Erratum: Complexity and rank double cones and tensor products decompositions.

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Erratum: D.I. Panyushev, *Complexity and rank of double cones and tensor product decompositions,* Comment. Math. Helvetici *68* (1993), 455–468.

In preparing the above-mentioned paper for printing, the diagrams on pages 461 and 463 were erroneously omitted. The correct versions read as follows:

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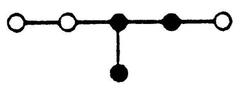
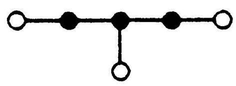
(1.8) *Remarks.* 1. It may happen that $\Gamma(Z) \neq \mathbf{Z}\Gamma(Z) \cap \mathscr{X}(T)_+$, i.e. the canonical embedding $S_{\lambda\mu} \subset G$ does not determine $\Gamma(Z)$ completely.

2. The subgroups $S_{\lambda\mu}$ and $S_{\lambda\mu^*}$ are isomorphic and conjugated in G by corollary 1, nevertheless, they may have *different* canonical embeddings. For example, let $G = \mathrm{E}_6$ and $\mu = \lambda = \varphi_1$, $\mu^* = \varphi_5$ are the fundamental weights with numeration as in [10]. Then $S_{\lambda\mu} \cong S_{\lambda\mu^*} \cong \mathrm{A}_3$, but their canonical embeddings are described by the following pictures:

$S_{\lambda\mu}$:  $S_{\lambda\mu^*}$: 

(The black vertices indicate the simple roots of $S_{\lambda\mu}$ and $S_{\lambda\mu^*}$.)

(1.9) The previous results show that in order to compute the complexity and the rank semigroup of a double cone one has to find the canonical embedding of $S_{\lambda\mu}$ and $\tilde{S}_{\lambda\mu}$. The next result explains how this can be done.

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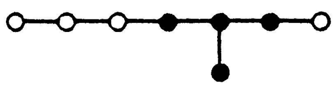
(2.2) EXAMPLE. $G = \mathrm{E}_8, Z = Z(1, 1)$.

Here $(L_1', m_1) = (\mathrm{E}_7, 2\varphi_1 + 2)$. According to [1] we have Lie $S_{11} = \mathrm{D}_4$. Therefore $r = 4$, $2c + r = 12$ and $c = 4$. In particular, we find out that $\dim k[Z]^U = 8$.

Next, $(L_1, m_1) = (\mathrm{E}_7 \times k^*, \varphi_1 \otimes \varepsilon + \varphi_1 \otimes \varepsilon^{-1} + \varepsilon^2 + \varepsilon^{-2})$. Therefore Lie $\tilde{S}_{11} =$ Lie S_{11} and $\tilde{c} = c - 2 = 2$. According to the corollary 3(ii) the canonical embedding $S_{11} \subset E_8$ implies the embedding of the Dynkin diagrams. Here it can be done in a unique way. Hence, the canonical embedding is described by the following picture:



That is, $\alpha_4, \alpha_5, \alpha_6, \alpha_8$ is the system of simple roots of S_{11} and according to Corollary 3 $\Gamma(Z(1, 1))$ is contained in $M = \langle \alpha_4, \alpha_5, \alpha_6, \alpha_8 \rangle^{\perp} = \langle \tilde{\varphi}_1, \tilde{\varphi}_2, \tilde{\varphi}_3, \tilde{\varphi}_7 \rangle$. This means, that for any n, m the tensor product decomposition $\tilde{\varphi}_1^n \otimes \tilde{\varphi}_1^m$ contains highest weights only from M.

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