Problem Set 6

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1 Humphreys 5.3

Let λ be regular, antidominant, and integral. In the Jantzen filtration of $M(w \cdot \lambda)$, show that $n = \ell(w)$, where n is the minimal number such that $M(\lambda)^n \neq 0$ but $M(\lambda)^{n+1} = 0$. Thus there are $\ell(w) + 1$ nonzero layers in this filtration.

> Use 0.3(2) to describe $\Phi^+_{w\cdot\lambda}$.

2 Humphreys 7.2

3 Exercise p.108