I. INTRODUCTION

A considerable theoretical industry has built up around the idea of Bjorken scaling, which received its first experimental support in the SLAC-MIT experiments on electroproduction[1]. Subsequent confirmation, in part, has come from the observation[2] that the total cross sections for neutrinos and anti-neutrinos on nucleons appear to grow linearly with energy beyond a few GeV. A simple and highly successful physical picture of the scaling phenomenon is provided by the well-known parton model.[3] In its field theoretic transcription, this model amounts to the assumption of canonical dimensions for the twist-two operators that appear in the Wilson expansion of a product of currents. It has recently become clear, however, at least in the framework of renormalizable field theory, that the dimensions can be canonical for all the relevant operators only in the absence of interactions. Strict scaling, therefore, if it were to persist, would represent a major theoretical paradox. On the other hand departures from scaling, if they develop in a sufficiently patterned way, could also be informative about the structure of the underlying theory.

So far, the closest one has come to strict scaling is with a special class of theories, based on non-Abelian gauge symmetry. Theories of this class possess the property of asymptotic freedom[4] and lead to certain characteristic patterns of scaling breakdown[5,6,7]. In the present paper we discuss some of the observational implications, especially in the context of neutrino reactions. One issue concerns the dependence of total neutrino cross sections on energy. This is taken up in Section II, where upper