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[> restart:
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[> read "mixmodelcc.c":
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[> read "ss4allclosed.c":
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[> ss:=ssbothTFFF(3,2);
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$$ss := \begin{bmatrix} \iota_2 \\ (1 - w_1) \eta_2 + \mu \\ w_1 \mu^2 + (1 - w_1) (\mu + \eta_2)^2 \\ w_1 v^2 + (1 - w_1) (v + \zeta_2)^2 \end{bmatrix} \quad (1)$$

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[> #ss[4]:=sqrt(ss[4]);ss;
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[> kappa:=mycc(3,2,tvarphi,hphi,hp);
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$$\kappa := \left[\left[w_1 (v + \iota_2) \mu + (1 - w_1) (v + \iota_2 + \zeta_2) (\mu + \eta_2) \right], \quad (2)$$

$$\left[w_1 v (v + \iota_2) (1 - \mu) \mu + (1 - w_1) (v + \zeta_2) (v + \iota_2 + \zeta_2) (1 - \mu - \eta_2) (\mu + \eta_2) \right],$$

$$\left[w_1 ((1 - v - \iota_2) v \mu + v (v + \iota_2) (1 - \mu) \mu) + (1 - w_1) ((1 - v - \iota_2 - \zeta_2) (v + \zeta_2) (\mu + \eta_2) + (v + \zeta_2) (v + \iota_2 + \zeta_2) (1 - \mu - \eta_2) (\mu + \eta_2)) \right],$$

$$\left[w_1 v (v + \iota_2) \mu^2 + (1 - w_1) (v + \zeta_2) (v + \iota_2 + \zeta_2) (\mu + \eta_2)^2 \right]]$$

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[> repar:={seq(ss[i]=s[i],i=1..Dimension(ss))};
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$$repar := \{ \iota_2 = s_1, w_1 \mu^2 + (1 - w_1) (\mu + \eta_2)^2 = s_3, w_1 v^2 + (1 - w_1) (v + \zeta_2)^2 = s_4, (1 - w_1) \eta_2 + \mu = s_2 \} \quad (3)$$

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[> newpar:=solve(repar,indets(ss));
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[> newpar:=evalindets(newpar[2],'RootOf'(algebraic),allvalues@(e->RootOf(op(e), index= 1)));
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$$newpar := \left\{ \mu = \sqrt{-\frac{s_2^2 + s_3}{w_1^2 - w_1}} w_1 - \sqrt{-\frac{s_2^2 + s_3}{w_1^2 - w_1}} + s_2, v = \sqrt{s_4}, \eta_2 = \sqrt{-\frac{s_2^2 + s_3}{w_1^2 - w_1}}, \iota_2 = s_1, w_1 = w_1, \zeta_2 = 0 \right\} \quad (4)$$

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[> subs(newpar,kappa):
simplify(%);
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$$\begin{bmatrix} \sqrt{s_4} s_2 + s_1 s_2 \\ \sqrt{s_4} s_1 s_2 - \sqrt{s_4} s_1 s_3 + s_4 s_2 - s_3 s_4 \\ -\sqrt{s_4} s_1 s_3 + \sqrt{s_4} s_2 - s_3 s_4 \\ (\sqrt{s_4} s_1 + s_4) s_3 \end{bmatrix} \quad (5)$$

> simplify(kappa, repara);

$$\left[\left[-\mu w_1 \zeta_2 + v s_2 + s_1 s_2 + s_2 \zeta_2 \right], \right.$$

(6)

$$\begin{aligned} & \left[2\mu s_1 s_2 w_1 \zeta_2 + 2\mu v^2 s_2 + 4\mu v s_2 \zeta_2 - \mu s_1 w_1 \zeta_2 + 2\mu s_2 \zeta_2^2 - 2v s_2^2 \zeta_2 - s_1 s_2^2 \zeta_2 \right. \\ & - s_1 s_3 w_1 \zeta_2 - s_2^2 \zeta_2^2 - \mu v^2 - 2\mu v \zeta_2 - 2\mu s_2 s_4 - \mu \zeta_2^2 + v^2 s_2 - 2v^2 s_3 + v s_1 s_2 \\ & \left. - v s_1 s_3 + 2v s_2 \zeta_2 - 2v s_3 \zeta_2 + s_1 s_2 \zeta_2 + s_2 \zeta_2^2 - s_3 \zeta_2^2 + \mu s_4 + s_3 s_4 \right], \end{aligned}$$

$$\begin{aligned} & \left[2\mu s_1 s_2 w_1 \zeta_2 + 2\mu v^2 s_2 + 4\mu v s_2 \zeta_2 + 2\mu s_2 \zeta_2^2 - 2v s_2^2 \zeta_2 - s_1 s_2^2 \zeta_2 - s_1 s_3 w_1 \zeta_2 - s_2^2 \right. \\ & \left. \zeta_2^2 - 2\mu s_2 s_4 - \mu w_1 \zeta_2 - 2v^2 s_3 - v s_1 s_3 - 2v s_3 \zeta_2 - s_3 \zeta_2^2 + v s_2 + s_2 \zeta_2 + s_3 s_4 \right], \end{aligned}$$

$$\begin{aligned} & \left[-2\mu s_1 s_2 w_1 \zeta_2 - 2\mu v^2 s_2 - 4\mu v s_2 \zeta_2 - 2\mu s_2 \zeta_2^2 + 2v s_2^2 \zeta_2 + s_1 s_2^2 \zeta_2 + s_1 s_3 w_1 \zeta_2 + \right. \\ & \left. s_2^2 \zeta_2^2 + 2\mu s_2 s_4 + 2v^2 s_3 + v s_1 s_3 + 2v s_3 \zeta_2 + s_3 \zeta_2^2 - s_3 s_4 \right] \end{aligned}$$