Local criterion for Weyl modules over groups of type A

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Let G be a universal Chevalley group over an algebraically closed field and U^- be the subalgebra of the hyperalgebra $Dist(G)$ generated by all divided powers $X_{\alpha,m}$ with $\alpha < 0$. We conjecture an algorithm to determine if $Fe_\omega^+ \neq 0$, where $F \in U^-$, ω is a dominant weight and e_ω^+ is a highest weight vector of the Weyl module $\Delta(\omega)$. This algorithm does not use bases of $\Delta(\omega)$ and is similar to the algorithm for irreducible modules that involves stepwise raising the vector under investigation. For an arbitrary G, this conjecture is proved in one direction and for G of type A in both. We give examples showing how these results may be applied to finding nonzero homomorphisms between Weyl modules for groups of type B_2.