$$V_\mu{}^a = \mathrm{Tr}\left[\bar{\Psi}\gamma_\mu\psi\lambda^a\right]$$
$$A_\mu{}^a = \mathrm{Tr}\left[\bar{\Psi}\gamma_\mu\gamma_5\psi\lambda^a\right]. \qquad 5.8$$

Let us now discuss deep inelastic scattering in such an asymptotically free theory. Due to the fact that the vector mesons are neutral and that the theory is asymptotically free one can derive all the sum rules and relations previously derived in the parton or lightcone models. In addition there will be logarithmic deviations from Bjorken scaling which can be calculated. The full analysis will be given in a subsequent paper[30], here we shall give a simplified discussion.

The structure functions of deep inelastic scattering are Fourier transforms of the product of electromagnetic currents. In the scaling region one probes this product for lightlike separation of the currents. To discuss this one employs Wilson's operator product expansion:

$$J(x)J(-x) \underset{x^2\simeq 0}{\simeq} \sum_n C^{(n)}(x^2,g)x^{\mu_1}\ldots x^{\mu_n}O^{(n)}_{\mu_1\ldots\mu_n}(o) \ . \qquad 5.9$$

(Where we have suppressed the vector and SU(3) labels on the currents as well as the tensor and SU(3) structure of the operator product expansion). The dominant operators in the scaling region are those of twist (=dimension-spin) two. These are denoted by $O^{(n)}$. The c-number function, $C^{(n)}(x^2,g)$, contains the lightcone singularity and controls the asymptotic behavior of the structure functions. In fact the momenta of the scaling structure functions measure the Fourier transform of $C^{(n)}$: