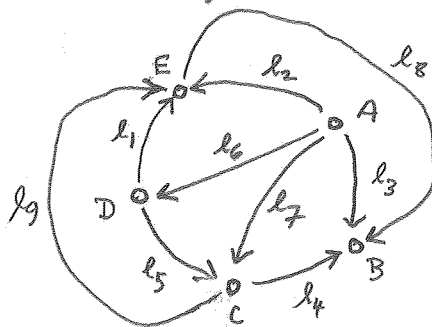


CE 597 Adj. Geosp. Obs. Homework 1  
 assigned Wed. 31 Aug 2016, due 1 week (7<sup>th</sup>)

1. Level network, all obs. have equal precision ( $\Rightarrow$  equal weights)  
 Solve by scalar methods (except for normal equations)

- (a) observations only
  - (b) indirect observations
- "  $\rightarrow$  " points uphill



$l =$

2.397
3.704
3.925
0.381
2.200
1.281
3.491
0.173
0.214

2. Fit a cubic polynomial to the observed  $y$  values.  $x$ 's are constant.  
 Observations have equal precision, solve by scalar methods (except for normal equations, using indirect observations).

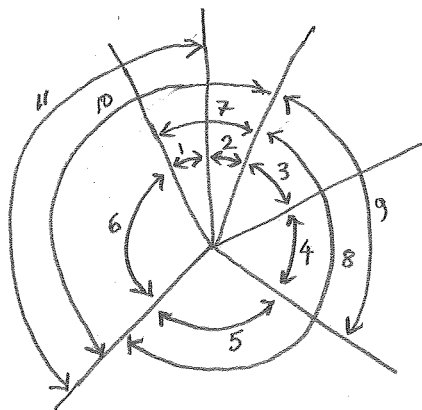
$$y = a_0 + a_1 x + a_2 x^2 + a_3 x^3$$

$x$	$y$
1	1.00
2	1.20
3	0.75
4	-0.50
5	-1.00
6	-0.50
7	1.00

3. Solve the angle figure by LS using scalar methods (except for N.E.),  
 using

- (a) observations only, with all  $\sigma_i = 0.5$  degree
- (b) indirect observations, with all  $\sigma_i = 0.5$  degree, except

$$\sigma_3 = 0.1 \text{ degree}$$



$a =$

141.17
25.57
45.41
99.73
70.35
104.58
40.07
215.60
145.01
144.63
120.09

degrees