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Nagoya Math. J.
Vol. 114 (1989), 173–174

CORRECTION TO "GROMOV'S CONVERGENCE THEOREM AND ITS APPLICATION" (NAGOYA MATH. J. VOL. 100 (1985), 11–48)

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In the proof of Lemma 12.2, the following inequality (p. 43, line 11) is incorrect.

$$\text{(A)} \qquad |Y_k(s)| \leq |Y_k'(0)| s_{-\Delta}(s) \leq |Y_k(s_1)| \cdot \frac{s_{-\Delta}(s)}{s_\Delta(s_1)} = \frac{s_{-\Delta}(s)}{s_\Delta(s_1)} \leq \frac{s_{-\Delta}(\pi)}{s_\Delta(\delta_3)}\,.$$

This should be corrected as follows.

In the last of the sentence "Let $U_i(t)$ (resp. $\overline{U}_i(t)$)$\cdots$" (p. 41, line 8), we add the phrase "so that $U_i(0)$ and $\overline{U}_i(0)$ are orthonormal basis of T_mM and T_pS^d respectively".

In p. 41, line 3↑, "$\cdots$, so we may assume that $\{Y_i(s_i)\}$ and $\{\overline{Y}_i(s_1)\}$ are orthonormal." must be changed to "$\cdots$, so we can replace the Jacobi fields Y_i, $\overline{Y}_i$ by the other Jacobi fields $\mathscr{Y}_i$, $\overline{\mathscr{Y}}_i$ such that $\{\mathscr{Y}_i(s_1)\}$, $\{\overline{\mathscr{Y}}_i(s_1)\}$ are orthonormal basis of T_mM and T_pS^d respectively.". Moreover, after this sentence, Y_i, $\overline{Y}_i$ must be changed to $\mathscr{Y}_i$, $\overline{\mathscr{Y}}_i$.

By p. 33, line 8, we have

$$\text{(B)} \qquad |Y_i(s)| \leq L = \frac{s_{-\Delta}(\pi - \delta_3)}{\sin(\pi - \delta_3)}\,.$$

Let $\overline{p}$ be the antipodal point of p. Instead of the wrong inequality (A), we show that the following Claim (C).

CLAIM (C). *If* $\exp_p s_1 v \in D' - \overline{B}[\delta_4] - B_{\delta_3}(p) - B_{\delta_3}(\overline{p})$, *then*

$$|\mathscr{Y}_k(s)| \leq \frac{L^{d-1}}{(1-\delta_4)(\sin(\delta_3))} := L_1 \qquad \textit{for } \delta_3 \leq s \leq s_1\,.$$

Proof of Claim (C). Under the assumption of Claim (C), we have

Received March 14, 1988.

$$\begin{aligned}\prod_{i=1}^{d-1}|Y_i(s_1)| &\geq |Y_1(s_1)\wedge\cdots\wedge Y_{d-1}(s_1)|\\ &\geq (1-\delta_4)|\overline{Y}_1(s_1)\wedge\cdots\wedge\overline{Y}_{d-1}(s_1)|\\ &\geq (1-\delta_4)(\sin(\delta_3))^{d-1}.\end{aligned}$$

Combining with (B), we get

$$|Y_k(s_1)|\geq\frac{(1-\delta_4)(\sin(\delta_3))^{d-1}}{\prod_{i\neq k}|Y_i(s_1)|}\geq\frac{(1-\delta_4)(\sin(\delta_3))^{d-1}}{L^{d-2}}:=L_2.$$

Thus, we conclude

$$|\mathscr{Y}_k(s)|\leq\frac{|Y_k(s)|}{|Y_k(s_1)|}\leq\frac{L}{L_2}=\frac{L^{d-1}}{(1-\delta_4)(\sin(\delta_3))^{d-1}}\qquad\text{q.e.d.}$$

To correct the proof, it is enough to change the constant $(s_{-\Delta}(\pi)/s_{\Delta}(\delta_3))$ by L_1 after this inequality (A).

The author would like to thank K. Shiohama and Y. Otsu for pointing out the above error.

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