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Corrigendum

Corrigendum to "Some notes on weakly Whyburn spaces" Topology Appl. 128 (2003) 257–262 ☆

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In our paper [2] the example witnessing the validity of Theorem 2.7 is wrong. In fact the space $X \times X$ described in the example is regular and scattered, and as such it is hereditarily weakly Whyburn [3], hence the assertion claimed is false. The aim of Theorem 2.7 was to give a negative answer to a question asking if any subset of a sequential space is weakly Whyburn. A two step iterated Ψ-space constructed with maximal families provides a Hausdorff example. Let $\mathcal{A}$ be a maximal almost disjoint family in ω, and let $\mathcal{B}$ be a maximal almost disjoint family of countable subsets of $\mathcal{A}$. Let $X = \omega \cup \mathcal{A} \cup \mathcal{B}$. Points of ω are isolated; a neighbourhood of a point $A \in \mathcal{A}$ is $\{A\} \cup A \setminus F$ where $F \subset \omega$ is a finite set; a neighbourhood of a point $b \in \mathcal{B}$ is of the form $\{b\} \cup (b \setminus g) \cup \bigcup \{A \setminus F_A \colon A \in b \setminus g\}$ where $g \subset \mathcal{A}$ and $F_A \subset \omega$ are finite sets (see, for example, [1]). The space X is sequential. Let $Y = \omega \cup \mathcal{B} \subset X$. Let us check that Y is not weakly Whyburn. The set $\omega \subset Y$ is dense in Y. If a set $E \subset \omega$ is not closed in Y, then E meets infinitely many elements A of $\mathcal{A}$ in infinitely many points. By the maximality of $\mathcal{A}$ the set E meets in fact uncountably many elements of $\mathcal{A}$ in infinitely many points, since the trace on E of the family $\mathcal{A}$ is maximal in E; but any uncountable subset of $\mathcal{A}$ has infinitely many limit points in $\mathcal{B}$. Correspondingly there are infinitely many points $b \in \mathcal{B}$ in the closure of E. We just proved that Y is not weakly Whyburn. The space X is scattered and not regular. As we already noticed a regular example cannot be scattered and this makes harder to look for an example.

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The question about the existence of a Tychonoff (or just regular) sequential space that is not hereditarily weakly Whyburn remains open.

References

[1] P. Nyikos, J. Vaughan, The Scarborough–Stone problem for Hausdorff spaces, Topology Appl. 44 (1992) 309–316.

[2] F. Obersnel, Some notes on weakly Whyburn spaces, Topology Appl. 128 (2003) 257–262.

[3] V.V. Tkachuk, I.V. Yashenko, Almost closed sets and topologies they determine, Comment. Math. Univ. Carolin. 42 (2) (2001) 395–405.