Erratum

Erratum to: Character and Dimension Formulae for Queer Lie Superalgebra

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Received: 12 May 2015 / Accepted: 6 October 2015

Published online: 31 October 2015 – © Springer-Verlag Berlin Heidelberg 2015

Commun. Math. Phys. **333**, 1465–1481 (2015)

We make a correction to p. 1478 and p. 1479 of the original paper. The character and dimension formulae in original paper (Corollary 4.10) should respectively read

$$\begin{aligned} \text{ch } L(\lambda) &= \sum_{\mu \in C_{\lambda}^{\text{Trun}}} (-1)^{|\lambda - \mu| + \frac{\bar{z}(\lambda)(z(\mu) - z(\lambda))}{2}} 2^{\frac{z(\mu) - z(\lambda)}{2} + \lfloor \frac{h(\mu) + 1}{2} \rfloor} b_{\mu}^{\lambda} P_{\mu}, \\ \dim L(\lambda) &= \sum_{\mu \in C_{\lambda}^{\text{Trun}}} \sum_{B \subset \Delta_0^+} (-1)^{|\lambda - \mu| + \frac{\bar{z}(\lambda)(z(\mu) - z(\lambda))}{2}} 2^{\frac{z(\mu) - z(\lambda)}{2} + \lfloor \frac{h(\mu) + 1}{2} \rfloor} \frac{b_{\mu}^{\lambda}}{\# S_{\mu}} \\ &\quad \times (-1)^{|B \cap \Delta_0^+(\mu)|} \prod_{\alpha \in \Delta_0^+} \frac{(\alpha, \mu + \sum_{\beta \in B} \beta + \rho_0)}{(\alpha, \rho_0)}, \end{aligned}$$

where b_{μ}^{λ} should be described as follows. Set $b_{\mu}^{\lambda} = 0$ if μ is not regular and $b_{\mu}^{\lambda} = b_{\mu_{\text{red}}}^{\lambda_{\text{red}}}$ otherwise, where the reduced weight λ_{red} for dominant λ is defined as in original paper (Remark 3.6) and μ_{red} is defined as follows: First take $\sigma \in \text{Sym}_n$ such that $\nu := \sigma(\mu)$ is dominant. Take $\mu_{\text{red}} = \sigma^{-1}(\nu_{\text{red}})$ (since σ^{-1} induces an action on atypical entries of μ , it induces an action on ν_{red}). Thus we can suppose $\lambda = \lambda_{\text{red}}$ and $\mu = \mu_{\text{red}}$. In this case, the p th atypical root of λ is $\gamma_p = \varepsilon_{r-p+1} - \varepsilon_{n-r+p}$, and $\lambda_p = \lambda_{m_{r-p+1}}$. Denote $a = \frac{h(\lambda)}{2}$ (where $h(\lambda)$ is the number of nonzero λ_i 's), and $\lambda' = (\lambda_1, \dots, \lambda_a, -\lambda_a, \dots, -\lambda_1) \in \mathbb{Z}^{h(\lambda)}$. If $\mu = 0$, we define

$$b_0^{\lambda} = \frac{\# S^{\lambda'}}{a!} d_{\lambda_1 + s_a, r} d_{\lambda_2 + s_{a-1}, r-1} \cdots d_{\lambda_a + s_1, r-a+1}, \quad (1)$$

where $\mathcal{S}^{\lambda'}$ is defined as in original paper (4.8), $d_{i,k} = \min\{\lfloor \frac{i+1-\bar{z}(\lambda)}{2} \rfloor, k\}$, and s_p is the number of $q < p$ such that $\hat{c}_{qp}(\lambda') = 1$. Suppose $\mu \neq 0$. Let $i_0 > 0$ be the integer such that $\mu_{i_0} > 0$ is maximal. Let $\mu' \in \mathbb{Z}^{n-2}$ be obtained from μ by deleting its i_0 th and $(m+1-i_0)$ th entries, and let $\lambda' \in \mathbb{Z}_+^{n-2}$ be obtained from λ by first deleting its i_0 th and $(n+1-i_0)$ th entries, then subtracting 2 from its j th entry and adding 2 to its $(n+1-j)$ th entry for all $j < i_0$. Then $b_\mu^\lambda = b_{\mu'}^{\lambda'}$. This defines all b_μ^λ .

The description of b_μ^λ in original paper (Remark 4.9) should read as follows. For any fixed λ , each regular $\mu \in \mathcal{C}_\lambda^{\text{Trun}}$ uniquely corresponds to a weight diagram D_μ , which is simply the diagram D_{μ^+} (cf. original paper (2.1)) but with the i_p th $\times$ of D_{μ^+} relabeled as the p th $\times$ of D_μ (where the p th atypical root of μ corresponds to the i_p th atypical root of μ^+ , cf. original paper (4.9)) for each $p = 1, \dots, r$. Now similar to original paper (Remark 3.6), delete all vertices of D_λ that are associated with symbols $<$ and $>$, and furthermore, for all p such that the p th $\times$ of D_μ is not located at vertex 0, delete the vertex associated with the i_p th $\times$ of D_λ and the empty vertex t_p (which is the vertex where the i_p th $\times$ of D_λ will be moved to when the right move $R_p(\lambda)$ is applied). Relabeling the remaining vertices, we obtain a dominant weight, denoted v . Then $b_\mu^\lambda = b_0^v$ (which is defined as in (1)).

Another correction to original paper is that in line -2 of p. 1477, and lines 2 and 15 of p. 1478, the factor $(-1)^{|\lambda-\mu|}$ should be replaced by $(-1)^{|\lambda-\mu| + \frac{\bar{z}(\lambda)(z(\mu)-z(\lambda))}{2}}$.

We remark that all formulae present in original paper (Example 4.11) are still valid, but the corrections matter in the example below.

Example 1. Let $\lambda = (2, 0, 0, 0, -2)$. Then $\mathcal{C}_\lambda^{\text{Trun}} = \{\lambda, \mu, \eta\}$ with $\mu = (1, 0, 0, 0, -1)$ and $\eta = (0, 0, 0, 0, 0)$. One has $\frac{z(\xi)-z(\lambda)}{2} + \lfloor \frac{h(\xi)+1}{2} \rfloor = 2$ and $b_\xi^\lambda = 1$ for all $\xi \in \mathcal{C}_\lambda^{\text{Trun}}$. Thus $\text{ch } L(\lambda) = 2(P_\lambda - P_\mu - P_\eta)$. A manifestation of the corrections is the sign before P_η , which was “+” in the original formula in original paper.

Communicated by Y. Kawahigashi