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Comments on generalized closed sets with respect to an ideal [S. Jafari and N. Rajesh, Eur. J. Pure Appl. Math., Vol. 4(2)(2011), 147-151]

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There is an error in the proof of Theorem 5 of [1]. In fact:

Remark 1. In the proof of [1, Theorem 5] the inclusion

$$(cl(A) \cap F)/(U \cap (X/F) \subset cl(A)/(U \cup (X/F))$$

is not true in general as shown by the following example.

Example 2. Let (X, τ) and I as be as in [1, Example 1], where $X = \{a, b, c\}, \tau = \{\phi, \{a\}, \{a, c\}, X\}$ and $I = \{\phi, \{b\}, \{c\}, \{b, c\}\}$. Then the set of all Ig-closed in X is $\{\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X\}$. Let $A = \{c\}, U = \{a, c\}$ and $F = \{b, c\}$. Then $(cl(A) \cap F)/(U \cap (X/F)) = \{b, c\}$ and $cl(A)/(U \cup (X/F)) = \{b\}$. Hence the inclusion in Remark 1 is not true.

Remark 3. We provide here an alternative prove:

Theorem 4. [1, Theorem 5] Let A be an Ig-closed set and F be a closed set in (X, τ), then $A \cap F$ is an Ig-closed set in (X, τ). **Proof.** Let $A \cap F \subset U$ and U is open. Then $A \subset U \cup (X/F)$. Since A is Ig-closed, we have $cl(A)/(U \cup (X/F)) \in I$. Now, $cl(A \cap F) \subset cl(A) \cap F = (cl(A) \cap F)/(X/F)$. Therefore,

$$\begin{aligned} & cl(A \cap F)/U \subset (cl(A) \cap F)/U \\ = \; & cl(A) \cap F \cap (X/U) \\ = \; & cl(A) \cap (X/(U \cup (X/F))) \\ = \; & cl(A)/(U \cup (X/F)) \in I. \end{aligned}$$

Hence $cl(A \cap F)/U \in I$ and $A \cap F$ is Ig-closed in (X, τ).

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References

[1] S. Jafari and N. Rajesh, Generalized closed Sets with Respect to an Ideal, Eur. J. Pure Appl. Math., Vol. 4(2)(2011), 147-151.