

Pacific Journal of Mathematics

**CORRECTION TO: “WELL-BEHAVED DERIVATIONS ON
 $C[0, 1]$ ”**

RALPH JAY DE LAUBENFELS

ERRATA

CORRECTION TO

WELL-BEHAVED DERIVATIONS ON $C(0, 1)$

RALPH DELAUBENFELS

Volume **115** (1984), 73–80

We would like to thank Professor C. J. K. Batty for pointing out some errors. The theorems, as currently stated, are correct, but there are some mistakes in the proofs of Theorems 2 and 3. To correct the proofs, we need to make the following changes. Corrected proofs of Theorems 2 and 3 (as currently stated) will appear in a paper by Professor Batty.

#1. Definition 9, on p. 75, line 1, should be changed as follows

9. The derivation pD , on $C[0, 1]$, is defined by

$$(pD)f(x) \equiv \begin{cases} p(x)f'(x) & \text{if } p(x) \neq 0 \\ 0 & \text{if } p(x) = 0 \end{cases}$$

with $D(pD) \equiv \{f \in C[0, 1] \mid f'(x) \text{ exists, when } p(x) \neq 0, (pD)f \in C[0, 1]\}$.

Batty [1] showed that, when A is closed and well-behaved, A is equivalent to a restriction of pD , for some real-valued p in $C_0[0, 1]$. More generally, Batty characterized closed quasi well-behaved derivations (see [1], Theorem 3.7—our operator pD is the operator “ D_{p0} ” in [1]).

Since pD is now a closed operator, “ $p\overline{D}$ ” may be replaced by “ pD ”, in the remainder of the paper.

#2. To finish the second half of the proof of Theorem 2, we need the following lemma placed between Theorems 1 and 2.

LEMMA 1a. *Suppose $f_1(x) \equiv x$ is in $D(A)$, and A is a generator. Then, for all f in $D(A)$, $f'(x)$ exists whenever $p(x) \equiv (Af_1)(x) \neq 0$, and $(Af)(x) = p(x)f'(x)$. (Proof below.)*

Then p. 76, line (–1), should be “Let A be the generator of T_t . By Lemma 1a, when f is in $D(A)$, $f'(x)$ exists, whenever $p(x) \neq 0$. When $p(x) = 0$, then $(T_tf)(x) = f(x)$, for all t , so that $(Af)(x) = 0$. Thus $A \subseteq pD$; since A is a generator, and pD is well-behaved, $A = pD$.”

#3. p. 77, line 7, should be “... that A is equivalent to a restriction of pD . Since A is a generator and pD is well-behaved, A is equivalent to pD . By Theorem 2 ... ”

#4. The example on p. 77 fails to be m -accretive, because, since $p(1) < 0$, (pD) is not accretive.

Proof of Lemma 1a. Let T_t be the group of $*$ -automorphisms generated by A . There exists a group of homeomorphisms of $[0, 1]$, $h(x, t)$, such that

$$(T_t f)(x) = f(h(x, t)),$$

for f in $C[0, 1]$, x in $[0, 1]$ t real.

Suppose f is in $D(A)$. Let $f_x(t) \equiv (T_t f)(x)$, $h_x(t) \equiv h(x, t)$. Note that

$$(*) \quad f_x = f \circ h_x.$$

Since f is in $D(A)$, $f'_x(t)$ exists, and equals $(-Af)(h(x, t))$, for all x, t . Also $h'_x(t) = -p(h(x, t))$, since

$$p(h(x, t)) = T_t A f_1(x) = -\frac{\partial}{\partial t} T_t f_1(x) = -\frac{\partial}{\partial t} h(x, t).$$

If $p(x) \neq 0$, then by the inverse function theorem, h_x^{-1} exists, and is differentiable, in a neighborhood of $h_x(0)$. Thus $f = f_x \circ h_x^{-1}$ is differentiable, in a neighborhood of $h_x(0)$. Differentiating both sides of $(*)$ at $t = 0$, gives $(Af)(h(x, 0)) = f'(h(x, 0))p(h(x, 0))$ or $(Af)(x) = p(x)f'(x)$, as desired.

ERRATA CORRECTION TO PLANE CURVES AND REMOVABLE SETS

R. KAUFMAN

Volume **125** (1986), 409–413

In Theorem 2, p. 409,

$\limsup \omega(h)/\psi(h)$ should be $\liminf \omega(h)/\psi(h)$.

PACIFIC JOURNAL OF MATHEMATICS

EDITORS

V. S. VARADARAJAN
(Managing Editor)
University of California
Los Angeles, CA 90024
HERBERT CLEMENS
University of Utah
Salt Lake City, UT 84112
R. FINN
Stanford University
Stanford, CA 94305

HERMANN FLASCHKA
University of Arizona
Tucson, AZ 85721
RAMESH A. GANGOLLI
University of Washington
Seattle, WA 98195
VAUGHAN F. R. JONES
University of California
Berkeley, CA 94720

ROBION KIRBY
University of California
Berkeley, CA 94720
C. C. MOORE
University of California
Berkeley, CA 94720
HAROLD STARK
University of California, San Diego
La Jolla, CA 92093

ASSOCIATE EDITORS

R. ARENS E. F. BECKENBACH B. H. NEUMANN F. WOLF K. YOSHIDA
(1906–1982)

SUPPORTING INSTITUTIONS

| | |
|------------------------------------|-----------------------------------|
| UNIVERSITY OF ARIZONA | UNIVERSITY OF OREGON |
| UNIVERSITY OF BRITISH COLUMBIA | UNIVERSITY OF SOUTHERN CALIFORNIA |
| CALIFORNIA INSTITUTE OF TECHNOLOGY | STANFORD UNIVERSITY |
| UNIVERSITY OF CALIFORNIA | UNIVERSITY OF HAWAII |
| MONTANA STATE UNIVERSITY | UNIVERSITY OF TOKYO |
| UNIVERSITY OF NEVADA, RENO | UNIVERSITY OF UTAH |
| NEW MEXICO STATE UNIVERSITY | WASHINGTON STATE UNIVERSITY |
| OREGON STATE UNIVERSITY | UNIVERSITY OF WASHINGTON |

The Supporting Institutions listed above contribute to the cost of publication of this Journal, but they are not owners or publishers and have no responsibility for its content or policies.

Mathematical papers intended for publication in the *Pacific Journal of Mathematics* should be in typed form or offset-reproduced (not dittoed), double spaced with large margins. Please do not use built up fractions in the text of the manuscript. However, you may use them in the displayed equations. Underline Greek letters in red, German in green, and script in blue. The first paragraph must be capable of being used separately as a synopsis of the entire paper. In particular it should contain no bibliographic references. Please propose a heading for the odd numbered pages of less than 35 characters. Manuscripts, in triplicate, may be sent to any one of the editors. Please classify according to the scheme of Math. Reviews, Index to Vol. 39. Supply name and address of author to whom proofs should be sent. All other communications should be addressed to the managing editor, or Elaine Barth, University of California, Los Angeles, California 90024.

There are page-charges associated with articles appearing in the Pacific Journal of Mathematics. These charges are expected to be paid by the author's University, Government Agency or Company. If the author or authors do not have access to such Institutional support these charges are waived. Single authors will receive 50 free reprints; joint authors will receive a total of 100 free reprints. Additional copies may be obtained at cost in multiples of 50.

The *Pacific Journal of Mathematics* is issued monthly as of January 1966. Regular subscription rate: \$190.00 a year (5 Vols., 10 issues). Special rate: \$95.00 a year to individual members of supporting institutions.

Subscriptions, orders for numbers issued in the last three calendar years, and changes of address should be sent to Pacific Journal of Mathematics, P.O. Box 969, Carmel Valley, CA 93924, U.S.A. Old back numbers obtainable from Kraus Periodicals Co., Route 100, Millwood, NY 10546.

The Pacific Journal of Mathematics at P.O. Box 969, Carmel Valley, CA 93924 (ISSN 0030-8730) publishes 5 volumes per year. Application to mail at Second-class postage rates is pending at Carmel Valley, California, and additional mailing offices. Postmaster: send address changes to Pacific Journal of Mathematics, P.O. Box 969, Carmel Valley, CA 93924.

PUBLISHED BY PACIFIC JOURNAL OF MATHEMATICS, A NON-PROFIT CORPORATION

Copyright © 1987 by Pacific Journal of Mathematics

| | |
|--|-----|
| Bernhard Banaschewski, J. L. Frith and C. R. A. Gilmour, On the congruence lattice of a frame | 209 |
| Paul S. Bourdon, Density of the polynomials in Bergman spaces | 215 |
| Lawrence Jay Corwin, Approximation of prime elements in division algebras over local fields and unitary representations of the multiplicative group | 223 |
| Stephen R. Doty and John Brendan Sullivan, On the geometry of extensions of irreducible modules for simple algebraic groups | 253 |
| Karl Heinz Dovermann and Reinhard Schultz, Surgery of involutions with middle-dimensional fixed point set | 275 |
| Ian Graham, Intrinsic measures and holomorphic retracts | 299 |
| John Robert Greene, Lagrange inversion over finite fields | 313 |
| Kristina Dale Hansen, Restriction to $GL_2(\mathbb{C})$ of supercuspidal representations of $GL_2(F)$ | 327 |
| Kei Ji Izuchi, Unitary equivalence of invariant subspaces in the polydisk | 351 |
| A. Papadopoulos and R. C. Penner, A characterization of pseudo-Anosov foliations | 359 |
| Erik A. van Doorn, The indeterminate rate problem for birth-death processes | 379 |
| Ralph Jay De Laubenfels, Correction to: "Well-behaved derivations on $C[0, 1]$" | 395 |
| Robert P. Kaufman, Correction to: "Plane curves and removable sets" | 396 |
| Richard Scott Pierce and Charles Irvin Vinsonhaler, Correction to: "Realizing central division algebras" | 397 |