CORRIGENDUM

1. Error in both books

There is an error in the books [1] and [2]. Two statements [1, Theorem 126, p. 90] and [2, Theorem 2.8, p. 18] are incorrect. In private correspondence with the author Mark Marsh provided the following example that illustrates the error.

Example 1.1. (Marsh) *Let* $f_1 : [0,1] \to 2^{[0,1]}$ *be given by* $f_1(t) = 1/2$ *for* $0 \le t < 3/4$ *and* $f_1(t) = \{1/2, 4t-3\}$ *for* $3/4 \le t \le 1$. *Note that* $f_1^{-1} : [0,1] \to C([0,1])$. *Let* $f_2 : [0,1] \to C([0,1]$ *be given by* $f_2(t) = 1/2t + 1/4$ *for* $t \neq 1/2$ *and* $f_2(1/2) = [0,1]$. *For* $n > 2$, *let* f_n *be the identity on* $[0,1]$. *Then* $(1,0)$ *is an isolated point for* $f_1 \circ f_2$ *and, thus,* $\varprojlim \boldsymbol{f}$ *is not connected.*

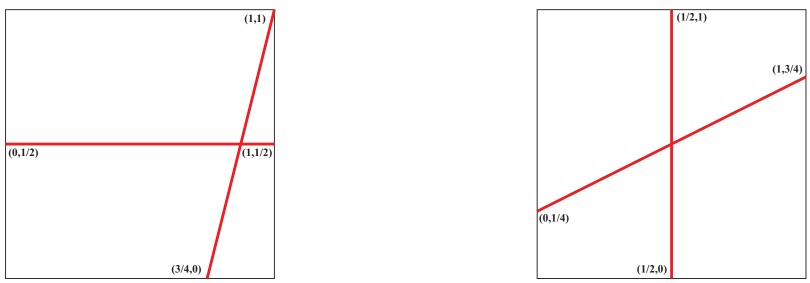

FIGURE 1. The graphs of the bonding functions f_1 (left) and f_2 (right) in Example 1.1

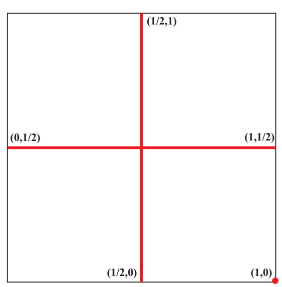

FIGURE 2. The graph of $f_1 \circ f_2$ in Example 1.1

A corrected statement of Theorem 126 of [1] follows.

Theorem 126. *Suppose* $\{X_i, f_i\}$ *is an inverse limit sequence on Hausdorff continua with upper semi-continuous bonding functions such that* f_i *is Hausdorff continuum-valued* *for each* $i \in \mathbb{N}$ (*or* $f_i(X_{i+1})$ *is connected with* $f_i^{-1} : f_i(X_i) \to X_{i+1}$ *Hausdorff continuum-valued for each* $i \in \mathbb{N}$) *then* $\varprojlim \boldsymbol{f}$ *is a Hausdorff continuum.*

A corrected statement of Theorem 2.8 from [2] is the following.

Theorem 2.8. *Suppose* $\boldsymbol{X}$ *is a sequence of subintervals of* $[0,1]$ *and* $\boldsymbol{f}$ *is a sequence of upper semi-continuous functions such that* $f_i : X_{i+1} \to 2^{X_i}$ *for each positive integer* i. *Suppose further that* f_i *has connected values for each* $i \in \mathbb{N}$ (*or for each* $i \in \mathbb{N}, f_i(X_{i+1})$ *is connected and* $f_i^{-1}(x)$ *is an interval for each* $x \in f_i(X_{i+1})$). *Then,* $\varprojlim \boldsymbol{f}$ *is a continuum.*

2. Error in [2]

Scott Varagona has observed that a hypothesis of surjectivity is missing from Theorem 2.1, page 14, in [2]. It is true in that statement that if G_n is connected for each n the $\varprojlim \boldsymbol{f}$ is connected without assuming the bonding functions are surjective. However, Example 1.8 on page 8 (the function has value 0 everywhere except at 1 where the value is $\{0, 1/2\}$) provides an example of a bonding function having a connected inverse limit but for which $G_1 = G(f^{-1})$ is not connected.

References

[1] W. T. Ingram and William S. Mahavier, Inverse Limits: From Continua to Chaos, Advances in Mathematics vol. 25, Springer, New York, 2012.

[2] W. T. Ingram, An Introduction to Inverse Limits with Set-valued Functions, Springer Briefs, Springer, New York, 2012. http://dx.doi.org/10.1007/978-1-4614-4487-9