PSALTer results panel

$$\mathcal{S} == \int\int\int\int \left(\frac{1}{6}\left(6\,t_{1.}\,\mathcal{A}^{\alpha\,\prime}{}_{\alpha}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta} + 6\,\mathcal{A}^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi} + 6\,f^{\alpha\beta}\,\tau\,(\Delta+\mathcal{K})_{\alpha\beta} - 12\,t_{1.}\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\prime}f^{\alpha\,\prime} + 12\,t_{1.}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} - 6\,t_{1.}\,\partial_{\prime}f^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} - 6\,t_{1.}\,\partial_{\prime}f^{\alpha\,\prime}\,\partial_{\theta}f_{\alpha}{}^{\theta} + 12\,t_{1.}\,\partial^{\prime}f^{\alpha}{}_{\alpha}\,\partial_{\theta}f_{\prime}{}^{\theta} + 8\,r_{2.}\,\partial_{\beta}\mathcal{A}_{\alpha\,\prime\,\theta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} - 4\,r_{2.}\,\partial_{\beta}\mathcal{A}_{\alpha\theta\,\prime}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} + 4\,r_{2.}\,\partial_{\beta}\mathcal{A}_{\prime\,\theta\alpha}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} - 2\,r_{2.}\,\partial_{\prime}\mathcal{A}_{\alpha\beta\theta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} + 2\,r_{2.}\,\partial_{\theta}\mathcal{A}_{\alpha\beta\,\prime}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} - 4\,r_{2.}\,\partial_{\theta}\mathcal{A}_{\alpha\,\prime\,\beta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} + 6\,r_{5.}\,\partial_{\prime}\mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha} - 6\,r_{5.}\,\partial_{\theta}\mathcal{A}_{\prime}{}^{\kappa}{}_{\kappa}\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha} + 4\,t_{1.}\,\mathcal{A}_{\prime\,\theta\alpha}\,\partial^{\theta}f^{\alpha\,\prime} + 4\,t_{2.}\,\mathcal{A}_{\prime\,\theta\alpha}\,\partial^{\theta}f^{\alpha\,\prime} - 4\,t_{1.}\,\partial_{\alpha}f_{\prime\,\theta}\,\partial^{\theta}f^{\alpha\,\prime} + 2\,t_{2.}\,\partial_{\alpha}f_{\prime\,\theta}\,\partial^{\theta}f^{\alpha\,\prime} - 4\,t_{1.}\,\partial_{\alpha}f_{\theta\,\prime}\,\partial^{\theta}f^{\alpha\,\prime} - t_{2.}\,\partial_{\alpha}f_{\theta\,\prime}\,\partial^{\theta}f^{\alpha\,\prime} + 2\,t_{1.}\,\partial_{\prime}f_{\alpha\theta}\,\partial^{\theta}f^{\alpha\,\prime} - t_{2.}\,\partial_{\prime}f_{\alpha\theta}\,\partial^{\theta}f^{\alpha\,\prime} + 4\,t_{1.}\,\partial_{\theta}f_{\alpha\,\prime}\,\partial^{\theta}f^{\alpha\,\prime} + t_{2.}\,\partial_{\theta}f_{\alpha\,\prime}\,\partial^{\theta}f^{\alpha\,\prime} + 2\,t_{1.}\,\partial_{\theta}f_{\prime\,\alpha}\,\partial^{\theta}f^{\alpha\,\prime} - t_{2.}\,\partial_{\theta}f_{\prime\,\alpha}\,\partial^{\theta}f^{\alpha\,\prime} + 2\left(t_{1.}+t_{2.}\right)\mathcal{A}_{\alpha\,\prime\,\theta}\left(\mathcal{A}^{\alpha\,\prime\,\theta} + 2\,\partial^{\theta}f^{\alpha\,\prime}\right) + 2\,\mathcal{A}_{\alpha\theta\,\prime}\left(\left(t_{1.}-2\,t_{2.}\right)\mathcal{A}^{\alpha\,\prime\,\theta} + 2\left(2\,t_{1.}-t_{2.}\right)\partial^{\theta}f^{\alpha\,\prime}\right) - 6\,r_{5.}\,\partial_{\alpha}\mathcal{A}^{\alpha\,\prime\,\theta}\,\partial_{\kappa}\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 12\,r_{5.}\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha}\,\partial_{\kappa}\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 6\,r_{5.}\,\partial_{\alpha}\mathcal{A}^{\alpha\,\prime\,\theta}\,\partial_{\kappa}\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime} - 12\,r_{5.}\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha}\,\partial_{\kappa}\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime}\right)\right)[t,\,x,\,y,\,z]\,dz\,dy\,dx\,dt$$

Wave operator

	$0^+_{\cdot}\mathcal{A}^{\parallel}$	$0^+_{\cdot}f^{\parallel}$	$0^+_{\cdot}f^{\perp}$	$0^-_{\cdot}\mathcal{A}^{\parallel}$
$0^+_{\cdot}\mathcal{A}^{\parallel}\,\dagger$	$-t_{1.}$	$i\sqrt{2}\,k\,t_{1.}$	0	0
$0^+_{\cdot}f^{\parallel}\,\dagger$	$-i\sqrt{2}\,k\,t_{1.}$	$-2\,k^2\,t_{1.}$	0	0
$0^+_{\cdot}f^{\perp}\,\dagger$	0	0	0	0
$0^-_{\cdot}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	$k^2\,r_{2.}+t_{2.}$

	$1^+_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_{\cdot}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_{\cdot}f^{\parallel}{}_{\alpha\beta}$	$1^-_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_{\cdot}f^{\parallel}{}_{\alpha}$	$1^-_{\cdot}f^{\perp}{}_{\alpha}$
$1^+_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{1}{6}\left(6\,k^2\,r_{5.}+t_{1.}+4\,t_{2.}\right)$	$-\frac{t_{1.}-2\,t_{2.}}{3\sqrt{2}}$	$-\frac{i\,k\left(t_{1.}-2\,t_{2.}\right)}{3\sqrt{2}}$	0	0	0	0
$1^+_{\cdot}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{t_{1.}-2\,t_{2.}}{3\sqrt{2}}$	$\frac{t_{1.}+t_{2.}}{3}$	$\frac{1}{3}\,i\,k\left(t_{1.}+t_{2.}\right)$	0	0	0	0
$1^+_{\cdot}f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\,k\left(t_{1.}-2\,t_{2.}\right)}{3\sqrt{2}}$	$-\frac{1}{3}\,i\,k\left(t_{1.}+t_{2.}\right)$	$\frac{1}{3}\,k^2\left(t_{1.}+t_{2.}\right)$	0	0	0	0
$1^-_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$k^2\,r_{5.}-\frac{t_{1.}}{2}$	$\frac{t_{1.}}{\sqrt{2}}$	0	$i\,k\,t_{1.}$
$1^-_{\cdot}\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{t_{1.}}{\sqrt{2}}$	0	0	0
$1^-_{\cdot}f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{\cdot}f^{\perp}\,\dagger^{\alpha}$	0	0	0	$-i\,k\,t_{1.}$	0	0	0

	$2^+_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_{\cdot}f^{\parallel}{}_{\alpha\beta}$	$2^-_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{t_{1.}}{2}$	$-\frac{i\,k\,t_{1.}}{\sqrt{2}}$	0
$2^+_{\cdot}f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\,k\,t_{1.}}{\sqrt{2}}$	$k^2\,t_{1.}$	0
$2^-_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{t_{1.}}{2}$

Saturated propagator

	$0^+_{\cdot}\sigma^{\parallel}$	$0^+_{\cdot}\tau^{\parallel}$	$0^+_{\cdot}\tau^{\perp}$	$0^-_{\cdot}\sigma^{\parallel}$
$0^+_{\cdot}\sigma^{\parallel}\,\dagger$	$-\frac{1}{\left(1+2\,k^2\right)^2 t_{1.}}$	$\frac{i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_{1.}}$	0	0
$0^+_{\cdot}\tau^{\parallel}\,\dagger$	$-\frac{i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_{1.}}$	$-\frac{2\,k^2}{\left(1+2\,k^2\right)^2 t_{1.}}$	0	0
$0^+_{\cdot}\tau^{\perp}\,\dagger$	0	0	0	0
$0^-_{\cdot}\sigma^{\parallel}\,\dagger$	0	0	0	$\frac{1}{k^2\,r_{2.}+t_{2.}}$

	$1^+_{\cdot}\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_{\cdot}\sigma^{\perp}{}_{\alpha\beta}$	$1^+_{\cdot}\tau^{\parallel}{}_{\alpha\beta}$	$1^-_{\cdot}\sigma^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\sigma^{\perp}{}_{\alpha}$	$1^-_{\cdot}\tau^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\tau^{\perp}{}_{\alpha}$
$1^+_{\cdot}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{2\left(t_{1.}+t_{2.}\right)}{3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)}$	$\frac{\sqrt{2}\left(t_{1.}-2\,t_{2.}\right)}{\left(1+k^2\right)\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	$\frac{i\sqrt{2}\,k\left(t_{1.}-2\,t_{2.}\right)}{\left(1+k^2\right)\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	0	0	0	0
$1^+_{\cdot}\sigma^{\perp}\,\dagger^{\alpha\beta}$	$\frac{\sqrt{2}\left(t_{1.}-2\,t_{2.}\right)}{\left(1+k^2\right)\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	$\frac{6\,k^2\,r_{5.}+t_{1.}+4\,t_{2.}}{\left(1+k^2\right)^2\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	$\frac{i\,k\left(6\,k^2\,r_{5.}+t_{1.}+4\,t_{2.}\right)}{\left(1+k^2\right)^2\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	0	0	0	0
$1^+_{\cdot}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{i\sqrt{2}\,k\left(t_{1.}-2\,t_{2.}\right)}{\left(1+k^2\right)\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	$-\frac{i\,k\left(6\,k^2\,r_{5.}+t_{1.}+4\,t_{2.}\right)}{\left(1+k^2\right)^2\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	$\frac{k^2\left(6\,k^2\,r_{5.}+t_{1.}+4\,t_{2.}\right)}{\left(1+k^2\right)^2\left(3\,t_{1.}\,t_{2.}+2\,k^2\,r_{5.}\left(t_{1.}+t_{2.}\right)\right)}$	0	0	0	0
$1^-_{\cdot}\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	$\frac{\sqrt{2}}{t_{1.}+2\,k^2\,t_{1.}}$	0	$\frac{2\,i\,k}{t_{1.}+2\,k^2\,t_{1.}}$
$1^-_{\cdot}\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{\sqrt{2}}{t_{1.}+2\,k^2\,t_{1.}}$	$\frac{-2\,k^2\,r_{5.}+t_{1.}}{\left(t_{1.}+2\,k^2\,t_{1.}\right)^2}$	0	$-\frac{i\sqrt{2}\,k\left(2\,k^2\,r_{5.}-t_{1.}\right)}{\left(t_{1.}+2\,k^2\,t_{1.}\right)^2}$
$1^-_{\cdot}\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{\cdot}\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{2\,i\,k}{t_{1.}+2\,k^2\,t_{1.}}$	$\frac{i\sqrt{2}\,k\left(2\,k^2\,r_{5.}-t_{1.}\right)}{\left(t_{1.}+2\,k^2\,t_{1.}\right)^2}$	0	$\frac{-4\,k^4\,r_{5.}+2\,k^2\,t_{1.}}{\left(t_{1.}+2\,k^2\,t_{1.}\right)^2}$

	$2^+_{\cdot}\sigma^{\parallel}{}_{\alpha\beta}$	$2^+_{\cdot}\tau^{\parallel}{}_{\alpha\beta}$	$2^-_{\cdot}\sigma^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{\cdot}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{2}{\left(1+2\,k^2\right)^2 t_{1.}}$	$-\frac{2\,i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_{1.}}$	0
$2^+_{\cdot}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{2\,i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_{1.}}$	$\frac{4\,k^2}{\left(1+2\,k^2\right)^2 t_{1.}}$	0
$2^-_{\cdot}\sigma^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{2}{t_{1.}}$

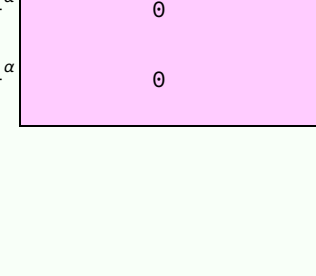
Source constraints

Spin-parity form	Covariant form	Multiplicities
$0^+_{\cdot}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$-2\,i\,k\,0^+_{\cdot}\sigma^{\parallel} + 0^+_{\cdot}\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha}{}_{\alpha} + 2\,\partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha}{}_{\alpha}{}^{\beta}$	1
$2\,i\,k\,1^-_{\cdot}\sigma^{\perp}{}^{\alpha} + 1^-_{\cdot}\tau^{\perp}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	3
$1^-_{\cdot}\tau^{\parallel}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\,(\Delta+\mathcal{K})^{\beta\alpha}$	3
$i\,k\,1^+_{\cdot}\sigma^{\perp}{}^{\alpha\beta} + 1^+_{\cdot}\tau^{\parallel}{}^{\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2\,i\,k\,2^+_{\cdot}\sigma^{\parallel}{}^{\alpha\beta} + 2^+_{\cdot}\tau^{\parallel}{}^{\alpha\beta} == 0$	$-i\left(4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi}{}_{\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 4\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\sigma^{\delta}{}_{\delta}{}^{\epsilon} - 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon} - 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon} + 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\alpha\beta\delta} + 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\beta\alpha\delta} + 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau\,(\Delta+\mathcal{K})^{\chi\delta} - 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau\,(\Delta+\mathcal{K})^{\chi}{}_{\chi} - 4\,i\,\eta^{\alpha\beta}\,k^{\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\chi}\sigma^{\delta}{}_{\delta}{}^{\epsilon}\right) == 0$	5
Total expected gauge generators:		16

Massive spectrum

Massive particle

Pole residue:	$-\frac{1}{r_{2.}} > 0$
Square mass:	$-\frac{t_{2.}}{r_{2.}} > 0$
Spin:	0
Parity:	Odd



Massive particle

Pole residue:	$\frac{-3\,t_{1.}\,t_{2.}\,(t_{1.}+t_{2.})+3\,r_{5.}\,(t_{1.}^2+2\,t_{2.}^2)}{r_{5.}\,(t_{1.}+t_{2.})\,(-3\,t_{1.}\,t_{2.}+2\,r_{5.}\,(t_{1.}+t_{2.}))} > 0$
Square mass:	$-\frac{3\,t_{1.}\,t_{2.}}{2\,r_{5.}\,t_{1.}+2\,r_{5.}\,t_{2.}} > 0$
Spin:	1
Parity:	Even

Massless spectrum

(No particles)

Unitarity conditions

$$t_{2.} > 0\ \&\&\ -t_{2.} < t_{1.} < 0\ \&\&\ r_{5.} > 0\ \&\&\ r_{2.} < 0$$