BULL. AUSTRAL. MATH. SOC. 04A15, 28A05, 54C65
VOL. 13 (1975), 159-160.

Multifunctions of Souslin type: Corrigendum

S.J. Leese

In [1], Theorem 6, a sufficient condition is given for a multifunction to be "of Souslin type". However, the proof contains an error; we are required to prove that the multifunction $\Omega : S \to P\times\mathbb{N}^{\mathbb{N}}$ defined by

$$G(\Omega) = \bigcup_{\sigma} \bigcap_{n=1}^{\infty} \left[A_{\sigma|n} \times \left(B^*_{\sigma|n}\times C_{\sigma|n}\right)\right]$$

has values which are closed subsets of $P \times \mathbb{N}^{\mathbb{N}}$ (the notation is explained in [1]). The "proof" of this fact given in [1] is manifestly incorrect as it appears to assume that $\mathbb{N}^{\mathbb{N}}$ has the discrete topology. Instead we use the fact that, for a fixed sequence σ of positive integers, the sets $\{C_{\sigma|n} : n = 1, 2, \ldots\}$ form a base of neighbourhoods of σ .

Suppose then that $(x, \tau) \notin \Omega(t)$. Then

$$(t, x, \tau) \notin \bigcap_{n=1}^{\infty} \left(A_{\tau|n} \times B^*_{\tau|n} \times C_{\tau|n}\right) = \bigcap_{n=1}^{\infty} \left(A_{\tau|n} \times B^*_{\tau|n}\right) \times \{\tau\} ,$$

and so there is an integer n such that (t, x) does not belong to $A_{\tau|n} \times B^*_{\tau|n}$. There are two cases to consider. Firstly, if t does not belong to $A_{\tau|n}$, the reader may verify that the neighbourhood $P \times C_{\tau|n}$ of (x, τ) does not meet $\Omega(t)$. If t does belong to $A_{\tau|n}$, there is a neighbourhood $U \times C_{\tau|n}$ of (x, τ) which does not meet $\Omega(t)$. Therefore the set $\Omega(t)$ is closed.

Received 20 May 1975.

Reference

[1] S.J. Leese, "Multifunctions of Souslin type", *Bull. Austral. Math. Soc.* 11 (1974), 395–411.

Department of Mathematics,
Loughborough University of Technology,
Loughborough,
Leicestershire,
England.

https://doi.org/10.1017/S0004972700024370 Published online by Cambridge University Press