

**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.

$$(A) \quad |Y_k(s)| \leq |Y_k(0)|s_{-d}(s) \leq |Y_k(s_1)| \cdot \frac{s_{-d}(s)}{s_d(s_1)} = \frac{s_{-d}(s)}{s_d(s_1)} \leq \frac{s_{-d}(\pi)}{s_d(\delta_3)}.$$

This should be corrected as follows.

In the last of the sentence “Let $U_i(t)$ (resp. $\bar{U}_i(t)$) \dots ” (p. 41, line 8), we add the phrase “so that $U_i(0)$ and $\bar{U}_i(0)$ are orthonormal basis of $T_m M$ and $T_p S^d$ respectively”.

In p. 41, line 3 \uparrow , “ \dots , so we may assume that $\{Y_i(s_i)\}$ and $\{\bar{Y}_i(s_i)\}$ are orthonormal.” must be changed to “ \dots , so we can replace the Jacobi fields Y_i, \bar{Y}_i by the other Jacobi fields $\mathcal{Y}_i, \bar{\mathcal{Y}}_i$ such that $\{\mathcal{Y}_i(s_i)\}, \{\bar{\mathcal{Y}}_i(s_i)\}$ are orthonormal basis of $T_m M$ and $T_p S^d$ respectively.”. Moreover, after this sentence, Y_i, \bar{Y}_i must be changed to $\mathcal{Y}_i, \bar{\mathcal{Y}}_i$.

By p. 33, line 8, we have

$$(B) \quad |Y_i(s)| \leq L = \frac{s_{-d}(\pi - \delta_3)}{\sin(\pi - \delta_3)}.$$

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

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

$$|\mathcal{Y}_k(s)| \leq \frac{L^{d-1}}{(1 - \delta_4)(\sin(\delta_3))} := L_1 \quad \text{for } \delta_3 \leq s \leq s_1.$$

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

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

Combining with (B), we get

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

Thus, we conclude

$$|\mathcal{O}_k(s)| \leq \frac{|Y_k(s)|}{|Y_k(s_i)|} \leq \frac{L}{L_2} = \frac{L^{d-1}}{(1 - \delta_d) (\sin(\delta_3))^{d-1}} \quad \text{q.e.d.}$$

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

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