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Fuzzy Sets and Systems 146 (2004) 153–154

FUZZY sets and systems

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Corrigendum

Corrigendum to "Almost continuity and δ-continuity in fuzzifying topology" [Fuzzy Sets and Systems 116 (2000) 339–352]☆

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Received 27 February 2004; accepted 23 March 2004

Abstract

In (2000), Zahran has introduced the concepts of δ-open sets, almost continuity and δ-continuity in fuzzifying topology. In this note we show that Lemma 2.2 and Theorem 2.4 are incorrect.

Keywords: Fuzzifying topology; Fuzzifying regular open sets

In (2000), Zahran has introduced the concepts of δ-open sets, almost continuity and δ-continuity in fuzzifying topology. In this note we show that Lemma 2.2 and Theorem 2.4 are incorrect.

The author in [1] proved that:

(1) $\models A \in R_\tau \to A \in \tau$ (Lemma 2.2);
(2) $\models A \in R_\tau \wedge B \in R_\tau \to A \cap B \in R_\tau$ (Theorem 2.4).

These statements are erroneous. Cite a counterexample in point as follows:

Let $X = \{a, b, c\}$ and τ be a fuzzifying topology on X defined as follows:

$\tau(X) = \tau(\phi) = \tau(\{a\}) = \tau(\{a, c\}) = 1$, $\tau(\{b\}) = \tau(\{a, b\}) = 0$, $\tau(\{c\}) = \tau(\{b, c\}) = \frac{1}{8}$.

We have the following:

$R_\tau(X) = R_\tau(\phi) = 1$, $R_\tau(\{a\}) = R_\tau(\{c\}) = R_\tau(\{a, b,\}) = R_\tau(\{b, c,\}) = \frac{1}{8}$ and $R_\tau(\{b\}) = R_\tau(\{a, c\}) = 0$. So,

☆ doi of original article 10.1016/S0165-0114(98)00457-6.

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0165-0114/$ - see front matter
doi:10.1016/j.fss.2004.03.025

(1) $R_\tau(\{a,b\}) = \frac{1}{8} > \tau(\{a,b\}) = 0$;
(2) $R_\tau(\{a,b\}) \wedge R_\tau(\{b,c\}) = \frac{1}{8} \wedge \frac{1}{8} = \frac{1}{8}$ and
$R_\tau(\{a,b\} \cap \{b,c\}) = R_\tau(\{b\}) = 0$. So, $R_\tau(\{a,b\} \cap \{b,c\}) < R_\tau(\{a,b\}) \wedge R_\tau(\{b,c\})$.

References

[1] A.M. Zahran, Almost continuity and δ-continuity in fuzzifying topology, Fuzzy Sets and Systems 116 (2000) 339–352.