	11.15	27,942.00	31,242.00	29,629.00	1,083,530.76	10	151,427	44	15/16/13	3.95	Optimal	0.88	10,151,427.00	0.0025

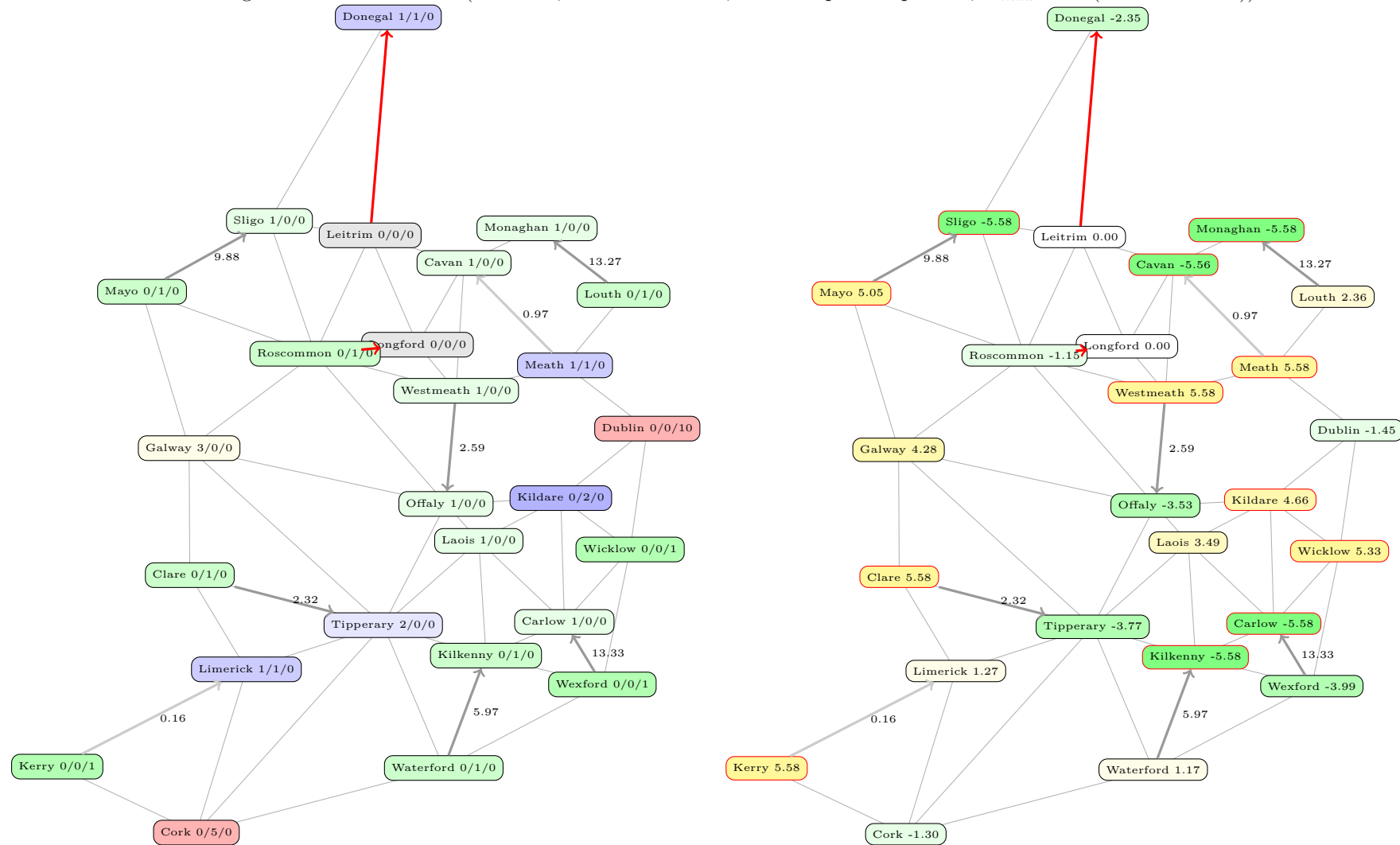
Table 72: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	21,858	83,826	1	1/0/0	3	27,942.00	-5.58
Cavan	81,704	2.76	0	2,132	83,836	1	1/0/0	3	27,945.33	-5.56
Clare	127,938	4.32	2,970	0	124,968	1	0/1/0	4	31,242.00	5.58
Cork	584,156	19.74	0	0	584,156	5	0/5/0	20	29,207.80	-1.30
Donegal	167,084	5.65	0	35,199	202,283	2	1/1/0	7	28,897.57	-2.35
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	248	0	156,210	1	0/0/1	5	31,242.00	5.58
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	7,608	111,768	1	0/1/0	4	27,942.00	-5.58
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	248	209,784	2	1/1/0	7	29,969.14	1.27
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	18,538	0	121,165	1	0/1/0	4	30,291.25	2.36
Mayo	137,970	4.66	13,628	0	124,342	1	0/1/0	4	31,085.50	5.05
Meath	220,826	7.46	2,132	0	218,694	2	1/1/0	7	31,242.00	5.58
Monaghan	65,288	2.21	0	18,538	83,826	1	1/0/0	3	27,942.00	-5.58
Offaly	83,150	2.81	0	2,495	85,645	1	1/0/0	3	28,548.33	-3.53
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	13,628	83,826	1	1/0/0	3	27,942.00	-5.58
Tipperary	167,895	5.67	0	2,970	170,865	2	2/0/0	6	28,477.50	-3.77
Waterford	127,363	4.30	7,608	0	119,755	1	0/1/0	4	29,938.75	1.17

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	2,495	0	93,726	1	1/0/0	3	31,242.00	5.58
Wexford	163,919	5.54	21,858	0	142,061	1	0/0/1	5	28,412.20	-3.99
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 73: 10 Transfers (Total 151427)			
From	To	Volume	Percent of From
Longford	Roscommon	46,751	100.00
Louth	Monaghan	18,538	13.27
Meath	Cavan	2,132	0.97
Westmeath	Offaly	2,495	2.59
Wexford	Carlow	21,858	13.33
Clare	Tipperary	2,970	2.32
Kerry	Limerick	248	0.16
Waterford	Kilkenny	7,608	5.97
Leitrim	Donegal	35,199	100.00
Mayo	Sligo	13,628	9.88



Figure 25: Solution Sol24 (174 seats, 44 constituencies, 29629.00 persons per TD,  $\Delta_{max}$  1650 (5.58% of 29592))

### 3.25 Solution Sol25

Table 74: Solution 25

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol25	174	1,700	5.74	11.49	27,892.00	31,292.00	29,630.22	1,119,730.68	9	150,019	45	19/13/13	3.87	Optimal	0.56	9,150,019.00	0.0000

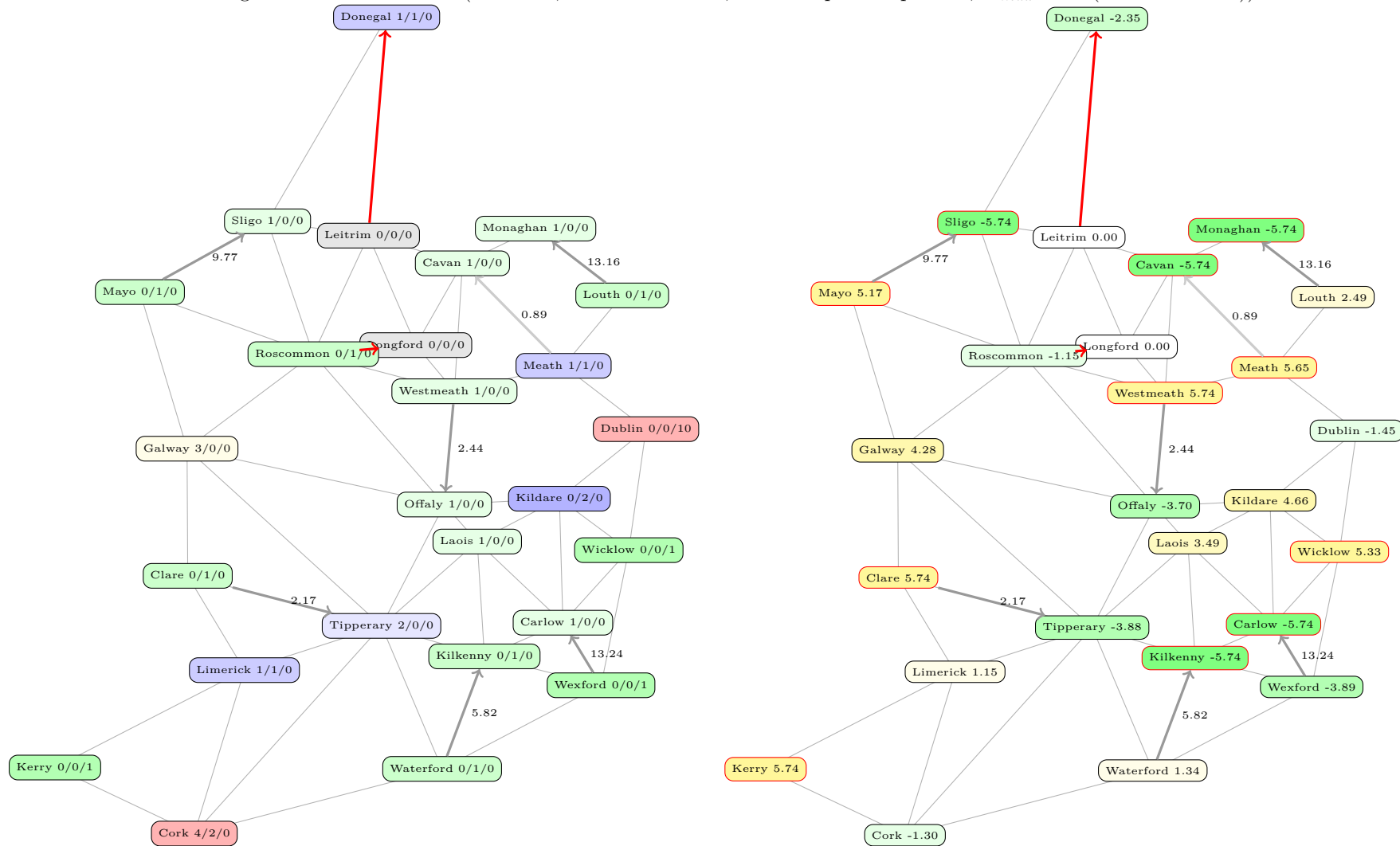
Table 75: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	21,708	83,676	1	1/0/0	3	27,892.00	-5.74
Cavan	81,704	2.76	0	1,972	83,676	1	1/0/0	3	27,892.00	-5.74
Clare	127,938	4.32	2,770	0	125,168	1	0/1/0	4	31,292.00	5.74
Cork	584,156	19.74	0	0	584,156	6	4/2/0	20	29,207.80	-1.30
Donegal	167,084	5.65	0	35,199	202,283	2	1/1/0	7	28,897.57	-2.35
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	7,408	111,568	1	0/1/0	4	27,892.00	-5.74
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	18,388	0	121,315	1	0/1/0	4	30,328.75	2.49
Mayo	137,970	4.66	13,478	0	124,492	1	0/1/0	4	31,123.00	5.17
Meath	220,826	7.46	1,972	0	218,854	2	1/1/0	7	31,264.86	5.65
Monaghan	65,288	2.21	0	18,388	83,676	1	1/0/0	3	27,892.00	-5.74
Offaly	83,150	2.81	0	2,345	85,495	1	1/0/0	3	28,498.33	-3.70
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	13,478	83,676	1	1/0/0	3	27,892.00	-5.74
Tipperary	167,895	5.67	0	2,770	170,665	2	2/0/0	6	28,444.17	-3.88
Waterford	127,363	4.30	7,408	0	119,955	1	0/1/0	4	29,988.75	1.34

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	2,345	0	93,876	1	1/0/0	3	31,292.00	5.74
Wexford	163,919	5.54	21,708	0	142,211	1	0/0/1	5	28,442.20	-3.89
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 76: 9 Transfers (Total 150019)

From	To	Volume	Percent of From
Longford	Roscommon	46,751	100.00
Louth	Monaghan	18,388	13.16
Meath	Cavan	1,972	0.89
Westmeath	Offaly	2,345	2.44
Wexford	Carlow	21,708	13.24
Clare	Tipperary	2,770	2.17
Waterford	Kilkenny	7,408	5.82
Leitrim	Donegal	35,199	100.00
Mayo	Sligo	13,478	9.77

Figure 26: Solution Sol25 (174 seats, 45 constituencies, 29630.22 persons per TD,  $\Delta_{max}$  1700 (5.74% of 29592))

### 3.26 Solution Sol26

Table 77: Solution 26

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol26	174	1,750	5.91	11.83	27,842.00	31,342.00	29,640.31	1,400,727.80	9	147,423	51	33/15/3	3.41	Optimal	0.73	9,147,423.00	0.0056

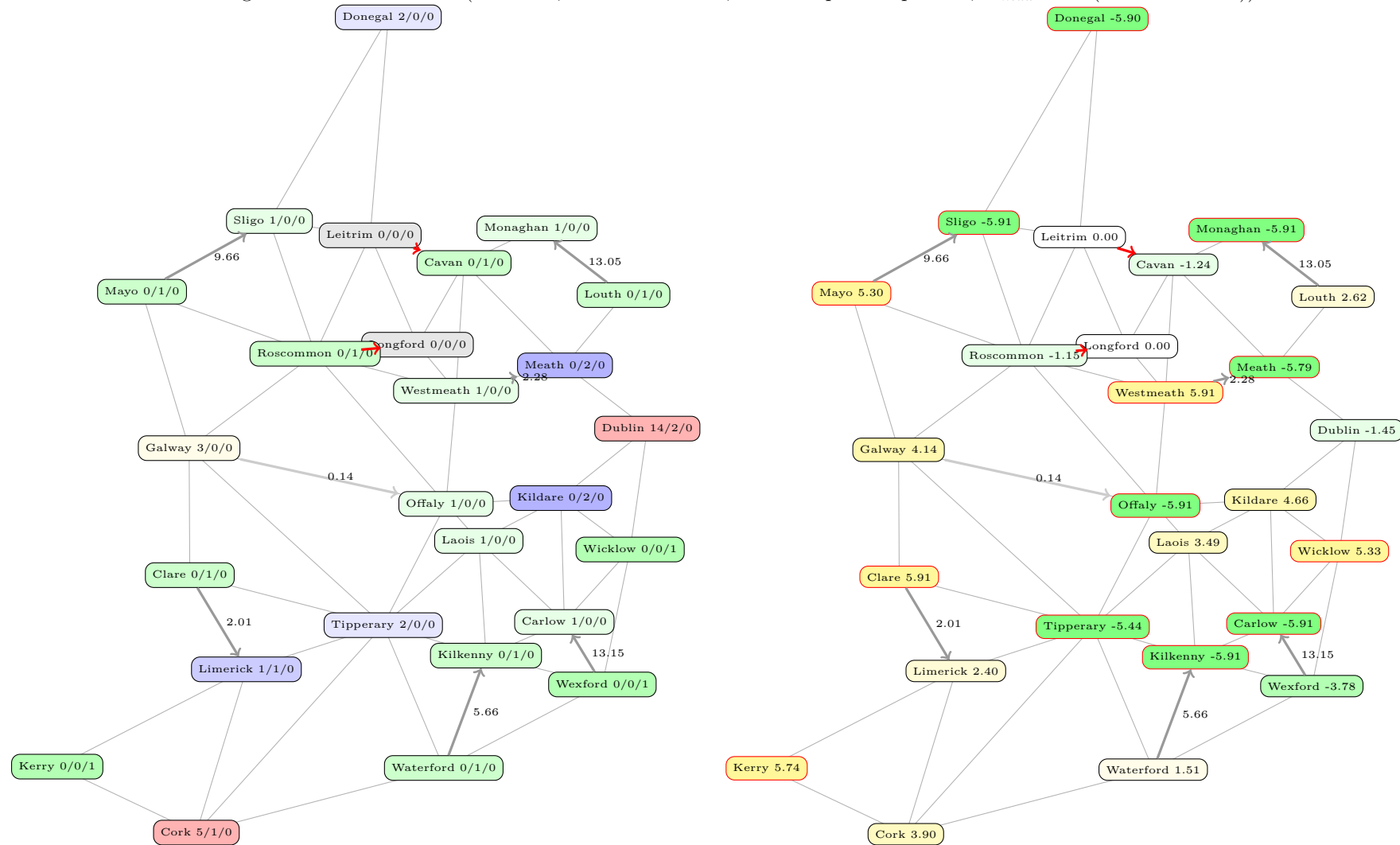
Table 78: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	21,558	83,526	1	1/0/0	3	27,842.00	-5.91
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	2,570	0	125,368	1	0/1/0	4	31,342.00	5.91
Cork	584,156	19.74	0	0	584,156	6	5/1/0	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	14/2/0	50	29,163.08	-1.45
Galway	277,737	9.39	376	0	277,361	3	3/0/0	9	30,817.89	4.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	7,208	111,368	1	0/1/0	4	27,842.00	-5.91
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	2,570	212,106	2	1/1/0	7	30,300.86	2.40
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	18,238	0	121,465	1	0/1/0	4	30,366.25	2.62
Mayo	137,970	4.66	13,328	0	124,642	1	0/1/0	4	31,160.50	5.30
Meath	220,826	7.46	0	2,195	223,021	2	0/2/0	8	27,877.63	-5.79
Monaghan	65,288	2.21	0	18,238	83,526	1	1/0/0	3	27,842.00	-5.91
Offaly	83,150	2.81	0	376	83,526	1	1/0/0	3	27,842.00	-5.91
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	13,328	83,526	1	1/0/0	3	27,842.00	-5.91
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	7,208	0	120,155	1	0/1/0	4	30,038.75	1.51

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	2,195	0	94,026	1	1/0/0	3	31,342.00	5.91
Wexford	163,919	5.54	21,558	0	142,361	1	0/0/1	5	28,472.20	-3.78
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 79: 9 Transfers (Total 147423)

From	To	Volume	Percent of From
Longford	Roscommon	46,751	100.00
Louth	Monaghan	18,238	13.05
Westmeath	Meath	2,195	2.28
Wexford	Carlow	21,558	13.15
Clare	Limerick	2,570	2.01
Waterford	Kilkenny	7,208	5.66
Galway	Offaly	376	0.14
Leitrim	Cavan	35,199	100.00
Mayo	Sligo	13,328	9.66

Figure 27: Solution Sol26 (174 seats, 51 constituencies, 29640.31 persons per TD,  $\Delta_{max}$  1750 (5.91% of 29592))

### 3.27 Solution Sol27

Table 80: Solution 27

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol27	174	1,800	6.08	12.17	27,792.00	31,392.00	29,644.21	1,507,658.59	9	145,762	52	39/8/5	3.35	Optimal	0.90	9,145,762.00	0.0051

Table 81: Counties

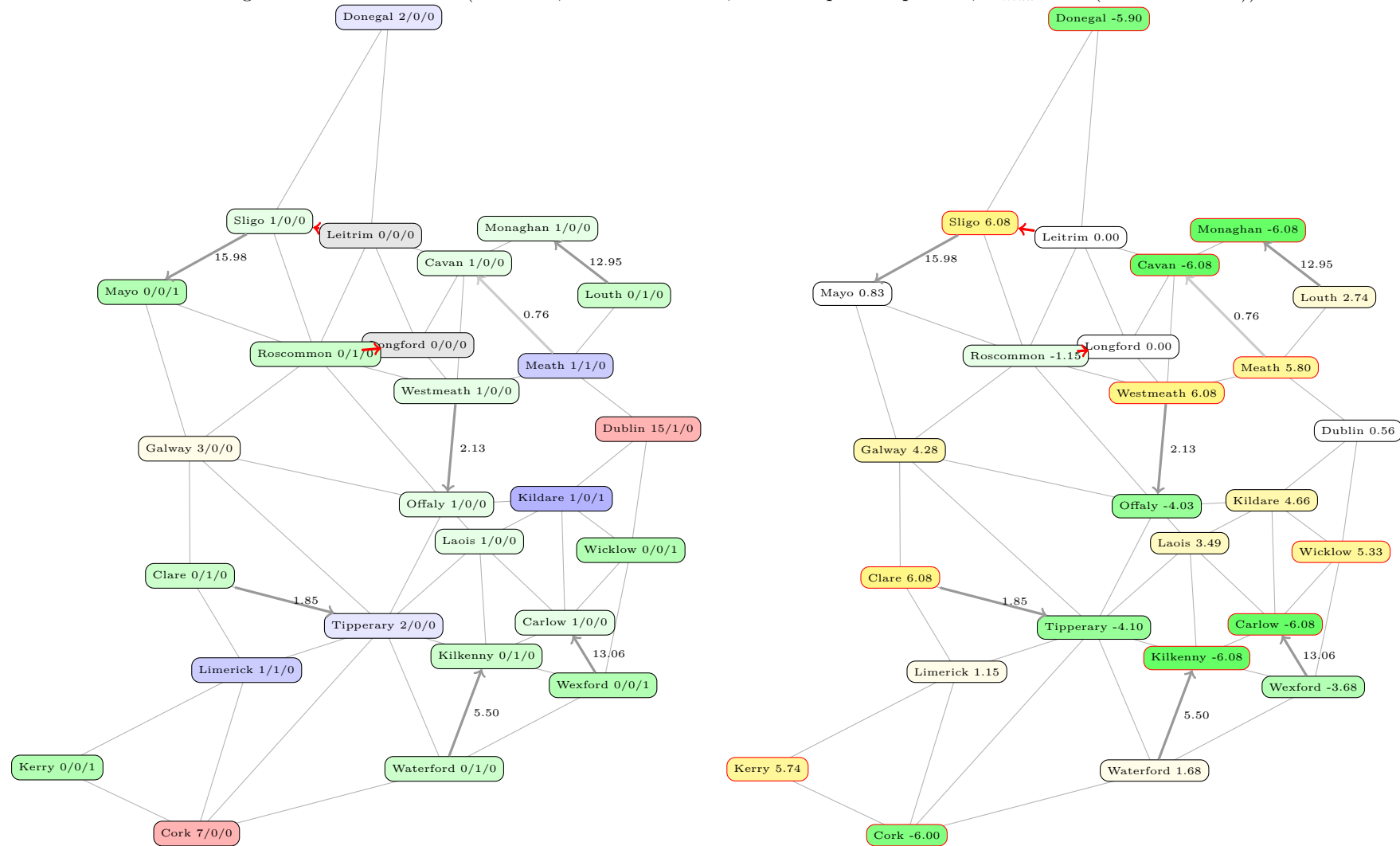
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	21,408	83,376	1	1/0/0	3	27,792.00	-6.08
Cavan	81,704	2.76	0	1,672	83,376	1	1/0/0	3	27,792.00	-6.08
Clare	127,938	4.32	2,370	0	125,568	1	0/1/0	4	31,392.00	6.08
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	7,008	111,168	1	0/1/0	4	27,792.00	-6.08
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	18,088	0	121,615	1	0/1/0	4	30,403.75	2.74
Mayo	137,970	4.66	0	11,221	149,191	1	0/0/1	5	29,838.20	0.83
Meath	220,826	7.46	1,672	0	219,154	2	1/1/0	7	31,307.71	5.80
Monaghan	65,288	2.21	0	18,088	83,376	1	1/0/0	3	27,792.00	-6.08
Offaly	83,150	2.81	0	2,045	85,195	1	1/0/0	3	28,398.33	-4.03
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	11,221	35,199	94,176	1	1/0/0	3	31,392.00	6.08
Tipperary	167,895	5.67	0	2,370	170,265	2	2/0/0	6	28,377.50	-4.10
Waterford	127,363	4.30	7,008	0	120,355	1	0/1/0	4	30,088.75	1.68



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	2,045	0	94,176	1	1/0/0	3	31,392.00	6.08
Wexford	163,919	5.54	21,408	0	142,511	1	0/0/1	5	28,502.20	-3.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 82: 9 Transfers (Total 145762)

From	To	Volume	Percent of From
Longford	Roscommon	46,751	100.00
Louth	Monaghan	18,088	12.95
Meath	Cavan	1,672	0.76
Westmeath	Offaly	2,045	2.13
Wexford	Carlow	21,408	13.06
Clare	Tipperary	2,370	1.85
Waterford	Kilkenny	7,008	5.50
Leitrim	Sligo	35,199	100.00
Sligo	Mayo	11,221	15.98

Figure 28: Solution Sol27 (174 seats, 52 constituencies, 29644.21 persons per TD,  $\Delta_{max}$  1800 (6.08% of 29592))

### 3.28 Solution Sol28

Table 83: Solution 28

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol28	174	1,850	6.25	12.50	27,742.00	31,442.00	29,646.93	1,585,379.40	9	144,612	52	38/10/4	3.35	Optimal	1.68	9,144,612.00	0.0000

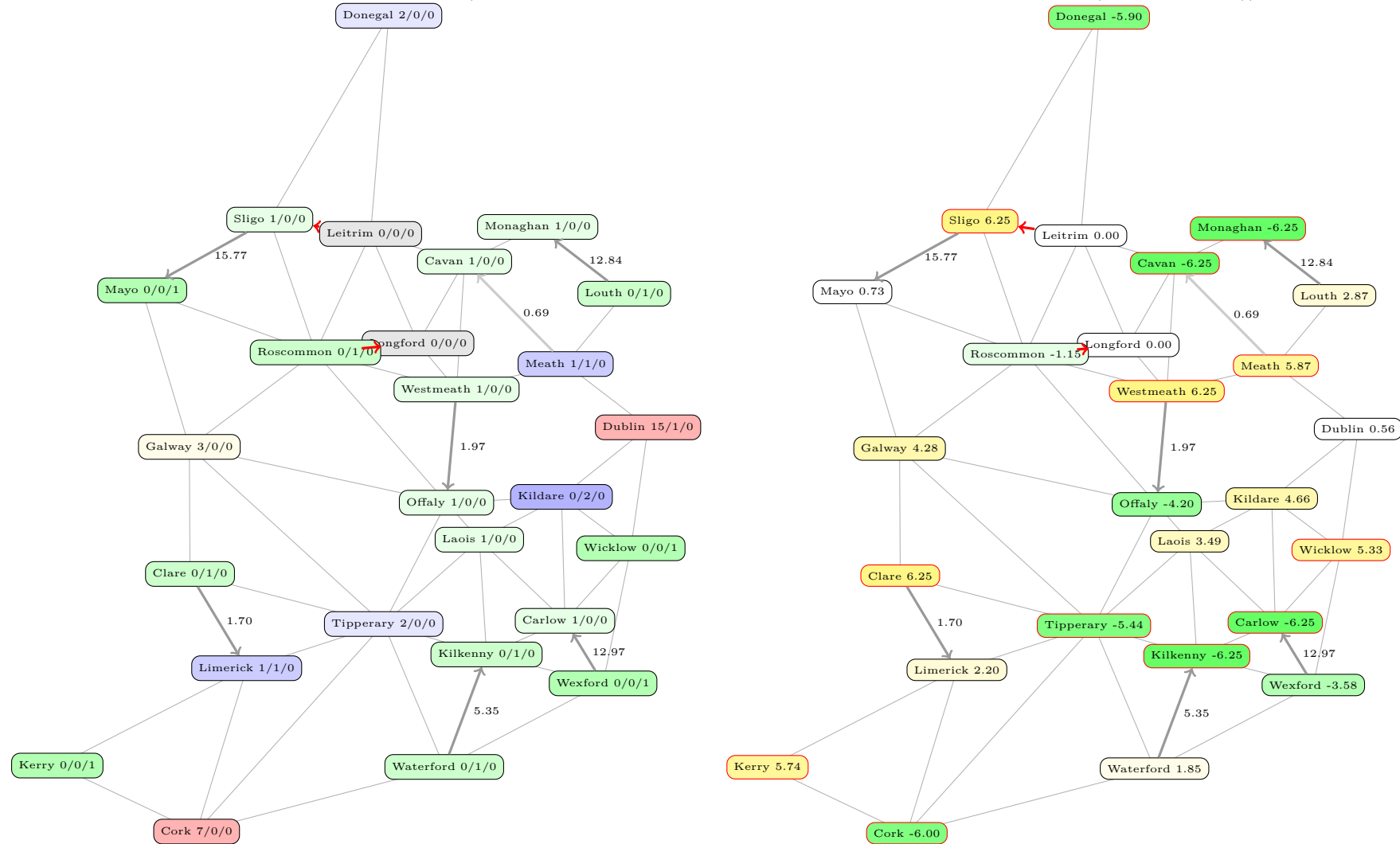
Table 84: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	21,258	83,226	1	1/0/0	3	27,742.00	-6.25
Cavan	81,704	2.76	0	1,522	83,226	1	1/0/0	3	27,742.00	-6.25
Clare	127,938	4.32	2,170	0	125,768	1	0/1/0	4	31,442.00	6.25
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	15/1/0	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	6,808	110,968	1	0/1/0	4	27,742.00	-6.25
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	2,170	211,706	2	1/1/0	7	30,243.71	2.20
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	17,938	0	121,765	1	0/1/0	4	30,441.25	2.87
Mayo	137,970	4.66	0	11,071	149,041	1	0/0/1	5	29,808.20	0.73
Meath	220,826	7.46	1,522	0	219,304	2	1/1/0	7	31,329.14	5.87
Monaghan	65,288	2.21	0	17,938	83,226	1	1/0/0	3	27,742.00	-6.25
Offaly	83,150	2.81	0	1,895	85,045	1	1/0/0	3	28,348.33	-4.20
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	11,071	35,199	94,326	1	1/0/0	3	31,442.00	6.25
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	6,808	0	120,555	1	0/1/0	4	30,138.75	1.85

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	1,895	0	94,326	1	1/0/0	3	31,442.00	6.25
Wexford	163,919	5.54	21,258	0	142,661	1	0/0/1	5	28,532.20	-3.58
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 85: 9 Transfers (Total 144612)

From	To	Volume	Percent of From
Longford	Roscommon	46,751	100.00
Louth	Monaghan	17,938	12.84
Meath	Cavan	1,522	0.69
Westmeath	Offaly	1,895	1.97
Wexford	Carlow	21,258	12.97
Clare	Limerick	2,170	1.70
Waterford	Kilkenny	6,808	5.35
Leitrim	Sligo	35,199	100.00
Sligo	Mayo	11,071	15.77

Figure 29: Solution Sol28 (174 seats, 52 constituencies, 29646.93 persons per TD,  $\Delta_{max}$  1850 (6.25% of 29592))

### 3.29 Solution Sol29

Table 86: Solution 29

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol29	174	1,900	6.42	12.84	27,692.00	31,492.00	29,653.84	1,776,785.85	8	144,047	52	37/12/3	3.35	Optimal	1.04	8,144,047.00	-0.0000

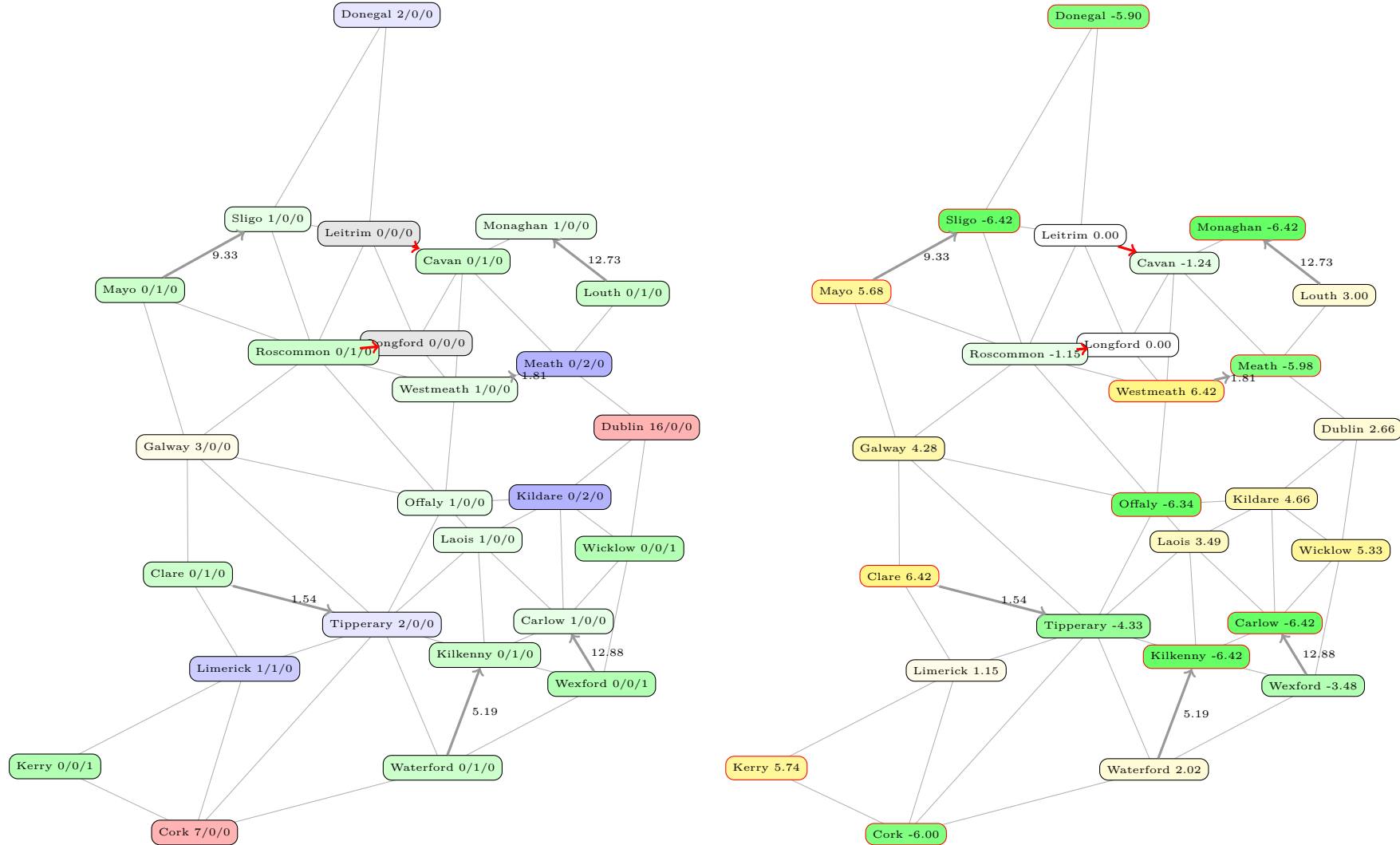
Table 87: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	21,108	83,076	1	1/0/0	3	27,692.00	-6.42
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	1,970	0	125,968	1	0/1/0	4	31,492.00	6.42
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	16/0/0	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	6,608	110,768	1	0/1/0	4	27,692.00	-6.42
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	17,788	0	121,915	1	0/1/0	4	30,478.75	3.00
Mayo	137,970	4.66	12,878	0	125,092	1	0/1/0	4	31,273.00	5.68
Meath	220,826	7.46	0	1,745	222,571	2	0/2/0	8	27,821.38	-5.98
Monaghan	65,288	2.21	0	17,788	83,076	1	1/0/0	3	27,692.00	-6.42
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	12,878	83,076	1	1/0/0	3	27,692.00	-6.42
Tipperary	167,895	5.67	0	1,970	169,865	2	2/0/0	6	28,310.83	-4.33
Waterford	127,363	4.30	6,608	0	120,755	1	0/1/0	4	30,188.75	2.02

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	1,745	0	94,476	1	1/0/0	3	31,492.00	6.42
Wexford	163,919	5.54	21,108	0	142,811	1	0/0/1	5	28,562.20	-3.48
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 88: 8 Transfers (Total 144047)

From	To	Volume	Percent of From
Longford	Roscommon	46,751	100.00
Louth	Monaghan	17,788	12.73
Westmeath	Meath	1,745	1.81
Wexford	Carlow	21,108	12.88
Clare	Tipperary	1,970	1.54
Waterford	Kilkenny	6,608	5.19
Leitrim	Cavan	35,199	100.00
Mayo	Sligo	12,878	9.33

Figure 30: Solution Sol29 (174 seats, 52 constituencies, 29653.84 persons per TD,  $\Delta_{max}$  1900 (6.42% of 29592))



### 3.30 Solution Sol30

Table 89: Solution 30

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol30	174	1,950	6.59	13.18	27,642.00	31,542.00	29,659.55	1,942,692.02	8	138,572	53	41/9/3	3.28	Optimal	1.40	8,138,572.00	0.0000

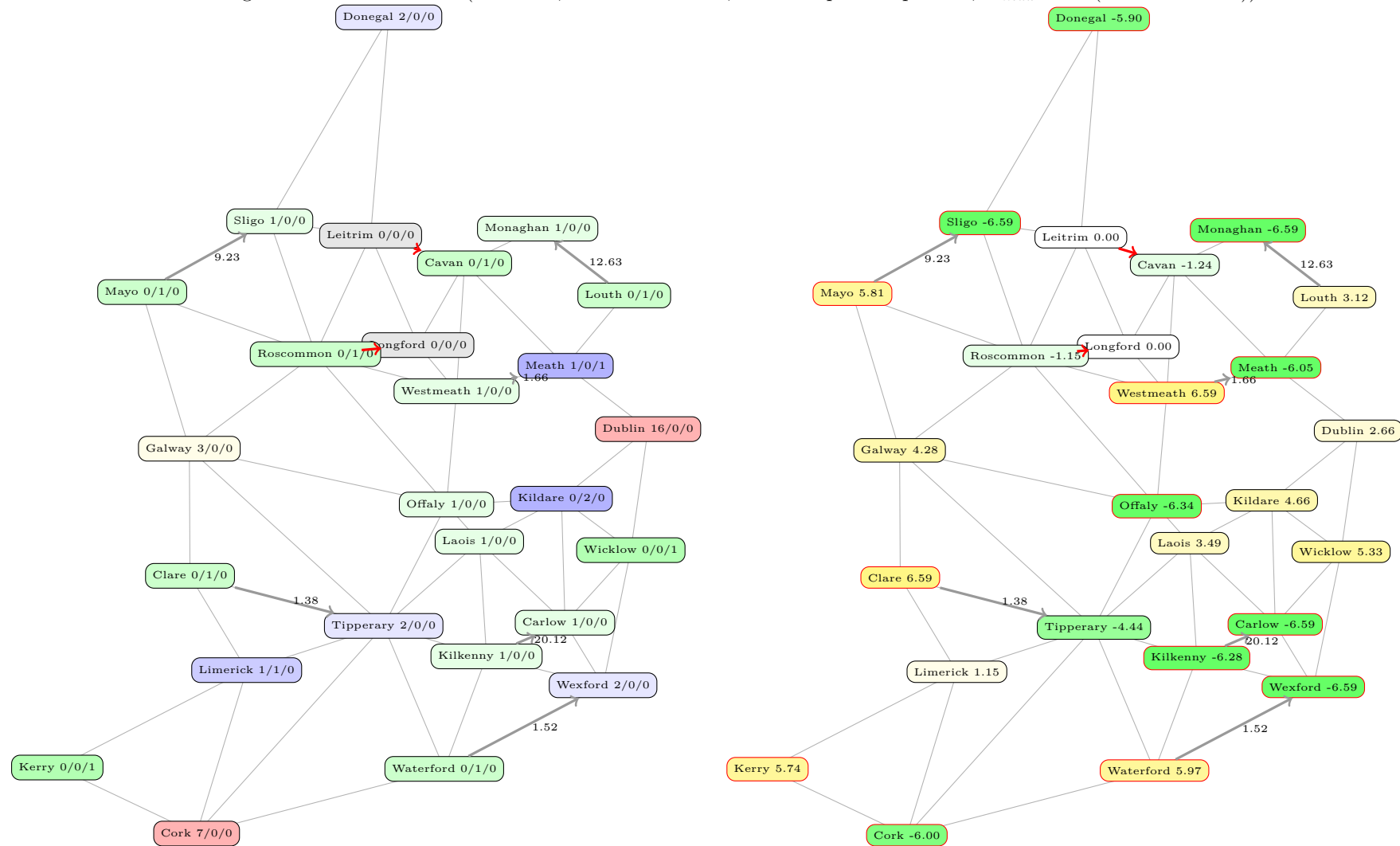
Table 90: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	20,958	82,926	1	1/0/0	3	27,642.00	-6.59
Cavan	81,704	2.76	0	35,199	116,903	1	0/1/0	4	29,225.75	-1.24
Clare	127,938	4.32	1,770	0	126,168	1	0/1/0	4	31,542.00	6.59
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	16/0/0	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	20,958	0	83,202	1	1/0/0	3	27,734.00	-6.28
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	17,638	0	122,065	1	0/1/0	4	30,516.25	3.12
Mayo	137,970	4.66	12,728	0	125,242	1	0/1/0	4	31,310.50	5.81
Meath	220,826	7.46	0	1,595	222,421	2	1/0/1	8	27,802.63	-6.05
Monaghan	65,288	2.21	0	17,638	82,926	1	1/0/0	3	27,642.00	-6.59
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	46,751	117,010	1	0/1/0	4	29,252.50	-1.15
Sligo	70,198	2.37	0	12,728	82,926	1	1/0/0	3	27,642.00	-6.59
Tipperary	167,895	5.67	0	1,770	169,665	2	2/0/0	6	28,277.50	-4.44
Waterford	127,363	4.30	1,933	0	125,430	1	0/1/0	4	31,357.50	5.97

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	1,595	0	94,626	1	1/0/0	3	31,542.00	6.59
Wexford	163,919	5.54	0	1,933	165,852	2	2/0/0	6	27,642.00	-6.59
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 91: 8 Transfers (Total 138572)

From	To	Volume	Percent of From
Kilkenny	Carlow	20,958	20.12
Longford	Roscommon	46,751	100.00
Louth	Monaghan	17,638	12.63
Westmeath	Meath	1,595	1.66
Clare	Tipperary	1,770	1.38
Waterford	Wexford	1,933	1.52
Leitrim	Cavan	35,199	100.00
Mayo	Sligo	12,728	9.23

Figure 31: Solution Sol30 (174 seats, 53 constituencies, 29659.55 persons per TD,  $\Delta_{max}$  1950 (6.59% of 29592))

### 3.31 Solution Sol31

Table 92: Solution 31

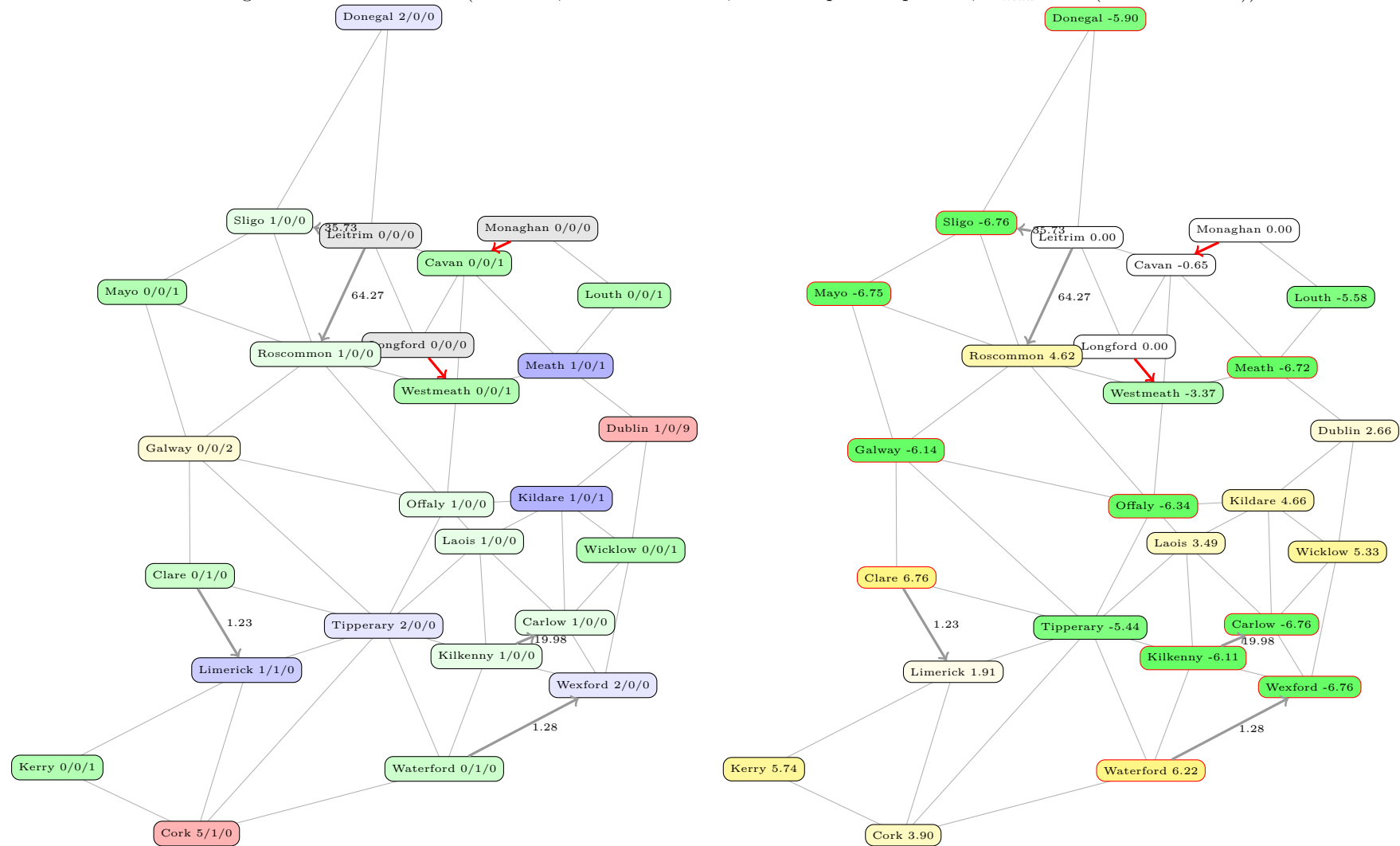
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol31	174	2,000	6.76	13.52	27,592.00	31,592.00	29,659.42	1,930,694.01	7	171,249	44	21/4/19	3.95	Optimal	0.49	7,171,249.00	0.0089

Table 93: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	20,808	82,776	1	1/0/0	3	27,592.00	-6.76
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	1,570	0	126,368	1	0/1/0	4	31,592.00	6.76
Cork	584,156	19.74	0	0	584,156	6	5/1/0	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	1/0/9	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	20,808	0	83,352	1	1/0/0	3	27,784.00	-6.11
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	1,570	211,106	2	1/1/0	7	30,158.00	1.91
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	22,621	92,880	1	1/0/0	3	30,960.00	4.62
Sligo	70,198	2.37	0	12,578	82,776	1	1/0/0	3	27,592.00	-6.76
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	1,633	0	125,730	1	0/1/0	4	31,432.50	6.22

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	46,751	142,972	1	0/0/1	5	28,594.40	-3.37
Wexford	163,919	5.54	0	1,633	165,552	2	2/0/0	6	27,592.00	-6.76
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 94: 7 Transfers (Total 171249)			
From	To	Volume	Percent of From
Kilkenny	Carlow	20,808	19.98
Longford	Westmeath	46,751	100.00
Clare	Limerick	1,570	1.23
Waterford	Wexford	1,633	1.28
Leitrim	Roscommon	22,621	64.27
Leitrim	Sligo	12,578	35.73
Monaghan	Cavan	65,288	100.00

Figure 32: Solution Sol31 (174 seats, 44 constituencies, 29659.42 persons per TD,  $\Delta_{max}$  2000 (6.76% of 29592))

### 3.32 Solution Sol32

Table 95: Solution 32

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol32	174	2,050	6.93	13.86	27,542.00	31,642.00	29,659.18	1,925,118.37	7	170,599	44	20/6/18	3.95	Optimal	0.44	7,170,599.00	0.0000

Table 96: Counties

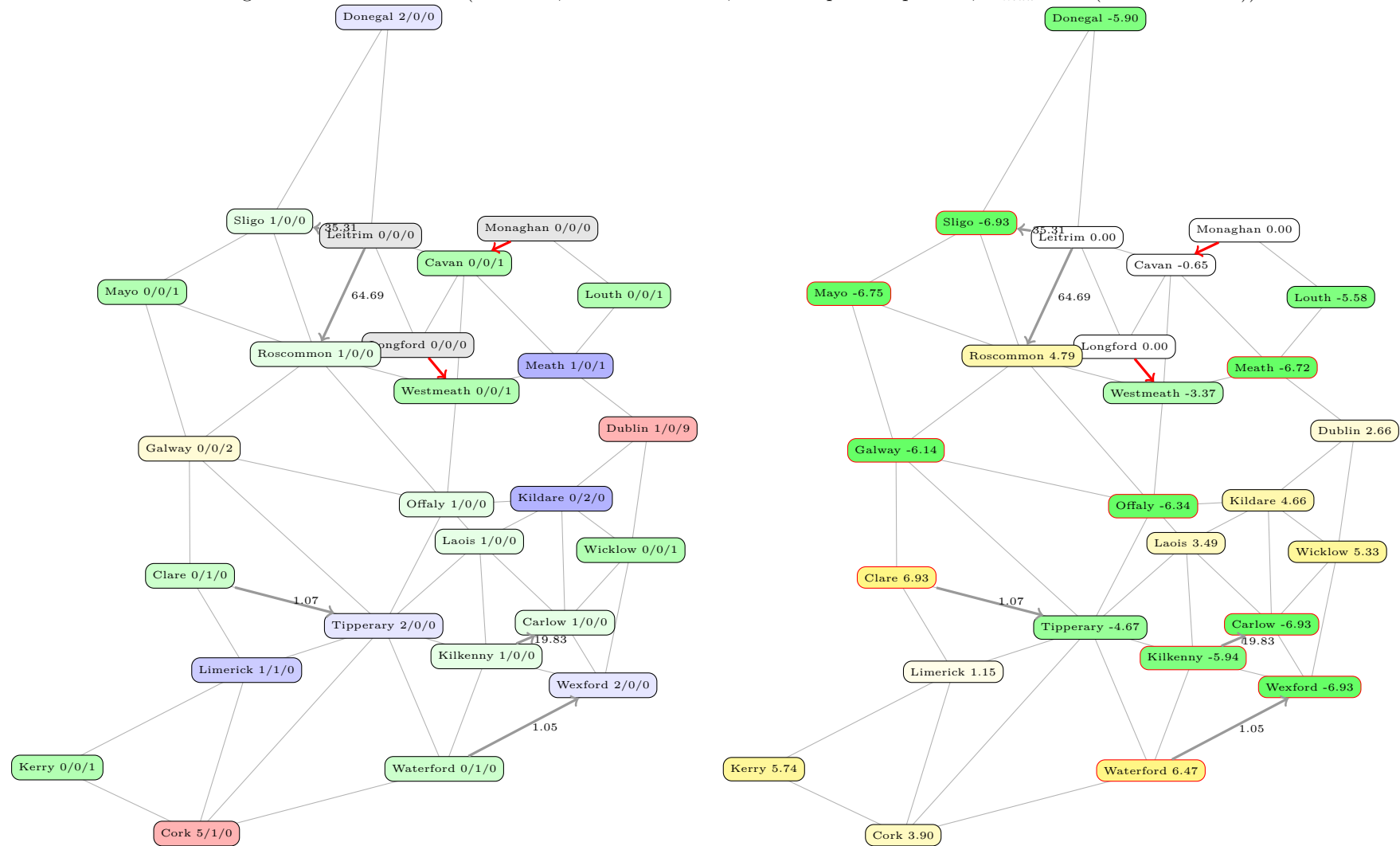
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	20,658	82,626	1	1/0/0	3	27,542.00	-6.93
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	1,370	0	126,568	1	0/1/0	4	31,642.00	6.93
Cork	584,156	19.74	0	0	584,156	6	5/1/0	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	1/0/9	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	20,658	0	83,502	1	1/0/0	3	27,834.00	-5.94
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	22,771	93,030	1	1/0/0	3	31,010.00	4.79
Sligo	70,198	2.37	0	12,428	82,626	1	1/0/0	3	27,542.00	-6.93
Tipperary	167,895	5.67	0	1,370	169,265	2	2/0/0	6	28,210.83	-4.67
Waterford	127,363	4.30	1,333	0	126,030	1	0/1/0	4	31,507.50	6.47

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	46,751	142,972	1	0/0/1	5	28,594.40	-3.37
Wexford	163,919	5.54	0	1,333	165,252	2	2/0/0	6	27,542.00	-6.93
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 97: 7 Transfers (Total 170599)

From	To	Volume	Percent of From
Kilkenny	Carlow	20,658	19.83
Longford	Westmeath	46,751	100.00
Clare	Tipperary	1,370	1.07
Waterford	Wexford	1,333	1.05
Leitrim	Roscommon	22,771	64.69
Leitrim	Sligo	12,428	35.31
Monaghan	Cavan	65,288	100.00



Figure 33: Solution Sol32 (174 seats, 44 constituencies, 29659.18 persons per TD,  $\Delta_{max}$  2050 (6.93% of 29592))

### 3.33 Solution Sol33

Table 98: Solution 33

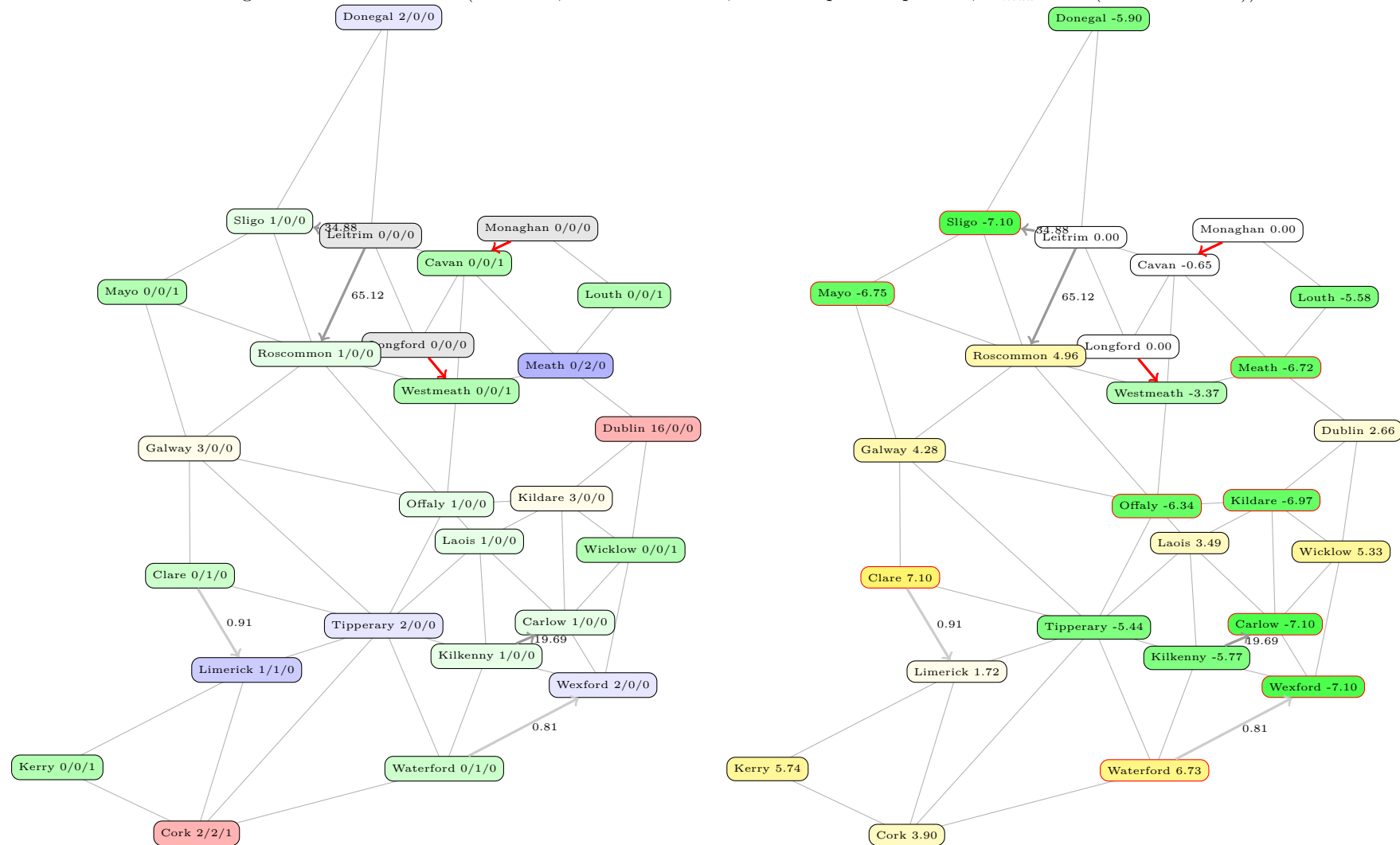
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol33	174	2,100	7.10	14.19	27,492.00	31,692.00	29,661.88	1,999,020.98	7	169,949	51	37/7/7	3.41	Optimal	1.68	7,169,949.00	0.0000

Table 99: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	20,508	82,476	1	1/0/0	3	27,492.00	-7.10
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	1,170	0	126,768	1	0/1/0	4	31,692.00	7.10
Cork	584,156	19.74	0	0	584,156	5	2/2/1	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	16/0/0	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	3	3/0/0	9	27,530.44	-6.97
Kilkenny	104,160	3.52	20,508	0	83,652	1	1/0/0	3	27,884.00	-5.77
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	1,170	210,706	2	1/1/0	7	30,100.86	1.72
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	22,921	93,180	1	1/0/0	3	31,060.00	4.96
Sligo	70,198	2.37	0	12,278	82,476	1	1/0/0	3	27,492.00	-7.10
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	1,033	0	126,330	1	0/1/0	4	31,582.50	6.73

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	46,751	142,972	1	0/0/1	5	28,594.40	-3.37
Wexford	163,919	5.54	0	1,033	164,952	2	2/0/0	6	27,492.00	-7.10
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 100: 7 Transfers (Total 169949)			
From	To	Volume	Percent of From
Kilkenny	Carlow	20,508	19.69
Longford	Westmeath	46,751	100.00
Clare	Limerick	1,170	0.91
Waterford	Wexford	1,033	0.81
Leitrim	Roscommon	22,921	65.12
Leitrim	Sligo	12,278	34.88
Monaghan	Cavan	65,288	100.00

Figure 34: Solution Sol33 (174 seats, 51 constituencies, 29661.88 persons per TD,  $\Delta_{max}$  2100 (7.10% of 29592))

### 3.34 Solution Sol34

Table 101: Solution 34

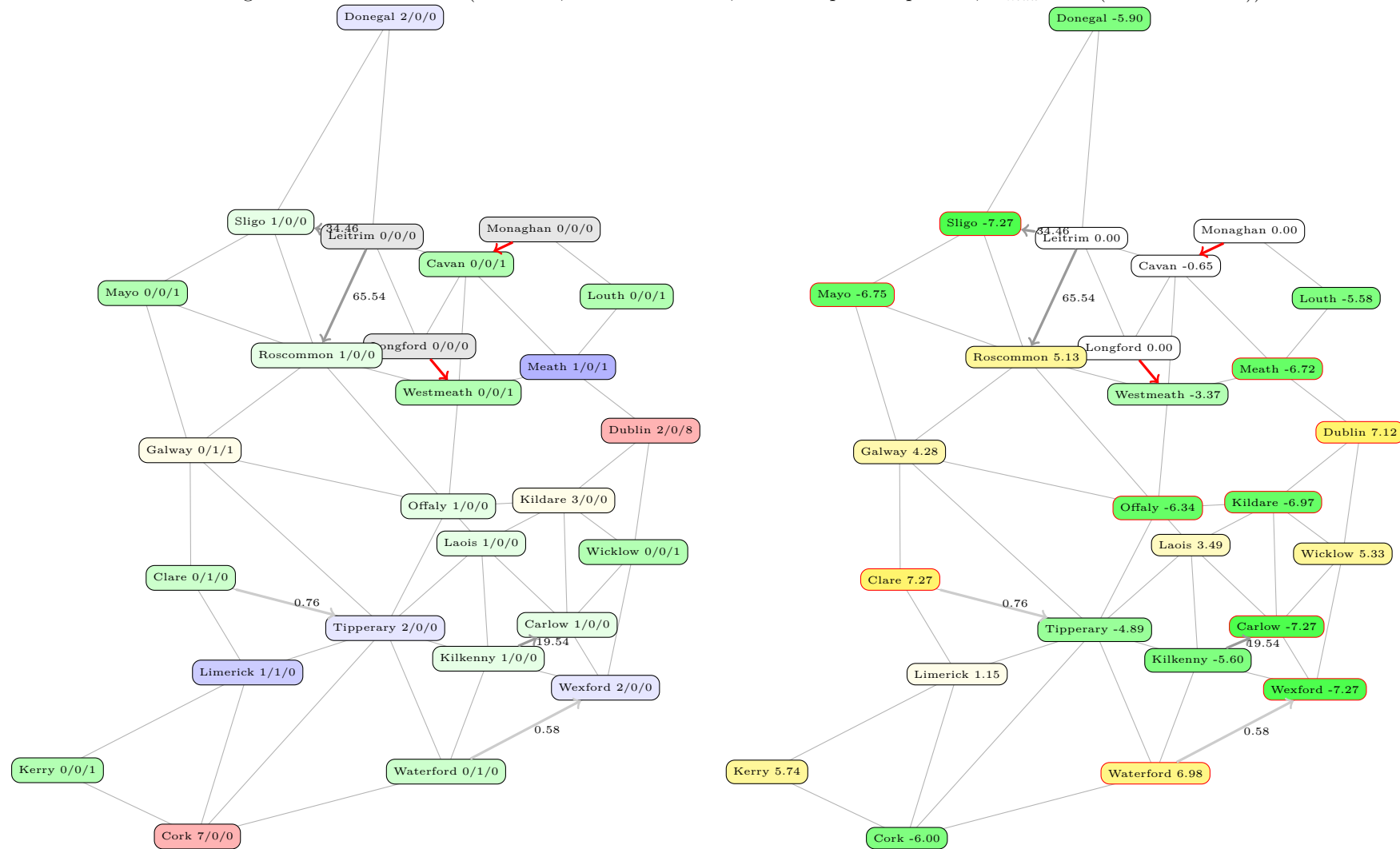
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol34	174	2,150	7.27	14.53	27,442.00	31,742.00	29,703.84	3,284,901.03	7	169,299	46	26/4/16	3.78	Optimal	1.28	7,169,299.00	0.0047

Table 102: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	20,358	82,326	1	1/0/0	3	27,442.00	-7.27
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	970	0	126,968	1	0/1/0	4	31,742.00	7.27
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	2/0/8	46	31,699.00	7.12
Galway	277,737	9.39	0	0	277,737	2	0/1/1	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	3	3/0/0	9	27,530.44	-6.97
Kilkenny	104,160	3.52	20,358	0	83,802	1	1/0/0	3	27,934.00	-5.60
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	23,071	93,330	1	1/0/0	3	31,110.00	5.13
Sligo	70,198	2.37	0	12,128	82,326	1	1/0/0	3	27,442.00	-7.27
Tipperary	167,895	5.67	0	970	168,865	2	2/0/0	6	28,144.17	-4.89
Waterford	127,363	4.30	733	0	126,630	1	0/1/0	4	31,657.50	6.98

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	46,751	142,972	1	0/0/1	5	28,594.40	-3.37
Wexford	163,919	5.54	0	733	164,652	2	2/0/0	6	27,442.00	-7.27
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 103: 7 Transfers (Total 169299)			
From	To	Volume	Percent of From
Kilkenny	Carlow	20,358	19.54
Longford	Westmeath	46,751	100.00
Clare	Tipperary	970	0.76
Waterford	Wexford	733	0.58
Leitrim	Roscommon	23,071	65.54
Leitrim	Sligo	12,128	34.46
Monaghan	Cavan	65,288	100.00

Figure 35: Solution Sol34 (174 seats, 46 constituencies, 29703.84 persons per TD,  $\Delta_{max}$  2150 (7.27% of 29592))

### 3.35 Solution Sol35

Table 104: Solution 35

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol35	174	2,200	7.43	14.87	27,392.00	31,792.00	29,666.40	2,146,349.23	7	168,649	51	38/5/8	3.41	Optimal	0.81	7,168,649.00	0.0049

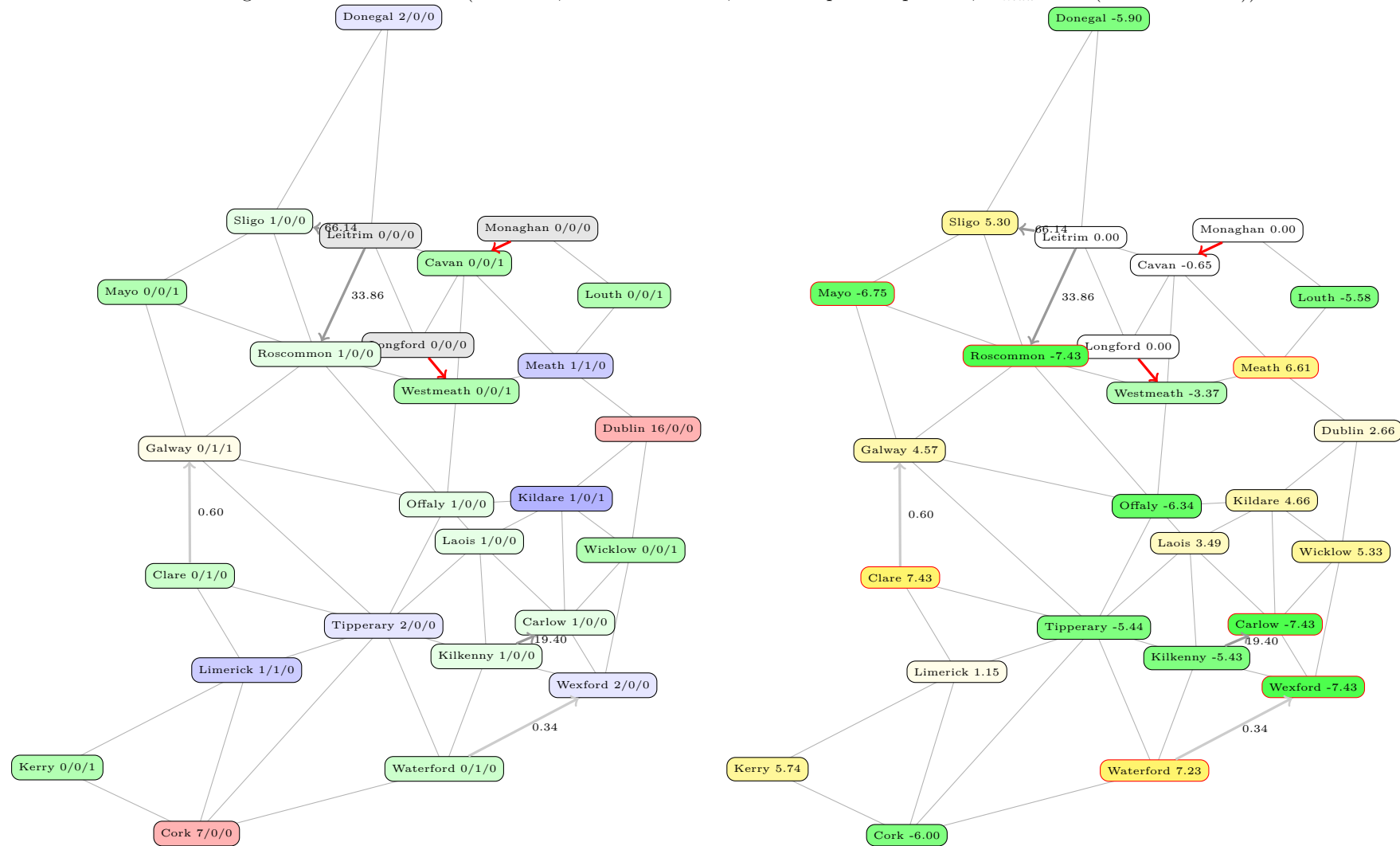
Table 105: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	20,208	82,176	1	1/0/0	3	27,392.00	-7.43
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	770	0	127,168	1	0/1/0	4	31,792.00	7.43
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	16	16/0/0	48	30,378.21	2.66
Galway	277,737	9.39	0	770	278,507	2	0/1/1	9	30,945.22	4.57
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	20,208	0	83,952	1	1/0/0	3	27,984.00	-5.43
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/1/0	7	31,546.57	6.61
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	11,917	82,176	1	1/0/0	3	27,392.00	-7.43
Sligo	70,198	2.37	0	23,282	93,480	1	1/0/0	3	31,160.00	5.30
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	433	0	126,930	1	0/1/0	4	31,732.50	7.23



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	46,751	142,972	1	0/0/1	5	28,594.40	-3.37
Wexford	163,919	5.54	0	433	164,352	2	2/0/0	6	27,392.00	-7.43
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 106: 7 Transfers (Total 168649)			
From	To	Volume	Percent of From
Kilkenny	Carlow	20,208	19.40
Longford	Westmeath	46,751	100.00
Clare	Galway	770	0.60
Waterford	Wexford	433	0.34
Leitrim	Roscommon	11,917	33.86
Leitrim	Sligo	23,282	66.14
Monaghan	Cavan	65,288	100.00

Figure 36: Solution Sol35 (174 seats, 51 constituencies, 29666.40 persons per TD,  $\Delta_{max}$  2200 (7.43% of 29592))

### 3.36 Solution Sol36

Table 107: Solution 36

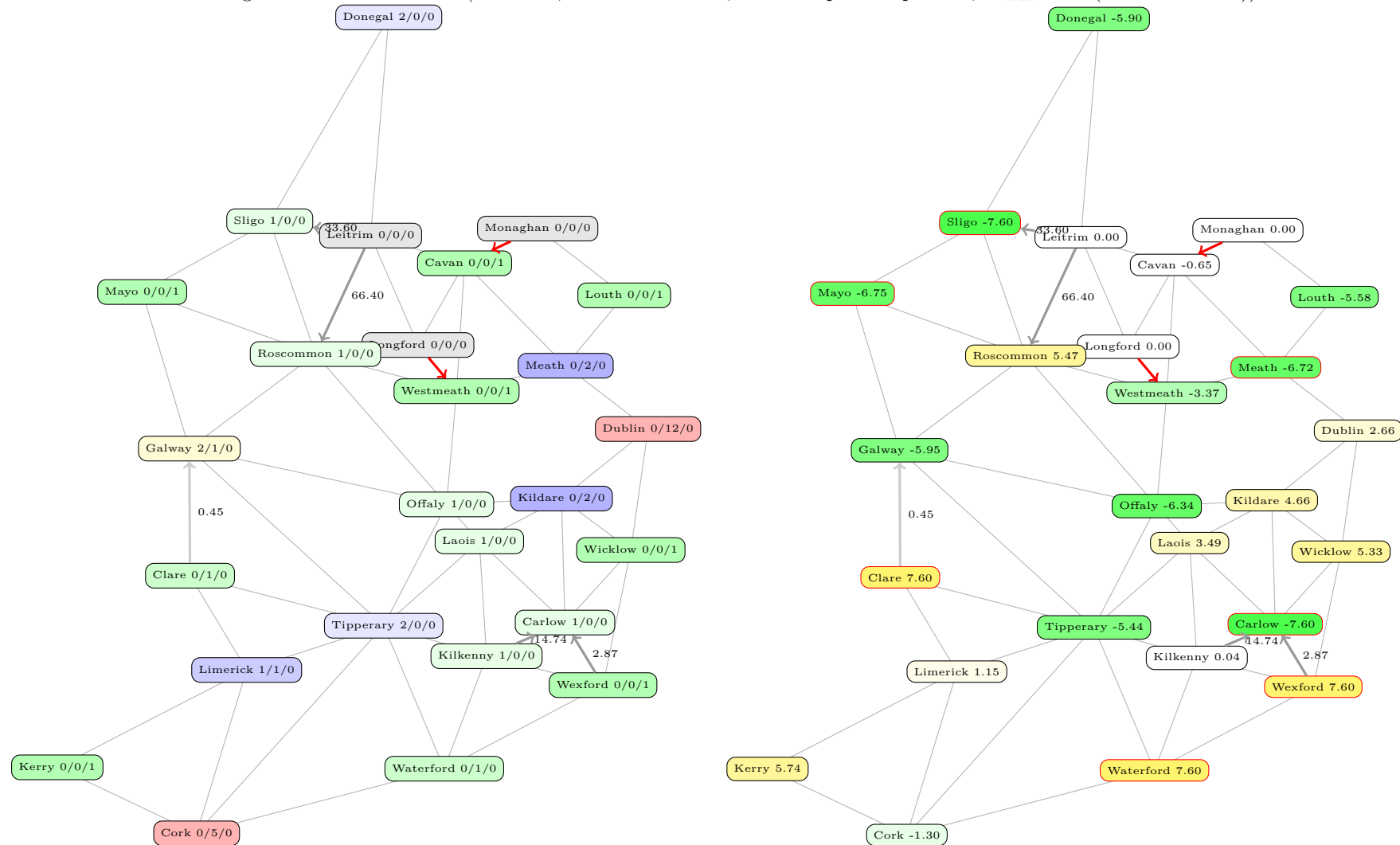
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol36	174	2,250	7.60	15.21	27,342.00	31,842.00	29,656.56	1,868,913.15	7	167,866	45	13/25/7	3.87	Optimal	1.20	7,167,866.00	0.0000

Table 108: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	20,058	82,026	1	1/0/0	3	27,342.00	-7.60
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	570	0	127,368	1	0/1/0	4	31,842.00	7.60
Cork	584,156	19.74	0	0	584,156	5	0/5/0	20	29,207.80	-1.30
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	12	0/12/0	48	30,378.21	2.66
Galway	277,737	9.39	0	570	278,307	3	2/1/0	10	27,830.70	-5.95
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	15,349	0	88,811	1	1/0/0	3	29,603.67	0.04
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	23,371	93,630	1	1/0/0	3	31,210.00	5.47
Sligo	70,198	2.37	0	11,828	82,026	1	1/0/0	3	27,342.00	-7.60
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	46,751	142,972	1	0/0/1	5	28,594.40	-3.37
Wexford	163,919	5.54	4,709	0	159,210	1	0/0/1	5	31,842.00	7.60
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 109: 7 Transfers (Total 167866)			
From	To	Volume	Percent of From
Kilkenny	Carlow	15,349	14.74
Longford	Westmeath	46,751	100.00
Wexford	Carlow	4,709	2.87
Clare	Galway	570	0.45
Leitrim	Roscommon	23,371	66.40
Leitrim	Sligo	11,828	33.60
Monaghan	Cavan	65,288	100.00

Figure 37: Solution Sol36 (174 seats, 45 constituencies, 29656.56 persons per TD,  $\Delta_{max}$  2250 (7.60% of 29592))

### 3.37 Solution Sol37

Table 110: Solution 37

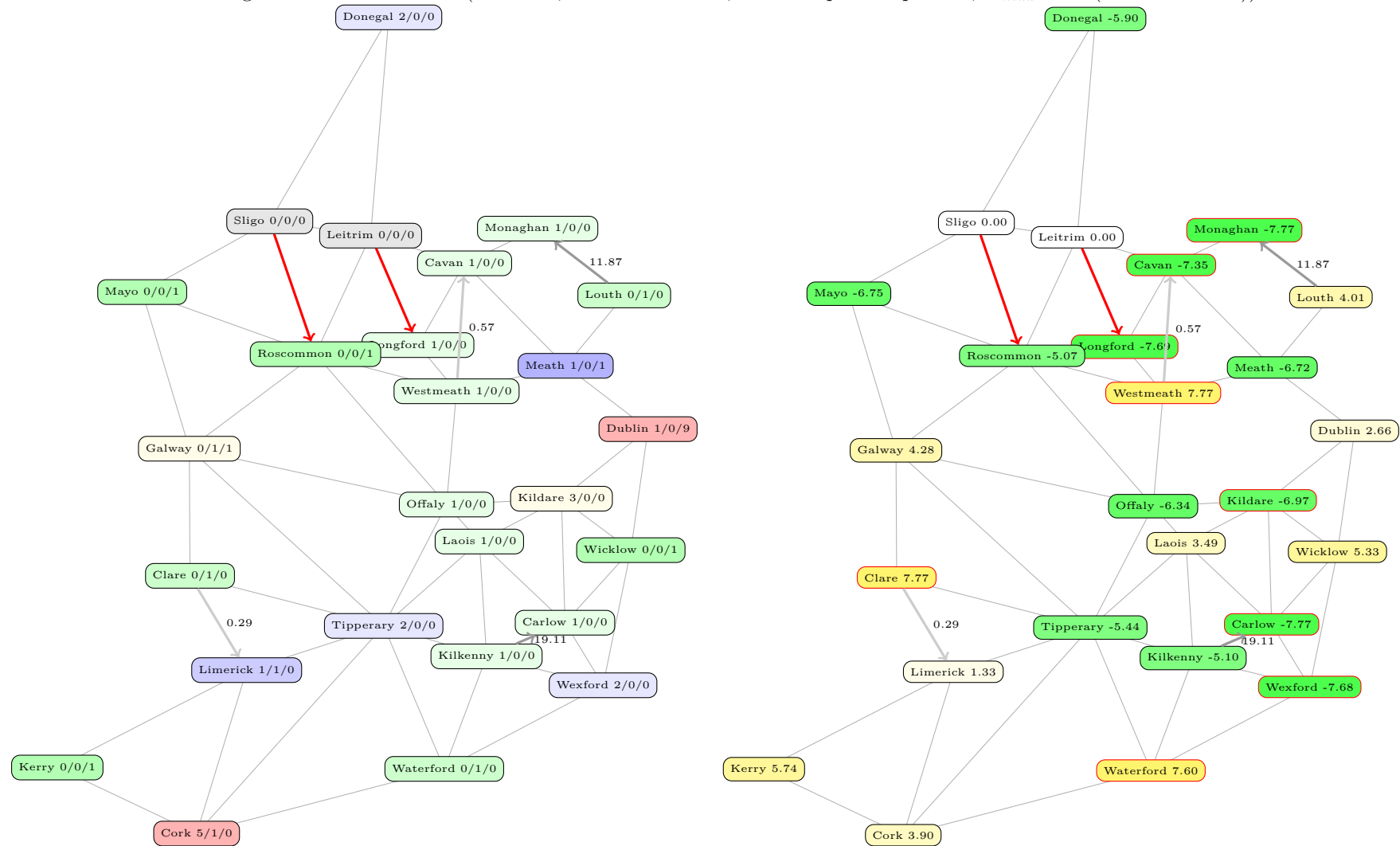
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol37	174	2,300	7.77	15.54	27,292.00	31,892.00	29,672.03	2,293,168.82	6	142,808	46	25/6/15	3.78	Optimal	0.96	6,142,808.00	0.0060

Table 111: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	19,908	81,876	1	1/0/0	3	27,292.00	-7.77
Cavan	81,704	2.76	0	545	82,249	1	1/0/0	3	27,416.33	-7.35
Clare	127,938	4.32	370	0	127,568	1	0/1/0	4	31,892.00	7.77
Cork	584,156	19.74	0	0	584,156	6	5/1/0	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	1/0/9	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/1/1	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	3	3/0/0	9	27,530.44	-6.97
Kilkenny	104,160	3.52	19,908	0	84,252	1	1/0/0	3	28,084.00	-5.10
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	370	209,906	2	1/1/0	7	29,986.57	1.33
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	16,588	0	123,115	1	0/1/0	4	30,778.75	4.01
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	16,588	81,876	1	1/0/0	3	27,292.00	-7.77
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	545	0	95,676	1	1/0/0	3	31,892.00	7.77
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 112: 6 Transfers (Total 142808)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,908	19.11
Louth	Monaghan	16,588	11.87
Westmeath	Cavan	545	0.57
Clare	Limerick	370	0.29
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 38: Solution Sol37 (174 seats, 46 constituencies, 29672.03 persons per TD,  $\Delta_{max}$  2300 (7.77% of 29592))



### 3.38 Solution Sol38

Table 113: Solution 38

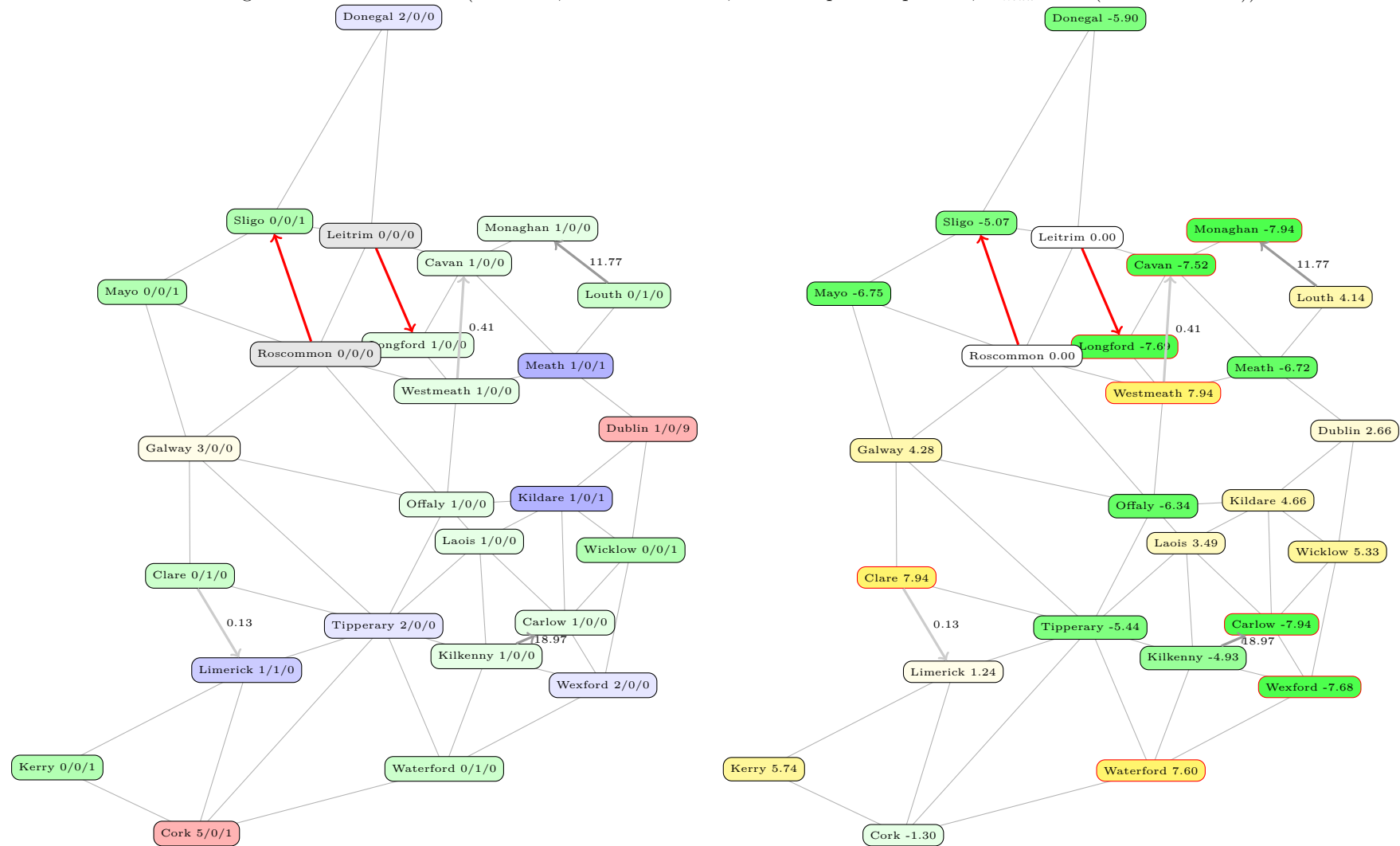
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol38	174	2,350	7.94	15.88	27,242.00	31,942.00	29,663.90	2,067,264.31	6	142,219	46	26/4/16	3.78	Optimal	0.52	6,142,219.00	0.0088

Table 114: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	19,758	81,726	1	1/0/0	3	27,242.00	-7.94
Cavan	81,704	2.76	0	395	82,099	1	1/0/0	3	27,366.33	-7.52
Clare	127,938	4.32	170	0	127,768	1	0/1/0	4	31,942.00	7.94
Cork	584,156	19.74	0	0	584,156	6	5/0/1	20	29,207.80	-1.30
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	1/0/9	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	19,758	0	84,402	1	1/0/0	3	28,134.00	-4.93
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	170	209,706	2	1/1/0	7	29,958.00	1.24
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	16,438	0	123,265	1	0/1/0	4	30,816.25	4.14
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	16,438	81,726	1	1/0/0	3	27,242.00	-7.94
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	70,259	0	0	0	0/0/0	0	0.00	0.00
Sligo	70,198	2.37	0	70,259	140,457	1	0/0/1	5	28,091.40	-5.07
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	395	0	95,826	1	1/0/0	3	31,942.00	7.94
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 115: 6 Transfers (Total 142219)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,758	18.97
Louth	Monaghan	16,438	11.77
Westmeath	Cavan	395	0.41
Clare	Limerick	170	0.13
Leitrim	Longford	35,199	100.00
Roscommon	Sligo	70,259	100.00

Figure 39: Solution Sol38 (174 seats, 46 constituencies, 29663.90 persons per TD,  $\Delta_{max}$  2350 (7.94% of 29592))

### 3.39 Solution Sol39

Table 116: Solution 39

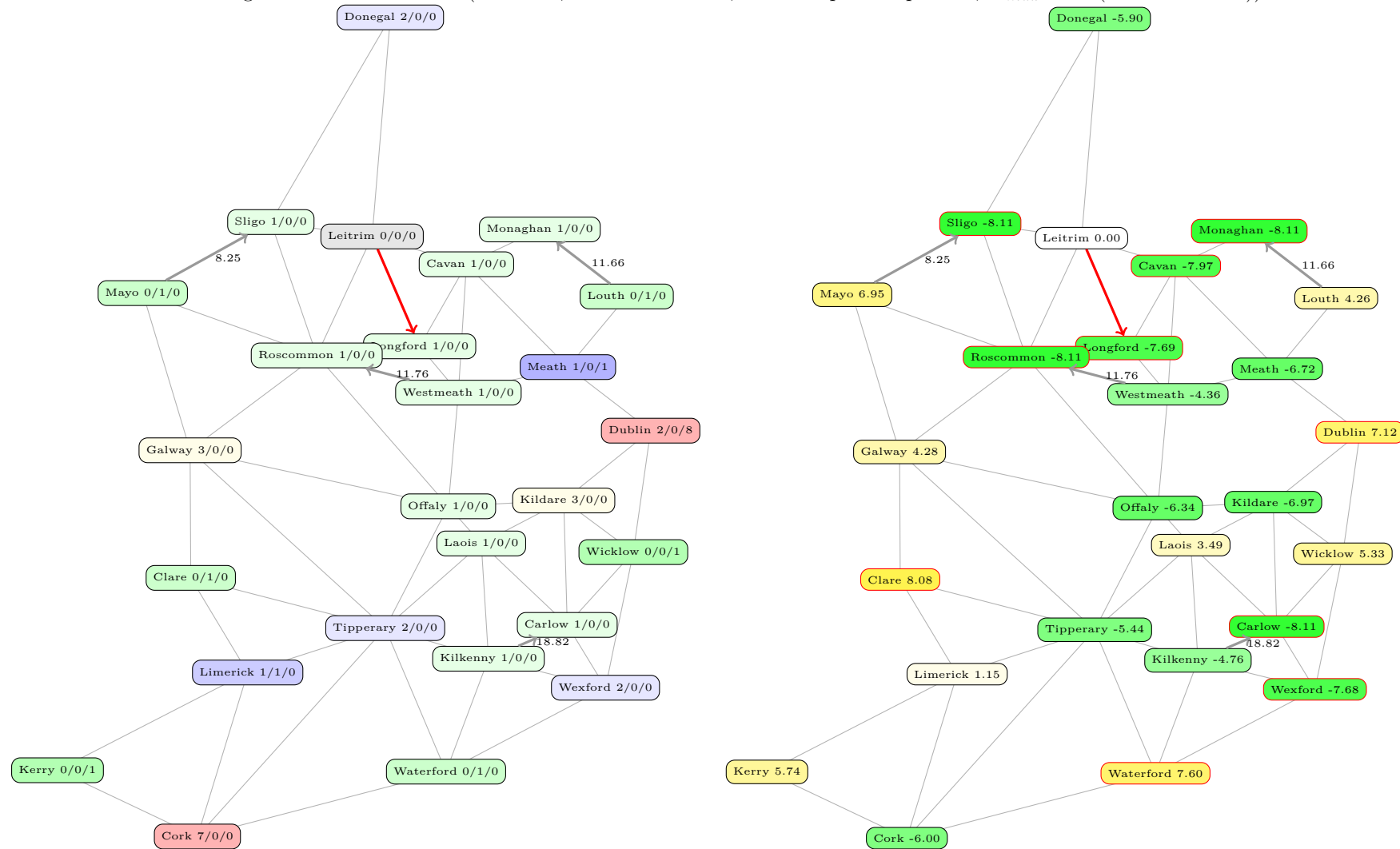
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol39	174	2,400	8.11	16.20	27,192.00	31,984.50	29,716.98	3,656,166.69	5	93,790	49	33/5/11	3.55	Optimal	0.88	5,093,790.00	0.0070

Table 117: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	19,608	81,576	1	1/0/0	3	27,192.00	-8.11
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	2/0/8	46	31,699.00	7.12
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	3	3/0/0	9	27,530.44	-6.97
Kilkenny	104,160	3.52	19,608	0	84,552	1	1/0/0	3	28,184.00	-4.76
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	16,288	0	123,415	1	0/1/0	4	30,853.75	4.26
Mayo	137,970	4.66	11,378	0	126,592	1	0/1/0	4	31,648.00	6.95
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	16,288	81,576	1	1/0/0	3	27,192.00	-8.11
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	11,317	81,576	1	1/0/0	3	27,192.00	-8.11
Sligo	70,198	2.37	0	11,378	81,576	1	1/0/0	3	27,192.00	-8.11
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	11,317	0	84,904	1	1/0/0	3	28,301.33	-4.36
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 118: 5 Transfers (Total 93790)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,608	18.82
Louth	Monaghan	16,288	11.66
Westmeath	Roscommon	11,317	11.76
Leitrim	Longford	35,199	100.00
Mayo	Sligo	11,378	8.25

Figure 40: Solution Sol39 (174 seats, 49 constituencies, 29716.98 persons per TD,  $\Delta_{max}$  2400 (8.11% of 29592))

### 3.40 Solution Sol40

Table 119: Solution 40

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol40	174	2,450	8.28	16.36	27,142.00	31,984.50	29,692.19	2,889,530.54	5	93,190	53	43/5/5	3.28	Optimal	0.43	5,093,190.00	0.0000

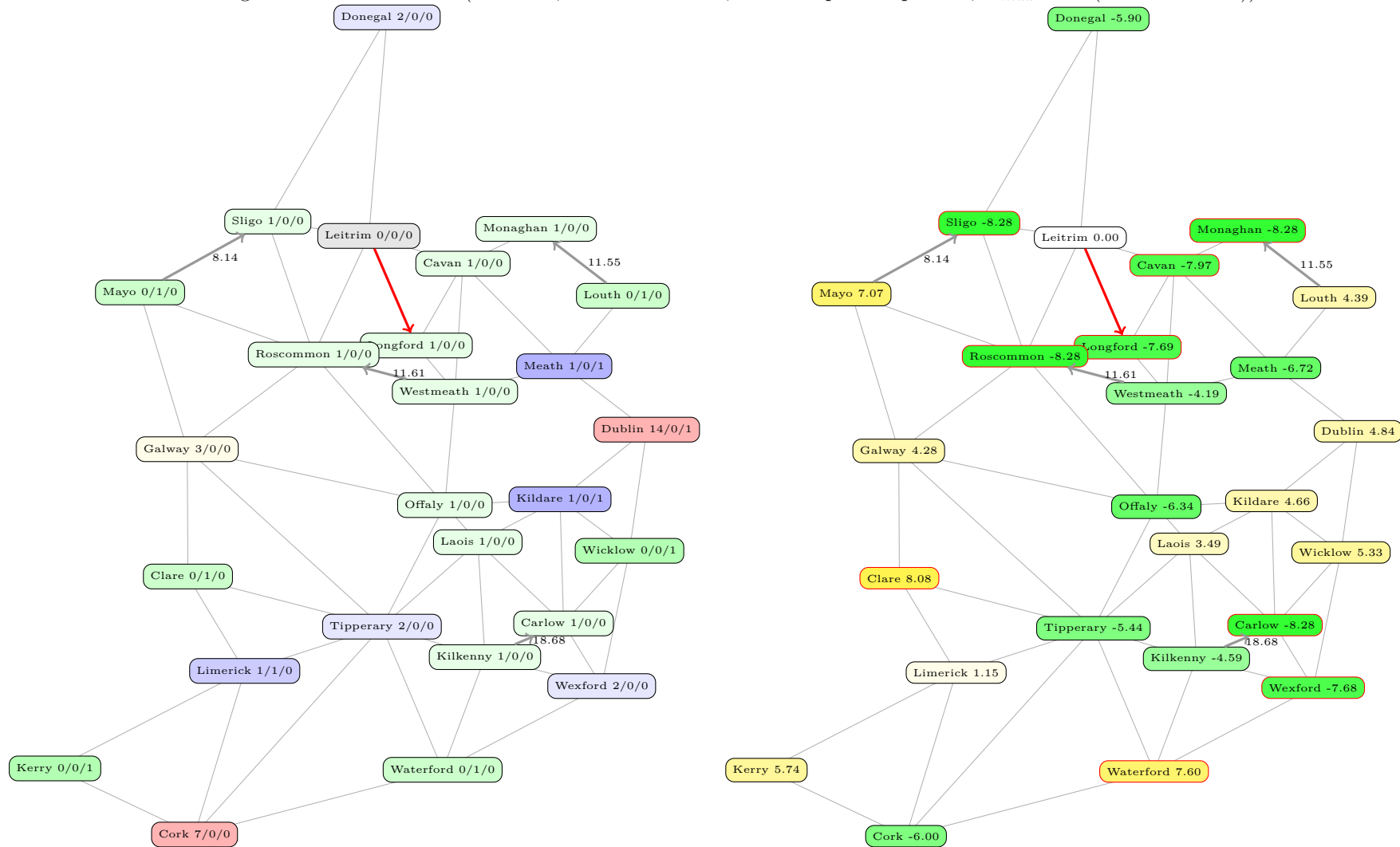
Table 120: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	19,458	81,426	1	1/0/0	3	27,142.00	-8.28
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	15	14/0/1	47	31,024.55	4.84
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	19,458	0	84,702	1	1/0/0	3	28,234.00	-4.59
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	16,138	0	123,565	1	0/1/0	4	30,891.25	4.39
Mayo	137,970	4.66	11,228	0	126,742	1	0/1/0	4	31,685.50	7.07
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	16,138	81,426	1	1/0/0	3	27,142.00	-8.28
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	11,167	81,426	1	1/0/0	3	27,142.00	-8.28
Sligo	70,198	2.37	0	11,228	81,426	1	1/0/0	3	27,142.00	-8.28
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	11,167	0	85,054	1	1/0/0	3	28,351.33	-4.19
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 121: 5 Transfers (Total 93190)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,458	18.68
Louth	Monaghan	16,138	11.55
Westmeath	Roscommon	11,167	11.61
Leitrim	Longford	35,199	100.00
Mayo	Sligo	11,228	8.14



Figure 41: Solution Sol40 (174 seats, 53 constituencies, 29692.19 persons per TD,  $\Delta_{max}$  2450 (8.28% of 29592))

### 3.41 Solution Sol41

Table 122: Solution 41

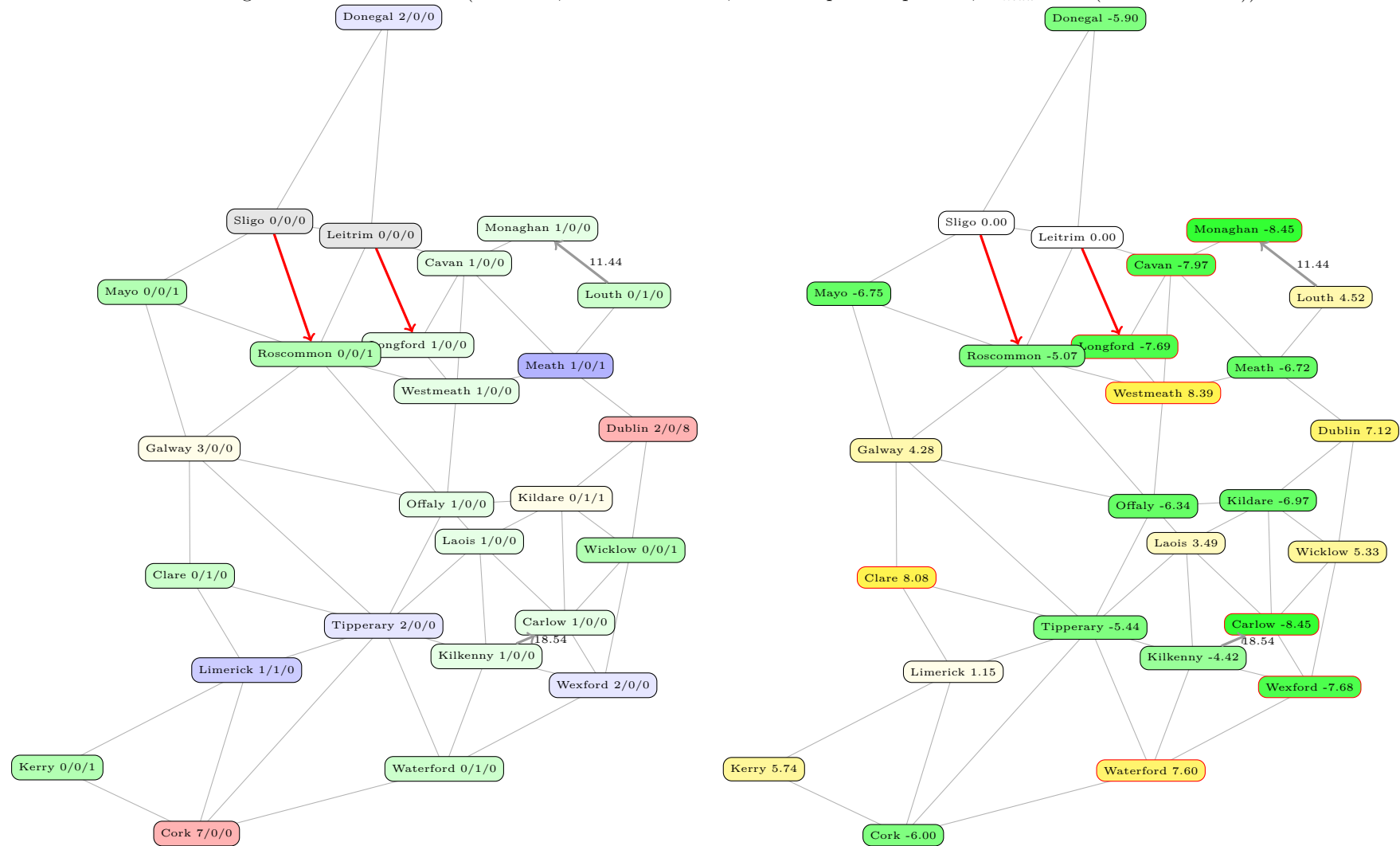
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol41	174	2,500	8.45	16.83	27,092.00	32,073.67	29,716.23	3,641,141.72	4	140,693	47	28/5/14	3.70	Optimal	0.25	4,140,693.00	0.0000

Table 123: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	19,308	81,276	1	1/0/0	3	27,092.00	-8.45
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	2/0/8	46	31,699.00	7.12
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/1/1	9	27,530.44	-6.97
Kilkenny	104,160	3.52	19,308	0	84,852	1	1/0/0	3	28,284.00	-4.42
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	15,988	0	123,715	1	0/1/0	4	30,928.75	4.52
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	15,988	81,276	1	1/0/0	3	27,092.00	-8.45
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 124: 4 Transfers (Total 140693)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,308	18.54
Louth	Monaghan	15,988	11.44
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 42: Solution Sol41 (174 seats, 47 constituencies, 29716.23 persons per TD,  $\Delta_{max}$  2500 (8.45% of 29592))

### 3.42 Solution Sol42

Table 125: Solution 42

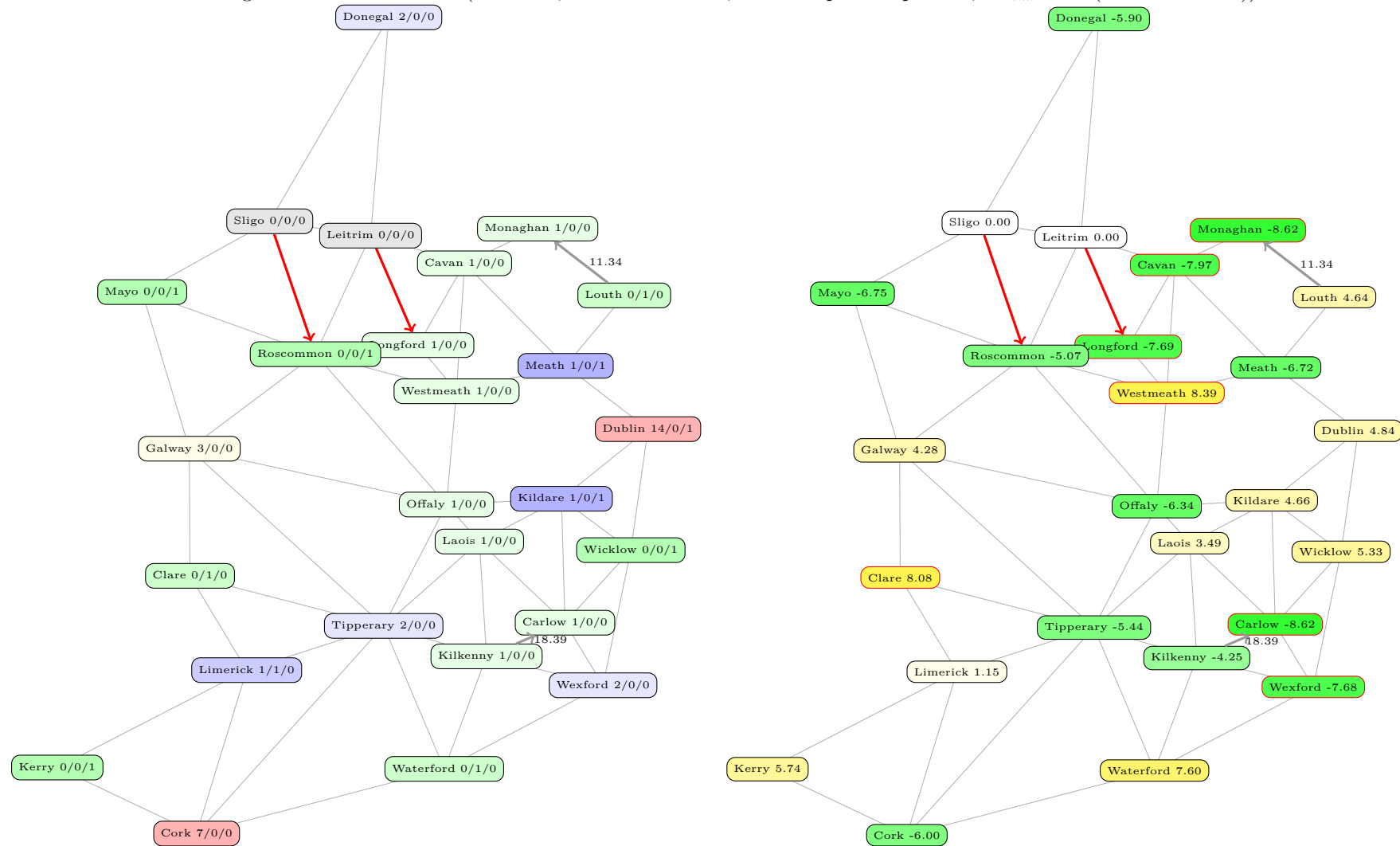
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol42	174	2,550	8.62	17.00	27,042.00	32,073.67	29,691.13	2,865,838.34	4	140,393	52	41/4/7	3.35	Optimal	0.26	4,140,393.00	0.0068

Table 126: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	19,158	81,126	1	1/0/0	3	27,042.00	-8.62
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	15	14/0/1	47	31,024.55	4.84
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	19,158	0	85,002	1	1/0/0	3	28,334.00	-4.25
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	15,838	0	123,865	1	0/1/0	4	30,966.25	4.64
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	15,838	81,126	1	1/0/0	3	27,042.00	-8.62
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 127: 4 Transfers (Total 140393)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,158	18.39
Louth	Monaghan	15,838	11.34
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 43: Solution Sol42 (174 seats, 52 constituencies, 29691.13 persons per TD,  $\Delta_{max}$  2550 (8.62% of 29592))

### 3.43 Solution Sol43

Table 128: Solution 43

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol43	174	2,600	8.79	17.17	26,992.00	32,073.67	29,716.84	3,657,310.49	4	140,093	53	43/5/5	3.28	Optimal	0.30	4,140,093.00	0.0000

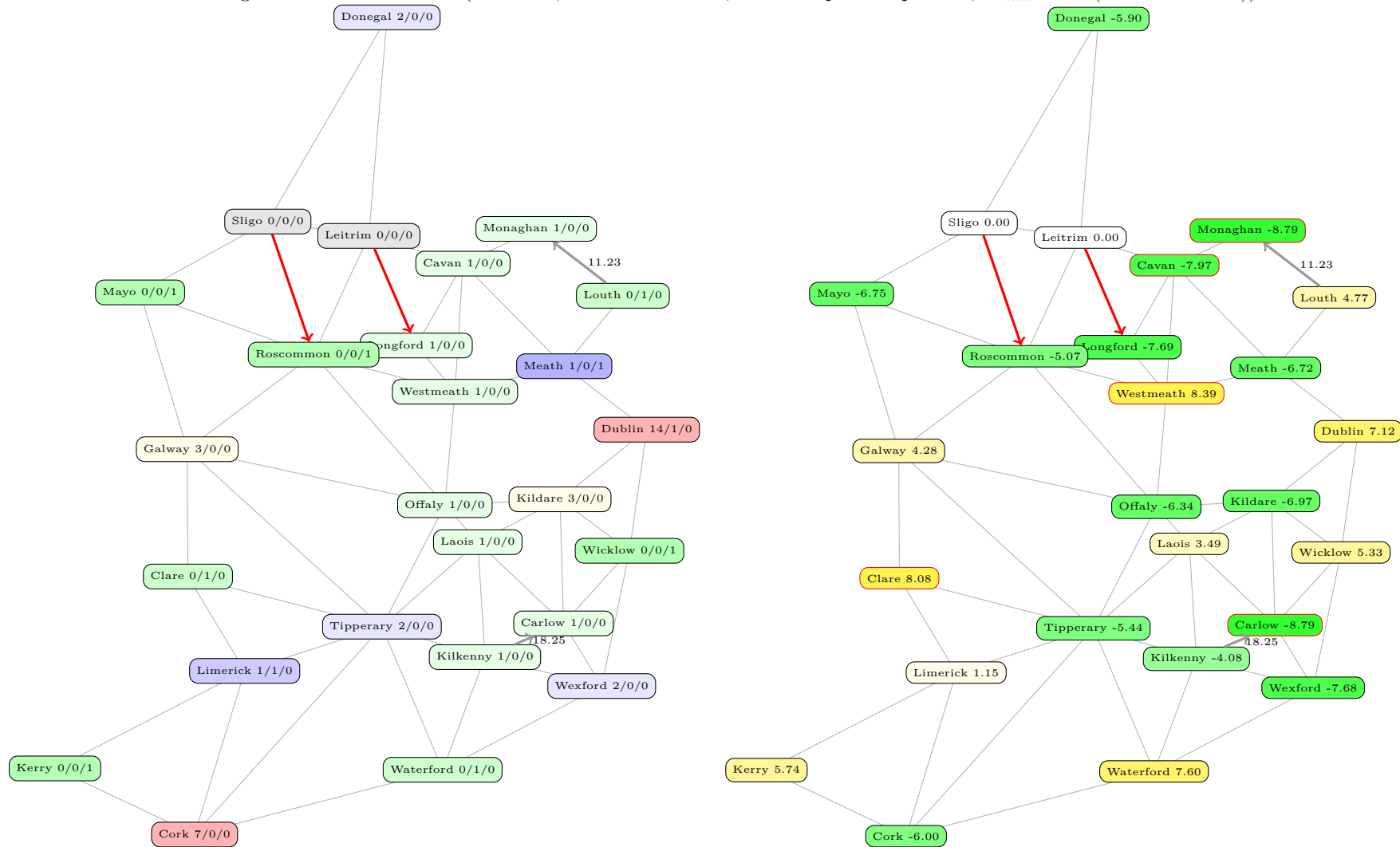
Table 129: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	19,008	80,976	1	1/0/0	3	26,992.00	-8.79
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	15	14/1/0	46	31,699.00	7.12
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	3	3/0/0	9	27,530.44	-6.97
Kilkenny	104,160	3.52	19,008	0	85,152	1	1/0/0	3	28,384.00	-4.08
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	15,688	0	124,015	1	0/1/0	4	31,003.75	4.77
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	15,688	80,976	1	1/0/0	3	26,992.00	-8.79
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 130: 4 Transfers (Total 140093)			
From	To	Volume	Percent of From
Kilkenny	Carlow	19,008	18.25
Louth	Monaghan	15,688	11.23
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 44: Solution Sol43 (174 seats, 53 constituencies, 29716.84 persons per TD,  $\Delta_{max}$  2600 (8.79% of 29592))

### 3.44 Solution Sol44

Table 131: Solution 44

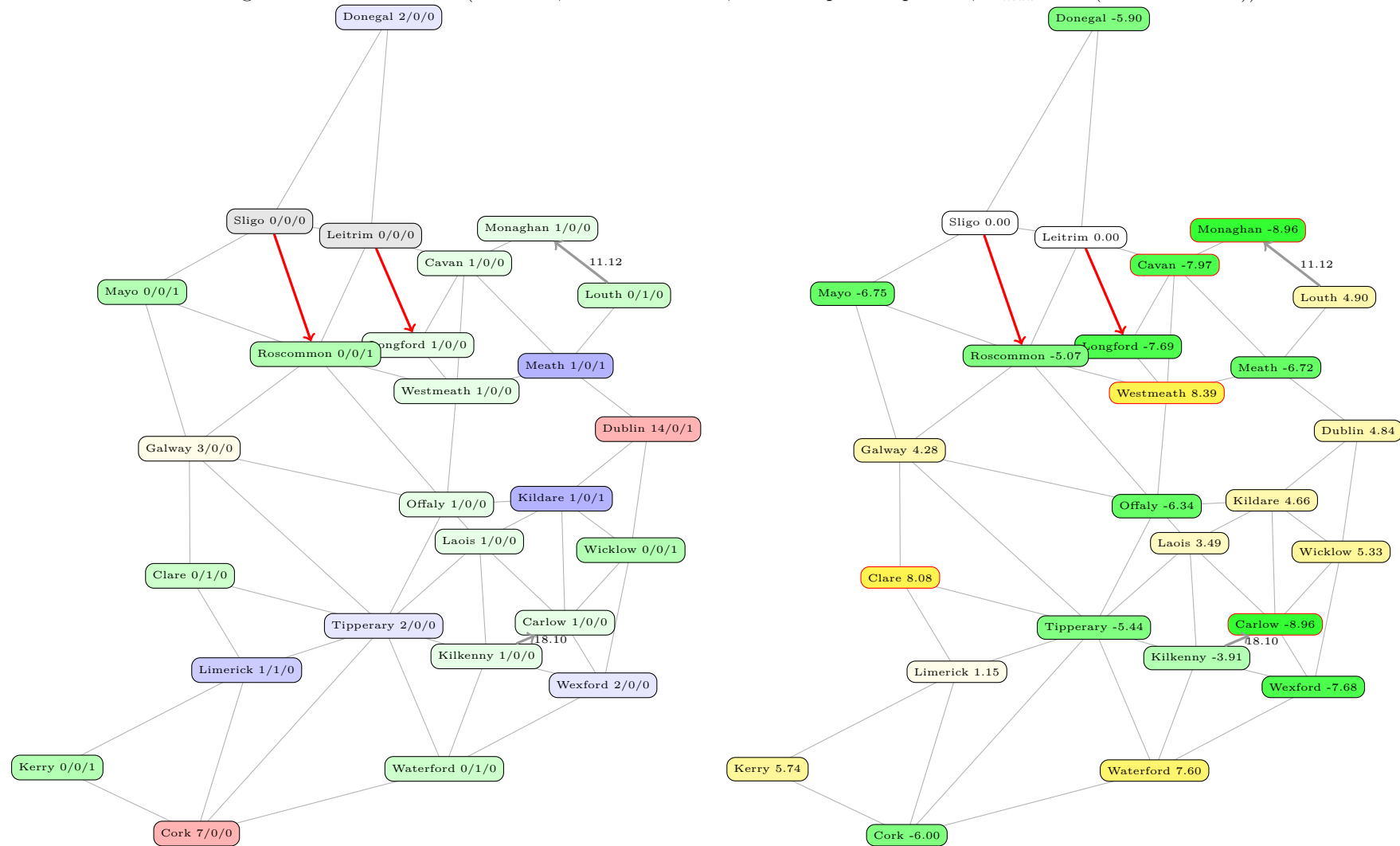
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol44	174	2,650	8.96	17.34	26,942.00	32,073.67	29,691.76	2,882,586.49	4	139,793	52	41/4/7	3.35	Optimal	0.23	4,139,793.00	0.0000

Table 132: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	18,858	80,826	1	1/0/0	3	26,942.00	-8.96
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	7	7/0/0	21	27,816.95	-6.00
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	15	14/0/1	47	31,024.55	4.84
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	18,858	0	85,302	1	1/0/0	3	28,434.00	-3.91
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	15,538	0	124,165	1	0/1/0	4	31,041.25	4.90
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	15,538	80,826	1	1/0/0	3	26,942.00	-8.96
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 133: 4 Transfers (Total 139793)			
From	To	Volume	Percent of From
Kilkenny	Carlow	18,858	18.10
Louth	Monaghan	15,538	11.12
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 45: Solution Sol44 (174 seats, 52 constituencies, 29691.76 persons per TD,  $\Delta_{max}$  2650 (8.96% of 29592))

### 3.45 Solution Sol45

Table 134: Solution 45

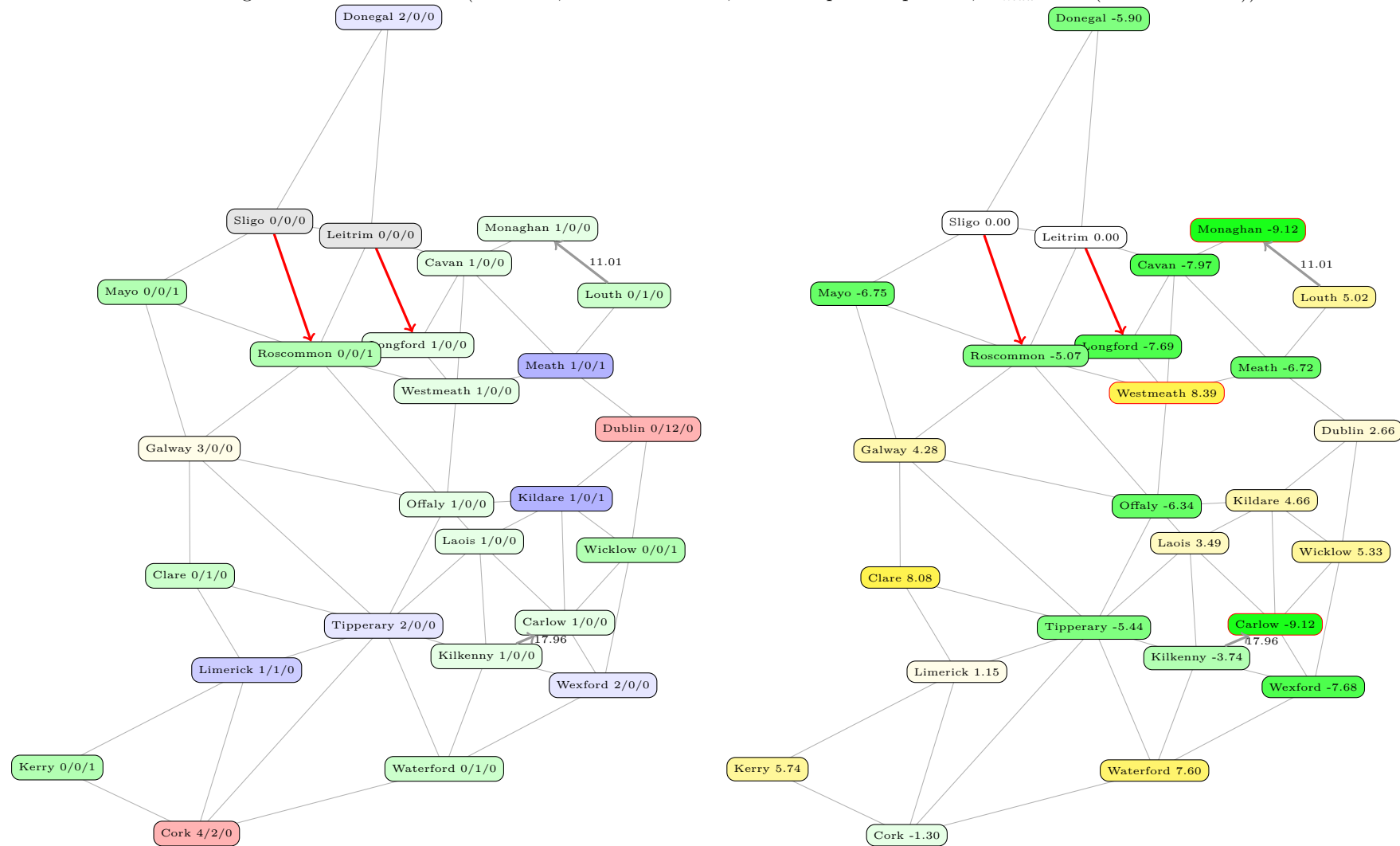
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol45	174	2,700	9.12	17.51	26,892.00	32,073.67	29,666.84	2,148,974.61	4	139,493	48	24/18/6	3.63	Optimal	0.28	4,139,493.00	0.0000

Table 135: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	18,708	80,676	1	1/0/0	3	26,892.00	-9.12
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	6	4/2/0	20	29,207.80	-1.30
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	12	0/12/0	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	18,708	0	85,452	1	1/0/0	3	28,484.00	-3.74
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	15,388	0	124,315	1	0/1/0	4	31,078.75	5.02
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	15,388	80,676	1	1/0/0	3	26,892.00	-9.12
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 136: 4 Transfers (Total 139493)			
From	To	Volume	Percent of From
Kilkenny	Carlow	18,708	17.96
Louth	Monaghan	15,388	11.01
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 46: Solution Sol45 (174 seats, 48 constituencies, 29666.84 persons per TD,  $\Delta_{max}$  2700 (9.12% of 29592))



### 3.46 Solution Sol46

Table 137: Solution 46

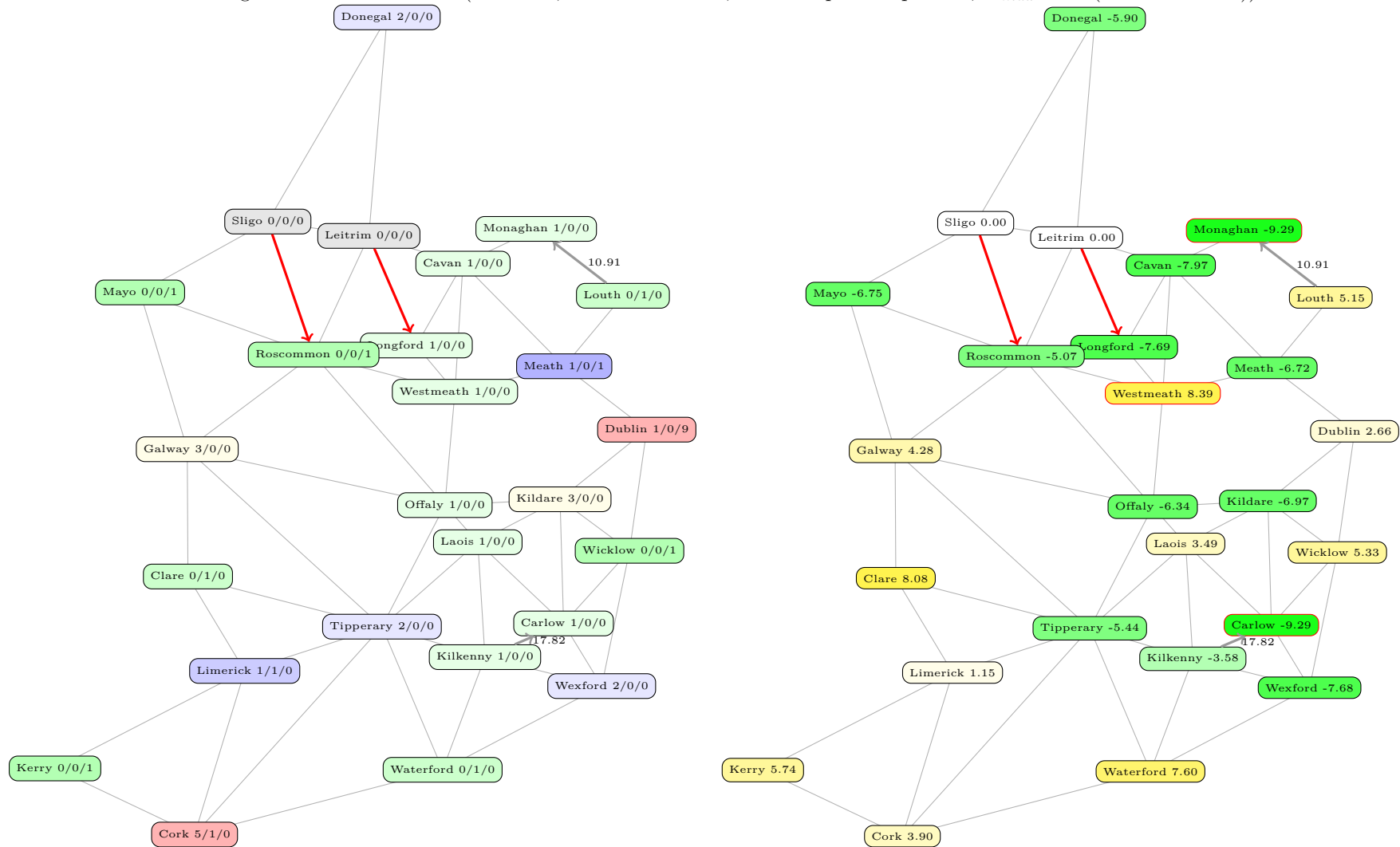
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol46	174	2,750	9.29	17.68	26,842.00	32,073.67	29,675.99	2,403,638.09	4	139,193	47	28/5/14	3.70	Optimal	0.24	4,139,193.00	0.0000

Table 138: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	18,558	80,526	1	1/0/0	3	26,842.00	-9.29
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	6	5/1/0	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	1/0/9	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	3	3/0/0	9	27,530.44	-6.97
Kilkenny	104,160	3.52	18,558	0	85,602	1	1/0/0	3	28,534.00	-3.58
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	15,238	0	124,465	1	0/1/0	4	31,116.25	5.15
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	15,238	80,526	1	1/0/0	3	26,842.00	-9.29
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 139: 4 Transfers (Total 139193)			
From	To	Volume	Percent of From
Kilkenny	Carlow	18,558	17.82
Louth	Monaghan	15,238	10.91
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 47: Solution Sol46 (174 seats, 47 constituencies, 29675.99 persons per TD,  $\Delta_{max}$  2750 (9.29% of 29592))

### 3.47 Solution Sol47

Table 140: Solution 47

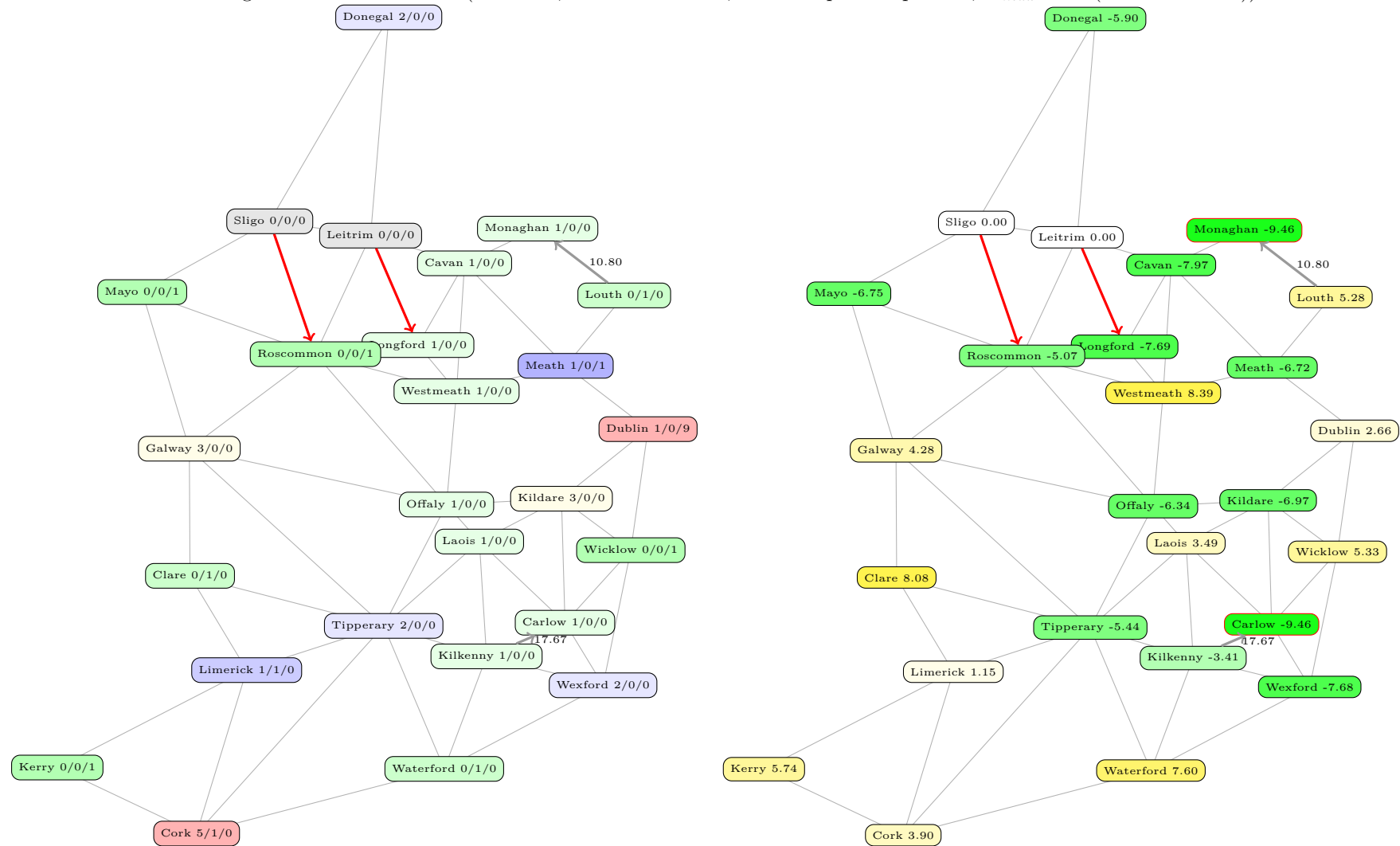
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol47	174	2,800	9.46	17.85	26,792.00	32,073.67	29,676.34	2,412,982.03	4	138,893	47	28/5/14	3.70	Optimal	0.24	4,138,893.00	0.0000

Table 141: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	18,408	80,376	1	1/0/0	3	26,792.00	-9.46
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	6	5/1/0	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	1/0/9	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	3	3/0/0	9	27,530.44	-6.97
Kilkenny	104,160	3.52	18,408	0	85,752	1	1/0/0	3	28,584.00	-3.41
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	15,088	0	124,615	1	0/1/0	4	31,153.75	5.28
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	15,088	80,376	1	1/0/0	3	26,792.00	-9.46
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 142: 4 Transfers (Total 138893)			
From	To	Volume	Percent of From
Kilkenny	Carlow	18,408	17.67
Louth	Monaghan	15,088	10.80
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 48: Solution Sol47 (174 seats, 47 constituencies, 29676.34 persons per TD,  $\Delta_{max}$  2800 (9.46% of 29592))

### 3.48 Solution Sol48

Table 143: Solution 48

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol48	174	2,850	9.63	18.02	26,742.00	32,073.67	29,667.31	2,182,475.73	4	138,654	45	21/9/15	3.87	Optimal	0.29	4,138,654.00	0.0015

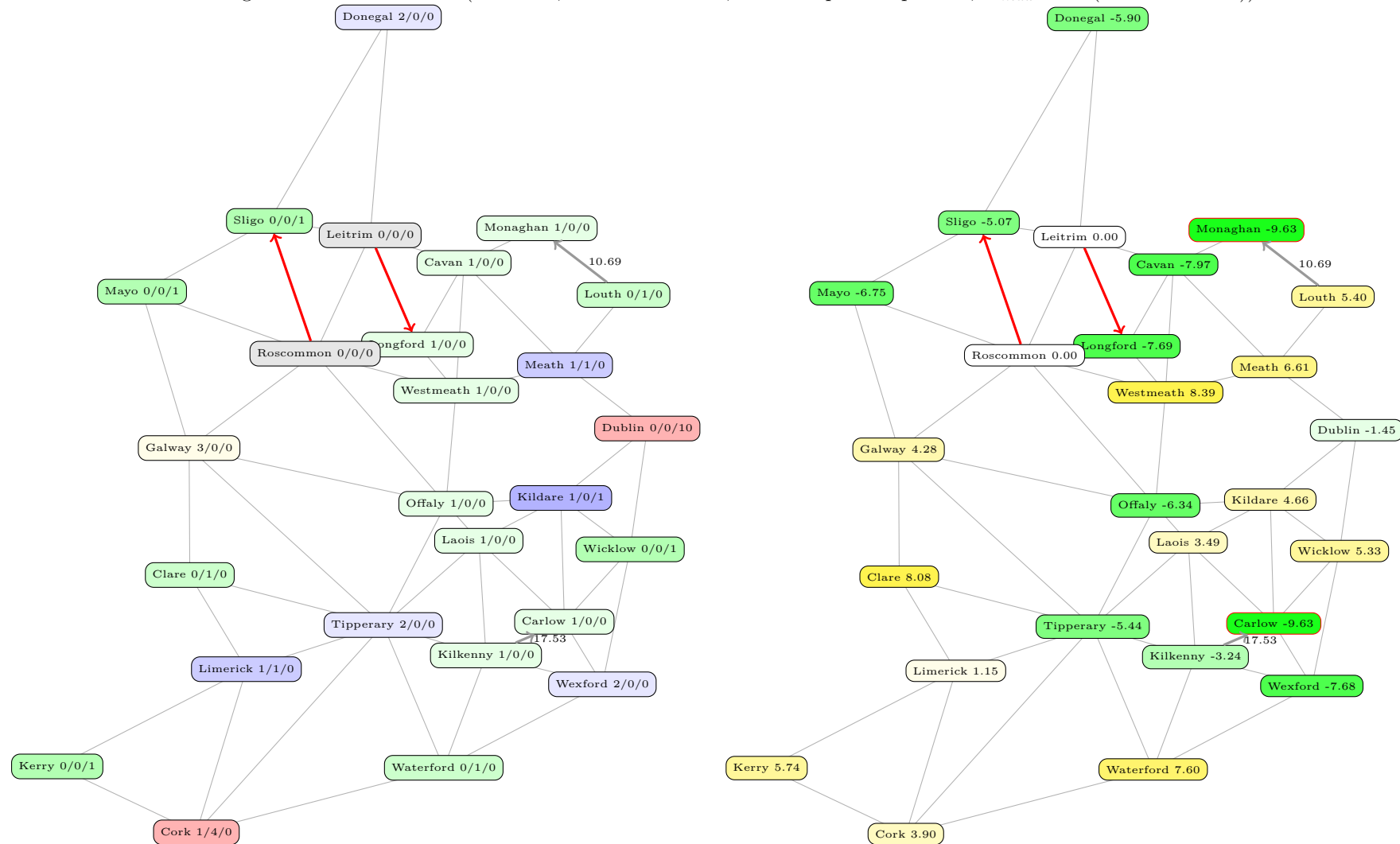
Table 144: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	18,258	80,226	1	1/0/0	3	26,742.00	-9.63
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	5	1/4/0	19	30,745.05	3.90
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	18,258	0	85,902	1	1/0/0	3	28,634.00	-3.24
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	14,938	0	124,765	1	0/1/0	4	31,191.25	5.40
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/1/0	7	31,546.57	6.61
Monaghan	65,288	2.21	0	14,938	80,226	1	1/0/0	3	26,742.00	-9.63
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	70,259	0	0	0	0/0/0	0	0.00	0.00
Sligo	70,198	2.37	0	70,259	140,457	1	0/0/1	5	28,091.40	-5.07
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 145: 4 Transfers (Total 138654)			
From	To	Volume	Percent of From
Kilkenny	Carlow	18,258	17.53
Louth	Monaghan	14,938	10.69
Leitrim	Longford	35,199	100.00
Roscommon	Sligo	70,259	100.00



Figure 49: Solution Sol48 (174 seats, 45 constituencies, 29667.31 persons per TD,  $\Delta_{max}$  2850 (9.63% of 29592))

### 3.49 Solution Sol49

Table 146: Solution 49

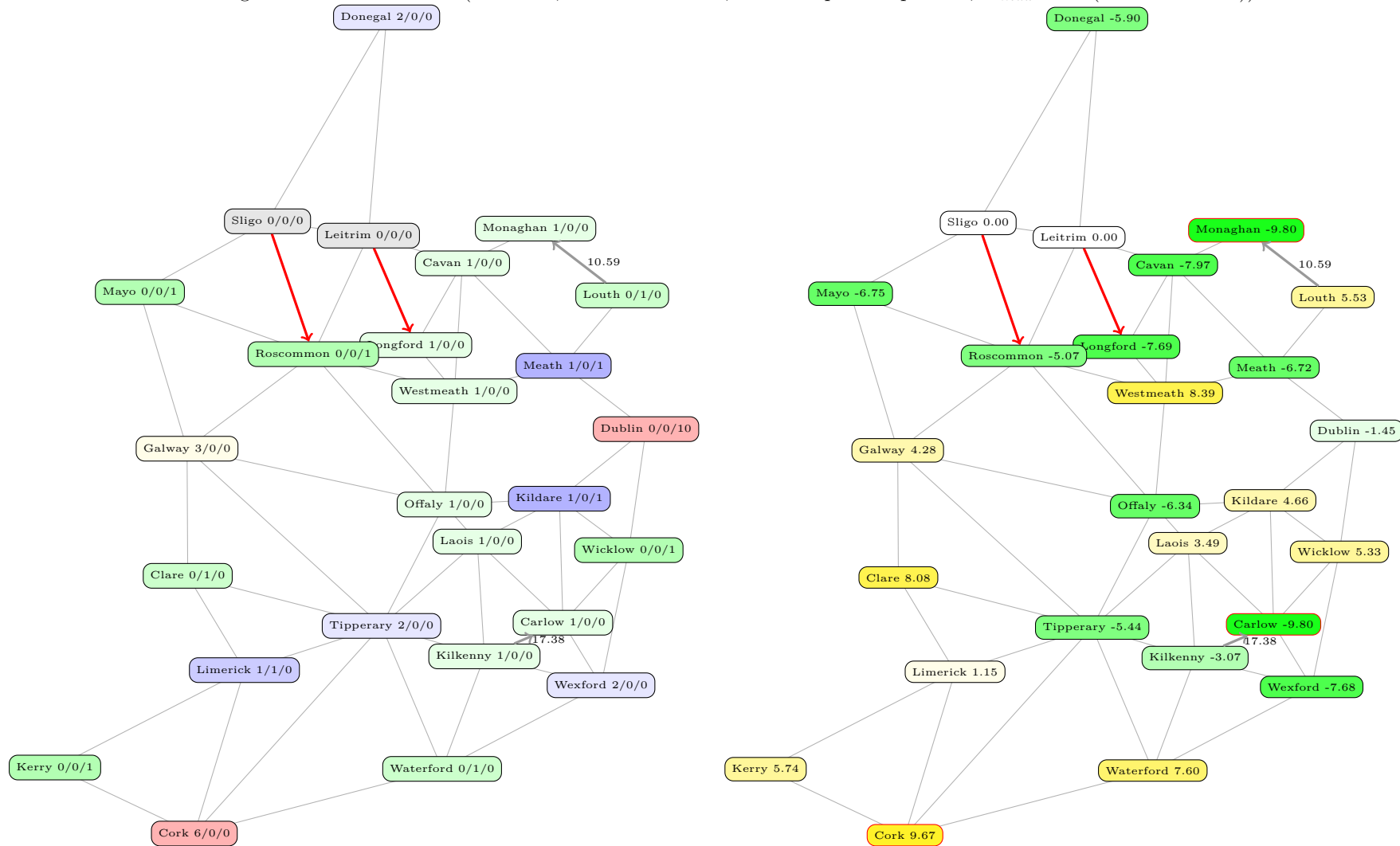
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol49	174	2,900	9.80	19.47	26,692.00	32,453.11	29,692.34	2,971,656.19	4	138,293	46	26/4/16	3.78	Optimal	0.33	4,138,293.00	0.0000

Table 147: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	18,108	80,076	1	1/0/0	3	26,692.00	-9.80
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	6	6/0/0	18	32,453.11	9.67
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	18,108	0	86,052	1	1/0/0	3	28,684.00	-3.07
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	14,788	0	124,915	1	0/1/0	4	31,228.75	5.53
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	14,788	80,076	1	1/0/0	3	26,692.00	-9.80
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 148: 4 Transfers (Total 138293)			
From	To	Volume	Percent of From
Kilkenny	Carlow	18,108	17.38
Louth	Monaghan	14,788	10.59
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 50: Solution Sol49 (174 seats, 46 constituencies, 29692.34 persons per TD,  $\Delta_{max}$  2900 (9.80% of 29592))

### 3.50 Solution Sol50

Table 149: Solution 50

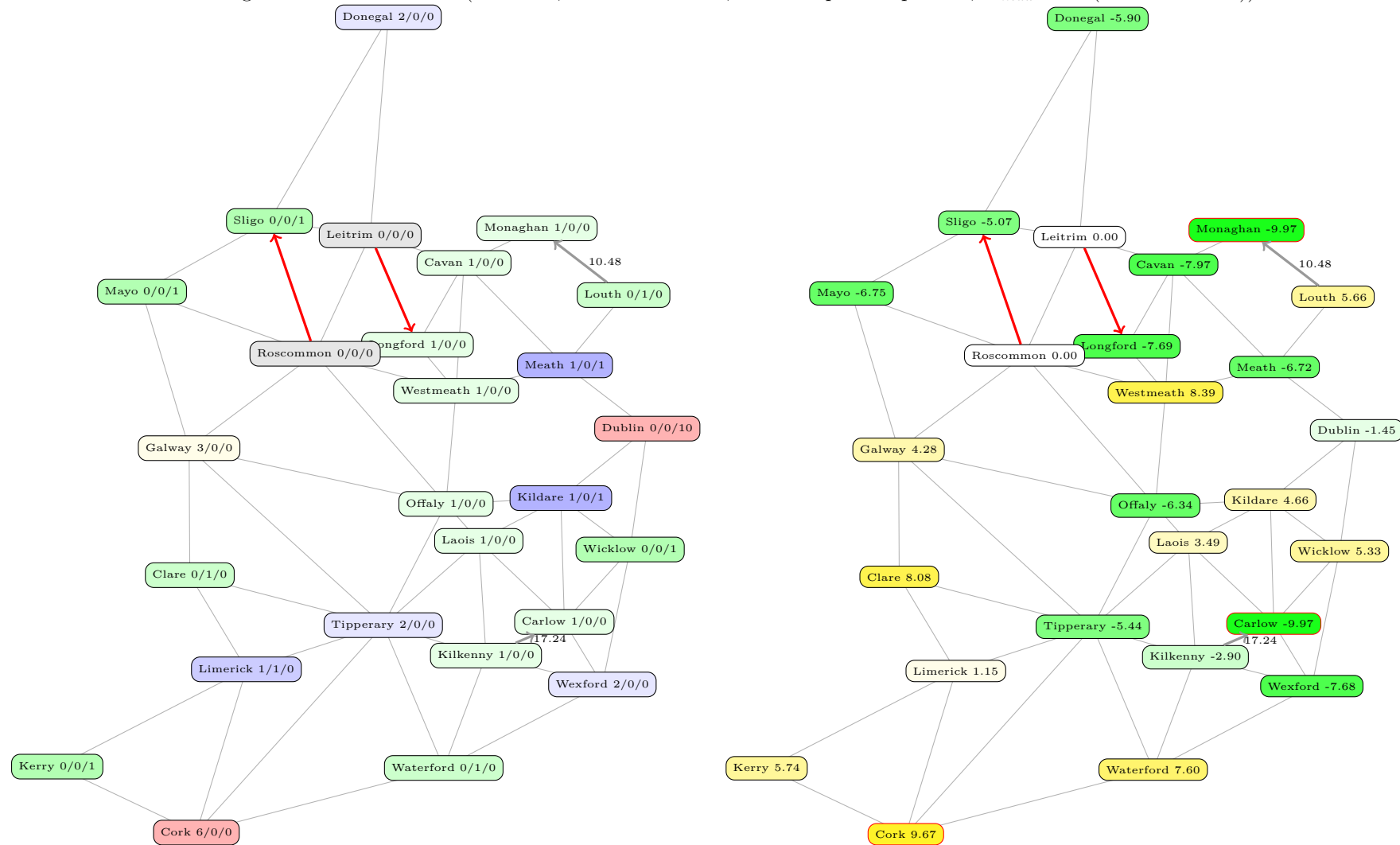
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol50	174	2,950	9.97	19.64	26,642.00	32,453.11	29,692.73	2,981,808.66	4	138,054	46	26/4/16	3.78	Optimal	0.30	4,138,054.00	0.0015

Table 150: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	17,958	79,926	1	1/0/0	3	26,642.00	-9.97
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	6	6/0/0	18	32,453.11	9.67
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	17,958	0	86,202	1	1/0/0	3	28,734.00	-2.90
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	14,638	0	125,065	1	0/1/0	4	31,266.25	5.66
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	14,638	79,926	1	1/0/0	3	26,642.00	-9.97
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	70,259	0	0	0	0/0/0	0	0.00	0.00
Sligo	70,198	2.37	0	70,259	140,457	1	0/0/1	5	28,091.40	-5.07
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 151: 4 Transfers (Total 138054)			
From	To	Volume	Percent of From
Kilkenny	Carlow	17,958	17.24
Louth	Monaghan	14,638	10.48
Leitrim	Longford	35,199	100.00
Roscommon	Sligo	70,259	100.00

Figure 51: Solution Sol50 (174 seats, 46 constituencies, 29692.73 persons per TD,  $\Delta_{max}$  2950 (9.97% of 29592))

### 3.51 Solution Sol51

Table 152: Solution 51

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Objective	Gap Percent
Sol51	174	3,000	10.14	19.81	26,592.00	32,453.11	29,693.13	2,992,233.81	4	137,693	46	26/4/16	3.78	Optimal	0.34	4,137,693.00	0.0067

Table 153: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	0	17,808	79,776	1	1/0/0	3	26,592.00	-10.14
Cavan	81,704	2.76	0	0	81,704	1	1/0/0	3	27,234.67	-7.97
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	6	6/0/0	18	32,453.11	9.67
Donegal	167,084	5.65	0	0	167,084	2	2/0/0	6	27,847.33	-5.90
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	0	0	277,737	3	3/0/0	9	30,859.67	4.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	1/0/1	8	30,971.75	4.66
Kilkenny	104,160	3.52	17,808	0	86,352	1	1/0/0	3	28,784.00	-2.73
Laois	91,877	3.10	0	0	91,877	1	1/0/0	3	30,625.67	3.49
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	0	209,536	2	1/1/0	7	29,933.71	1.15
Longford	46,751	1.58	0	35,199	81,950	1	1/0/0	3	27,316.67	-7.69
Louth	139,703	4.72	14,488	0	125,215	1	0/1/0	4	31,303.75	5.78
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	1/0/1	8	27,603.25	-6.72
Monaghan	65,288	2.21	0	14,488	79,776	1	1/0/0	3	26,592.00	-10.14
Offaly	83,150	2.81	0	0	83,150	1	1/0/0	3	27,716.67	-6.34
Roscommon	70,259	2.37	0	70,198	140,457	1	0/0/1	5	28,091.40	-5.07
Sligo	70,198	2.37	70,198	0	0	0	0/0/0	0	0.00	0.00
Tipperary	167,895	5.67	0	0	167,895	2	2/0/0	6	27,982.50	-5.44
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	0	96,221	1	1/0/0	3	32,073.67	8.39
Wexford	163,919	5.54	0	0	163,919	2	2/0/0	6	27,319.83	-7.68
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 154: 4 Transfers (Total 137693)			
From	To	Volume	Percent of From
Kilkenny	Carlow	17,808	17.10
Louth	Monaghan	14,488	10.37
Leitrim	Longford	35,199	100.00
Sligo	Roscommon	70,198	100.00

Figure 52: Solution Sol51 (174 seats, 46 constituencies, 29693.13 persons per TD,  $\Delta_{max}$  3000 (10.14% of 29592))