Linijska mreža

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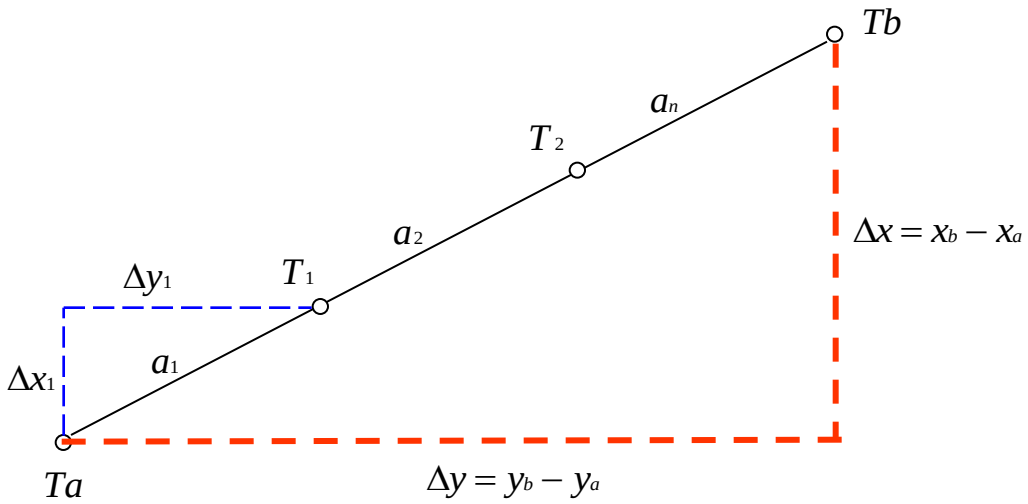
Linijska mreža

- Linijska mreža je mreža malih točaka
- Postavlja se tamo gdje je detalj suviše gust da bi se mogao snimiti samo s poligonske mreže
- Male točke postavljamo na liniji i na okomici

Male točke na liniji

Linija snimanja definirana je svojim krajnjim točkama poznatim po koordinatama: $T_a(y_a,x_a)$, $T_b(y_b,x_b)$.



Na liniji snimanja treba odrediti položaj točaka T_1 i T_2

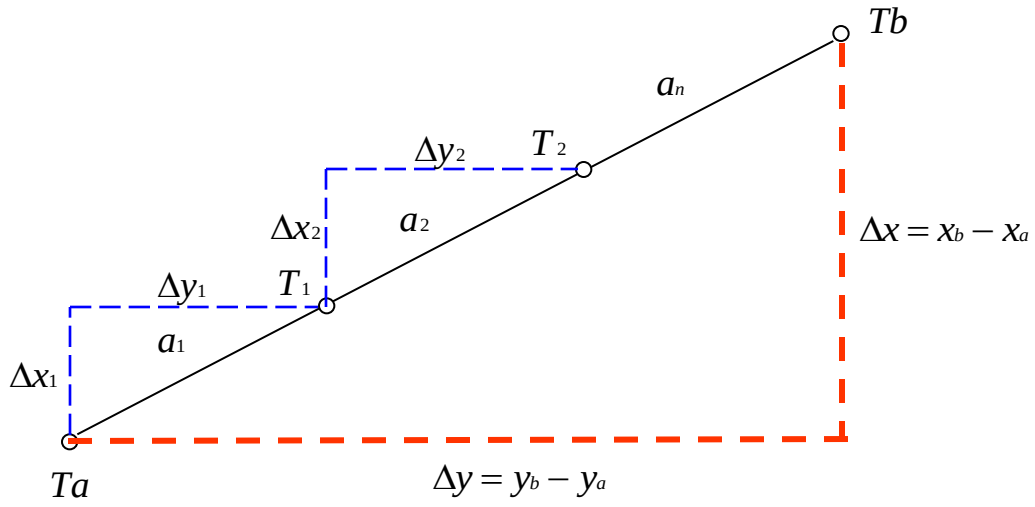
Mjerene dužine-apscise: $a_1, a_2, \ldots, a_n$

Male točke na liniji

Koord. razlike malih točaka računaju se na temelju sličnosti trokuta

$$\Delta y_1 : a_1 = \Delta y : [a] \Rightarrow \Delta y_1 = \frac{\Delta y}{[a]} \cdot a_1 = \frac{y_b - y_a}{[a]} \cdot a_1 \qquad \frac{y_b - y_a}{[a]} = \sin \angle = p \qquad \underline{\Delta y_1 = p \cdot a_1}$$

$$\Delta x_1 : a_1 = \Delta x : [a] \Rightarrow \Delta x_1 = \frac{\Delta x}{[a]} \cdot a_1 = \frac{x_b - x_a}{[a]} \cdot a_1 \qquad \frac{x_b - x_a}{[a]} = \cos \angle = q \qquad \underline{\Delta x_1 = q \cdot a_1}$$



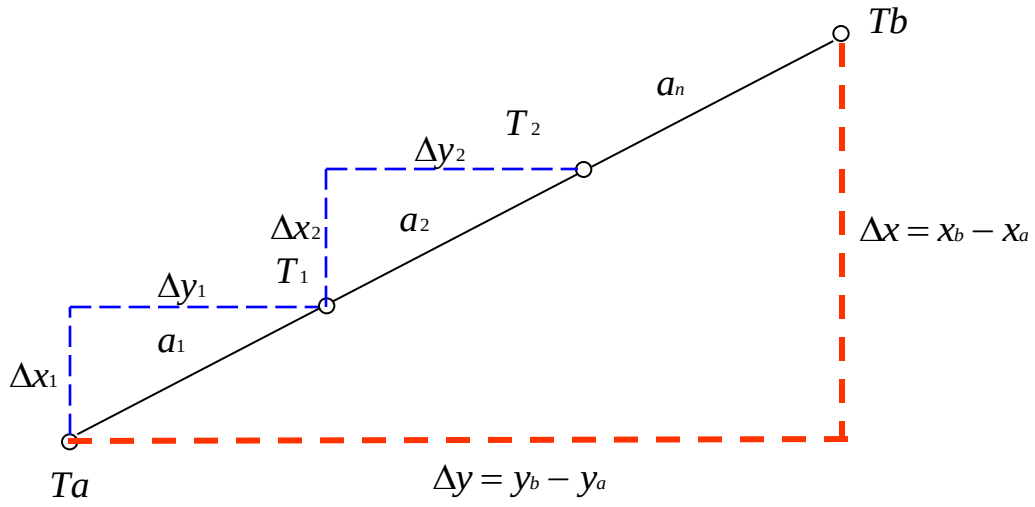
$$[a] = a1 + ... + an$$

Male točke na liniji

Koord. razlike malih točaka računaju se na temelju sličnosti trokuta

$$\Delta y_2 : a_2 = \Delta y : [a] \Rightarrow \quad \Delta y_2 = \frac{\Delta y}{[a]} \cdot a_2 = \frac{y_b - y_a}{[a]} \cdot a_2 \qquad \frac{y_b - y_a}{[a]} = \sin\angle = p \qquad \Delta y_2 = p \cdot a_2$$

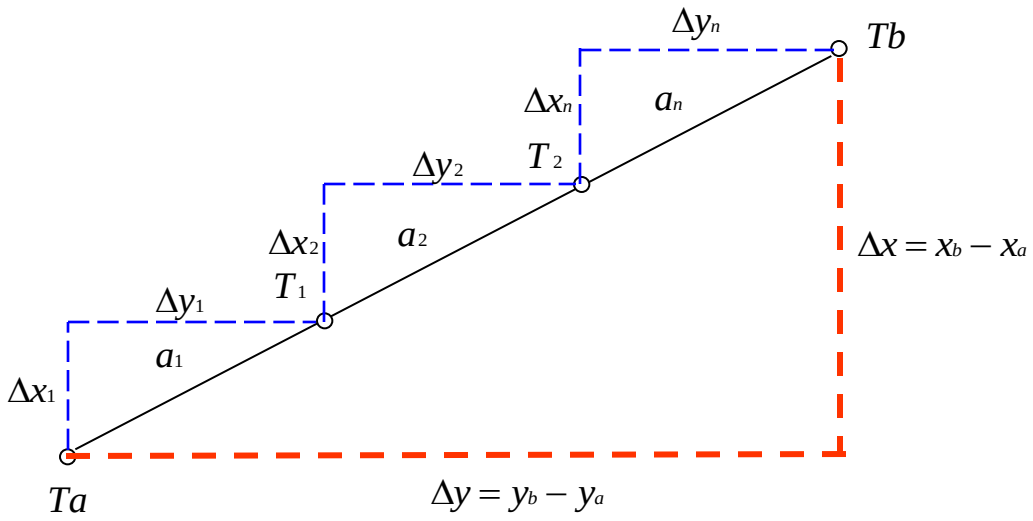
$$\Delta x_2 : a_2 = \Delta x : [a] \Rightarrow \quad \Delta x_2 = \frac{\Delta x}{[a]} \cdot a_2 = \frac{x_b - x_a}{[a]} \cdot a_2 \qquad \frac{x_b - x_a}{[a]} = \cos\angle = q \qquad \Delta x_2 = q \cdot a_2$$



Male točke na liniji

$$\Delta y_n : a_n = \Delta y : [a] \Rightarrow \Delta y_n = \frac{\Delta y}{[a]} \cdot a_n = \frac{y_b - y_a}{[a]} \cdot a_n \qquad \frac{y_b - y_a}{[a]} = \sin \nu = p \qquad \underline{\Delta y_n = p \cdot a_n}$$

$$\Delta x_n : a_n = \Delta x : [a] \Rightarrow \Delta x_n = \frac{\Delta x}{[a]} \cdot a_n = \frac{x_b - x_a}{[a]} \cdot a_n \qquad \frac{x_b - x_a}{[a]} = \cos \nu = q \qquad \underline{\Delta x_n = q \cdot a_n}$$



Apscisa a_n je prekobrojno mjerenje koje omogućava kontrolu mjerenja i računanja

Male točke na liniji

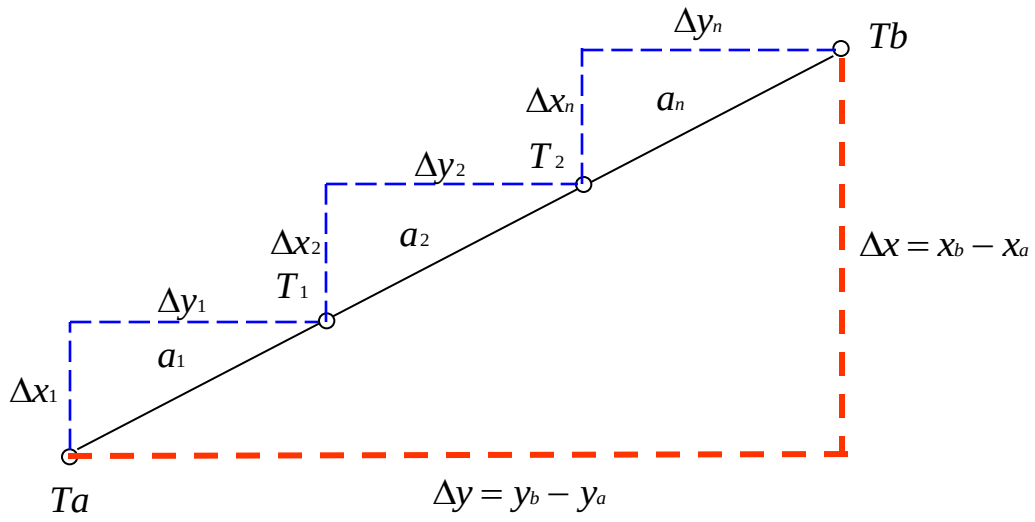
Koordinate malih točaka na liniji bit će određene na slijedeći način :

$$y_1 = y_a + \Delta y_1 \qquad x_1 = x_a + \Delta x_1$$

$$y_2 = y_1 + \Delta y_2 \qquad x_2 = x_1 + \Delta x_2$$

Za kontrolu

$$y_b = y_2 + \Delta y_n \qquad x_b = x_2 + \Delta x_n$$



Male točke na liniji

Pogrešku mjerenja računamo po formuli:

$$fd = \sqrt{(y_b - y_a)^2 + (x_b - x_a)^2} - [a]$$

a dopuštena odstupanja:

$$\Delta I = 0.007\sqrt{[a]}$$

$$\Delta II = 0.009\sqrt{[a]}$$

$$\Delta III = 0.012\sqrt{[a]}$$

$$\Delta pt = 0.0025\sqrt{[a]}$$

Tr.obr.br.22.

$p = \frac{(y_b - y_a)}{[a]}$ $\quad d = \sqrt{(y_b - y_a)^2 + (x_b - x_a)^2}$ $\quad \Delta y = p \cdot a + q \cdot o$ $\quad y_n = y_{n-1} + \Delta y$

$q = \frac{(x_b - x_a)}{[a]}$ $\quad f_d = d - [a]$ $\quad \Delta x = q \cdot a - p \cdot o$ $\quad x_n = x_{n-1} + \Delta x$

	a	$+o$	$-o$	y_n	x_n	Br. toč.
$p =$ 0.91636						
$q =$ 0.39970				45123.54	34512.48	10
	34.20			31.34	13.67	
$p^2 =$ 0.83972				45154.88	34526.15	101
	45.25			41.47	18.09	
$q^2 =$ 0.15976				45196.35	34544.24	102
	60.35			55.30	24.12	
$1 \approx$ 0.99948				45251.65	34568.36	103
	41.38			37.92	16.54	
$(y_b - y_a)^2 =$ 40767.65				45289.57	34584.90	104
	39.16			35.88	15.65	
$(x_b - x_a)^2 =$ 7756.32				45325.45	34600.55	11
	220.34					
$d^2 =$ 48513.97				201.91	88.07	
$d =$ 220.26						
$[a] =$ 220.34						
$f_d =$ -0.08						
$\Delta. =$ 0.10