Corrigendum to “β–Menger and β–Hurewicz spaces”

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Abstract
This corrigendum provides a correction to the paper entitled “β–Menger and β–Hurewicz spaces”.

1. Example of β–Menger space in [1]

Investigating the validity of results in [1], I realized that Example 4.2 on page 4 is incorrect. The explanation is as follows.

Take $X = \mathbb{R}$ and $p = \sqrt{2}$. Let $\tau$ be the topology on $X$ as in Example 4.2 in [1]. Let $x \neq p$ be an irrational number. Consider the set $U_x = \{x\} \cup \mathbb{Q}$, where $\mathbb{Q}$ denotes the set of rational numbers. Then $U_x \in \tau$.

**Claim:** $A = \{\sqrt{2}\} \cup \mathbb{Q}$ is β–open subset of $\mathbb{R}$.

Since $A \subseteq Cl(A)$, we have

$$\text{Int}(A) \subseteq \text{Int}(Cl(A)),$$

$$\Rightarrow \mathbb{Q} \subseteq \text{Int}(Cl(A)),$$

$$\Rightarrow Cl(\mathbb{Q}) \subseteq Cl(\text{Int}(Cl(A))).$$

Since $A \subseteq Cl(\mathbb{Q})$, $A \subseteq Cl(\text{Int}(Cl(A)))$. It completes the claim.

Consider the $\beta$–open cover $\mathcal{U} = \{U_x: x \in \mathbb{R}\setminus\mathbb{Q}\}$ of $X$. The cover $\mathcal{U}$ has no countable subcover, so $X$ is not $\beta$–Menger.

References