observed for the D^0-$\bar{D}^0$ system (the signatures will be discussed later on), this would almost surely make it necessary to abandon the standard GIM scheme (model A). The simplest generalization, model B, could produce an appreciable mixing effect, $r \lesssim 0.1$, but this model is in trouble with the K_L-K_S mass difference. Any mixing much above $r \sim 10^{-3}$ would, therefore, signal the need for more than four quarks; or, as in model D with $X = \lambda$, for small right-handed current effects in ordinary semileptonic processes. The alternative represented by model D, whether or not the X particle is identified with an ordinary quark, introduces another feature that could be observationally significant, namely an off-diagonal neutral current which allows neutral current semileptonic production and decay of charmed hadrons.[13]

III. WEAK NONLEPTONIC DECAYS

We turn now to first order nonleptonic decays; in particular, the matter of octet dominance for ordinary $\Delta S = 1$, charm conserving transitions. Our discussion is predicated on the assumption that octet dominance is governed by the short distance properties[15] of products of current, hence by the properties of strong interaction dynamics at large momenta. Concerning this dynamics, we accept the nonabelian gauge theory structure which is suggested by the observation of Bjorken scaling and by the renormalization group analysis of renormalizable field theories. Nonleptonic decays have been analyzed in this framework by Gaillard and Lee and by