The Happer's Puzzle Degeneracies and Yangian

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We find operators distinguishing the degenerate states for the Hamiltonian $H = x(K+\frac{1}{2})S_z + \mathbf{K}\cdot\mathbf{S}$ at $x = \pm 1$ that was given by Happer et al[1,2] to interpret the curious degeneracies of the Zeeman effect for condensed vapor of ^{87}Rb. The operators obey Yangian commutation relations. We show that the curious degeneracies seem to verify the Yangian algebraic structure for quantum tensor space and are consistent with the representation theory of $Y(sl(2))$.