

and lower bounds are derived on the growth rate. The arguments employed in this section involve very little in the way of extra assumptions going beyond those implied by asymptotic freedom. It is found that the growth, while it needn't be exactly linear once strict scaling breaks down, cannot depart too greatly from linear. In the present context, asymptotically free theories make their most definite predictions for the large q^2 behavior of the moments of the structure functions. Section III is concerned with converting this information into predictions about the large q^2 behavior of the structure functions themselves. Issues of non-uniformity arise here in going from one to the other, so the discussion in Section III is based on frankly speculative procedures. The aim, however, is to assess qualitatively how the breakdown of scaling could reveal itself in certain aspects⁸ of the differential section. In particular, one is led to expect what could be a substantial change with energy in the shapes of the x and y distributions. Section IV deals with a somewhat different subject, namely, corrections to the Callan-Gross relation.⁹ However this section also provides a brief review of asymptotic freedom, and it contains some comments on the non-uniformity issues mentioned above. Throughout the entire discussion we ignore possible deviations from scaling which would arise from the propagator term of a weak vector boson. If the mass is very large the effects would not be noticeable at present energies; but in any case the necessary modification could easily be made. In Sections III and IV the discussion is implicitly restricted to strangeness and charm-conserving neutrino reactions.