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CORRECTION TO "ON CONJUGATE LOCI AND CUT LOCI OF COMPACT SYMMETRIC SPACES I"

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In our previous paper [3], Lemma 3.1 was incomplete. The correct statement is as follows.

LEMMA 3.1. *Let* $H\in\tilde{C}\cap\bar{S}$. *If* $H\notin\tilde{Q}$, *we have* $\bar{S}\cap\Gamma-\{0\}\neq\emptyset$ *and*

$$m_{\bar{S}\cap\Gamma}(H)=|H|.$$

PROOF. By Theorem 3.1 there exists $A\in\Gamma-\{0\}$ such that $|H|=|H-A|$ and $|H|\leqq|H-A'|$ for any $A'\in\Gamma$. Put $H'=H-A$. Then the argument in the proof of Theorem 2.7 in Sakai [2] shows

$$|2(\gamma, H')|\leqq 1 \qquad \text{for any } \gamma\in\Sigma .$$

On the other hand, $H\in\bar{S}-\tilde{Q}$ implies

$$0\leqq 2(\gamma, H)<1 \qquad \text{for any } \gamma\in\Sigma_{+} .$$

Thus, recalling that $2(\gamma, A)=2(\gamma, H)-2(\gamma, H')\in\boldsymbol{Z}$ for any $\gamma\in\Sigma$, we get $2(\gamma, A)=0$, 1 or -1 for any $\gamma\in\Sigma$, and hence we have

$$(*) \qquad \gamma\in\Sigma,\ (\gamma, A)>0 \Longrightarrow (\gamma, H)\geqq 0.$$

Now we define

$$\mathfrak{B}=\{\gamma\in\Sigma\,;\ (\gamma, A)>0 \quad\text{or}\quad (\gamma, A)=0,\ (\gamma, H)\geqq 0\}.$$

Then $\mathfrak{B}$ is a closed system of roots containing γ or $-\gamma$ for each $\gamma\in\Sigma$. Thus by a characterization of Borel-Hirzebruch ([1], Corollary 4.10) for systems of positive roots, which is valid also for a general (not necessarily reduced) root system, there exists an order $>'$ on $\mathfrak{a}'$ such that $\mathfrak{B}$ contains the set Σ'_{+} of all positive roots with respect to $>'$. By (*) we have then

$$0\leqq 2(\gamma, A)\leqq 1,\quad 0\leqq 2(\gamma, H)<1 \qquad \text{for any } \gamma\in\Sigma'_{+} .$$

Therefore

$$S'=\{h\in\mathfrak{a}\,;\ 0<2(\gamma, h)<1 \quad \text{for any } \gamma\in\Sigma'_{+}\}$$

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