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Conditions on the Effective D-term $G(u,v)$

$\bar{\lambda} i \not{D} \lambda$

$$\int d^4\theta \; G(u,v) =$$

$$= -\tfrac{1}{4} \bar{D}_R \Big\{ G_{uuv} D_L v \bar{D}_L u D_R u + G_{uu} (-2i\partial_R u) D_R u +$$

$$+ G_{uv} D_L v \cdot \bar{D}_L D_R u + G_u (-2i\partial_R) D_R u \Big\}\Big| =$$

$$= -\tfrac{1}{4} \Big\{ G_{uuvv} \bar{D}_R v D_L v \bar{D}_L u D_R u + G_{uuv} \bar{D}_R D_L v \cdot \bar{D}_L u D_R u +$$

$$+ G_{uuv} D_L v \bar{D}_L u (-2i\partial_L u) + G_{uuv} \bar{D}_R v (-2i\partial_R u) D_R u +$$

$$+ G_{uu} (-2i\partial_R u)(-2i\partial_L u) +$$

$$+ G_{uvv} \bar{D}_R v D_L v \bar{D}_L D_R u + G_{uv} \bar{D}_R D_L v \cdot \bar{D}_L D_R u +$$

$$+ (+1) G_{uv} D_L v \cdot (-2i\partial_L) \bar{D}_L u +$$

$$+ G_{uv} \bar{D}_R v (-2i\partial_R) D_R u + G_u (-2i\partial_R)(-2i\partial_L) u \Big\}\Big| =$$

see p. 2 for full differentiation

$$
= -\frac{1}{4} \int \Big\{ G_{uuvv} \bar{D}_R v D_L v \bar{D}_L u D_R u \; +
$$

$$
+ \; G_{uuv} \bar{D}_R D_L v \cdot \bar{D}_L u D_R u \; -
$$

$$
- \; 2 G_{uuv} \left\{ D_L v \bar{D}_L u \, i\partial_L u + \bar{D}_R v D_R u \, i\partial_R u \right\} \; -
$$

$$
- \; 4 G_{uu} \partial_\mu u \partial_\mu u \; +
$$

$$
+ \; G_{uvv} \bar{D}_R v D_L v \bar{D}_L D_R u \; +
$$

$$
+ \; G_{uv} \bar{D}_R D_L v \cdot \bar{D}_L D_R u \; -
$$

$$
- \; 2 G_{uv} \left\{ D_L v \cdot i\partial_L \bar{D}_L u + \bar{D}_R v \cdot i\partial_R D_R u \right\} \; -
$$

$$
- \; 4 G_u \Box u \Big\} \Bigg|
$$

$$D_R \frac{S}{\sqrt{2}\Sigma}\Big| = -2\,\frac{\bar\lambda_R \overleftarrow{\bar D}_L}{|\sqrt{2}\sigma|^2} + 2\,\frac{\sqrt{2}\bar\sigma(iD - F_{03})\bar\lambda_L - 2i\bar\lambda_R\lambda_L\bar\lambda_L}{|\sqrt{2}\sigma|^4}$$

$$\bar D_L \frac{S}{\sqrt{2}\Sigma}\Big| = -2\,\frac{D_R\lambda_L}{|\sqrt{2}\sigma|^2} - 2\,\frac{\sqrt{2}\bar\sigma(iD - F_{03})\lambda_R - 2i\bar\lambda_R\lambda_L\lambda_R}{|\sqrt{2}\sigma|^4}$$

$$\bar D_R \frac{\bar S}{\sqrt{2}\bar\Sigma}\Big| = -2\,\frac{D_L\lambda_R}{|\sqrt{2}\sigma|^2} - 2\,\frac{\sqrt{2}\sigma(iD + F_{03})\lambda_L - 2i\bar\lambda_L\lambda_R\lambda_L}{|\sqrt{2}\sigma|^4}$$

$$D_L \frac{\bar S}{\sqrt{2}\bar\Sigma}\Big| = -2\,\frac{\bar\lambda_L \overleftarrow{\bar D}_R}{|\sqrt{2}\sigma|^2} + 2\,\frac{\sqrt{2}\sigma(iD + F_{03})\bar\lambda_R - 2i\bar\lambda_L\lambda_R\bar\lambda_R}{|\sqrt{2}\sigma|^4}$$

$$\frac{1}{2}\bar D_L D_R \frac{S}{\sqrt{2}\Sigma}\Big| = -\frac{i}{\sqrt{2}\sigma}\Big\{ \Box \ln\sqrt{2}\sigma + 2\,\frac{\bar\lambda_L iD_R\lambda_L - \bar\lambda_R i\overleftarrow{\bar D}_L\lambda_R}{|\sqrt{2}\sigma|^2} -$$

$$- \frac{(iD)^2 - F_{03}^2}{|\sqrt{2}\sigma|^2} + 2\,\frac{i\sqrt{2}\bar\sigma\bar\lambda_R\lambda_L(iD + F_{03}) + 2i\sqrt{2}\sigma\bar\lambda_L\lambda_R(iD - F_{03}) + 4\bar\lambda_R\lambda_L\bar\lambda_L\lambda_R}{|\sqrt{2}\sigma|^4}\Big\}$$

$$\frac{1}{2}\bar D_R D_L \frac{\bar S}{\sqrt{2}\bar\Sigma}\Big| = -\frac{i}{\sqrt{2}\bar\sigma}\Big\{ \Box \ln\sqrt{2}\bar\sigma + 2\,\frac{\bar\lambda_R iD_L\lambda_R - \bar\lambda_L i\overleftarrow{\bar D}_R\lambda_L}{|\sqrt{2}\sigma|^2} -$$

$$- \frac{(iD)^2 - F_{03}^2}{|\sqrt{2}\sigma|^2} + 2\,\frac{i\sqrt{2}\bar\sigma\bar\lambda_L\lambda_R(iD - F_{03}) + 2i\sqrt{2}\sigma\bar\lambda_R\lambda_L(iD + F_{03}) + 4\bar\lambda_L\lambda_R\bar\lambda_R\lambda_L}{|\sqrt{2}\sigma|^4}\Big\}$$

Need a bunch of formulae,

$$D_R u\Big| = D_R \frac{S}{\sqrt{2}\Sigma}\Big| = \frac{D_R S}{\sqrt{2}\Sigma}\Big| - \frac{S \cdot D_R\sqrt{2}\Sigma}{(\sqrt{2}\Sigma)^2}\Big| =$$

$$= -\frac{2}{\sqrt{2}\bar{\sigma}}\partial_L \frac{\bar{\lambda}_R}{\sqrt{2}\bar{\sigma}} - \frac{\sqrt{2}\bar{\sigma}(iD - F_{03}) - 2i\bar{\lambda}_R\lambda_L}{|\sqrt{2}\sigma|^4}(-2\bar{\lambda}_L) =$$

$$= 2\frac{\partial_L(\sqrt{2}\bar{\sigma})\bar{\lambda}_R}{\sqrt{2}\bar{\sigma}\,|\sqrt{2}\sigma|^2} - 2\frac{\partial_L\bar{\lambda}_R}{|\sqrt{2}\sigma|^2} + 2\frac{\sqrt{2}\bar{\sigma}(iD - F_{03})\bar{\lambda}_L - 2i\bar{\lambda}_R\lambda_L\bar{\lambda}_L}{|\sqrt{2}\sigma|^4} =$$

$$= -2\frac{(\partial_L - \partial_L \ln\sqrt{2}\bar{\sigma})\bar{\lambda}_R}{|\sqrt{2}\sigma|^2} + 2\frac{\sqrt{2}\bar{\sigma}(iD - F_{03})\bar{\lambda}_L - 2i\bar{\lambda}_R\lambda_L\bar{\lambda}_L}{|\sqrt{2}\sigma|^4} =$$

$$= -2\frac{\bar{\lambda}_R\overleftarrow{D}_L}{|\sqrt{2}\sigma|^2} + 2\frac{\sqrt{2}\bar{\sigma}(iD - F_{03})\bar{\lambda}_L - 2i\bar{\lambda}_R\lambda_L\bar{\lambda}_L}{|\sqrt{2}\sigma|^4}$$

$$\bar{D}_L u\Big| = \bar{D}_L \frac{s}{\sqrt{2}\Sigma}\Big| = \frac{\bar{D}_L s}{\sqrt{2}\Sigma}\Big| - \frac{s \cdot \bar{D}_L \sqrt{2}\bar{\Sigma}}{(\sqrt{2}\Sigma)^2}\Big| =$$

$$= \cdot \frac{1}{\sqrt{2}\sigma}(-2) D_R \frac{\lambda_L}{\sqrt{2}\bar{\sigma}} - \frac{\sqrt{2}\bar{\sigma}(iD - F_{03}) - 2i\bar{\lambda}_R \lambda_L}{|\sqrt{2}\sigma|^4} 2\lambda_R =$$

$$= -2\frac{D_R \lambda_L}{|\sqrt{2}\sigma|^2} + 2\frac{\sqrt{2}\bar{\sigma}(iD - F_{03})\lambda_R - 2i\bar{\lambda}_R \lambda_L \lambda_R}{|\sqrt{2}\sigma|^4} =$$

$$= -2\frac{D_R \lambda_L}{|\sqrt{2}\sigma|^2} - 2\frac{\sqrt{2}\bar{\sigma}(iD - F_{03})\lambda_R - 2i\bar{\lambda}_R \lambda_L \lambda_R}{|\sqrt{2}\sigma|^4}$$

$$\bar{D}_R v \Big| = \bar{D}_R \frac{\bar{S}}{\sqrt{2}\,\bar{\Sigma}} \Big| = \frac{\bar{D}_R \bar{S}}{\sqrt{2}\,\bar{\Sigma}} - \frac{\bar{S} \cdot \bar{D}_R \sqrt{2}\,\bar{\Sigma}}{(\sqrt{2}\,\bar{\Sigma})^2} \Big| =$$

$$= -2\,\frac{\mathcal{D}_L \lambda_R}{|\sqrt{2}\,b|^2} - \frac{\sqrt{2}\,b\,(iD + F_{03}) - 2i\bar{\lambda}_L \lambda_R}{|\sqrt{2}\,b|^4}\, 2\lambda_L =$$

$$= -2\,\frac{\mathcal{D}_L \lambda_R}{|\sqrt{2}\,b|^2} - 2\,\frac{\sqrt{2}\,b\,(iD + F_{03})\lambda_L - 2i\bar{\lambda}_L \lambda_R \lambda_L}{|\sqrt{2}\,b|^4}$$

$$D_L v \Big| = D_L \frac{\bar{S}}{\sqrt{2}\bar{\Sigma}}\Big| = \frac{D_L \bar{S}}{\sqrt{2}\bar{\Sigma}} - \frac{\bar{S} \cdot D_L \sqrt{2}\bar{\Sigma}}{(\sqrt{2}\bar{\Sigma})^2}\Big| =$$

$$= -2\frac{\bar{\lambda}_L \overleftarrow{\mathcal{D}}_R}{|\sqrt{2}b|^2} - \frac{\sqrt{2}b(iD + F_{03}) - 2i\bar{\lambda}_L\lambda_R}{|\sqrt{2}b|^4}(-2\bar{\lambda}_R) =$$

$$= -2\frac{\bar{\lambda}_L \overleftarrow{\mathcal{D}}_R}{|\sqrt{2}b|^2} + 2\frac{\sqrt{2}b(iD + F_{03})\bar{\lambda}_R - 2i\bar{\lambda}_L\lambda_R\bar{\lambda}_R}{|\sqrt{2}b|^4} =$$

$$= -2\frac{\bar{\lambda}_L \overleftarrow{\mathcal{D}}_R}{|\sqrt{2}b|^2} + 2\frac{\sqrt{2}b(iD + F_{03})\bar{\lambda}_R - 2i\bar{\lambda}_L\lambda_R\bar{\lambda}_R}{|\sqrt{2}b|^4}$$

$$\frac{1}{2}\bar{D}_L D_R u\Big| = \frac{1}{2}\bar{D}_L\left\{\frac{D_R S}{\sqrt{2}\Sigma} - \frac{S\cdot D_R\sqrt{2}\Sigma}{(\sqrt{2}\Sigma)^2}\right\}\Big| =$$

$$\frac{1}{2}\left\{\frac{\bar{D}_L D_R S}{\sqrt{2}\Sigma} - \frac{\bar{D}_L S\, D_R\sqrt{2}\Sigma + \bar{D}_L\sqrt{2}\Sigma\, D_R S}{(\sqrt{2}\Sigma)^2} -\right.$$

$$\left. - S\frac{\bar{D}_L D_R\sqrt{2}\Sigma}{(\sqrt{2}\Sigma)^2} + 2\frac{S(\bar{D}_L\sqrt{2}\Sigma)\, D_R(\sqrt{2}\Sigma)}{(\sqrt{2}\Sigma)^3}\right\}\Big| =$$

$$= -\frac{i\sqrt{2}\lambda_R\sqrt{2}\bar{\sigma}}{\sqrt{2}\sigma} - \frac{1}{2}\frac{(-2)D_R\lambda_L/\sqrt{2}\bar{\sigma}\cdot(-2\bar{\lambda}_L) + 2\lambda_R\cdot(-2)\,\bar{\lambda}_R\overleftarrow{\bar{D}_L}/\sqrt{2}\bar{\sigma}}{(\sqrt{2}\sigma)^2} -$$

$$-\frac{\sqrt{2}\bar{\sigma}(iD-F_{03}) - 2i\bar{\lambda}_R\lambda_L}{|\sqrt{2}\sigma|^4}(-i)(iD+F_{03}) +$$

$$+\frac{\sqrt{2}\bar{\sigma}(iD-F_{03}) - 2i\bar{\lambda}_R\lambda_L}{|\sqrt{2}\sigma|^4\sqrt{2}\sigma}2\lambda_R(-2\bar{\lambda}_L) =$$

$$= \frac{-i\,n\,l_h \sqrt{\bar{a}b}}{\sqrt{ab}} + 2\,\frac{\bar{\lambda}_L D_R \lambda_L \cdot \frac{1}{\sqrt{\bar{a}b}} - \bar{\lambda}_R \overleftarrow{D}_L \lambda_R / \sqrt{\bar{a}b}}{(\sqrt{ab})^2} +$$

$$+\, i\,\frac{\sqrt{\bar{a}b}\,((iD)^2 - F_{03}^2) - 2i(iD + F_{03})\,\bar{\lambda}_R \lambda_L}{|ab|^4} \cancel{+}$$

$$+\, 4\,\frac{\sqrt{\bar{a}b}\,\bar{\lambda}_L \lambda_R (iD - F_{03}) - 2i\,\bar{\lambda}_R \lambda_L \bar{\lambda}_L \lambda_R}{|ab|^4 \sqrt{ab}} =$$

$$= \frac{-i\,n\,l_h \sqrt{\bar{a}b}}{\sqrt{ab}} + 2\,\frac{\bar{\lambda}_L D_R \lambda_L - \bar{\lambda}_R \overleftarrow{D}_L \lambda_R}{|ab|^2 \sqrt{ab}} +$$

$$+\, i\,\frac{(iD)^2 - F_{03}^2}{|ab|^2 \sqrt{ab}} \cancel{-}\; 2i\,\frac{(iD + F_{03})\,\bar{a}b\,\bar{\lambda}_R \lambda_L}{|ab|^4 \sqrt{ab}} +$$

$$+\, 4\,\frac{\sqrt{\bar{a}b}\,\bar{\lambda}_L \lambda_R (iD - F_{03}) - 2i\,\bar{\lambda}_R \lambda_L \bar{\lambda}_L \lambda_R}{|ab|^4 \sqrt{ab}} =$$

$$= \frac{-i}{\sqrt{ab}} \Big\{ n\,l_h \sqrt{\bar{a}b} + 2\,\frac{\bar{\lambda}_L\, iD_R \lambda_L - \bar{\lambda}_R\, i\overleftarrow{D}_L \lambda_R}{|ab|^2} -$$

$$- \frac{(iD)^2 - F_{03}^2}{|ab|^2} + 2\,\frac{i\bar{a}b\,\bar{\lambda}_R \lambda_L (iD + F_{03})}{|ab|^4} +$$

$$+\, 4\,\frac{i\sqrt{\bar{a}b}\,\bar{\lambda}_L \lambda_R (iD - F_{03}) + 2\,\bar{\lambda}_R \lambda_L \bar{\lambda}_L \lambda_R}{|ab|^4} \Big\}$$

(9)

$$\frac{1}{2}\bar{D}_R D_L v\Big| = \frac{1}{2}\bar{D}_R\left\{\frac{D_L\bar{S}}{\sqrt{2}\,\bar{\Sigma}} - \frac{\bar{S}\cdot D_L\sqrt{2}\,\bar{\Sigma}}{(\sqrt{2}\,\bar{\Sigma})^2}\right\}\Big| =$$

$$= \frac{1}{2}\left\{\frac{\bar{D}_R D_L\bar{S}}{\sqrt{2}\,\bar{\Sigma}} - \frac{\bar{D}_R\bar{S}\cdot D_L\sqrt{2}\,\bar{\Sigma} + \bar{D}_R\sqrt{2}\,\bar{\Sigma}\cdot D_L\bar{S}}{(\sqrt{2}\,\bar{\Sigma})^2} -\right.$$

$$\left. - \bar{S}\frac{\bar{D}_R D_L\sqrt{2}\,\bar{\Sigma}}{(\sqrt{2}\,\bar{\Sigma})^2} + 2\frac{\bar{S}\,\bar{D}_R\sqrt{2}\,\bar{\Sigma}\, D_L\sqrt{2}\,\bar{\Sigma}}{(\sqrt{2}\,\bar{\Sigma})^3}\right\}\Big| =$$

$$= \frac{-i\,v\,\lambda_L\sqrt{2}\,\bar{b}}{\sqrt{2}\,\bar{b}} - \frac{1}{2}\,\frac{(-2)\,D_L\lambda_R\,\cancel{\sqrt{2}\,\bar{b}}\,(-2\bar{\lambda}_R) + 2\lambda_L\cdot(-2)\,\bar{D}_R\bar{\lambda}_L\,\cancel{\sqrt{2}\,\bar{b}}}{(\sqrt{2}\,\bar{b})^2}$$

$$- \frac{\sqrt{2}\,b(iD + F_{03}) - 2i\,\bar{\lambda}_L\lambda_R}{|\sqrt{2}\,b|^4}(-i)(iD - F_{03}) +$$

$$+ \frac{\sqrt{2}\,b(iD + F_{03}) - 2i\,\bar{\lambda}_L\lambda_R}{|\sqrt{2}\,b|^4\,\sqrt{2}\,\bar{b}}\,2\lambda_L(-2\bar{\lambda}_R) =$$

$$= \frac{-i n l_4 \sqrt{2} b}{\sqrt{2}\,\bar b} + 2\,\frac{\bar\lambda_R \mathcal{D}_L \lambda_R - \bar\lambda_L \overleftarrow{\mathcal{D}}_R \lambda_L}{|\sqrt{2} b|^2 \sqrt{2}\,\bar b} +$$

$$+ i\,\frac{(iD)^2 - F_{03}^2}{|\sqrt{2} b|^2 \sqrt{2}\,\bar b} - 2i\,\frac{(iD - F_{03})\, i\sqrt{2} b\, \bar\lambda_L \lambda_R}{|\sqrt{2} b|^4 \sqrt{2}\,\bar b} +$$

$$+ 4\,\frac{\sqrt{2} b (iD + F_{03})\, \bar\lambda_R \lambda_L - 2i\, \bar\lambda_R \lambda_R \bar\lambda_R \lambda_L}{|\sqrt{2} b|^4 \sqrt{2}\,\bar b} =$$

$$= \frac{-i}{\sqrt{2}\,\bar b} \Big\{ n l_4 \sqrt{2} b + 2\,\frac{\bar\lambda_R\, i\mathcal{D}_L \lambda_R - \bar\lambda_L\, i\overleftarrow{\mathcal{D}}_R \lambda_L}{|\sqrt{2} b|^2} -$$

$$- \frac{(iD)^2 - F_{03}^2}{|\sqrt{2} b|^2} + 2\,\frac{(iD - F_{03})\, i\sqrt{2} b\, \bar\lambda_L \lambda_R}{|\sqrt{2} b|^4} +$$

$$+ 4\,\frac{\cancel{\sqrt{2} b (iD + F_{03})\, \bar\lambda_R \lambda_L}\; i\sqrt{2} b\, \bar\lambda_R \lambda_L (iD + F_{03}) + 2\, \bar\lambda_L \lambda_R \bar\lambda_R \lambda_L}{|\sqrt{2} b|^4} \Big\}$$

Now we extract terms which contain the kinetic term:

- G_{uuvv} — too many fermions
- $-\frac{1}{4}\left\{ G_{uuv}\, \bar{D}_R D_L v \cdot \bar{D}_L u\, D_R u + G_{uvv}\, \bar{D}_R v\, D_L v \cdot \bar{D}_L D_R u \right\}\Big| \supset$

$$\supset -\cancel{\tfrac{1}{4}} \left\{ G_{uuv}\, 2\frac{(\cancel{+i})}{\sqrt{2}\, \bar{6}} \frac{(iD)^2 - f_{03}^2}{|\sqrt{2}6|^2} \cdot \cancel{(-2)} \left[\frac{D_R \lambda_L}{|\sqrt{2}6|^2} + \frac{\sqrt{2}\bar{6}(iD - f_{03})\lambda_R}{|\sqrt{2}6|^4} + \dots \right] \times \right.$$

$$\times \cancel{(+2)} \left[-\frac{\bar{\lambda}_R \overleftarrow{D}_L}{|\sqrt{2}6|^2} + \frac{\sqrt{2}6(iD - f_{03})\bar{\lambda}_L}{|\sqrt{2}6|^4} + \dots \right] +$$

$$+ G_{vvu}\, 2\frac{(+i)}{\sqrt{2}\, 6} \frac{(iD)^2 - f_{03}^2}{|\sqrt{2}6|^2} \times \cancel{(-2)} \left[\frac{D_L \lambda_R}{|\sqrt{2}6|^2} + \frac{\sqrt{2}\bar{6}(iD + f_{03})\lambda_L}{|\sqrt{2}6|^4} + \dots \right] \times$$

$$\left. \times \cancel{(2)} \left[-\frac{\bar{\lambda}_L \overleftarrow{D}_R}{|\sqrt{2}6|^2} + \frac{\sqrt{2}6(iD + f_{03})\bar{\lambda}_R}{|\sqrt{2}6|^4} + \dots \right] \right\}\Big| \supset$$

$$\supset 2\, G_{uuv} \frac{i}{\sqrt{2}b} \frac{(iD)^2 - F_{03}^2}{|\sqrt{2}b|^2} \left[\frac{(-i)\,\sqrt{2}b\,(iD - F_{03})\,\bar{\lambda}_L \mathcal{D}_R \lambda_L}{|\sqrt{2}b|^6} + \right.$$

$$\left. + \frac{\sqrt{2}b\,(iD - F_{03})\,\bar{\lambda}_R \overleftarrow{\mathcal{D}}_L \lambda_R}{|\sqrt{2}b|^6} + \dots \right] +$$

$$+ 2\, G_{vvu} \frac{i}{\sqrt{2}b} \frac{(iD)^2 - F_{03}^2}{|\sqrt{2}b|^2} \left[\frac{(-i)\,\sqrt{2}b\,(iD + F_{03})\,\bar{\lambda}_R \mathcal{D}_L \lambda_R}{|\sqrt{2}b|^6} + \right.$$

$$\left. + \frac{\sqrt{2}b\,(iD + F_{03})\,\bar{\lambda}_L \overleftarrow{\mathcal{D}}_R \lambda_L}{|\sqrt{2}b|^6} + \dots \right] =$$

$$= -\,2\, \frac{(iD)^2 - F_{03}^2}{|\sqrt{2}b|^8} \left[G_{uuv}\, \cancel{(\sqrt{2}b)}\, (iD - F_{03}) \left\{ \bar{\lambda}_L i \mathcal{D}_R \lambda_L - \bar{\lambda}_R i \overleftarrow{\mathcal{D}}_L \lambda_R \right\} + \right.$$

$$\left. + G_{vvu}\, \cancel{(\sqrt{2}b)}\, (iD + F_{03}) \left\{ \bar{\lambda}_R i \mathcal{D}_L \lambda_R - \bar{\lambda}_L i \overleftarrow{\mathcal{D}}_R \lambda_L \right\} \right]$$

$$= -2 \frac{(iD)^2 - F_{03}^2}{|\sqrt{2}b|^8} \left\{ G_{uuv}\, (iD - F_{03}) \left[\bar{\lambda}_L i \mathcal{D}_R \lambda_L - \bar{\lambda}_R i \overleftarrow{\mathcal{D}}_L \lambda_R \right] + \right.$$

$$\left. + G_{vvu}\, (iD + F_{03}) \left[\bar{\lambda}_R i \mathcal{D}_L \lambda_R - \bar{\lambda}_L i \overleftarrow{\mathcal{D}}_R \lambda_L \right] \right\}$$

$\Rightarrow$

- $\underline{(-2)}$ $G_{uu\nu} \left\{ D_L \nu \bar{D}_L u \, i\partial_L u + \bar{D}_R \nu D_R u \, i\partial_R u \right\} \not\supset$ kinetic term

  (-4)

  or will contain too many derivatives or not derivatives acting on the fermions

- $\underline{(-4)}$ $G_{uu} \, \partial_\mu u \, \partial_\mu u \not\supset$ kinetic term

  (-4)

14

$$\bullet \quad -\tfrac{1}{4}\, G_{uv}\, \bar{D}_R D_L v \cdot \bar{D}_L D_R u \Big\} \supset$$

$$\supset -\, G_{uv} \frac{(-1)}{|\tilde{G}b|^2} \left[2\, \frac{\bar{\lambda}_R\, i D_L \lambda_R - \bar{\lambda}_L\, i \overleftarrow{D}_R \lambda_L}{|\tilde{G}b|^2} - \frac{(iD)^2 - F_{03}^2}{|\tilde{G}b|^2} \right] \cdot$$

$$\times \left[2\, \frac{\bar{\lambda}_L\, i D_R \lambda_L - \bar{\lambda}_R\, i \overleftarrow{D}_L \lambda_R}{|\tilde{G}b|^2} - \frac{(iD)^2 - F_{03}^2}{|\tilde{G}b|^2} \right] \supset$$

$$\longrightarrow \quad \supset -2\, G_{uv} \frac{(iD)^2 - F_{03}^2}{|\tilde{G}b|^6} \left[\bar{\lambda}_L\, i \bar{D}_R \lambda_L + \bar{\lambda}_R\, i \bar{D}_L \lambda_R \right]$$

- $\frac{(-2)}{(-2i)} G_{uv} \left\{ D_L v \, i\partial_L \bar{D}_L u + \bar{D}_R v \cdot i\partial_R D_R u \right\} \Big| \supset$

$$\supset \frac{1}{2} G_{uv} \left\{ 2 \frac{\bar{\Omega} b (iD + F_{03}) \bar{\lambda}_R}{|\Omega b|^4} (-2) \frac{\Omega \bar{b} (iD - F_{03}) i\partial_L \lambda_R}{|\Omega b|^4} + \right.$$

$$\left. + (-2) \frac{\bar{\Omega} b (iD + F_{03}) \lambda_L}{|\Omega b|^4} \, 2 \, \frac{\Omega \bar{b} (iD - F_{03}) i\partial_R \bar{\lambda}_L}{|\Omega b|^4} \right\} =$$

$$= 2 G_{uv} \frac{(iD)^2 - F_{03}^2}{|\Omega b|^6} \left\{ -\bar{\lambda}_R \, i\partial_L \lambda_R - \lambda_L \, i\partial_R \bar{\lambda}_L \right\} =$$

$$\longrightarrow \; = -2 G_{uv} \frac{(iD)^2 - F_{03}^2}{|\Omega b|^6} \left\{ \bar{\lambda}_R \, i\partial_L \lambda_R - \bar{\lambda}_L \, i\overleftarrow{\partial}_R \lambda_L \right\}$$

- $G_u B_u \not\supset$ kinetic terms for fermions

Altogether,

$$-2\frac{(iD)^2-F_{03}^2}{|\xi b|^8}\Big\{G_{uuv}(iD-F_{03})\big[\bar\lambda_L i\mathcal{D}_R\lambda_L-\bar\lambda_R i\overleftarrow{\mathcal{D}}_L\lambda_R\big]+$$

$$+G_{vvu}(iD+F_{03})\big[\bar\lambda_R i\mathcal{D}_L\lambda_R-\bar\lambda_L i\overleftarrow{\mathcal{D}}_R\lambda_L\big]\Big\}-$$

$$-2G_{uv}\frac{(iD)^2-F_{03}^2}{|\xi b|^6}\big[\bar\lambda_L i\overleftarrow{\mathcal{D}}_R\lambda_L+\bar\lambda_R i\overleftarrow{\mathcal{D}}_L\lambda_R\big]-$$

$$-2G_{uv}\frac{(iD)^2-F_{03}^2}{|\xi b|^6}\big\{\bar\lambda_R i\partial_L\lambda_R-\bar\lambda_L i\overleftarrow{\partial}_R\lambda_L\big\}\quad\Rightarrow$$

this can be symmetrized

dropping F_{03}

$\Rightarrow$

$$-\frac{(iD)^2}{|\xi b|^6}\Big\{3G_{uv}+\frac{iD}{|\xi b|^2}(G_{uuv}+G_{vvu})\Big\}\big\{\bar\lambda_R i\overleftarrow{\partial}_L\lambda_R+\bar\lambda_L i\overleftarrow{\partial}_R\lambda_L\big\}$$

$$\boxed{\begin{array}{l}\text{kinetic term for } \lambda \text{ is:}\\[1em] -\dfrac{\bar\lambda_R i\overleftarrow{\partial}_L\lambda_R+\bar\lambda_L i\overleftarrow{\partial}_R\lambda_L}{|\xi b|^2}\left(\dfrac{iD}{|\xi b|^2}\right)^2\Big\{3G_{uv}+\dfrac{iD}{|\xi b|^2}(G_{uuv}+G_{vvu})\Big\}\end{array}}$$