Asymptotic normalization of mirror states and the effect of couplings LUKE TITUS, NSCL, Michigan State University, East Lansing, MI 48824, USA, PIERRE CAPEL, Helmholtz-Insitut Mainz, Johannes Gutenberg-Universität Mainz, D-55128 Mainz, Germany, FILOMENA NUNES, NSCL, Michigan State University, East Lansing, MI 48824, USA — Assuming that the ratio between asymptotic normalization coefficients (ANCs) of mirror states is model independent, charge symmetry can be used to indirectly extract astrophysically relevant proton capture reactions on proton-rich nuclei based on information on stable isotopes. In this work we explore the Hamiltonian independence of the ratio between ANCs of mirror states when deformation and core excitation is introduced in the system. We apply the model to ^{8}Li/^{8}B, ^{13}C/^{13}N, ^{17}O/^{17}F, ^{23}Ne/^{23}Al, and ^{27}Mg/^{27}P. Our results show that for most studied cases, the ratio between ANCs of mirror states is independent of the strength and multipolarity of the couplings induced. The exception is for cases in which there is an s-wave coupled to the ground state of the core, the proton system is loosely bound, and the states have large admixture with other configurations. We discuss the implications of our results for novae.

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