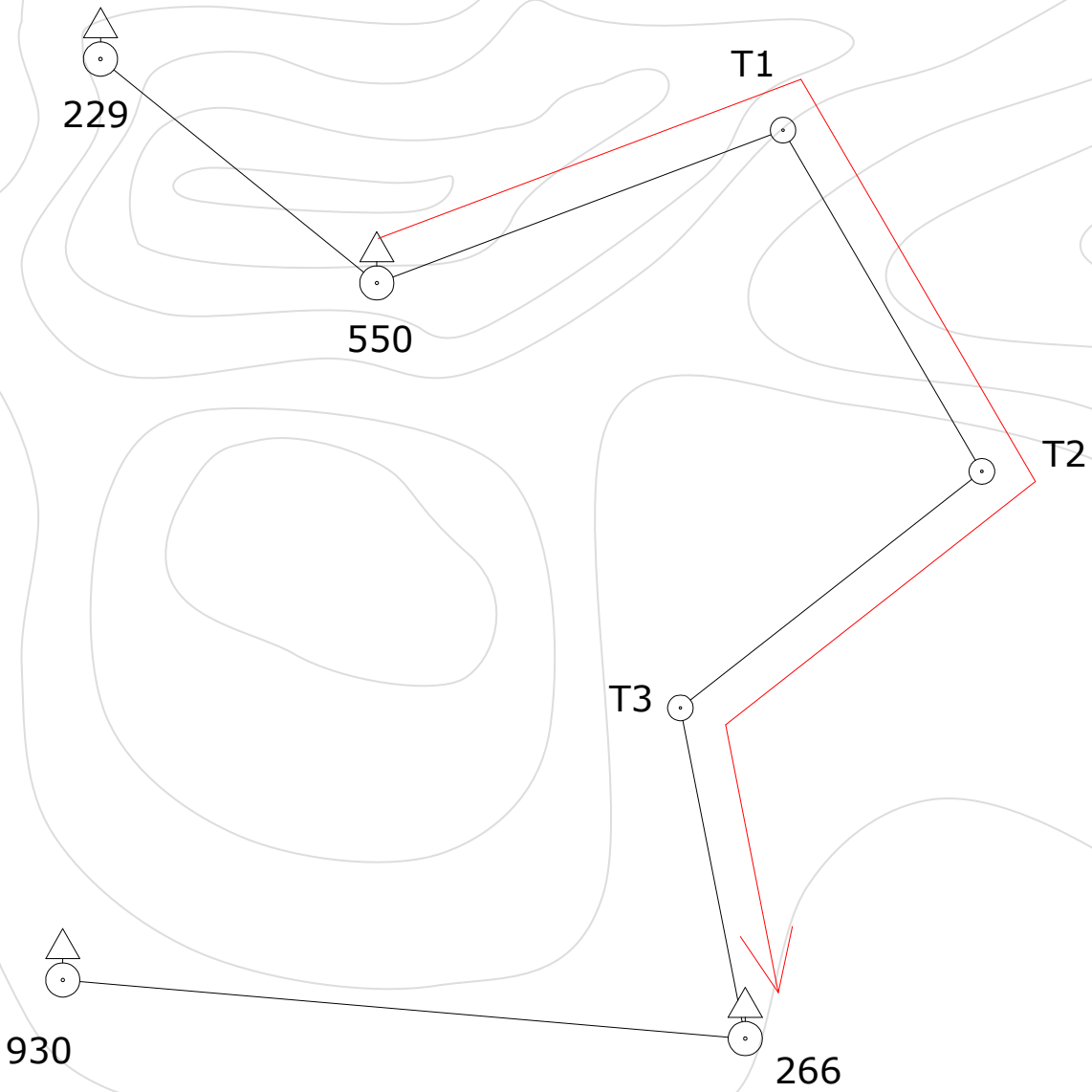
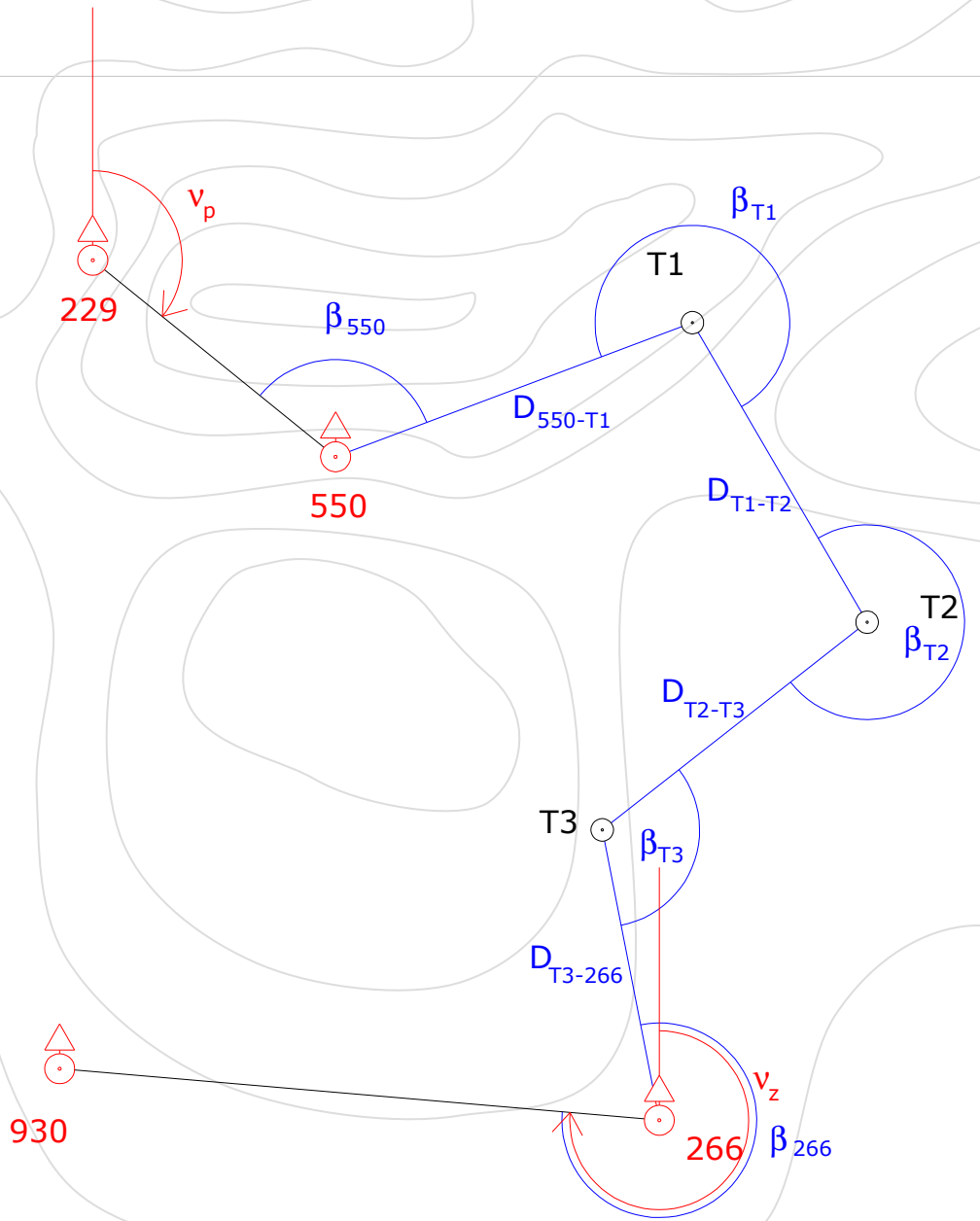
SMER RAČUNANJA POLIGONSKOG VLAKA

(može se odabrati smer po želji, ali dalji postupak zavisi od odabranog smera)





Date veličine:

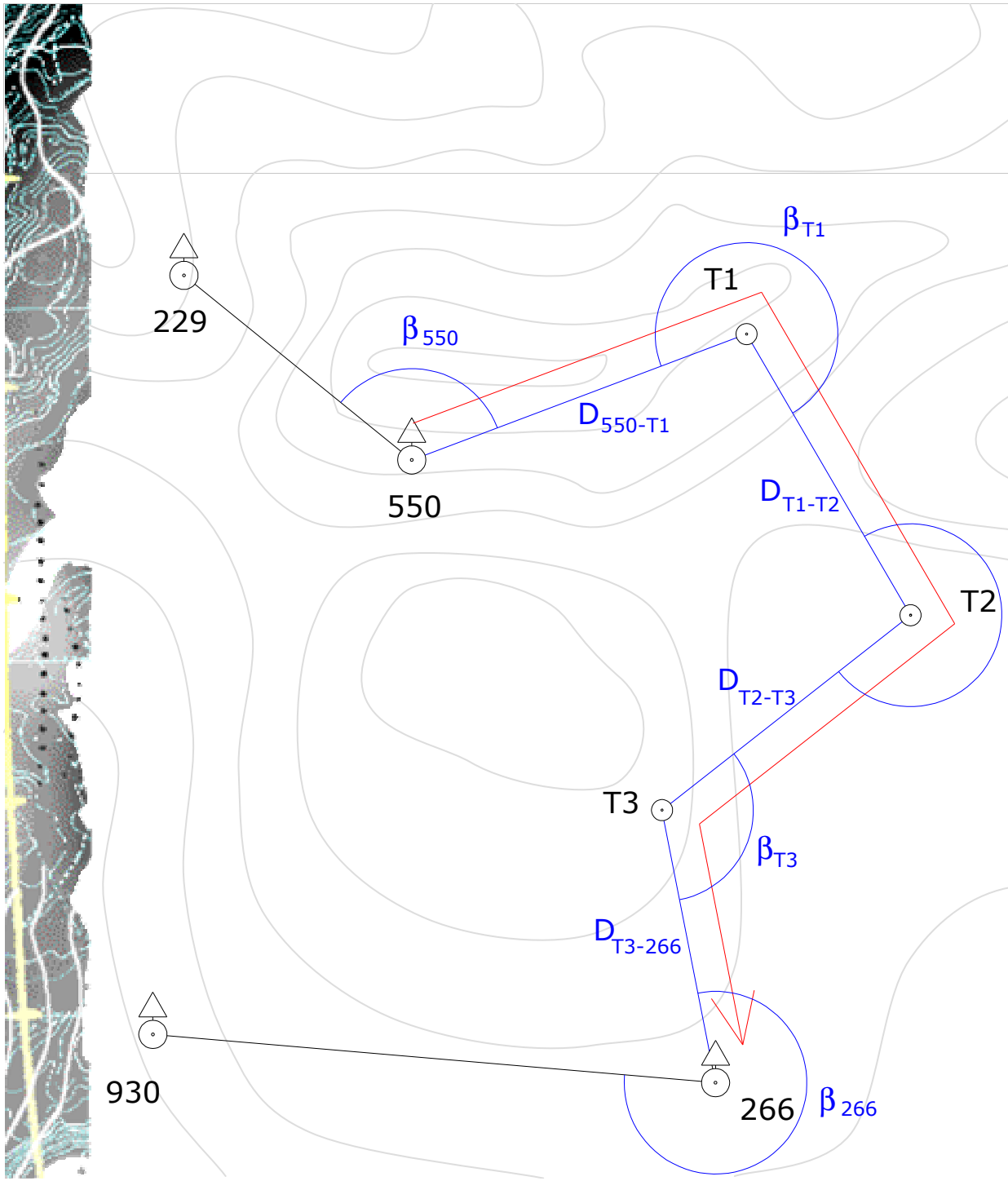
koordinate tačaka 229, 550, 266 i 930

Sračunati direkcione uglove:

$\nu_p = \nu_{229}^{550}$

$\nu_z = \nu_{266}^{930}$

ν_z je već sračunat u 3. zadatku!

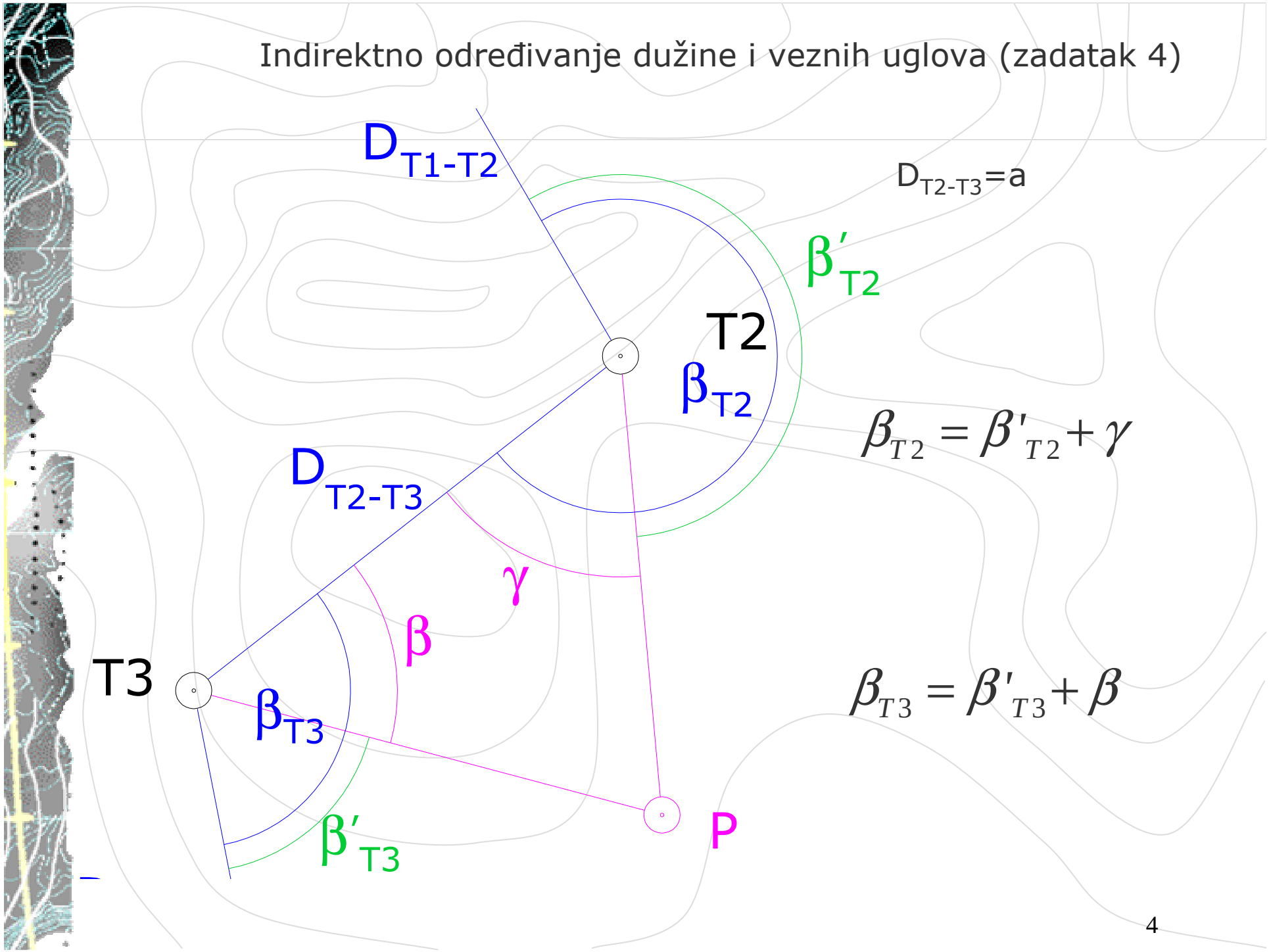


Merene veličine:

prelomni i vezni uglovi - **sa leve strane u smeru računanja vlaka,** uglovi se računaju iz redukovanih sredina, vidi računanje β i γ u 3. zadatku

dužine poligonskih strana **horizontalne dužine**

Indirektno određivanje dužine i veznih uglova (zadatak 4)



$$\beta_{T2} = \beta'_{T2} + \gamma$$

$$\beta_{T3} = \beta'_{T3} + \beta$$

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
550	β_{550}	ν_p				Yp	Xp	550
T1	β_{T1}							T1
T2	β_{T2}							T2
T3	β_{T3}							T3
266	β_{266}					Yz	Xz	266
930		ν_z						
M= T= f= v=								

Uglovno odstupanje f_β se računa:

$$f_\beta = T - M$$

Gde su:

$$T = \nu_Z + n*180°$$ n - broj prelomnih i veznih uglova

$$M = \nu_P + \sum \beta_i$$

Pri tome mora biti:

$$f_\beta \leq \Delta_{dozv}$$

Računanje popravaka:

$$\nu_\beta = \frac{f_\beta}{n}$$

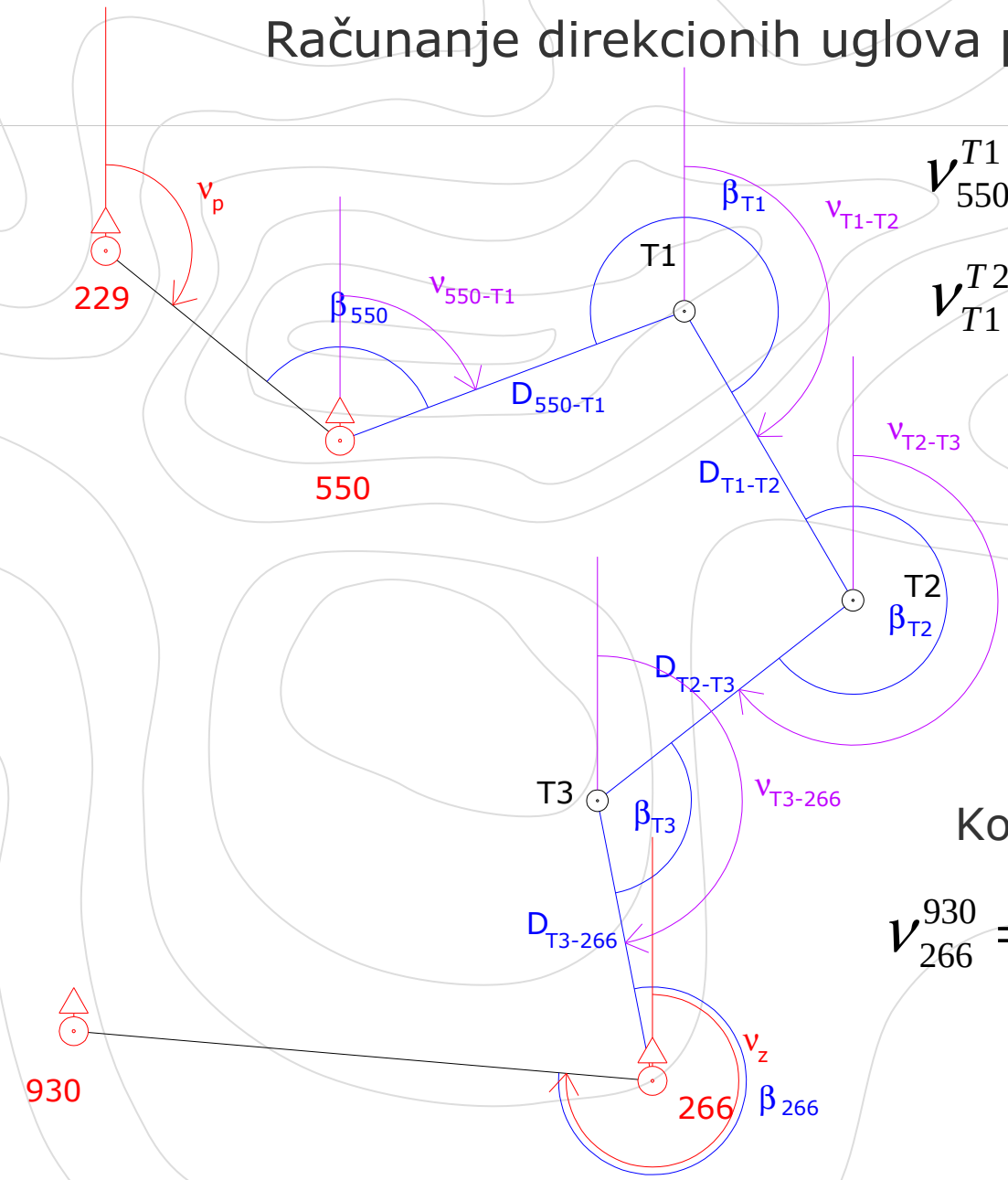
Pri zaokruživanju voditi računa da bude:

$$\sum \nu_{\beta_i} = f_\beta$$

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
		ν_p						
550	β_{550}					Yp	Xp	550
T1	β_{T1}							T1
T2	β_{T2}							T2
T3	β_{T3}							T3
266	β_{266}					Yz	Xz	266
		ν_z						
930								
M=	$\nu_p+\Sigma\beta$							
T=	ν_z+n180							
f=	T-M							
v=								

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
	v_β	ν_p						
550	β_{550}					Yp	Xp	550
	v_β							
T1	β_{T1}							T1
	v_β							
T2	β_{T2}							T2
	v_β							
T3	β_{T3}							T3
	v_β							
266	β_{266}					Yz	Xz	266
		ν_z						
930								
M=	$\nu_p+\Sigma\beta$							
T=	ν_z+n180							
f=	T-M							
v=								

Računanje direkcionih uglova poligonskih strana



$$\nu_{550}^{T1} = \nu_{229}^{550} + \beta_{550} + \nu_{\beta} \pm 180°$$

$$\nu_{T1}^{T2} = \nu_{550}^{T1} + \beta_{T1} + \nu_{\beta} \pm 180°$$

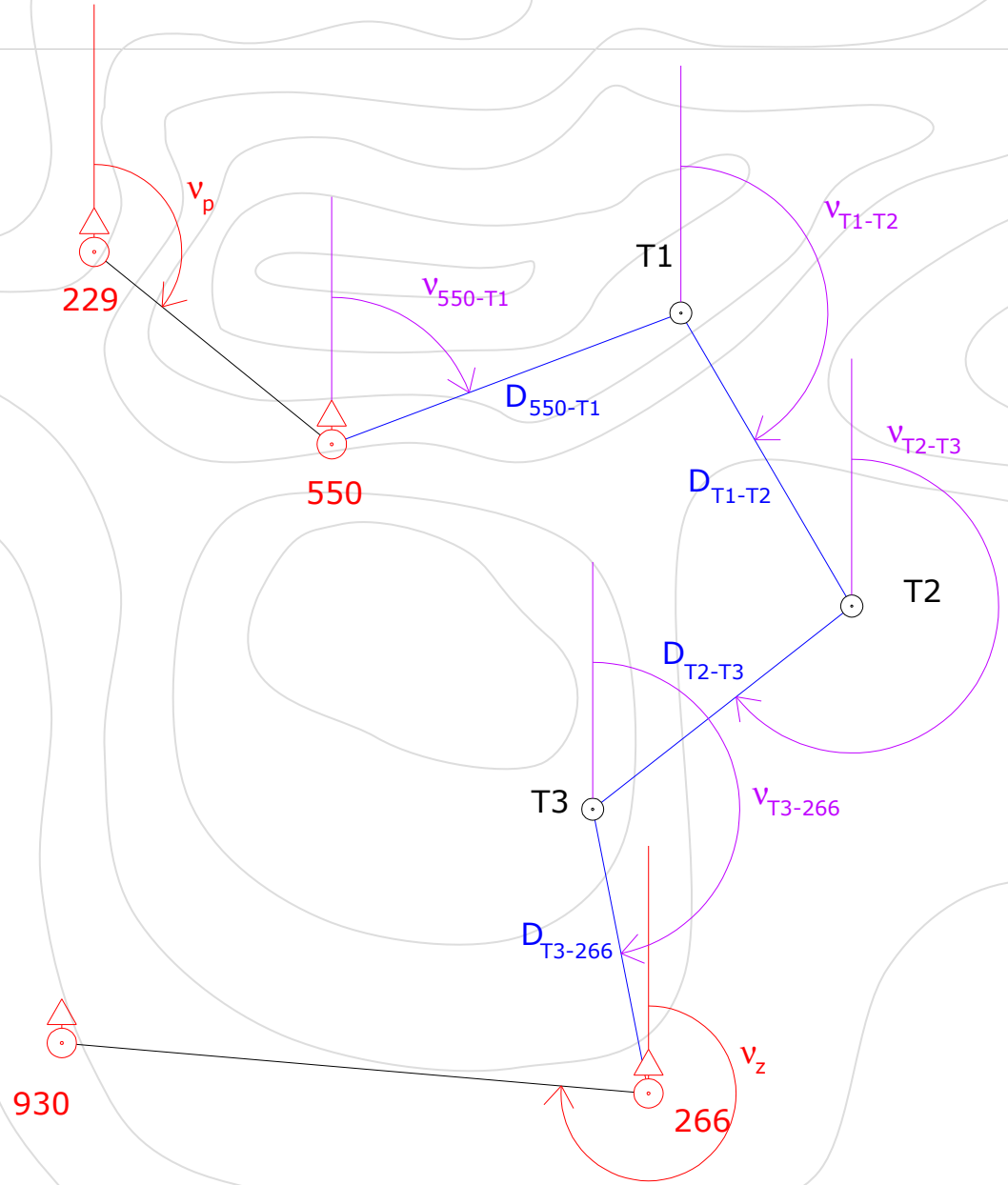
nastavi niz ...

Kontrola

$$\nu_{266}^{930} = \nu_{T3}^{266} + \beta_{266} + \nu_{\beta} \pm 180°$$

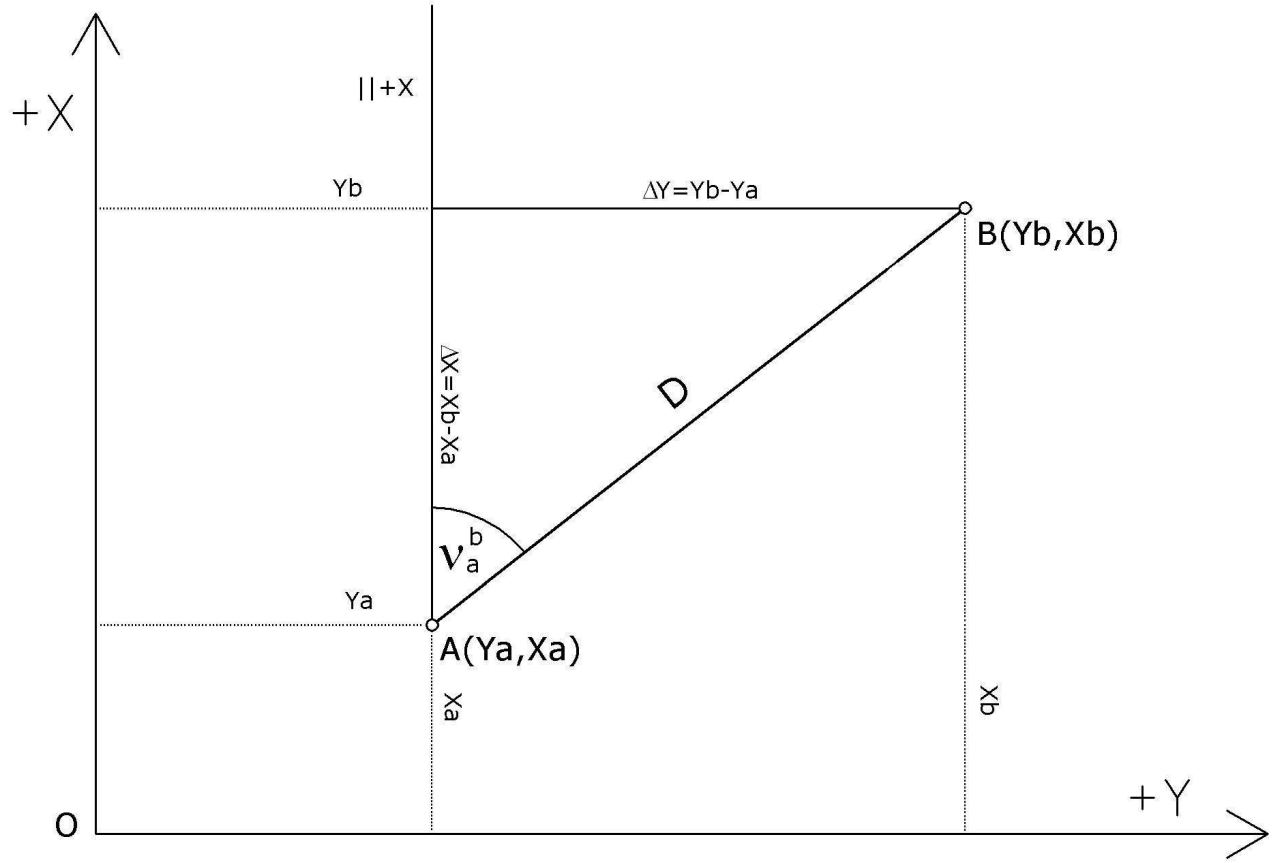
T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
550	ν_β + β_{550}	ν_p + ± 180				Yp	Xp	550
T1	ν_β β_{T1}	$\nu_{550}{}^{T1}$						T1
T2	ν_β β_{T2}							T2
T3	ν_β β_{T3}							T3
266	ν_β β_{266}					Yz	Xz	266
930		ν_z						
M=	$\nu_p+\Sigma\beta$							
T=	ν_z+n180							
f=	T-M							
v=								

Računanje koordinatnih razlika između poligonskih tačaka u vlaku



- direkcioni uglovi
- dužine pol. strana

Za dato ν_a^b, dužinu i datu tačku (opšti slučaj):



$$\Delta y_{a-b} = d_{a-b} \cdot \sin \nu_a^b \qquad Y_b = Y_a + \Delta y_{a-b}$$

$$\Delta x_{a-b} = d_{a-b} \cdot \cos \nu_a^b \qquad X_b = X_a + \Delta x_{a-b}$$

Računanje koordinatnih razlika poligonskih strana

$$\Delta y_{550-T1} = d_{550-T1} \cdot \sin \nu_{550}^{T1} \qquad \Delta x_{550-T1} = d_{550-T1} \cdot \cos \nu_{550}^{T1}$$

$$\Delta y_{T1-T2} = d_{T1-T2} \cdot \sin \nu_{T1}^{T2} \qquad \Delta x_{T1-T2} = d_{T1-T2} \cdot \cos \nu_{T1}^{T2}$$

$$\Delta y_{T2-T3} = d_{T2-T3} \cdot \sin \nu_{T2}^{T3} \qquad \Delta x_{T2-T3} = d_{T2-T3} \cdot \cos \nu_{T2}^{T3}$$

$$\Delta y_{T3-266} = d_{T3-266} \cdot \sin \nu_{T3}^{266} \qquad \Delta x_{T3-266} = d_{T3-266} \cdot \cos \nu_{T3}^{266}$$

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
550	ν_β β_{550}	ν_p				Yp	Xp	550
T1	ν_β β_{T1}	$\nu_{550}{}^{T1}$	$D_{550\text{-}T1}$	$\Delta y_{550\text{-}T1}$	$\Delta x_{550\text{-}T1}$			T1
T2	ν_β β_{T2}							T2
T3	ν_β β_{T3}							T3
266	ν_β β_{266}					Yz	Xz	266
930		ν_z						
M=	$\nu_p+\Sigma\beta$							
T=	ν_z+n180							
f=	T-M							
v=								

Računanje linearnih odstupanja:

$$f_Y = T_Y - M_Y \qquad f_X = T_X - M_X$$

$$T_Y = Y_{266} - Y_{550} \qquad T_X = X_{266} - X_{550}$$

$$M_Y = \sum \Delta y \qquad M_X = \sum \Delta x$$

Ukupno linearno odstupanje:

$$f_d = \sqrt{f_Y^2 + f_X^2}$$

Pri čemu mora biti:

$$f_d \leq \Delta_{dozv}$$

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
	ν_β	ν_p						
550	β_{550}					Yp	Xp	550
	ν_β	$\nu_{550}{}^{T1}$	$D_{550\text{-}T1}$	$\Delta y_{550\text{-}T1}$	$\Delta x_{550\text{-}T1}$			
T1	β_{T1}							T1
	ν_β			$\Delta y_{T1\text{-}T2}$	$\Delta x_{T1\text{-}T2}$			
T2	β_{T2}							T2
	ν_β			$\Delta y_{T2\text{-}T3}$	$\Delta x_{T2\text{-}T3}$			
T3	β_{T3}							T3
	ν_β			$\Delta y_{T3\text{-}266}$	$\Delta x_{T3\text{-}266}$			
266	β_{266}					Yz	Xz	266
		ν_z						
930			M=	$\Sigma\Delta y$	$\Sigma\Delta x$			
M=	$\nu_p+\Sigma\beta$		T=	Yz-Yp	Xz-Xp			
T=	ν_z+n180		f=	Ty-My	Tx-Mx			
f=	T-M		fd=					
v=								

Računanje popravaka:

$$v_{\Delta y} = \frac{f_Y}{\sum d_i} \cdot d_i \qquad v_{\Delta x} = \frac{f_X}{\sum d_i} \cdot d_i$$

Pa za svaku poligonsku stranu imamo:

$$v_{\Delta y_{550-T1}} = \frac{f_Y}{\sum d_i} \cdot d_{550-T1} \qquad v_{\Delta x_{550-T1}} = \frac{f_X}{\sum d_i} \cdot d_{550-T1}$$

$$v_{\Delta y_{T1-T2}} = \frac{f_Y}{\sum d_i} \cdot d_{T1-T2} \qquad v_{\Delta x_{T1-T2}} = \frac{f_X}{\sum d_i} \cdot d_{T1-T2}$$

$$v_{\Delta y_{T2-T3}} = \frac{f_Y}{\sum d_i} \cdot d_{T2-T3} \qquad v_{\Delta x_{T2-T3}} = \frac{f_X}{\sum d_i} \cdot d_{T2-T3}$$

$$v_{\Delta y_{T3-266}} = \frac{f_Y}{\sum d_i} \cdot d_{T3-266} \qquad v_{\Delta x_{T3-266}} = \frac{f_X}{\sum d_i} \cdot d_{T3-266}$$

Pri zaokruživanju popravaka treba voditi računa da bude:

$$\sum v_{\Delta y_i} = f_Y \qquad \sum v_{\Delta x_i} = f_X$$

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
	ν_β	ν_p						
550	β_{550}			$\nu_{\Delta y1}$	$\nu_{\Delta x1}$	Yp	Xp	550
	ν_β	$\nu_{550}{}^{T1}$	$D_{550\text{-}T1}$	$\Delta y_{550\text{-}T1}$	$\Delta x_{550\text{-}T1}$			
T1	β_{T1}			$\nu_{\Delta y2}$	$\nu_{\Delta x2}$			T1
	ν_β			$\Delta y_{T1\text{-}T2}$	$\Delta x_{T1\text{-}T2}$			
T2	β_{T2}			$\nu_{\Delta y3}$	$\nu_{\Delta x3}$			T2
	ν_β			$\Delta y_{T2\text{-}T3}$	$\Delta x_{T2\text{-}T3}$			
T3	β_{T3}			$\nu_{\Delta y4}$	$\nu_{\Delta x4}$			T3
	ν_β			$\Delta y_{T3\text{-}266}$	$\Delta x_{T3\text{-}266}$			
266	β_{266}					Yz	Xz	266
		ν_z						
930			M=	$\Sigma\Delta y$	$\Sigma\Delta x$			
M=	$\nu_p+\Sigma\beta$		T=	Yz-Yp	Xz-Xp			
T=	ν_z+n180		f=	Ty-My	Tx-Mx			
f=	T-M		fd=					
v=								

Računanje koordinata poligonskih tačaka:

$$Y_{T1} = Y_{550} + \Delta y_{550-T1} + v_{\Delta y_1} \qquad X_{T1} = X_{550} + \Delta x_{550-T1} + v_{\Delta x_1}$$

$$Y_{T2} = Y_{T1} + \Delta y_{T1-T2} + v_{\Delta y_2} \qquad X_{T2} = X_{T1} + \Delta x_{T1-T2} + v_{\Delta x_2}$$

$$Y_{T3} = Y_{T2} + \Delta y_{T2-T3} + v_{\Delta y_3} \qquad X_{T3} = X_{T2} + \Delta x_{T2-T3} + v_{\Delta x_3}$$

Za kontrolu računamo:

$$Y_{266} = Y_{T3} + \Delta y_{T3-266} + v_{\Delta y_4} \qquad X_{266} = X_{T3} + \Delta x_{T3-266} + v_{\Delta x_4}$$

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
	ν_β	ν_p			+			
550	β_{550}			$\nu_{\Delta y1}$	$\nu_{\Delta x1}$	Yp	Xp	550
	ν_β	$\nu_{550}{}^{T1}$	$D_{550\text{-}T1}$	$\Delta y_{550\text{-}T1}$	$\Delta x_{550\text{-}T1}$			
T1	β_{T1}			$\nu_{\Delta y2}$	$\nu_{\Delta x2}$	Y_{T1}		T1
	ν_β			$\Delta y_{T1\text{-}T2}$	$\Delta x_{T1\text{-}T2}$			
T2	β_{T2}			$\nu_{\Delta y3}$	$\nu_{\Delta x3}$			T2
	ν_β			$\Delta y_{T2\text{-}T3}$	$\Delta x_{T2\text{-}T3}$			
T3	β_{T3}			$\nu_{\Delta y4}$	$\nu_{\Delta x4}$			T3
	ν_β			$\Delta y_{T3\text{-}266}$	$\Delta x_{T3\text{-}266}$			
266	β_{266}					Yz	Xz	266
		ν_z						
930			M=	$\Sigma\Delta y$	$\Sigma\Delta x$			
M=	$\nu_p+\Sigma\beta$		T=	Yz-Yp	Xz-Xp			
T=	ν_z+n180		f=	Ty-My	Tx-Mx			
f=	T-M		fd=					
v=								

T	β	ν	d	Δy	Δx	Y	X	T
229	ν_p							
	ν_β	ν_p				+		
550	β_{550}			$\nu_{\Delta y1}$	+ $\nu_{\Delta x1}$	Yp	Xp	550
	ν_β	$\nu_{550}{}^{T1}$	$D_{550\text{-}T1}$	$\Delta y_{550\text{-}T1}$	$\Delta x_{550\text{-}T1}$			
T1	β_{T1}			$\nu_{\Delta y2}$	$\nu_{\Delta x2}$	Y_{T1}	X_{T1}	T1
	ν_β			$\Delta y_{T1\text{-}T2}$	$\Delta x_{T1\text{-}T2}$			
T2	β_{T2}			$\nu_{\Delta y3}$	$\nu_{\Delta x3}$			T2
	ν_β			$\Delta y_{T2\text{-}T3}$	$\Delta x_{T2\text{-}T3}$			
T3	β_{T3}			$\nu_{\Delta y4}$	$\nu_{\Delta x4}$			T3
	ν_β			$\Delta y_{T3\text{-}266}$	$\Delta x_{T3\text{-}266}$			
266	β_{266}					Yz	Xz	266
		ν_z						
930			M=	$\Sigma\Delta y$	$\Sigma\Delta x$			
M=	$\nu_p+\Sigma\beta$		T=	Yz-Yp	Xz-Xp			
T=	ν_z+n180		f=	Ty-My	Tx-Mx			
f=	T-M		fd=					
v=								