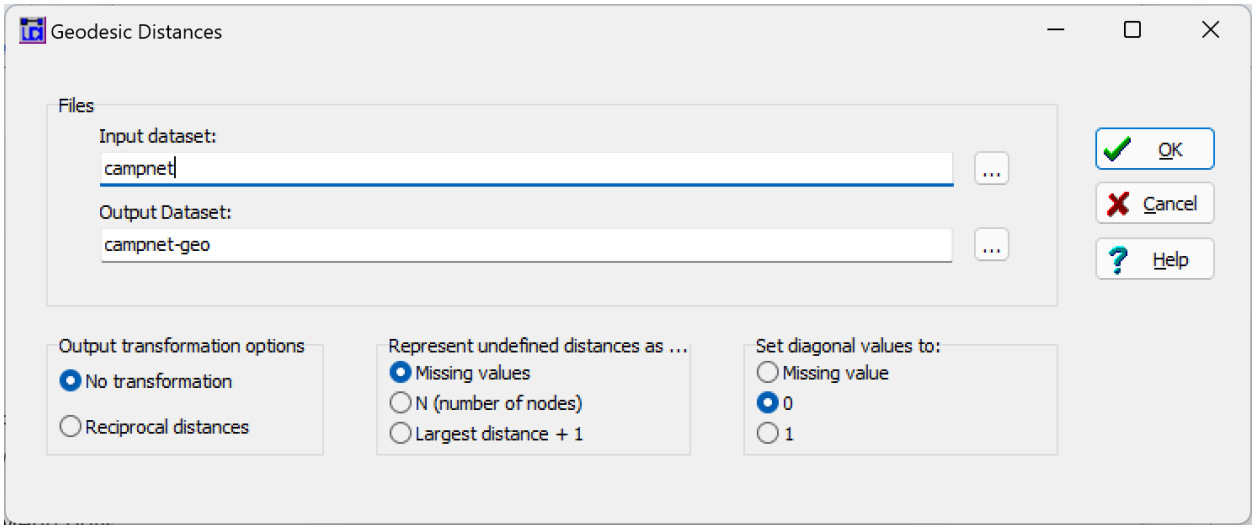
Practice 5.7

For this exercise, we calculate geodesic distances between all pairs of nodes. The dataset we will use is “campnet”. We can do this using the menu system or the CLI.

Menu option

To calculate geodesic distances, we use the Network|Dyadic Measures|Geodesic Distances procedure.



The result is this:

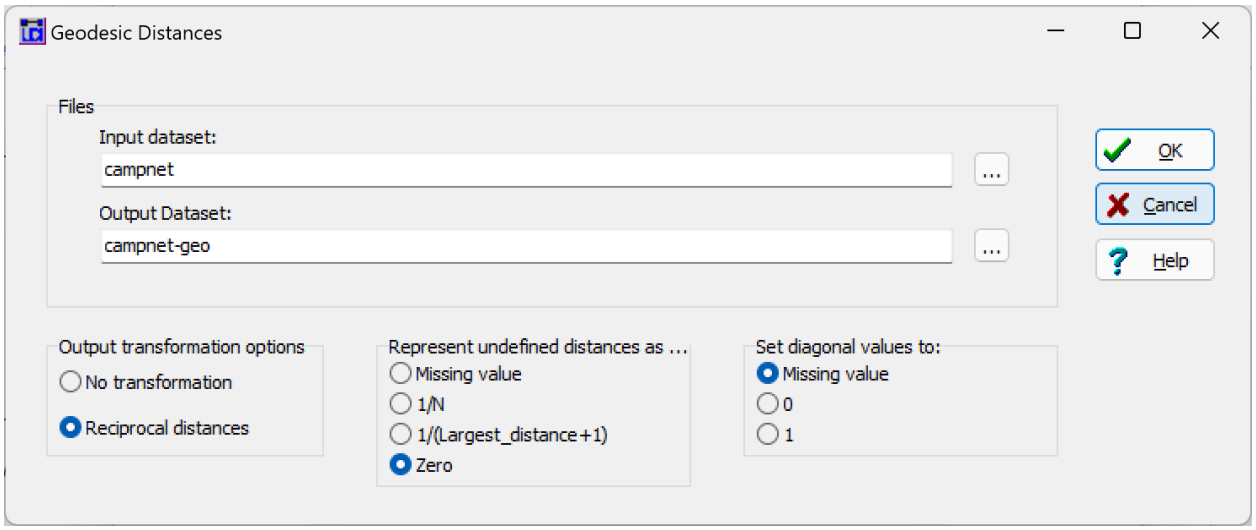
	HOLLY	BRAZEY	CAROL	PAM	PAT	JENNIE	PAULINE	ANN	MICHAEL
1	HOLLY	0	2	1	1	2	2	2	2
2	BRAZEY	5	0	7	6	6	7	7	7	4
3	CAROL	2		0	1	1	2	1	2	4
4	PAM	3		2	0	2	1	1	1	5
5	PAT	1		1	2	0	1	2	2	3
6	JENNIE	2		2	1	1	0	2	1	4
7	PAULINE	2		1	1	1	2	0	2	4
8	ANN	3		2	1	2	1	1	0	5
9	MICHAEL	1		3	2	2	3	3	3	0

	ANNE	LEE	DON	JOHN	HARRY	GERRY	STEVE	BERT	RUSS
1	HOLLY		1		2				
2	BRAZEY	1	5		5	3	1	1	2
3	CAROL		3		4				
4	PAM		4		5				
5	PAT		2		3				
6	JENNIE		3		4				
7	PAULINE		3		4				
8	ANN		4		5				
9	MICHAEL		1		1				

10	BILL	2		4	3	3	4	4	4	1	0		1		1			
11	LEE	5	1	7	6	6	7	7	7	4		0	5		5	3	1	1	2
12	DON	1		3	2	2	3	3	3	1			0		1				
13	JOHN	3	4	2	2	2	3	1	3	2		3	3	0	3	1	2	2	1
14	HARRY	1		3	2	2	3	3	3	1			1		0				
15	GERY	2	3	4	3	3	4	4	4	1		2	2		2	0	1	2	1
16	STEVE	4	2	6	5	5	6	6	6	3		1	4		4	2	0	1	1
17	BERT	4	2	6	5	5	6	6	6	3		1	4		4	2	1	0	1
18	RUSS	3	3	5	4	4	5	5	5	2		2	3		3	1	1	1	0

We can see the matrix contains blanks. This occurs when there is no path from the row node to the column node, as in the case of Holly to Brazey.

One way to handle this is to report reciprocal distances (1/dij) and regard unreachable nodes as having a dyadic closeness (reciprocal distance) of 0. We can do this by changing the options in the Network|Dyadic Measures|Geodesic Distances procedure.



The result is:

		HOLLY	BRAZEY	CAROL	PAM	PAT	JENNIE	PAULINE	ANN	MICHAEL	BILL	LEE	DON	JOHN	HARRY	GERY	STEVE	BERT	RUSS
1	HOLLY	0	0.500	1	1	0.500	0.500	0.500	0.500	0	0	1	0	0.500	0	0	0	0	
2	BRAZEY	0.200	0	0.143	0.167	0.167	0.143	0.143	0.143	0.250	0	1	0.200	0	0.200	0.333	1	1	0.500
3	CAROL	0.500	0	0	1	1	0.500	1	0.500	0.250	0	0	0.333	0	0.250	0	0	0	0
4	PAM	0.333	0	0.500	0	0.500	1	1	1	0.200	0	0	0.250	0	0.200	0	0	0	0
5	PAT	1	0	1	0.500	0	1	0.500	0.500	0.333	0	0	0.500	0	0.333	0	0	0	0
6	JENNIE	0.500	0	0.500	1	1	0	0.500	1	0.250	0	0	0.333	0	0.250	0	0	0	0
7	PAULINE	0.500	0	1	1	1	0.500	0	0.500	0.250	0	0	0.333	0	0.250	0	0	0	0
8	ANN	0.333	0	0.500	1	0.500	1	1	0	0.200	0	0	0.250	0	0.200	0	0	0	0
9	MICHAEL	1	0	0.333	0.500	0.500	0.333	0.333	0.333	0	0	0	1	0	1	0	0	0	0
10	BILL	0.500	0	0.250	0.333	0.333	0.250	0.250	0.250	1	0	0	1	0	1	0	0	0	0

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11     LEE 0.200     1 0.143 0.167 0.167 0.143 0.143 0.143 0.250     0       0.200     0 0.200 0.333     1     1 0.500
12     DON     1     0 0.333 0.500 0.500 0.333 0.333 0.333     1     0     0           0     1     0     0     0     0
13    JOHN 0.333 0.250 0.500 0.500 0.500 0.333     1 0.333 0.500     0 0.333 0.333       0.333     1 0.500 0.500     1
14   HARRY     1     0 0.333 0.500 0.500 0.333 0.333 0.333     1     0     0     1     0           0     0     0     0
15    GERY 0.500 0.333 0.250 0.333 0.333 0.250 0.250 0.250     1     0 0.500 0.500     0 0.500           1 0.500     1
16   STEVE 0.250 0.500 0.167 0.200 0.200 0.167 0.167 0.167 0.333     0     1 0.250     0 0.250 0.500           1     1
17    BERT 0.250 0.500 0.167 0.200 0.200 0.167 0.167 0.167 0.333     0     1 0.250     0 0.250 0.500     1           1
18    RUSS 0.333 0.333 0.200 0.250 0.250 0.200 0.200 0.200 0.500     0 0.500 0.333     0 0.333     1     1     1
```

CLI

->g = geo(campnet)
->dsp g

Alternatively, you can use:

->g = geo(campnet recip)
->dsp g