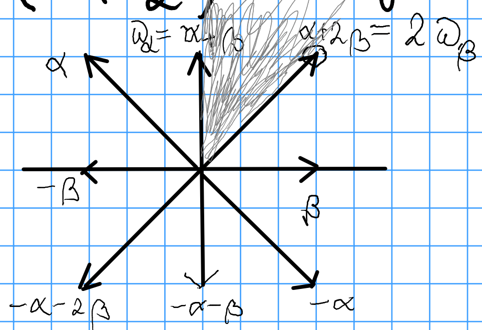
Jantzen : Lectures on Quantum Groups

5A, 3 $\quad B_2 = \begin{pmatrix} 2 & -2 \\ -1 & 2 \end{pmatrix}$ adjoint representation

is $L(2\alpha+3\beta)$



$\langle \alpha+2\beta, \alpha^\vee \rangle = 2-2$

$\langle \alpha+2\beta, \beta^\vee \rangle = -2+4=2$

$\langle \alpha+\beta, \alpha^\vee \rangle = 2-1=1$

$\langle \alpha+\beta, \beta^\vee \rangle = -2+2=0$

up $= E$

down $= F$

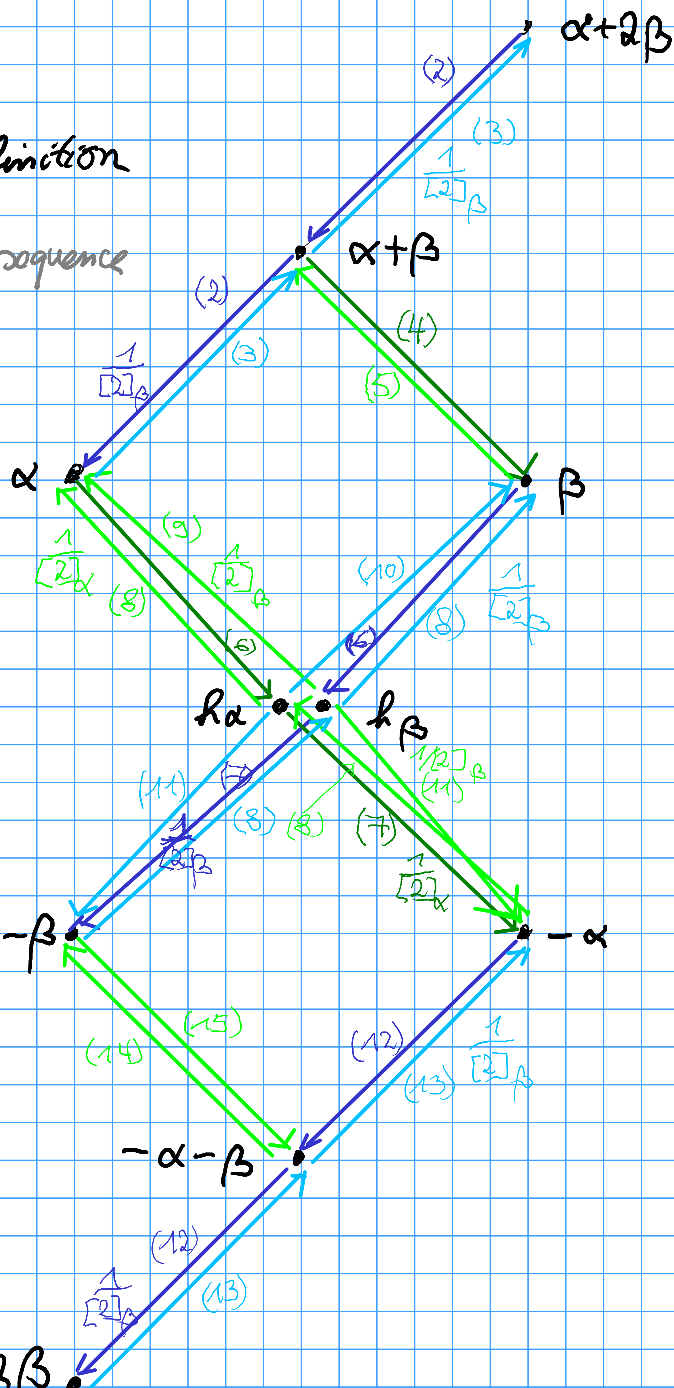
= β

= α

= definition

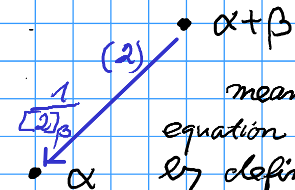
= consequence

Outline:



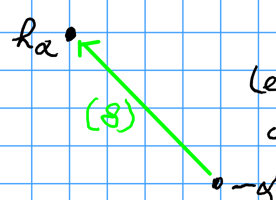
(14) : R4

Explanation:



means that in equation (5A.3.2) by definition

$$x_\alpha := \frac{1}{[2]} F_\beta \cdot x_{\alpha+\beta}$$



means that in (equation 5A.3.8) it is checked that

$$h_\alpha = E_\alpha x_{-\alpha}$$