$$4\langle\bar{K}\,|\,\bar{\lambda}\,\gamma_5 n\,|\,0\rangle\,\langle 0\,|\,\bar{\lambda}\,\gamma_5 n\,|\,K\rangle = f_K^2 m_K^2 \left(\frac{2m_K}{m_\lambda + m_p}\right)^2 ,$$

where use has been made of the relation

$$\bar{\lambda}\gamma_5 n = (m_\lambda + m_p)^{-1}\,\partial_\mu \bar{\lambda}\,\gamma_\mu\gamma_5 n \quad .$$

The factor $m_K/(m_\lambda + m_p)$ is presumably of order unity, or perhaps even somewhat larger, so we conclude the matrix elements of the four-quark operators in Eqs. (2) and (3) are roughly comparable. However, the co-factor of the operator in $\mathscr{L}_{eff}^{L-R}$ is larger than that in $\mathscr{L}_{eff}^{L-L}$ in the ratio $2\,(\ln \frac{M_W}{m_{p'}} - 1)\sin^{-2}\theta_c \simeq 50\,(\ln \frac{M_W}{m_{p'}} - 1)$. Relative to the situation for the standard model, therefore, this implies for the nonstandard model under consideration a reduction of the upper bound on $m_{p'}^2$ by about two orders of magnitude! Despite the crudity[10] of the matrix elements estimates, this would appear to be unacceptable and to rule this model out of serious consideration.

The model that we have discussed here, and rejected, represents a very simple variation on the standard scheme: no additional quarks have been introduced but one has grouped p'_R and n_R into a weak right-handed doublet, leaving p_R and λ_R as singlets (in the standard model the right-handed quarks all enter as singlets.). An equally simple alternative would group p'_R and λ_R into a doublet, leaving p_R and n_R as singlets. For this case $\mathscr{L}_{eff}^{L-R}$ is again given by the right-hand side of Eq. (3), multiplied however, by a factor $\sin^{-2}\theta_c \approx 0.04$. The contributions to the K_L-K_S