Autocar:

Experiement 1: Fixed Network

Graph =[2,(2,3),(3,5),(5,1),(1,5,3,7),(3,4),(4,6),8] (u,pred) = (6,5)

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | My\_w | My\_wo (same) | MDL |
| 1 | [9.0,15.25,17.65,20.9,25.65,28.9,46.6] | [9.0,15.25,17.65,20.9,25.65,28.9,46.6] | [68.0,455.0] |
| 3 | [68.0,70.5,93.5,109.0,159.5,259.0,284.5,455.0] | [68.0,70.5,93.5,109.0,159.5,259.0,284.5,455.0] | [46.0,230.0] |
| 4 | [46.0,71.5,99.0,127.0,230.0] | [46.0,71.5,99.0,127.0,230.0] | [9.0,46.6] |
| 5 | [1613.0,2115.0,2480.5,2959.5,3657.5,5140.0] | [1613.0,2115.0,2480.5,2959.5,3657.5,5140.0] | [1613.0,5140.0] |
| 6 | [8.0,12.35,13.75,16.05,22.85,24.8] | [8.0,12.35,13.75,16.05,22.85,24.8] | [8.0,24.8] |
| Likeli \* 392 | -10210.2746617145 | -10210.2746617145 | -11917.804990190934 |

Experiment 2:Housing

Experiment 1:

Graph = [5,(5,2),(5,8),(5,2,3),(3,5,2,9),(5,2,7),(9,3,2,10),(9,3,10,11),(7,13),1,(10,12),(13,14),4,(14,1,6)]; by (u,predisc) = (3,5); 1000 times

|  |  |  |  |
| --- | --- | --- | --- |
|  | My\_w\_edge | My\_wo\_edge | MDL |
| 1 | 8 | 3 | 1 |
| 2 | 6 | 4 | 1 |
| 3 | 40 | 8 | 1 |
| 5 | 15 | 14 | 1 |
| 6 | 9 | 4 | 1 |
| 7 | 5 | 3 | 1 |
| 8 | 10 | 6 | 1 |
| 10 | 58 | 8 | 1 |
| 11 | 46 | 5 | 7 |
| 12 | 3 | 4 | 1 |
| 13 | 5 | 6 | 1 |
| 14 | 5 | 6 | 1 |
| likeli | -14559.473960185942 | -15886.636473779408 | -21861.45315732036 |

10,6,15,23,5,3,4,20,20,1,3,4

My\_w\_edge = [[0.00632,33.15885,39.9405,43.63765,48.44095,59.5283,70.72745,81.25515,88.9762],[0.0,6.25,15.0,19.0,20.5,48.75,100.0],[0.46,2.105,2.21,2.385,2.5700000000000003,2.785,2.91,3.1050000000000004,3.285,3.35,3.39,3.425,3.54,3.875,3.9850000000000003,4.1,4.27,4.675000000000001,4.9399999999999995,5.04,5.16,5.255000000000001,5.48,5.91,6.01,6.145,6.305,6.66,6.9350000000000005,7.225,7.625,8.005,10.3,10.7,11.370000000000001,14.48,16.57,18.84,23.77,26.695,27.74],[0.385,0.424,0.44245,0.44395,0.451,0.4555,0.462,0.478,0.486,0.5125,0.519,0.522,0.528,0.5455000000000001,0.591,0.871],[3.561,3.7119999999999997,4.0005,4.253,4.4435,4.5735,6.5425,7.436999999999999,8.7525,8.78],[2.9,4.45,38.95,39.5,80.1,100.0],[1.1296,2.58835,3.0793,4.750249999999999,5.108549999999999,5.343999999999999,5.5316,6.1388,9.9043,11.4184,12.1265],[187.0,187.5,190.5,195.5,207.0,219.0,222.5,223.5,229.5,237.0,241.5,242.5,243.5,246.0,249.5,253.0,254.5,260.0,264.5,267.5,271.5,274.5,276.5,278.0,279.5,282.5,284.5,286.0,288.0,291.0,294.5,298.0,302.0,304.5,306.0,309.0,312.0,322.0,329.5,332.0,336.0,341.0,346.5,351.5,355.0,364.0,377.0,394.5,400.0,402.5,407.0,416.5,426.0,431.0,434.5,453.0,567.5,688.5,711.0],[12.6,12.8,13.3,14.0,14.55,14.75,14.850000000000001,15.0,15.149999999999999,15.25,15.4,15.55,15.75,15.95,16.05,16.25,16.5,16.700000000000003,16.85,16.95,17.15,17.35,17.5,17.700000000000003,17.85,17.95,18.1,18.25,18.35,18.45,18.55,18.65,18.75,18.85,18.95,19.05,19.15,19.4,19.65,19.9,20.15,20.549999999999997,20.95,21.05,21.15,21.6,22.0],[0.32,375.95500000000004,390.595,396.9],[1.73,4.915,7.635,10.04,16.085,37.97],[5.0,15.85,21.85,26.45,37.45,50.0]]

my\_wo\_edge = [[0.00632,59.5283,81.25515,88.9762],[0.0,6.25,15.0,20.5,100.0],[0.46,7.225,8.005,8.350000000000001,9.125,16.57,18.84,20.735,27.74],[0.385,0.4405,0.486,0.491,0.496,0.519,0.522,0.528,0.541,0.5455000000000001,0.591,0.639,0.651,0.8205,0.871],[3.561,3.7119999999999997,6.5425,7.436999999999999,8.78],[2.9,51.4,77.75,100.0],[1.1296,1.92035,2.58835,3.0793,4.48025,4.750249999999999,12.1265],[187.0,190.5,306.0,309.0,402.5,407.0,567.5,688.5,711.0],[12.6,19.4,19.9,20.549999999999997,21.6,22.0],[0.32,150.345,357.485,389.2,396.9],[1.73,4.915,7.635,10.04,14.399999999999999,18.93,37.97],[5.0,14.05,18.15,21.85,26.45,37.45,50.0]]

MDL\_edge = [ [0.00632,88.9762], [0.0,100.0], [0.46,27.74], [0.385,0.871], [3.561,8.78], [2.9,100.0], [1.1296,12.1265], [187.0,711.0], [12.6,15.25,17.15,17.5,19.15,20.15,20.95,22.0], [0.32,396.9], [1.73,37.97], [5.0,50.0]]

Wine

Experiment 1:

Graph = [8,(8,1),(1,11),(1,4),(1,2),(8,7),(1,14),(8,4,1,9),(1,3),(1,8,13),(14,1,6),(1,4,5),(1,12),(8,6,10)]; by (u,predisc) = (13,3); 1000 times

( my\_w, my\_wo, MDL ) = (-3593.606730780144,-3550.7741050533505,-4201.250330682232)

|  |  |  |  |
| --- | --- | --- | --- |
| V | My\_w | My\_wo | MDL |
| 2 | [11.03,12.745,13.54,14.83] | [11.03,12.745,13.54,14.83] | [11.03,12.78,14.83] |
| 3 | [0.74,1.42,2.235,5.8] | [0.74,1.42,2.235,5.8] | [0.74,1.42,2.235,5.8] |
| 4 | [1.36,2.03,2.63,3.07,3.23] | [1.36,2.03,2.605,3.07,3.23] | [1.36,3.23] |
| 5 | [10.6,17.9,24.25,30.0] | [10.6,17.9,23.25,30.0] | [10.6,17.9,30.0] |
| 6 | [70.0,88.5,135.0,162.0] | [70.0,88.5,135.0,162.0] | [70.0,162.0] |
| 7 | [0.98,2.105,2.58,3.88] | [0.98,2.105,2.58,3.01,3.88] | [0.98,3.88] |
| 8 | [0.34,0.975,1.885,2.31,5.08] | [0.34,0.975,1.885,2.31,3.355,5.08] | [0.34,5.08] |
| 9 | [0.13,0.395,0.66] | [0.13,0.395,0.66] | [0.13,0.395,0.66] |
| 10 | [0.41,1.655,3.58] | [0.41,1.185,1.655,3.58] | [0.41,3.58] |
| 11 | [1.28,3.46,4.85,7.4,13.0] | [1.28,3.46,4.85,7.4,13.0] | [1.28,3.46,7.55,13.0] |
| 12 | [0.48,0.785,1.005,1.295,1.71] | [0.48,0.785,1.005,1.295,1.71] | [0.48,0.785,1.71] |
| 13 | [1.27,2.19,2.49,4.0] | [1.27,2.475,4.0] | [1.27,2.115,2.505,4.0] |
| 14 | [278.0,476.0,716.0,900.5,1680.0] | [278.0,476.0,716.0,900.5,1680.0] | [278.0,1680.0] |
| Likeli | -3593.606730780144 | -3550.7741050533505 | -4201.250330682232 |

Experiment 2:

U = max; K2 50 times;

K2 score = 1323.5317217238487

Graph = [3,4,(3,4,10),(3,12),(10,12,4,3,9),(12,9,14),(14,10,4,7),(14,3,7,9,2),(12,10,13),(13,2,12,1),(7,1,8),(1,13,4,9,5),(1,9,6),(1,11)]

Disc\_edge = [[11.03,12.745,14.83],[0.74,2.235,5.8],[1.36,1.53,1.85,3.23],[10.6,17.9,30.0],[70.0,88.5,133.0,162.0],[0.98,2.58,3.88],[0.34,0.975,2.31,2.715,4.505,5.08],[0.13,0.66],[0.41,0.485,1.3250000000000002,1.645,3.4299999999999997,3.58],[1.28,3.46,4.85,7.4,13.0],[0.48,0.855,1.71],[1.27,2.005,2.19,4.0],[278.0,368.5,953.5,1680.0]]