

In[ ]:= MatrixExp[ $\begin{pmatrix} a & b \\ 0 & c \end{pmatrix}$ ] // MatrixForm

Out[ ]//MatrixForm=  

$$\begin{pmatrix} e^a & \frac{b(e^a - e^c)}{a - c} \\ 0 & e^c \end{pmatrix}$$

In[ ]:= bad = -e<sup>-2λξ<sub>1,1</sub>+2λξ<sub>1,3</sub></sup> λ<sup>3</sup> η<sub>1,3</sub><sup>2</sup> ξ<sub>1,3</sub> +

$$\frac{4 e^{-\lambda \xi_{1,1} + \lambda \xi_{1,2}} \eta_{1,3} \eta_{2,2} \xi_{1,2}}{(\xi_{1,1} - \xi_{1,2})^3} - \frac{2 e^{-\lambda \xi_{1,1} + \lambda \xi_{1,2}} \lambda^2 \eta_{1,3} \eta_{2,2} \xi_{1,2}}{-\xi_{1,1} + \xi_{1,2}} -$$

$$\frac{4 e^{-\lambda \xi_{1,1} + \lambda \xi_{1,2}} \lambda \eta_{1,3} \eta_{2,2} \xi_{1,2}}{(\xi_{1,1} - \xi_{1,2}) (-\xi_{1,1} + \xi_{1,2})} - \frac{4 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \eta_{2,3} \eta_{2,3} \xi_{1,1} \xi_{1,2,3}}{(\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4} +$$

$$\frac{8 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \eta_{2,3} \eta_{2,3} \xi_{1,2,2} \xi_{1,2,3}}{(\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4} - \frac{4 e^{-\lambda \xi_{1,1} + \lambda \xi_{1,3}} \eta_{1,2} \eta_{2,3} \xi_{1,2}}{(\xi_{1,1} - \xi_{1,3,3})^3} -$$

$$\frac{4 e^{-\lambda \xi_{1,1} + \lambda \xi_{1,3}} \eta_{2,3} \eta_{2,3} \xi_{1,2,3}}{(\xi_{1,1} - \xi_{1,3,3})^3} + \frac{4 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{1,2} + \lambda \xi_{1,3}} \eta_{2,2} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{(2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4} -$$

$$\frac{8 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{1,2} + \lambda \xi_{1,3}} \eta_{2,2} \eta_{2,3} \xi_{1,1,2} \xi_{1,2,2}}{(2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4} + \frac{4 e^{-\lambda \xi_{1,2} + \lambda \xi_{1,3}} \eta_{1,3} \eta_{2,2,3} \xi_{1,2,3}}{(\xi_{1,2,2} - \xi_{1,3,3})^3} -$$

$$\frac{(64 \eta_{1,3} \eta_{2,2} \xi_{1,1}^{11} \xi_{1,2} \xi_{1,2,2}^3)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4 (\xi_{1,1} - \xi_{1,3,3})^3}$$

$$+ \frac{(2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} + \frac{(64 \eta_{1,2} \eta_{2,3} \xi_{1,1}^{11} \xi_{1,2} \xi_{1,2,2}^3)}{((\xi_{1,1} - \xi_{1,2,2})^3}$$

$$- \frac{(\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4 (\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} -$$

$$\frac{(4 \eta_{2,2} \eta_{2,3} \xi_{1,1}^{11} \xi_{1,2} \xi_{1,2,2}^3)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$- \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} -$$

$$\frac{(128 \eta_{1,3} \eta_{2,2} \xi_{1,1}^{10} \xi_{1,2} \xi_{1,2,2}^4)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$- \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} -$$

$$\frac{(64 \eta_{1,2} \eta_{2,3} \xi_{1,1}^{10} \xi_{1,2} \xi_{1,2,2}^4)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$+ \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} +$$

$$\frac{(4 \eta_{2,2} \eta_{2,3} \xi_{1,1}^{10} \xi_{1,2} \xi_{1,2,2}^4)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$+ \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} +$$

$$\frac{(32 \eta_{1,3} \eta_{2,2} \xi_{1,1}^9 \xi_{1,2} \xi_{1,2,2}^5)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$- \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} -$$

$$\frac{(224 \eta_{1,2} \eta_{2,3} \xi_{1,1}^9 \xi_{1,2} \xi_{1,2,2}^5)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$+ \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} +$$

$$\frac{(20 \eta_{2,2} \eta_{2,3} \xi_{1,1}^9 \xi_{1,2} \xi_{1,2,2}^5)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$+ \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} +$$

$$\frac{(160 \eta_{1,3} \eta_{2,2} \xi_{1,1}^8 \xi_{1,2} \xi_{1,2,2}^6)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$+ \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} +$$

$$\frac{(256 \eta_{1,2} \eta_{2,3} \xi_{1,1}^8 \xi_{1,2} \xi_{1,2,2}^6)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$- \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} -$$

$$\frac{(12 \eta_{2,2} \eta_{2,3} \xi_{1,1}^8 \xi_{1,2} \xi_{1,2,2}^6)}{((\xi_{1,1} - \xi_{1,2,2})^3 (\xi_{1,1} + \xi_{1,2,2} - 2 \xi_{1,3,3})^4}$$

$$- \frac{(\xi_{1,1} - \xi_{1,3,3})^3 (2 \xi_{1,1} - \xi_{1,2,2} - \xi_{1,3,3})^4 (\xi_{1,2,2} - \xi_{1,3,3})^3} -$$





























































$$\begin{aligned}
 & (12 \eta_{1,3} \eta_{2,3} \xi_{1,1} \xi_{2,2} \xi_{3,3}^{11}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) + \\
 & (64 \eta_{1,3} \eta_{2,3} \xi_{2,2} \xi_{3,3}^{11}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) - \\
 & (64 \eta_{1,3} \eta_{2,3} \xi_{1,1} \xi_{2,3} \xi_{3,3}^{11}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) - \\
 & (4 \eta_{1,3} \eta_{2,3} \xi_{2,2} \xi_{3,3}^{11}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) - \\
 & (4768 \eta_{1,3} \eta_{2,1,2} \xi_{1,1} \xi_{1,2} \xi_{3,3}^{12}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) - \\
 & (1280 \eta_{1,3} \eta_{2,1,2} \xi_{1,1} \xi_{1,2} \xi_{2,2} \xi_{3,3}^{12}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) + \\
 & (224 \eta_{1,3} \eta_{2,1,2} \xi_{1,2} \xi_{2,2} \xi_{3,3}^{12}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) + \\
 & (832 \eta_{1,3} \eta_{2,1,2} \xi_{1,1} \xi_{1,2} \xi_{3,3}^{13}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) + \\
 & (64 \eta_{1,3} \eta_{2,1,2} \xi_{1,2} \xi_{2,2} \xi_{3,3}^{13}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) - \\
 & (64 \eta_{1,3} \eta_{2,1,2} \xi_{1,2} \xi_{3,3}^{14}) / ((\xi_{1,1} - \xi_{2,2})^3 (\xi_{1,1} + \xi_{2,2} - 2 \xi_{3,3})^4 \\
 & (\xi_{1,1} - \xi_{3,3})^3 (2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^4 (\xi_{2,2} - \xi_{3,3})^3) + \\
 & \frac{2 e^{-\lambda \xi_{1,1} + \lambda \xi_{3,3}} \lambda^2 \eta_{1,2} \eta_{2,3} \xi_{1,2}}{-\xi_{1,1} + \xi_{3,3}} + \frac{e^{-\lambda \xi_{1,1} + \lambda \xi_{3,3}} \lambda^3 \eta_{1,2} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{-\xi_{1,1} + \xi_{3,3}} + \\
 & \frac{2 e^{-\lambda \xi_{1,1} + \lambda \xi_{3,3}} \lambda^2 \eta_{1,2,3} \eta_{2,3} \xi_{1,2,3}}{-\xi_{1,1} + \xi_{3,3}} + \frac{4 e^{-\lambda \xi_{1,1} + \lambda \xi_{3,3}} \lambda \eta_{1,2} \eta_{2,3} \xi_{1,2}}{(\xi_{1,1} - \xi_{3,3}) (-\xi_{1,1} + \xi_{3,3})} + \\
 & \frac{4 e^{-\lambda \xi_{1,1} + \lambda \xi_{3,3}} \lambda \eta_{1,2,3} \eta_{2,3} \xi_{1,2,3}}{(\xi_{1,1} - \xi_{3,3}) (-\xi_{1,1} + \xi_{3,3})} - \frac{e^{-\lambda \xi_{1,1} + \lambda \xi_{3,3}} \lambda^3 \eta_{1,2} \eta_{2,3} \xi_{1,2} \xi_{3,3}}{-\xi_{1,1} + \xi_{3,3}} - \\
 & \frac{e^{-\lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda^2 \eta_{1,2} \eta_{2,3} \xi_{1,2,2}}{-\xi_{2,2} + \xi_{3,3}} - \frac{2 e^{-\lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda^2 \eta_{1,3} \eta_{2,3} \xi_{1,2,3}}{-\xi_{2,2} + \xi_{3,3}} - \\
 & \frac{4 e^{-\lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda \eta_{1,3} \eta_{2,3} \xi_{1,2,3}}{(\xi_{2,2} - \xi_{3,3}) (-\xi_{2,2} + \xi_{3,3})} + \frac{e^{-\lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda^2 \eta_{1,2} \eta_{2,3} \xi_{1,3,3}}{-\xi_{2,2} + \xi_{3,3}} + \\
 & \frac{2 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda^3 \eta_{2,1,2} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{-2 \xi_{1,1} + \xi_{2,2} + \xi_{3,3}} - \\
 & \frac{4 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda \eta_{2,1,2} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{(2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^2 (-2 \xi_{1,1} + \xi_{2,2} + \xi_{3,3})} + \\
 & \frac{8 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda \eta_{2,1,2} \eta_{2,3} \xi_{1,2} \xi_{1,2}}{(2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3})^2 (-2 \xi_{1,1} + \xi_{2,2} + \xi_{3,3})} - \\
 & \frac{2 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{2,2} + \lambda \xi_{3,3}} \lambda^2 \eta_{2,1,2} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{(2 \xi_{1,1} - \xi_{2,2} - \xi_{3,3}) (-2 \xi_{1,1} + \xi_{2,2} + \xi_{3,3})} +
 \end{aligned}$$

$$\begin{aligned}
& \frac{4 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{1,2} + \lambda \xi_{1,3}} \lambda^2 \eta_{1,2} \eta_{1,3} \xi_{1,2} \xi_{1,2}}{(2 \xi_{1,1} - \xi_{1,2} - \xi_{1,3}) (-2 \xi_{1,1} + \xi_{1,2} + \xi_{1,3})} - \\
& \frac{2 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{1,2} + \lambda \xi_{1,3}} \lambda^3 \eta_{1,2} \eta_{1,3} \xi_{1,2} \xi_{1,3}}{-2 \xi_{1,1} + \xi_{1,2} + \xi_{1,3}} - \\
& \frac{4 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{1,2} + \lambda \xi_{1,3}} \lambda \eta_{1,2} \eta_{1,3} \xi_{1,2} \xi_{1,3}}{(2 \xi_{1,1} - \xi_{1,2} - \xi_{1,3})^2 (-2 \xi_{1,1} + \xi_{1,2} + \xi_{1,3})} - \\
& \frac{2 e^{-2 \lambda \xi_{1,1} + \lambda \xi_{1,2} + \lambda \xi_{1,3}} \lambda^2 \eta_{1,2} \eta_{1,3} \xi_{1,2} \xi_{1,3}}{(2 \xi_{1,1} - \xi_{1,2} - \xi_{1,3}) (-2 \xi_{1,1} + \xi_{1,2} + \xi_{1,3})} + \\
& \frac{e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda^3 \eta_{1,3} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3}} - \\
& \frac{e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda^3 \eta_{1,3} \eta_{2,3} \xi_{1,2} \xi_{1,2}}{-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3}} + \\
& \frac{4 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda \eta_{1,3} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{(\xi_{1,1} + \xi_{1,2} - 2 \xi_{1,3})^2 (-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3})} - \\
& \frac{8 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda \eta_{1,3} \eta_{2,3} \xi_{1,2} \xi_{1,2}}{(\xi_{1,1} + \xi_{1,2} - 2 \xi_{1,3})^2 (-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3})} + \\
& \frac{2 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda^2 \eta_{1,3} \eta_{2,3} \xi_{1,1} \xi_{1,2}}{(\xi_{1,1} + \xi_{1,2} - 2 \xi_{1,3}) (-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3})} - \\
& \frac{4 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda^2 \eta_{1,3} \eta_{2,3} \xi_{1,2} \xi_{1,2}}{(\xi_{1,1} + \xi_{1,2} - 2 \xi_{1,3}) (-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3})} + \\
& \frac{4 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda \eta_{1,3} \eta_{2,3} \xi_{1,2} \xi_{1,3}}{(\xi_{1,1} + \xi_{1,2} - 2 \xi_{1,3})^2 (-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3})} + \\
& \frac{2 e^{-\lambda \xi_{1,1} - \lambda \xi_{1,2} + 2 \lambda \xi_{1,3}} \lambda^2 \eta_{1,3} \eta_{2,3} \xi_{1,2} \xi_{1,3}}{(\xi_{1,1} + \xi_{1,2} - 2 \xi_{1,3}) (-\xi_{1,1} - \xi_{1,2} + 2 \xi_{1,3})} ;
\end{aligned}$$

In[\*]:= **bad** /. { $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,3} \rightarrow 0$ ,  $\xi_{1,3} \rightarrow 0$ ,  $\xi_{1,2} \rightarrow 0$ ,  
 $\xi_{1,2} \rightarrow 0$ ,  $\eta_{2,3} \rightarrow 0$ ,  $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,3} \rightarrow 0$ ,  $\xi_{1,3} \rightarrow 0$ ,  $\xi_{2,3} \rightarrow 0$ ,  $\xi_{2,3} \rightarrow 0$ ,  $\xi_{1,2} \rightarrow 0$ }

Out[\*]=  
0

In[\*]:= **bad** /. { $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,3} \rightarrow 0$ ,  $\xi_{1,3} \rightarrow 0$ ,  
 $\xi_{1,2} \rightarrow 0$ ,  $\xi_{1,2} \rightarrow 0$ ,  $\eta_{2,3} \rightarrow 0$ ,  $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,3} \rightarrow 0$ ,  $\xi_{1,3} \rightarrow 0$ ,  $\xi_{2,3} \rightarrow 0$ ,  $\xi_{2,3} \rightarrow 0$ }

Out[\*]=  
0

In[\*]:= **bad** /. { $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,3} \rightarrow 0$ ,  $\xi_{1,3} \rightarrow 0$ ,  
 $\xi_{1,2} \rightarrow 0$ ,  $\xi_{1,2} \rightarrow 0$ ,  $\eta_{2,3} \rightarrow 0$ ,  $\eta_{1,2} \rightarrow 0$ ,  $\eta_{1,3} \rightarrow 0$ ,  $\xi_{1,3} \rightarrow 0$ ,  $\xi_{2,3} \rightarrow 0$ }

Out[\*]=  
0

In[\*]:= **bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,3} \rightarrow 0, \xi_{1,2,3} \rightarrow 0, \xi_{1,1,2} \rightarrow 0, \eta_{2,2,3} \rightarrow 0, \eta_{2,1,2} \rightarrow 0, \eta_{2,1,3} \rightarrow 0$ }

Out[\*]=

0

In[\*]:= **bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,3} \rightarrow 0, \xi_{1,2,3} \rightarrow 0, \xi_{1,1,2} \rightarrow 0, \eta_{2,2,3} \rightarrow 0, \eta_{2,1,2} \rightarrow 0$ }

Out[\*]=

0

In[\*]:= **bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,3} \rightarrow 0, \xi_{1,2,3} \rightarrow 0, \xi_{1,1,2} \rightarrow 0, \eta_{2,2,3} \rightarrow 0$ }

Out[\*]=

0

In[\*]:= **bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,3} \rightarrow 0, \xi_{1,2,3} \rightarrow 0, \xi_{1,1,2} \rightarrow 0$ }

Out[\*]=

0

In[\*]:= **FullSimplify**[**bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,3} \rightarrow 0, \xi_{1,2,3} \rightarrow 0$ }]

Out[\*]=

$$\frac{1}{(-2 \xi_{1,1,1} + \xi_{1,2,2} + \xi_{1,3,3})^4} 2 e^{-2\lambda \xi_{1,1,1}} \eta_{2,1,2} \eta_{2,1,3} \xi_{1,1,2} \left( -2 e^{2\lambda \xi_{1,1,1}} (\xi_{1,1,1} - 2 \xi_{1,2,2} + \xi_{1,3,3}) + e^{\lambda (\xi_{1,2,2} + \xi_{1,3,3})} (-8 \lambda^3 \xi_{1,1,1}^4 - 4 \xi_{1,2,2} + 2 \xi_{1,3,3} + 4 \lambda^2 \xi_{1,1,1}^3 (1 + 3 \lambda \xi_{1,2,2} + 5 \lambda \xi_{1,3,3}) - \lambda (\xi_{1,2,2} + \xi_{1,3,3}) (\lambda \xi_{1,2,2}^2 (2 + \lambda \xi_{1,3,3}) + \xi_{1,3,3} (2 + \lambda \xi_{1,3,3} (-1 + \lambda \xi_{1,3,3})) + \xi_{1,2,2} (-4 + \lambda \xi_{1,3,3} (1 + 2 \lambda \xi_{1,3,3}))) \right) - 2 \lambda \xi_{1,1,1}^2 (-2 + 3 \lambda (\lambda \xi_{1,2,2}^2 + 3 \lambda \xi_{1,3,3}^2 + \xi_{1,2,2} (2 + 4 \lambda \xi_{1,3,3}))) + \xi_{1,1,1} (2 + \lambda (\lambda^2 \xi_{1,2,2}^3 + 9 \lambda \xi_{1,2,2}^2 (1 + \lambda \xi_{1,3,3}) + \xi_{1,2,2} (-10 + 3 \lambda \xi_{1,3,3} (2 + 5 \lambda \xi_{1,3,3})) + \xi_{1,3,3} (2 + \lambda \xi_{1,3,3} (-3 + 7 \lambda \xi_{1,3,3})))) \right)$$

In[\*]:= **FullSimplify**[**bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,2} \rightarrow 0, \xi_{1,2,3} \rightarrow 0$ }]

Out[\*]=

$-e^{2\lambda (-\xi_{1,1,1} + \xi_{1,3,3})} \lambda^3 \eta_{2,1,3}^2 \xi_{1,1,3}$

In[\*]:= **FullSimplify**[**bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,3} \rightarrow 0, \xi_{1,2,3} \rightarrow 0, \xi_{1,3,3} \rightarrow 0$ }]

Out[\*]=

$$\frac{1}{(-2 \xi_{1,1,1} + \xi_{1,2,2})^4} 2 e^{-2\lambda \xi_{1,1,1}} \eta_{2,1,2} \eta_{2,1,3} \xi_{1,1,2} \left( -2 e^{2\lambda \xi_{1,1,1}} (\xi_{1,1,1} - 2 \xi_{1,2,2}) + e^{\lambda \xi_{1,2,2}} (2 \xi_{1,1,1} (1 + 2 \lambda \xi_{1,1,1} (1 + \lambda \xi_{1,1,1} (1 - 2 \lambda \xi_{1,1,1}))) + 2 (-2 + \lambda \xi_{1,1,1} (-5 + 6 \lambda \xi_{1,1,1} (-1 + \lambda \xi_{1,1,1}))) \xi_{1,2,2} + \lambda (4 + 3 \lambda \xi_{1,1,1} (3 - 2 \lambda \xi_{1,1,1})) \xi_{1,2,2}^2 + \lambda^2 (-2 + \lambda \xi_{1,1,1}) \xi_{1,2,2}^3) \right)$$

In[\*]:= **FullSimplify**[**bad** /. { $\eta_{1,2,3} \rightarrow 0, \eta_{1,1,2} \rightarrow 0, \eta_{1,1,3} \rightarrow 0, \xi_{1,1,3} \rightarrow 0, \xi_{1,2,3} \rightarrow 0, \xi_{1,1,1} \rightarrow 0$ }]

Out[\*]=

$$\frac{1}{(\xi_{1,2,2} + \xi_{1,3,3})^4} 2 \eta_{2,1,2} \eta_{2,1,3} \xi_{1,1,2} \left( 4 \xi_{1,2,2} - 2 \xi_{1,3,3} - e^{\lambda (\xi_{1,2,2} + \xi_{1,3,3})} (\lambda^2 \xi_{1,2,2}^3 (2 + \lambda \xi_{1,3,3}) + \xi_{1,3,3} (-1 + \lambda \xi_{1,3,3}) (2 + \lambda^2 \xi_{1,3,3}^2) + \xi_{1,2,2} (4 - 2 \lambda \xi_{1,3,3} + 3 \lambda^3 \xi_{1,3,3}^3) + \lambda \xi_{1,2,2}^2 (-4 + 3 \lambda \xi_{1,3,3} (1 + \lambda \xi_{1,3,3}))) \right)$$

In[\*]:= FullSimplify[bad /. { $\eta_{1,2,3} \rightarrow 0$ ,  $\eta_{1,1,2} \rightarrow 0$ ,  $\eta_{1,1,3} \rightarrow 0$ ,  $\xi_{1,1,3} \rightarrow 0$ ,  $\xi_{1,2,3} \rightarrow 0$ ,  $\xi_{1,2,2} \rightarrow 0$ }]

Out[\*]=

$$\frac{1}{(-2 \xi_{1,1,1} + \xi_{1,3,3})^4} 2 e^{-2 \lambda \xi_{1,1,1}} \eta_{2,1,2} \eta_{2,1,3} \xi_{1,1,2} \left( -2 e^{2 \lambda \xi_{1,1,1}} (\xi_{1,1,1} + \xi_{1,3,3}) + e^{\lambda \xi_{1,3,3}} \left( -8 \lambda^3 \xi_{1,1,1}^4 + 4 \lambda^2 \xi_{1,1,1}^3 (1 + 5 \lambda \xi_{1,3,3}) + 2 \lambda \xi_{1,1,1}^2 (2 - 9 \lambda^2 \xi_{1,3,3}^2) - \xi_{1,3,3} (-1 + \lambda \xi_{1,3,3}) (2 + \lambda^2 \xi_{1,3,3}^2) + \xi_{1,1,1} (2 + \lambda \xi_{1,3,3} (2 + \lambda \xi_{1,3,3} (-3 + 7 \lambda \xi_{1,3,3}))) \right) \right)$$

In[\*]:= FullSimplify[

FullSimplify[bad /. { $\eta_{1,2,3} \rightarrow 0$ ,  $\eta_{1,1,2} \rightarrow 0$ ,  $\eta_{1,1,3} \rightarrow 0$ ,  $\xi_{1,1,3} \rightarrow 0$ ,  $\xi_{1,2,3} \rightarrow 0$ ,  $\xi_{1,2,2} \rightarrow 0$ }] /.  $\xi_{1,1,1} \rightarrow 0$ ]

Out[\*]=

$$\frac{2 \eta_{2,1,2} \eta_{2,1,3} \xi_{1,1,2} (-2 - e^{\lambda \xi_{1,3,3}} (-1 + \lambda \xi_{1,3,3}) (2 + \lambda^2 \xi_{1,3,3}^2))}{\xi_{1,3,3}^3}$$

1 + 1