ACADEMIC PRESS

Available online at www.sciencedirect.com
SCIENCE DIRECT®

J. Math. Anal. Appl. 274 (2002) 879–880

Journal of MATHEMATICAL ANALYSIS AND APPLICATIONS

www.academicpress.com

Note

Note on common fixed points under strict contractive conditions

R.P. Pant,[a,*] V. Pant,[a] and K. Jha [b]

[a] *Department of Mathematics and Computer Science, Kumaon University, D.S.B. Campus, Nainital-263002, India*

[b] *Department of Mathematics, Kathmandu University, Kathmandu, Nepal*

Received 14 March 2002

Submitted by Steven Krantz

The original paper by two of the above authors [1] contains one mistake. The purpose of this note is to provide correction for that mistake.

Theorem 2.1 of [1] assumes the condition

$$d(fx, fy) < \max\{d(gx, gy), k[d(fx, gx) + d(fy, gy)]/2, \\ k[d(fy, gx) + d(fx, gy)]/2\}, \quad 1 \leqslant k < 2. \tag{ii}$$

The first error occurs in lines 4–7 on page 329 which claim that the inequality

$$d(fu, ffu) < \max\{d(gu, gfu), k[d(fu, gu) + d(ffu, gfu)]/2, \\ k[d(ffu, gu) + d(fu, gfu)]/2\} = kd(fu, ffu)$$

leads to a contradiction. However, this inequality does not lead to a contradiction unless condition (ii) is slightly modified. To overcome this problem we replace the condition (ii) of Theorem 2.1 by

$$d(fx, fy) < \max\{d(gx, gy), k[d(fx, gx) + d(fy, gy)]/2, \\ [d(fy, gx) + d(fx, gy)]/2\}, \quad 1 \leqslant k < 2. \tag{ii′}$$

With the above modification the theorem can be proved along the similar lines as given in the original one with minor changes in accordance with the replaced condition (ii′).

* Corresponding author.
E-mail address: pant_rp@yahoo.com (R.P. Pant).

0022-247X/02/$ – see front matter
PII: S0022-247X(02)00309-8

A similar error is involved in lines 10–14 on page 331 which claim that the inequality

$$\begin{aligned} d(Au, AAu) &= d(AAu, Bw) \\ &< \max\{d(SAu, Tw), k[d(AAu, SAu) + d(Bw, Tw)]/2, \\ &\qquad k[d(AAu, Tw) + d(Bw, SAu)]/2\} = kd(AAu, Au) \end{aligned}$$

yields a contradiction. The error can similarly be removed by replacing the assumption (ii) of Theorem 2.3 by

$$\begin{aligned} d(Ax, By) < \max\{&d(Sx, Ty), k[d(Ax, Sx) + d(By, Ty)]/2, \\ &[d(Ax, Ty) + d(By, Sx)]/2\}, \quad 1 \leqslant k < 2. \end{aligned} \tag{ii$''$}$$

The amended theorem with the above replaced condition can be proved following the same lines as given in the proof of Theorem 2.3 except slight changes in accordance with the replaced condition (ii$''$).

Reference

[1] R.P. Pant, V. Pant, Common fixed points under strict contractive conditions, J. Math. Anal. Appl. 248 (2000) 327–332.