Inadequacy of Scaling Arguments for Neutrino Cross Sections  A. C. Hayes Theoretical Division, Los Alamos National Laboratory, Los Alamos, New Mexico 87545

abstract The problem with the use of scaling arguments for simultaneous studies of different weak interaction processes is discussed. When different neutrino scattering cross sections involving quite different momentum transfers are being compared it difficult to define a meaningful single scaling factor to renormalize calculated cross sections. It has been suggested that the use of such scaling can be used to estimate high energy neutrino cross sections from low energy neutrino cross sections. This argument has lead to questions on the consistency of the magnitude of the LSND muon neutrino cross sections on $^{12}$C relative to other lower energy weak processes. The issue is revisited here and from inspection of the structure of the form factors involved it is seen that the problem arises from a poor description of the transition form factors at high momentum transfer. When wave functions that reproduce the transverse magnetic inelastic $(e,e')$ scattering form factor for the 15.11 MeV state in $^{12}$C are used there is no longer a need for scaling the axial current, and the different weak interactions rates involving the $T=1\, 1^+$ triplet in mass 12 are consistent with one another.