



Unitarity conditions

$$r_5 < 0 \&\& t_1 < 0 || t_1 > 0$$

(No massive particles)

	$\sigma_{2^+}^{\#1}{}_{\alpha\beta}$	$\tau_{2^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{2^-}^{\#1}{}_{\alpha\beta\chi}$
$\sigma_{2^+}^{\#1}{}_{\dagger\alpha\beta}$	$\frac{2}{(1+2k^2)^2 t_1}$	$-\frac{2i\sqrt{2}k}{(1+2k^2)^2 t_1}$	0
$\tau_{2^+}^{\#1}{}_{\dagger\alpha\beta}$	$\frac{2i\sqrt{2}k}{(1+2k^2)^2 t_1}$	$\frac{4k^2}{(1+2k^2)^2 t_1}$	0
$\sigma_{2^-}^{\#1}{}_{\dagger\alpha\beta\chi}$	0	0	$\frac{2}{t_1}$

	$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^-}^{\#1}{}_{\alpha}$	$\omega_{1^-}^{\#2}{}_{\alpha}$	$f_{1^-}^{\#1}{}_{\alpha}$	$f_{1^-}^{\#2}{}_{\alpha}$
$\omega_{1^+}^{\#1}{}_{\dagger\alpha\beta}$	$k^2 r_5 - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{ikt_1}{\sqrt{2}}$	0	0	0	0
$\omega_{1^+}^{\#2}{}_{\dagger\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$f_{1^+}^{\#1}{}_{\dagger\alpha\beta}$	$\frac{ikt_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_{1^-}^{\#1}{}_{\dagger\alpha}$	0	0	0	$k^2 r_5 + \frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{ikt_1}{3}$
$\omega_{1^-}^{\#2}{}_{\dagger\alpha}$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3}i\sqrt{2}kt_1$
$f_{1^-}^{\#1}{}_{\dagger\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}{}_{\dagger\alpha}$	0	0	0	$-\frac{1}{3}i\sqrt{2}kt_1$	$-\frac{1}{3}i\sqrt{2}kt_1$	0	$\frac{2k^2 t_1}{3}$

	$\omega_{2^+}^{\#1}{}_{\alpha\beta}$	$f_{2^+}^{\#1}{}_{\alpha\beta}$	$\omega_{2^-}^{\#1}{}_{\alpha\beta\chi}$
$\omega_{2^+}^{\#1}{}_{\dagger\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{ikt_1}{\sqrt{2}}$	0
$f_{2^+}^{\#1}{}_{\dagger\alpha\beta}$	$\frac{ikt_1}{\sqrt{2}}$	$k^2 t_1$	0
$\omega_{2^-}^{\#1}{}_{\dagger\alpha\beta\chi}$	0	0	$\frac{t_1}{2}$

	$\sigma_0^{\#1}{}_{\dagger}$	$\tau_0^{\#1}{}_{\dagger}$	$\tau_0^{\#2}{}_{\dagger}$	$\sigma_0^{\#1}{}_{\dagger}$
$\sigma_0^{\#1}{}_{\dagger}$	0	0	0	0
$\tau_0^{\#1}{}_{\dagger}$	0	0	0	0
$\tau_0^{\#2}{}_{\dagger}$	0	0	0	0
$\sigma_0^{\#1}{}_{\dagger}$	0	0	0	$-\frac{1}{t_1}$

Source constraints	#
$\sigma_{0^+}^{\#1} == 0$	1
$\tau_{0^+}^{\#1} == 0$	1
$\tau_{0^+}^{\#2} == 0$	1
$\tau_{1^-}^{\#2\alpha} + 2ik\sigma_{1^-}^{\#2\alpha} == 0$	3
$\tau_{1^-}^{\#1\alpha} == 0$	3
$\tau_{1^+}^{\#1\alpha\beta} + ik\sigma_{1^+}^{\#2\alpha\beta} == 0$	3
$\tau_{2^+}^{\#1\alpha\beta} - 2ik\sigma_{2^+}^{\#1\alpha\beta} == 0$	5
Total #:	17

Lagrangian density

$$\begin{aligned}
& -\frac{1}{3}t_1\omega_{\dagger}^{\alpha\prime}\omega_{\kappa\alpha}^{\kappa}-t_1\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\prime}^{\prime}+f^{\alpha\beta}\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}-r_5\partial_{\lambda}\omega_{\kappa}^{\kappa\lambda}\partial^{\prime}\omega_{\lambda}^{\alpha}- \\
& r_5\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\theta}\omega_{\kappa}^{\theta\kappa\lambda}+r_5\partial_{\theta}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\alpha}^{\theta\kappa\lambda}-r_5\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\alpha}^{\kappa\lambda\theta}+2r_5\partial_{\theta}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\alpha}^{\kappa\lambda\theta}- \\
& \frac{1}{2}t_1\partial^{\alpha}f_{\theta\kappa}\partial^{\kappa}f_{\alpha}^{\theta}-\frac{1}{2}t_1\partial^{\alpha}f_{\kappa\theta}\partial^{\theta}f_{\alpha}^{\kappa}-\frac{1}{2}t_1\partial^{\alpha}f_{\alpha}^{\theta}\partial_{\kappa}f_{\theta}^{\kappa}+\frac{1}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}+\frac{2}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}+\frac{2}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}- \\
& \frac{1}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}+\frac{2}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}+\frac{2}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}-\frac{1}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}+\frac{1}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\prime}^{\prime}- \\
& \frac{1}{3}t_1\omega_{\prime\alpha}^{\alpha}\partial^{\kappa}f_{\kappa}^{\prime}-\frac{1}{3}t_1\omega_{\lambda}^{\lambda}\partial^{\kappa}f_{\kappa}^{\prime}+\frac{1}{2}t_1\partial^{\alpha}f_{\lambda}^{\alpha}\partial^{\kappa}f_{\lambda}^{\theta}+\frac{1}{2}t_1\partial_{\kappa}f_{\theta}^{\theta}\partial^{\kappa}f_{\lambda}^{\theta}-\frac{1}{3}t_1\partial^{\alpha}f_{\lambda}^{\alpha}\partial^{\kappa}f_{\lambda}^{\theta}+r_5\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial^{\lambda}\omega_{\kappa}^{\theta\kappa}-r_5\partial_{\theta}\omega_{\lambda}^{\alpha}\partial^{\lambda}\omega_{\alpha}^{\theta\kappa}
\end{aligned}$$

	$\omega_{0^+}^{\#1}$	$f_{0^+}^{\#1}$	$f_{0^+}^{\#2}$	$\omega_{0^-}^{\#1}$
$\omega_{0^+}^{\#1}{}_{\dagger}$	0	0	0	0
$f_{0^+}^{\#1}{}_{\dagger}$	0	0	0	0
$f_{0^+}^{\#2}{}_{\dagger}$	0	0	0	0
$\omega_{0^-}^{\#1}{}_{\dagger}$	0	0	0	$-t_1$