ERRATA, VOLUME 16

G. K. Leaf, *An approximation theorem for a class of operators*, pp. 991–995.

It has been pointed out to the author by Y. Domar that Theorem 2 of the author's paper [2] is not correct as stated. In this note the correct form of the theorem is given together with a brief sketch of the proof.

The theorem is a generalization of an approximation theorem for unitary operators in Hilbert space to certain classes of operators in Banach spaces. The class is defined by the following restrictions. Let V be any bounded invertible operator in a Banach space B which satisfies the following two conditions.

(i) $\|V^n\| = O(|n|^q)$ as $|n|$ tends to infinity for some positive integer q.

(ii) $\lim\inf_{|n|\to\infty} \|V^n\| \, |n|^{-q} = 0$.

If V satisfies these conditions, then the correct version of Theorem 2 is as follows.

THEOREM 2. *Given any $\epsilon > 0$ there exists a $\delta > 0$ such that for any λ with $-\pi < \lambda < \pi$ and any element a in B which lies in the subspace $L(\lambda) = \{a \text{ in } B : \sigma(a) \subseteq [\lambda - \delta, \lambda + \delta]\}$ we have*

$$\|(V - e^{i\lambda})^q a\| \leqq \epsilon \|a\|.$$

Moreover the space B is spanned by a finite collection of such manifolds.

The proof rests on the following lemma (Lemma 3.42 in [1]) due to Domar.

LEMMA. *Let $\{P_n\}_{-\infty}^{\infty}$ be a sequence of positive numbers such that for some positive integer q, the sequence satisfies the conditions*

(a) $P_n = O(|n|^q)$, *and*

(b) $\lim\inf_{|n|\to\infty} P_n |n|^{-q} = 0$.

Let the function $f(\theta)$ be continuous in $[-\pi, \pi]$ together with its first q derivatives and vanishing at $\theta = \theta_0$ together with its first $q-1$ derivatives. Moreover suppose that $f^{(q)}(\theta)$ has an absolutely convergent Fourier series. Then for every $\epsilon > 0$ we can find a function $g(\theta)$ with an absolutely convergent Fourier series such that

$$\sum_{-\infty}^{\infty} P_n |g_n| < \epsilon,$$

and

$$g(\theta) \equiv f(\theta) \text{ in some interval around } \theta = \theta_0.$$

For the special case of $q=1$ we have the following corollary.

COROLLARY. If $q=1$ and $a\neq 0$, then $\sigma(a)=\{\lambda_0\}$ if and only if $V_a=e^{i\lambda_0}a$.

REFERENCES

1. Y. Domar, *Harmonic analysis based on certain commutative Banach algebras*, Acta Math. **96** (1956), 2–66.

2. G. K. Leaf, *An approximation theorem for a class of operators*, Proc. Amer. Math. Soc. **16** (1965), 991–995.

Kunio Murasugi, *On the center of the group of a link*, pp. 1052–1057.

Lemma 3 is valid only for a primitive link in 3-space. A link l is said to be *primitive* if no disconnected orientable surfaces span l. Then, the group of a nonprimitive link has a trivial center. This is an immediate consequence of Theorem 1 in B. C. Schaufele, *A note on link groups* (Bull. Amer. Math. Soc. **72** (1966), 107–110). (However, this proposition is proved directly without use of Schaufele's result.) Thus, the proofs of the theorems remain unchanged. I am much indebted to Schaufele for pointing out that this assumption was missing in Lemma 3.

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H. A. Smith, *Tensor products of locally convex algebras*, pp. 124–131.

Arlen Brown and Carl Pearcy, *Spectra of tensor products of operators*, pp. 162–166.

The footnotes on these two articles were reversed.

On page 124 read
Presented to the Society, August 27, 1964 under the title *Tensor products of completely locally m-convex algebras* and November 25, 1964 under the title *Tensor products of complete commutative locally m-convex Q-algebras*; received by the editors January 29, 1965.
On page 162 read
Received by the editors June 29, 1964.

R. M. Cohn, *An existence theorem for difference polynomials*, pp. 254–261.

Page 255, line 21: Remove remark in parentheses and replace by: "when all the functions involved are restricted to any subinterval of [0, 1]."

Page 258, lines 17, 19: Read "K_0" for "K".

Page 258, lines 17–36: It is not proved as claimed that $\mathfrak{N}$ has only one component, but only (as was previously known) that every component of $\mathfrak{N}$ has a generic zero in $K\langle a\rangle$; for the isomorphism of L onto M whose existence is shown may fail to take a to a^*. The stronger statement is false, since it implies that a must be the minimal standard generator of a benign extension, and the preceding paragraph supplies a counterexample.

Theorem III is valid nevertheless. To prove it, it suffices by the corrected result just stated and by page 258, lines 37–39, to show that if A is an algebraically irreducible polynomial in $K_0\{y\}$, then A has a solution in a permitted difference ring which is continuous for sufficiently large x and e.c. In conducting the proof it will be convenient at times to regard x as a complex rather than a real variable.

For $\Lambda>0$ let I_Λ denote the strip $0<\operatorname{Im}(x)<\Lambda$; $\operatorname{Re}(x)\geqq 0$ in the complex plane. If $g(x)$ is analytic in I_Λ and annuls the irreducible polynomial $a_0y^n+ \cdots +a_n$, where each a_i is a polynomial in x with complex coefficients, then for each $x\geqq 0$ either $\lim_{\lambda\to 0} g(x+i\lambda)$ or $\lim_{\lambda\to 0}[1/g(x+i\lambda)]$ exists, and the first limit yields a function $\bar{g}(x)$ defined at all but finitely many points in $x\geqq 0$, continuous for x sufficiently large, e.c., and piecewise analytic. If $\bar{g}(x)$ has infinitely many zeros then $a_n=0$ and so $\bar{g}(x)=0$. Hence $\bar{g}(x)$ is a permitted function.

Choose Λ so that the algebraic function obtained from A has no branch points or poles in I_Λ. By analytic continuation of a solution defined locally one obtains a solution $f(x)$ of A analytic and single-valued throughout I_Λ. Let R be the ring $K_0[f(x), f(x+1), \cdots]$. Then $\overline{R}=\{\bar{h}(x), h(x)\in R\}$ is a permitted difference ring, and $\bar{f}(x)\in\overline{R}$ is the desired solution of A.

ERRATA, VOLUME 18

R. J. Levit, *A variant of Tchebichef's minimax problem*, pp. 925–932.

Page 926, equation (2–3) should read

$$(2\text{–}3)\quad U_m(x) = U_m^{(h)}(x) = \frac{(2h)^m(m+1)!}{(2m+1)!} P_m{}^{(1/2,1/2,1/h-1/2)}\left(\frac{x+1-h}{2h}\right),$$

instead of

$$(2\text{–}3)\quad U_m(x) = U_m^{(h)}(x) = \frac{(2h)^m(m+1)!}{(2m+1)!} P_m^{(1/2-1/2,1/h-1/2)}\left(\frac{x+1-h}{2h}\right),$$