shall leave the matter so. A similar remark applies to Theorem 4.2.

REFERENCE

1. John Lamperti and Patrick Suppes, '*Chains of infinite order and their application to learning theory*,' Pacific J. Math. **9** (1959), 739-754.

Correction to

NON-LINEAR DIFFERENTIAL EQUATIONS ON CONES IN BANACH SPACES

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In [1] the proof of a main lemma, Lemma 3.1, contains an error. The lemma itself is false without stronger hypotheses. The purpose of this note is to state and prove a lemma which can be used in place of Lemma 3.1 in the proofs of Theorem 4.1 and 5.1 in [1].

Let Y be a Banach space, let Γ be a closed linear manifolds in Y^* which is total for Y.[1] Assume that I is some real interval. The differential equation with which [1] is concerned is

$$dy/dt = f(t, y) \ , \tag{1}$$

where f is a function from $I \times C \to Y$ which is continuous with respect to the weak Γ-topology on Y; C is a subset of Y. The notation and terminology used here will be the same as that employed in [1]; the definition of a weak Γ-derivative, a weak Γ-solution of (1), etc., are to be found in [1].

Let $\mathscr{C}$ be the space of weakly Γ-continuous functions on I with values in C, furnished with the topology of uniform convergence (in the weak Γ-topology) on compact subintervals of I. If C is compact in the weak Γ-topology, then Ascoli's theorem implies that a set of equicontinuous functions in $\mathscr{C}$ is relatively compact in $\mathscr{C}$. However unless the topology on $\mathscr{C}$ satisfies the first axiom of countability one cannot conclude from Ascoli's theorem, as is done in [1], that an equicontinuous sequence of functions in $\mathscr{C}$ has a convergent subsequence. ($\mathscr{C}$ will satisfy the first axiom of countability, for example,

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[1] In [1] a total manifold is defined but is incorrectly called a determining manifold. The author wishes to thank the referee of this note for pointing out this mistake as well as for correcting an omission in the original proof of the lemma stated here.

if C is bounded and Γ is separable in its norm topology.)

Let Y, Γ, C, I and $\mathscr{C}$ be as above, the following Lemma can be used in place of Lemma 3.1 of [1] in the proofs of Theorem 4.1 and 5.1.

LEMMA. *Let $\{y_n(t)\}$ be a sequence of weakly Γ-continuous functions defined on I with values in C. Let C be compact in the weak Γ-topology. For each neighborhood V of 0 in Y, in the weak Γ-topology, and for each compact subinterval I' of I, let there exist an $N = N(V, I')$ such that for all $n \geqq N$, $y_n(t)$ is a V-approximate weak Γ-solution of* (1) *on I'. Then, in $\mathscr{C}$, the sequence $\{y_n(t)\}$ has a cluster point $y_0(t)$ and $y_0(t)$ is a weak Γ-solution of* (1) *on I.*

Proof. As is shown in the proof of Lemma 3.1 in [1], the sequence $\{y_n(t)\}$ is equicontinuous in the weak Γ-topology on Y, thus it follows from Ascoli's theorem that the sequence $\{y_n(t)\}$ has a cluster point $y_0(t)$ in $\mathscr{C}$. To complete the proof it will be shown that given $\gamma \in \Gamma$, there exists a subsequence $\{y_{n_k}(t)\}$ of the original sequence such that

$$\gamma(y_{n_k}(t)) \longrightarrow \gamma(y_0(t)) \qquad \text{as } k \longrightarrow \infty \, , \tag{2}$$

and

$$\gamma(f(t, y_{n_k}(t))) \longrightarrow \gamma(f(t, y_0(t))) \qquad \text{as } k \longrightarrow \infty \, , \tag{3}$$

uniformly on compact subintervals of I. To this end let $\{I_k\}$ be an expanding sequence of compact intervals whose union is I. Since $f(t, y)$ is uniformly continuous on $I_k \times C$ for each k, there is a neighborhood V_k of 0 such that $|\gamma(f(t, y'(t)) - f(t, y_0(t)))| < (1/k)$ on I_k for any function $y'(t)$ with $y'(t) - y(t) \in V_k$ on I_k. Let

$$V\left[\gamma, \frac{1}{k}\right] = \left\{y \in Y : |\gamma(y)| < \frac{1}{k}\right\}, \quad \text{if} \quad V'_k = V_k \cap V\left[\gamma, \frac{1}{k}\right]$$

then for each k it is possible to choose an element $\{y_{n_k}(t)\}$ of the original sequence such that $y_{n_k}(t) - y_0(t) \in V'_k$ on I_k. It easily follows that a subsequence selected in this manner satisfies (2) and (3), and the limits are uniform on compact subintervals of I. Finally since the hypothesis implies that

$$\gamma(D_\Gamma y_{n_k}(t) - f(t, y_{n_k}(t))) \longrightarrow 0 \, , \qquad \text{as } k \longrightarrow \infty \, ,$$

uniformly on compact subintervals of I, it follows from (2) and (3) that

$$\gamma(y_0(t_1) - y_0(t_0)) = \int_{t_0}^{t_1} \gamma(f(t, y_0(t))dt \, , \quad t_1, t_0 \in I \, . \tag{4}$$

As γ was arbitrary, (4) holds for each $\gamma \in \Gamma$, consequently $D_\Gamma y_0(t)$

exists on I and $y_0(t)$ is a weak Γ-solution of (1) on I.

References

1. C. V. Coffman, *Non-linear differential equations on cones in Banach spaces*, Pacific J. Math. **14** (1964), 9-15.

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Correction to

A SUFFICIENT CONDITION THAT AN ARC IN S^n BE CELLULAR

P. H. DOYLE

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In Corollary 1 add to the hypothesis: each subarc of A_2 is p-shrinkable.

Correction to

ON CONTINUITY OF MULTIPLICATION IN A COMPLEMENTED ALGEBRA

PARFENY P. SAWOROTNOW

Volume 14 (1964), 1399-1403

Page 1400, line 6 from the bottom: Should read $\|R_x\|$ instead of $\|R\|$.

Page 1401, line 15: Should read $|\lambda - \lambda_0|\,|y_{\lambda_0}x| < 1$ instead of $|\lambda - \lambda_0|\,\|y_{\lambda_0}x\| < 1$.

Correction to

A GENERALIZATION OF THE COSET DECOMPOSITION OF A FINITE GROUP

BASIL GORDON

Volume 15 (1965), 503-509

Page 508, line 15: Change § 2 to read § 3.