

# Pacific Journal of Mathematics

**ABSOLUTE EXTENSOR SPACES: A CORRECTION AND AN  
ANSWER**

CARLOS R. BORGES

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**This paper has a two-fold purpose: The first is to make a minor correction in the proof of a result of ours, which states that any hyperconnected space is an AE (stratifiable) and the second is to give an affirmative answer to a question of Vaughan: Does Dugundji's Extension Theorem remain valid for linearly stratifiable spaces?**

1. **A correction.** As it stands, the proof of Theorem 4.1 of [1] is incorrect, because the function  $g$  is not well-defined. (Obviously, for each  $x \in X - A$ , there is some implicit order in the selection of  $p_{V_1}, \dots, p_{V_n}$  such that  $V_1, \dots, V_n$  are the only elements  $V \in \mathcal{V}$  for which  $p_V(x) \neq 0$ . However, no explicit mention of it is made.) The proof is easily corrected however, by taking the following three steps:

1. Assign a total order " $\leq$ " to  $\mathcal{V}$ .
2. Add to the function  $g$  the sentence "and  $V_1 \leq V_2 \leq \dots \leq V_n$ ."
3. On page 615 of [1], replace

(a) "say  $V_1, \dots, V_m, \dots, V_{m+k}$ " by "say  $W_1, \dots, W_{m+k}$  such that  $W_1 \leq \dots \leq W_{m+k}$ ".

(b) " $(p_{V_1}(x), \dots, p_{V_m}(x), 0, \dots, 0) \in P_{m+k-1}$ " by

$$"(p_{W_1}(x), \dots, p_{W_{m+k}}(x)) \in P_{m+k-1}" ,$$

(c) " $t \rightarrow (h_{m+k}(f(a_{V_1}), \dots, f(a_{V_{m+k}})), t)$ " by

$$"t \rightarrow h_{m+k}(f(a_{W_1}), \dots, f(a_{W_{m+k}})), t)" ,$$

(d) " $p(y) = (p_{V_1}(y), \dots, p_{V_{m+k}}(y))$ " by

$$"p(y) = (p_{W_1}(y), \dots, p_{W_{m+k}}(y))" .$$

2. **An answer.** Recently, Vaughan [7] asked if Dugundji's Extension Theorem (Theorem 4.1 of [6]) remains valid for linearly stratifiable spaces.<sup>1</sup> It turns out that the answer is affirmative and it requires little effort. Indeed, all our generalizations of Dugundji's Extension Theorem remain valid for linearly stratifiable spaces.

**THEOREM 2.1.** [2; *Theorem 4.1*], [3; *Theorem 3.1*], [4; *Theorem*

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<sup>1</sup> A  $T_1$ -space  $X$  is said to be linearly stratifiable provided there exists some infinite cardinal number  $\alpha$  such that to each open  $U \subset X$  one can assign a family  $\{U_\beta\}_{\beta < \alpha}$  of open subsets of  $X$  such that (a)  $U_\beta \subset U$  for all  $\beta < \alpha$ , (b)  $U_{\{\beta \mid \beta < \alpha\}} = U$ , (c)  $U_\beta \subset U_\gamma$  whenever  $U \subset V$ , (d)  $U_\gamma \subset U_\beta$  whenever  $\gamma < \beta < \alpha$ .

5.2] and [5; Theorems 4.1 and 4.2] remain valid for linearly stratifiable spaces.

*Proof.* All we need do is the following two alterations in Definition 4.1 of [2] and the proof of Theorem 4.1 of [2]. (The same alterations apply to the proofs of the other results):

1. In Definition 4.1 of [7] replace the word "integer" by the word "ordinal".

2. Replace the sentence "Note that  $m(x) < \infty$  and, in fact,  $m(x) < n(W, x)$ " by the sentence "Note that  $m(x) < n(W, x)$ " on the fourth line of the proof of Theorem 4.3 of [2]. The same applies to the other proofs.

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