

## Basis SMEFTsim-MFV (EFT SMEFT)

Basis used in the `SMEFTsim_MFV` UFO models, version 3.0.0 or later. Implements Warsaw basis with  $U(3)$  flavor symmetry for all fermions and includes up to 1 lepton Yukawa and 3 quark Yukawa insertions. BSM CP violation is forbidden.  $q, u, d$  are the left- and right-handed quark fields.  $\ell, e$  are left- and right-handed lepton fields.  $Y_l, Y_u, Y_d$  are the 3x3 yukawa matrices for leptons, up- and down-quarks, defined by  $L_{SM} \supset \bar{d} Y_d H^\dagger q$  and analogously for the others. Quark fields are in the up-aligned basis:  $Y_l, Y_u$  are assumed diagonal at the scale of evaluation, while  $Y_d = Y_d^{diag} V_{CKM}^\dagger$ . Flavor indices are indicated with  $p, r, s, t$  with Einstein conventions on repeated indices. They run over 1,2,3 for all fields. This basis definition corresponds to a fixed `LambdaSMEFT=10e+3` in the UFO models. Notation and conventions can vary compared to the Warsaw basis paper, see arXiv:2012.11343 for all definitions.

## Sectors

The effective Lagrangian is defined as

$$\mathcal{L}_{\text{eff}} = -\mathcal{H}_{\text{eff}} = \sum_{O_i=O_i^\dagger} C_i O_i + \sum_{O_i \neq O_i^\dagger} (C_i O_i + C_i^* O_i^\dagger).$$

`dB=dL=0`

| WC name   | Operator   | Type |
|-----------|--|------|
| cG        | $f^{ABC} G_\mu^{A\nu} G_\nu^{B\rho} G_\rho^{C\mu} / TeV^2$                                   | R    |
| cW        | $\varepsilon^{IJK} W_\mu^{I\nu} W_\nu^{J\rho} W_\rho^{K\mu} / TeV^2$                         | R    |
| cH        | $(H^\dagger H)^3 / TeV^2$  | R    |
| cHbox     | $(H^\dagger H) \square (H^\dagger H) / TeV^2$  | R    |
| cHDD      | $(D_\mu H^\dagger H) (H^\dagger D^\mu H) / TeV^2$  | R    |
| cHG       | $G_{\mu\nu}^A G^{A\mu\nu} H^\dagger H / TeV^2$   | R    |
| cHW       | $W_{\mu\nu}^I W^{I\mu\nu} H^\dagger H / TeV^2$   | R    |
| cHB       | $B_{\mu\nu} B^{\mu\nu} H^\dagger H / TeV^2$  | R    |
| cHWB      | $B_{\mu\nu} W^{I\mu\nu} H^\dagger \sigma^I H / TeV^2$  | R    |
| ceH       | $(Y_l^\dagger)_{pr} (\bar{\ell}_p H e_r) (H^\dagger H) / TeV^2 + hc$                         | R    |
| cuH0      | $(Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} u_r) (H^\dagger H) / TeV^2 + hc$                    | R    |
| DeltaucuH | $(Y_u^\dagger Y_u Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} u_r) (H^\dagger H) / TeV^2 + hc$    | R    |
| DeltadcuH | $(Y_d^\dagger Y_d Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} u_r) (H^\dagger H) / TeV^2 + hc$    | R    |
| cdH0      | $(Y_d^\dagger)_{pr} (\bar{q}_p H d_r) (H^\dagger H) / TeV^2 + hc$                            | R    |
| DeltaucdH | $(Y_u^\dagger Y_u Y_d^\dagger)_{pr} (\bar{q}_p H d_r) (H^\dagger H) / TeV^2 + hc$            | R    |
| DeltadcdH | $(Y_d^\dagger Y_d Y_d^\dagger)_{pr} (\bar{q}_p H d_r) (H^\dagger H) / TeV^2 + hc$            | R    |
| ceW       | $(Y_l^\dagger)_{pr} (\bar{\ell}_p \sigma^I H \sigma^{\mu\nu} e_r) W_{\mu\nu}^I / TeV^2 + hc$ | R    |
| ceB       | $(Y_l^\dagger)_{pr} (\bar{\ell}_p H \sigma^{\mu\nu} e_r) B_{\mu\nu} / TeV^2 + hc$            | R    |
| cuG0      | $(Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} \sigma^{\mu\nu} T^A u_r) G_{\mu\nu}^A / TeV^2 + hc$ | R    |

| WC name    | Operator  | Type |
|------------|---|------|
| DeltaucuG  | $(Y_u^\dagger Y_u Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} \sigma^{\mu\nu} T^A u_r) G_{\mu\nu}^A / TeV^2 + hc$      | R    |
| DeltadcuG  | $(Y_d^\dagger Y_d Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} \sigma^{\mu\nu} T^A u_r) G_{\mu\nu}^A / TeV^2 + hc$      | R    |
| cuW0       | $(Y_u^\dagger)_{pr} (\bar{q}_p \sigma^I \tilde{H} \sigma^{\mu\nu} u_r) W_{\mu\nu}^I / TeV^2 + hc$                 | R    |
| DeltaucuW  | $(Y_u^\dagger Y_u Y_u^\dagger)_{pr} (\bar{q}_p \sigma^I \tilde{H} \sigma^{\mu\nu} u_r) W_{\mu\nu}^I / TeV^2 + hc$ | R    |
| DeltadcuW  | $(Y_d^\dagger Y_d Y_u^\dagger)_{pr} (\bar{q}_p \sigma^I \tilde{H} \sigma^{\mu\nu} u_r) W_{\mu\nu}^I / TeV^2 + hc$ | R    |
| cuB0       | $(Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} \sigma^{\mu\nu} u_r) B_{\mu\nu} / TeV^2 + hc$                            | R    |
| DeltaucuB  | $(Y_u^\dagger Y_u Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} \sigma^{\mu\nu} u_r) B_{\mu\nu} / TeV^2 + hc$            | R    |
| DeltadcuB  | $(Y_d^\dagger Y_d Y_u^\dagger)_{pr} (\bar{q}_p \tilde{H} \sigma^{\mu\nu} u_r) B_{\mu\nu} / TeV^2 + hc$            | R    |
| cdG0       | $(Y_d^\dagger)_{pr} (\bar{q}_p H \sigma^{\mu\nu} T^A d_r) G_{\mu\nu}^A / TeV^2 + hc$                              | R    |
| DeltaucdG  | $(Y_u^\dagger Y_u Y_d^\dagger)_{pr} (\bar{q}_p H \sigma^{\mu\nu} T^A d_r) G_{\mu\nu}^A / TeV^2 + hc$              | R    |
| DeltadcdG  | $(Y_d^\dagger Y_d Y_d^\dagger)_{pr} (\bar{q}_p H \sigma^{\mu\nu} T^A d_r) G_{\mu\nu}^A / TeV^2 + hc$              | R    |
| cdW0       | $(Y_d^\dagger)_{pr} (\bar{q}_p \sigma^I H \sigma^{\mu\nu} d_r) W_{\mu\nu}^I / TeV^2 + hc$                         | R    |
| DeltaucdW  | $(Y_u^\dagger Y_u Y_d^\dagger)_{pr} (\bar{q}_p \sigma^I H \sigma^{\mu\nu} d_r) W_{\mu\nu}^I / TeV^2 + hc$         | R    |
| DeltadcdW  | $(Y_d^\dagger Y_d Y_d^\dagger)_{pr} (\bar{q}_p \sigma^I H \sigma^{\mu\nu} d_r) W_{\mu\nu}^I / TeV^2 + hc$         | R    |
| cdB0       | $(Y_d^\dagger)_{pr} (\bar{q}_p H \sigma^{\mu\nu} d_r) B_{\mu\nu} / TeV^2 + hc$                                    | R    |
| DeltaucdB  | $(Y_u^\dagger Y_u Y_d^\dagger)_{pr} (\bar{q}_p H \sigma^{\mu\nu} d_r) B_{\mu\nu} / TeV^2 + hc$                    | R    |
| DeltadcdB  | $(Y_d^\dagger Y_d Y_d^\dagger)_{pr} (\bar{q}_p H \sigma^{\mu\nu} d_r) B_{\mu\nu} / TeV^2 + hc$                    | R    |
| cH11       | $(H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{\ell}_p \gamma^\mu \ell_p) / TeV^2$                             | R    |
| cH13       | $(H^\dagger i \overleftrightarrow{D}_\mu^I H) (\bar{\ell}_p \gamma^\mu \sigma^I \ell_p) / TeV^2$                  | R    |
| cHq10      | $(H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{q}_p \gamma^\mu q_p) / TeV^2$                                   | R    |
| DeltaucHq1 | $(Y_u^\dagger Y_u)_{pr} (H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{q}_p \gamma^\mu q_r) / TeV^2$            | R    |
| DeltadcHq1 | $(Y_d^\dagger Y_d)_{pr} (H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{q}_p \gamma^\mu q_r) / TeV^2$            | R    |
| cHq30      | $(H^\dagger i \overleftrightarrow{D}_\mu^I H) (\bar{q}_p \gamma^\mu \sigma^I q_p) / TeV^2$                        | R    |
| DeltaucHq3 | $(Y_u^\dagger Y_u)_{pr} (H^\dagger i \overleftrightarrow{D}_\mu^I H) (\bar{q}_p \gamma^\mu \sigma^I q_r) / TeV^2$ | R    |
| DeltadcHq3 | $(Y_d^\dagger Y_d)_{pr} (H^\dagger i \overleftrightarrow{D}_\mu^I H) (\bar{q}_p \gamma^\mu \sigma^I q_r) / TeV^2$ | R    |
| cHe        | $(H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{e}_p \gamma^\mu e_p) / TeV^2$                                   | R    |
| cHu0       | $(H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{u}_p \gamma^\mu u_p) / TeV^2$                                   | R    |
| DeltacHu   | $(Y_u Y_u^\dagger)_{pr} (H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{u}_p \gamma^\mu u_r) / TeV^2$            | R    |
| cHd0       | $(H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{d}_p \gamma^\mu d_p) / TeV^2$                                   | R    |
| DeltacHd   | $(Y_d Y_d^\dagger)_{pr} (H^\dagger i \overleftrightarrow{D}_\mu H) (\bar{d}_p \gamma^\mu d_r) / TeV^2$            | R    |
| cHud0      | $(Y_u Y_d^\dagger)_{pr} (\tilde{H}^\dagger D_\mu H) (\bar{u}_p \gamma^\mu d_r) / TeV^2 + hc$                      | R    |
| c11        | $(\bar{\ell}_p \gamma_\mu \ell_p) (\bar{\ell}_r \gamma^\mu \ell_r) / TeV^2$                                       | R    |
| c111       | $(\bar{\ell}_p \gamma_\mu \ell_r) (\bar{\ell}_r \gamma^\mu \ell_p) / TeV^2$                                       | R    |
| clq10      | $(\bar{\ell}_p \gamma_\mu \ell_p) (\bar{q}_r \gamma^\mu q_r) / TeV^2$   | R    |
| Deltauc1q1 | $(Y_u^\dagger Y_u)_{rs} (\bar{\ell}_p \gamma_\mu \ell_p) (\bar{q}_r \gamma^\mu q_s) / TeV^2$                      | R    |
| Deltadclq1 | $(Y_d^\dagger Y_d)_{rs} (\bar{\ell}_p \gamma_\mu \ell_p) (\bar{q}_r \gamma^\mu q_s) / TeV^2$                      | R    |
| clq30      | $(\bar{\ell}_p \gamma_\mu \sigma^I \ell_p) (\bar{q}_r \gamma^\mu \sigma^I q_r) / TeV^2$                           | R    |
| Deltauc1q3 | $(Y_u^\dagger Y_u)_{rs} (\bar{\ell}_p \gamma_\mu \sigma^I \ell_p) (\bar{q}_r \gamma^\mu \sigma^I q_s) / TeV^2$    | R    |
| Deltadclq3 | $(Y_d^\dagger Y_d)_{rs} (\bar{\ell}_p \gamma_\mu \sigma^I \ell_p) (\bar{q}_r \gamma^\mu \sigma^I q_s) / TeV^2$    | R    |

| WC name     | Operator   | Type |
|-------------|--|------|
| cqq10       | $(\bar{q}_p \gamma_\mu q_p)(\bar{q}_r \gamma^\mu q_r)/TeV^2$   | R    |
| Deltaucqq1  | $(Y_u^\dagger Y_u)_{ps}(\bar{q}_p \gamma_\mu q_s)(\bar{q}_r \gamma^\mu q_r)/TeV^2$                   | R    |
| Deltadcqq1  | $(Y_d^\dagger Y_d)_{ps}(\bar{q}_p \gamma_\mu q_s)(\bar{q}_r \gamma^\mu q_r)/TeV^2$                   | R    |
| cqq110      | $(\bar{q}_p \gamma_\mu q_r)(\bar{q}_r \gamma^\mu q_p)/TeV^2$   | R    |
| Deltaucqq11 | $(Y_u^\dagger Y_u)_{ps}(\bar{q}_p \gamma_\mu q_r)(\bar{q}_r \gamma^\mu q_s)/TeV^2$                   | R    |
| Deltadcqq11 | $(Y_d^\dagger Y_d)_{ps}(\bar{q}_p \gamma_\mu q_r)(\bar{q}_r \gamma^\mu q_s)/TeV^2$                   | R    |
| cqq30       | $(\bar{q}_p \gamma_\mu \sigma^I q_p)(\bar{q}_r \gamma^\mu \sigma^I q_r)/TeV^2$                       | R    |
| Deltaucqq3  | $(Y_u^\dagger Y_u)_{ps}(\bar{q}_p \gamma_\mu \sigma^I q_s)(\bar{q}_r \gamma^\mu \sigma^I q_r)/TeV^2$ | R    |
| Deltadcqq3  | $(Y_d^\dagger Y_d)_{ps}(\bar{q}_p \gamma_\mu \sigma^I q_s)(\bar{q}_r \gamma^\mu \sigma^I q_r)/TeV^2$ | R    |
| cqq310      | $(\bar{q}_p \gamma_\mu \sigma^I q_r)(\bar{q}_r \gamma^\mu \sigma^I q_p)/TeV^2$                       | R    |
| Deltaucqq31 | $(Y_u^\dagger Y_u)_{ps}(\bar{q}_p \gamma_\mu \sigma^I q_r)(\bar{q}_r \gamma^\mu \sigma^I q_s)/TeV^2$ | R    |
| Deltadcqq31 | $(Y_d^\dagger Y_d)_{ps}(\bar{q}_p \gamma_\mu \sigma^I q_r)(\bar{q}_r \gamma^\mu \sigma^I q_s)/TeV^2$ | R    |
| cee         | $(\bar{e}_p \gamma_\mu e_p)(\bar{e}_r \gamma^\mu e_r)/TeV^2$   | R    |
| cuu0        | $(\bar{u}_p \gamma_\mu u_p)(\bar{u}_r \gamma^\mu u_r)/TeV^2$   | R    |
| Deltacuu    | $(Y_u Y_u^\dagger)_{ps}(\bar{u}_p \gamma_\mu u_s)(\bar{u}_r \gamma^\mu u_r)/TeV^2$                   | R    |
| cuu10       | $(\bar{u}_p \gamma_\mu u_r)(\bar{u}_r \gamma^\mu u_p)/TeV^2$   | R    |
| Deltacuu1   | $(Y_u Y_u^\dagger)_{ps}(\bar{u}_p \gamma_\mu u_r)(\bar{u}_r \gamma^\mu u_s)/TeV^2$                   | R    |
| cdd0        | $(\bar{d}_p \gamma_\mu d_p)(\bar{d}_r \gamma^\mu d_r)/TeV^2$   | R    |
| Deltacdd    | $(Y_d Y_d^\dagger)_{ps}(\bar{d}_p \gamma_\mu d_s)(\bar{d}_r \gamma^\mu d_r)/TeV^2$                   | R    |
| cdd10       | $(\bar{d}_p \gamma_\mu d_r)(\bar{d}_r \gamma^\mu d_p)/TeV^2$   | R    |
| Deltacdd1   | $(Y_d Y_d^\dagger)_{ps}(\bar{d}_p \gamma_\mu d_r)(\bar{d}_r \gamma^\mu d_s)/TeV^2$                   | R    |
| ceu0        | $(\bar{e}_p \gamma_\mu e_p)(\bar{u}_r \gamma^\mu u_r)/TeV^2$   | R    |
| Deltaceu    | $(Y_u Y_u^\dagger)_{rs}(\bar{e}_p \gamma_\mu e_p)(\bar{u}_r \gamma^\mu u_s)/TeV^2$                   | R    |
| ced0        | $(\bar{e}_p \gamma_\mu e_p)(\bar{d}_r \gamma^\mu d_r)/TeV^2$   | R    |
| Deltaced    | $(Y_d Y_d^\dagger)_{rs}(\bar{e}_p \gamma_\mu e_p)(\bar{d}_r \gamma^\mu d_s)/TeV^2$                   | R    |
| cud10       | $(\bar{u}_p \gamma_\mu u_p)(\bar{d}_r \gamma^\mu d_r)/TeV^2$   | R    |
| Deltaucud1  | $(Y_u Y_u^\dagger)_{ps}(\bar{u}_p \gamma_\mu u_s)(\bar{d}_r \gamma^\mu d_r)/TeV^2$                   | R    |
| Deltadcud1  | $(Y_d Y_d^\dagger)_{rs}(\bar{u}_p \gamma_\mu u_p)(\bar{d}_r \gamma^\mu d_s)/TeV^2$                   | R    |
| cud80       | $(\bar{u}_p \gamma_\mu T^A u_p)(\bar{d}_r \gamma^\mu T^A d_r)/TeV^2$                                 | R    |
| Deltaucud8  | $(Y_u Y_u^\dagger)_{ps}(\bar{u}_p \gamma_\mu T^A u_s)(\bar{d}_r \gamma^\mu T^A d_r)/TeV^2$           | R    |
| Deltadcud8  | $(Y_d Y_d^\dagger)_{rs}(\bar{u}_p \gamma_\mu T^A u_p)(\bar{d}_r \gamma^\mu T^A d_s)/TeV^2$           | R    |
| c1e         | $(\bar{\ell}_p \gamma_\mu \ell_p)(\bar{e}_r \gamma^\mu e_r)/TeV^2$                                   | R    |
| clu0        | $(\bar{\ell}_p \gamma_\mu \ell_p)(\bar{u}_r \gamma^\mu u_r)/TeV^2$                                   | R    |
| Deltaclu    | $(Y_u Y_u^\dagger)_{rs}(\bar{\ell}_p \gamma_\mu \ell_p)(\bar{u}_r \gamma^\mu u_s)/TeV^2$             | R    |
| cld0        | $(\bar{\ell}_p \gamma_\mu \ell_p)(\bar{d}_r \gamma^\mu d_r)/TeV^2$                                   | R    |
| Deltaclld   | $(Y_d Y_d^\dagger)_{rs}(\bar{\ell}_p \gamma_\mu \ell_p)(\bar{d}_r \gamma^\mu d_s)/TeV^2$             | R    |
| cqe0        | $(\bar{q}_p \gamma_\mu q_p)(\bar{e}_r \gamma^\mu e_r)/TeV^2$   | R    |
| Deltaucqe   | $(Y_u^\dagger Y_u)_{ps}(\bar{q}_p \gamma_\mu q_s)(\bar{e}_r \gamma^\mu e_r)/TeV^2$                   | R    |
| Deltadcqe   | $(Y_d^\dagger Y_d)_{ps}(\bar{q}_p \gamma_\mu q_s)(\bar{e}_r \gamma^\mu e_r)/TeV^2$                   | R    |
| cqu10       | $(\bar{q}_p \gamma_\mu q_p)(\bar{u}_r \gamma^\mu u_r)/TeV^2$   | R    |
| Delta1ucqu1 | $(Y_u^\dagger Y_u)_{ps}(\bar{q}_p \gamma_\mu q_s)(\bar{u}_r \gamma^\mu u_r)/TeV^2$                   | R    |
| Delta1dcqu1 | $(Y_d^\dagger Y_d)_{ps}(\bar{q}_p \gamma_\mu q_s)(\bar{u}_r \gamma^\mu u_r)/TeV^2$                   | R    |

| WC name      | Operator   | Type |
|--------------|--|------|
| Delta2cqu1   | $(Y_u Y_u^\dagger)_{rs} (\bar{q}_p \gamma_\mu q_p) (\bar{u}_r \gamma^\mu u_s) / TeV^2$   | R    |
| cqu110       | $(Y_u^\dagger)_{pt} Y_{u,sr} (\bar{q}_p \gamma_\mu q_r) (\bar{u}_s \gamma^\mu u_t) / TeV^2$  | R    |
| cqu80        | $(\bar{q}_p \gamma_\mu T^A q_p) (\bar{u}_r \gamma^\mu T^A u_r) / TeV^2$  | R    |
| Delta1ucqu8  | $(Y_u^\dagger Y_u)_{ps} (\bar{q}_p \gamma_\mu T^A q_s) (\bar{u}_r \gamma^\mu T^A u_r) / TeV^2$   | R    |
| Delta1dcqu8  | $(Y_d^\dagger Y_d)_{ps} (\bar{q}_p \gamma_\mu T^A q_s) (\bar{u}_r \gamma^\mu T^A u_r) / TeV^2$   | R    |
| Delta2cqu8   | $(Y_u Y_u^\dagger)_{rs} (\bar{q}_p \gamma_\mu T^A q_p) (\bar{u}_r \gamma^\mu T^A u_s) / TeV^2$   | R    |
| cqu810       | $(Y_u^\dagger)_{pt} Y_{u,sr} (\bar{q}_p \gamma_\mu T^A q_r) (\bar{u}_s \gamma^\mu T^A u_t) / TeV^2$  | R    |
| cqd10        | $(\bar{q}_p \gamma_\mu q_p) (\bar{d}_r \gamma^\mu d_r) / TeV^2$  | R    |
| Delta1ucqd1  | $(Y_u^\dagger Y_u)_{ps} (\bar{q}_p \gamma_\mu q_s) (\bar{d}_r \gamma^\mu d_r) / TeV^2$   | R    |
| Delta1dcqd1  | $(Y_d^\dagger Y_d)_{ps} (\bar{q}_p \gamma_\mu q_s) (\bar{d}_r \gamma^\mu d_r) / TeV^2$   | R    |
| Delta2cqd1   | $(Y_d Y_d^\dagger)_{rs} (\bar{q}_p \gamma_\mu q_p) (\bar{d}_r \gamma^\mu d_s) / TeV^2$   | R    |
| cqd110       | $(Y_d^\dagger)_{pt} Y_{d,sr} (\bar{q}_p \gamma_\mu q_r) (\bar{d}_s \gamma^\mu d_t) / TeV^2$  | R    |
| cqd80        | $(\bar{q}_p \gamma_\mu T^A q_p) (\bar{d}_r \gamma^\mu T^A d_r) / TeV^2$  | R    |
| Delta1ucqd8  | $(Y_u^\dagger Y_u)_{ps} (\bar{q}_p \gamma_\mu T^A q_s) (\bar{d}_r \gamma^\mu T^A d_r) / TeV^2$   | R    |
| Delta1dcqd8  | $(Y_d^\dagger Y_d)_{ps} (\bar{q}_p \gamma_\mu T^A q_s) (\bar{d}_r \gamma^\mu T^A d_r) / TeV^2$   | R    |
| Delta2cqd8   | $(Y_d Y_d^\dagger)_{rs} (\bar{q}_p \gamma_\mu T^A q_p) (\bar{d}_r \gamma^\mu T^A d_s) / TeV^2$   | R    |
| cqd810       | $(Y_d^\dagger)_{pt} Y_{d,sr} (\bar{q}_p \gamma_\mu T^A q_r) (\bar{d}_s \gamma^\mu T^A d_t) / TeV^2$  | R    |
| cledq0       | $(Y_l^\dagger)_{pr} Y_{d,st} (\bar{\ell}_p^I e_r) (\bar{d}_s q_t^I) / TeV^2 + hc$  | R    |
| Deltaucledq  | $(Y_l^\dagger)_{pr} (Y_d Y_u^\dagger Y_u)_{st} (\bar{\ell}_p^I e_r) (\bar{d}_s q_t^I) / TeV^2 + hc$  | R    |
| Deltadcledq  | $(Y_l^\dagger)_{pr} (Y_d Y_d^\dagger Y_d)_{st} (\bar{\ell}_p^I e_r) (\bar{d}_s q_t^I) / TeV^2 + hc$  | R    |
| cquqd1       | $(Y_u^\dagger)_{pr} (Y_d^\dagger)_{st} (\bar{q}_p^I u_r) (\bar{q}_s^J d_t) \varepsilon_{IJ} / TeV^2 + hc$  | R    |
| cquqd11      | $(Y_u^\dagger)_{sr} (Y_d^\dagger)_{pt} (\bar{q}_p^I u_r) (\bar{q}_s^J d_t) \varepsilon_{IJ} / TeV^2 + hc$  | R    |
| cquqd8       | $(Y_u^\dagger)_{pr} (Y_d^\dagger)_{st} (\bar{q}_p^I T^A u_r) (\bar{q}_s^J T^A d_t) \varepsilon_{IJ} / TeV^2 + hc$  | R    |
| cquqd81      | $(Y_u^\dagger)_{sr} (Y_d^\dagger)_{pt} (\bar{q}_p^I T^A u_r) (\bar{q}_s^J T^A d_t) \varepsilon_{IJ} / TeV^2 + hc$  | R    |
| clequ10      | $(Y_l^\dagger)_{pr} (Y_u^\dagger)_{st} (\bar{\ell}_p^I e_r) (\bar{q}_s^J u_t) \varepsilon_{IJ} / TeV^2 + hc$   | R    |
| Deltauclequ1 | $(Y_l^\dagger)_{pr} (Y_u^\dagger Y_u Y_u^\dagger)_{st} (\bar{\ell}_p^I e_r) (\bar{q}_s^J u_t) \varepsilon_{IJ} / TeV^2 + hc$                                 | R    |
| Deltadclequ1 | $(Y_l^\dagger)_{pr} (Y_d^\dagger Y_d Y_u^\dagger)_{st} (\bar{\ell}_p^I e_r) (\bar{q}_s^J u_t) \varepsilon_{IJ} / TeV^2 + hc$                                 | R    |
| clequ30      | $(Y_l^\dagger)_{pr} (Y_u^\dagger)_{st} (\bar{\ell}_p^I \sigma_{\mu\nu} e_r) (\bar{q}_s^J \sigma^{\mu\nu} u_t) \varepsilon_{IJ} / TeV^2 + hc$                 | R    |
| Deltauclequ3 | $(Y_l^\dagger)_{pr} (Y_u^\dagger Y_u Y_u^\dagger)_{st} (\bar{\ell}_p^I \sigma_{\mu\nu} e_r) (\bar{q}_s^J \sigma^{\mu\nu} u_t) \varepsilon_{IJ} / TeV^2 + hc$ | R    |
| Deltadclequ3 | $(Y_l^\dagger)_{pr} (Y_d^\dagger Y_d Y_u^\dagger)_{st} (\bar{\ell}_p^I \sigma_{\mu\nu} e_r) (\bar{q}_s^J \sigma^{\mu\nu} u_t) \varepsilon_{IJ} / TeV^2 + hc$ | R    |