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Analysis of Two-Nucleon Magnetic and Axial Currents in a Combined Large- N_c and Pionless Effective Field Theory Expansion THOMAS RICHARDSON, MATTHIAS SCHINDLER, Univ of South Carolina — The combined large- N_c and pionless effective field theory (EFT _{π}) expansion places theoretical constraints on low energy coefficients that accompany the operators of the effective theory. We obtain constraints from this framework for magnetic and axial two-nucleon contact terms. These operators contribute to a variety of electroweak processes such as the deuteron magnetic moment, radiative neutron capture, and proton-proton fusion. The large- N_c expansion indicates that the isoscalar magnetic coupling is suppressed relative to the isovector coupling, which offers a partial explanation of the suppression found in data. A similar result holds for the general two-nucleon axial current which adds support for the previous omission of the isoscalar operator in processes such as neutrino-deuteron scattering. The results also imply that naturalness assumptions may be hidden depending on the choice of basis.

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