singularity at n=-1. Concerning the former in particular, there is the danger that higher order terms in perturbation theory lead to corrections which increase with n. In the present context we must ask whether we can trust perturbation theory for $C_L^{(n)}/C_2^{(n)}$. Here we believe that we are on firmer ground, for the following reasons:

(a) In each order of perturbation theory the leading contribution to $C_2^{(n)}$ as $n \to \infty$ is given by vertex correction graphs, as displayed in Fig. 6a. These give no contributions to $C_L^{(n)}$. However, the graphs of Fig. 6b, down by exactly one power of n as $n \to \infty$, do contribute to $C_L^{(n)}$. There is no obvious non uniformity, therefore, and the $n \to \infty$ behavior in Eq. (32) may therefore be realistic even beyond lowest order in perturbation theory.

(b) Graphs involving exchange of two gluons do not contribute to the ratio $C_L^{(n)}/C_2^{(n)}$. Order by order in perturbation theory, therefore, it seems that there are no singularities to the right of n=-2. Even if the sum over all orders produces a moving singularity (as q^2 varies), since the effective coupling constant at large q^2 is small, such a singularity should not move much to the right of n=-2. This is relevant because Regge arguments suggest that $F_2^{(n)}$ has a singularity at n=-3/2 (for the non singlet case under discussion). Therefore, the $x \to 0$ behavior of $F_L(x,q^2)$, obtained from the inversion of

$$\int_0^1 dx\, x^n F_L(x,q^2) = \int_0^1 dx\, x^n F_2(x,q^2)\, C_L^{(n)}/C_2^{(n)} , \qquad (36)$$

will be dominated by the singularity of $F_2^{(n)}$. This means that the behavior predicted by Eq. (34) is not sensitive to the singularity structure of $C_L^{(n)}/C_2^{(n)}$ and should therefore be reliable.