ON $\alpha$-g$\tilde{I}$-CLOSED SOFT SETS

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ABSTRACT: In this research we will use the notions of soft sets and soft ideals to introduce a new concepts called $\alpha$-g$\tilde{I}$-closed soft sets where we studied the most important properties of this concepts. The disconnection was studied by using these sets.

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1. INTRODUCTION:
Soft sets have been studied by Molodtsov [4]. If $X$ is any set, $B$ is a set of parameters and $E \subseteq B$. A pair $(R, E)$ symbolizes him by $R_{E}$ is said a soft set on $X$, such that $R_{E}$ is a function; $R_{E}: B \rightarrow \mathcal{P}(X)$. The collection of each soft sets on $X$ symbolizes him by $SS(X)_E$.

The union of soft sets $[3, 5] (R, E)$ and $(Q, E)$ on $X$ denoted by $(Q, E) \cup (R, E) = E = \{ \emptyset \}$ if $\emptyset \notin R_{E} - Q_{E}$, $Q_{E} \cap R_{E} = \emptyset$. Let $(R, E)$ and $(Q, E)$ be two soft sets.

2. $\alpha$-g$\tilde{I}$-closed soft set
Definition 2.1: Let $(X, \mathcal{T}, B, \tilde{I})$ be a soft ideal topological space. A soft subset $(R, B)$ of a space $(X, \mathcal{T}, B, \tilde{I})$ is said to be $\alpha$-g$\tilde{I}$-closed soft set via ideal symbolizes by $\alpha$-g$\tilde{I}$-closed soft sets, then $(R, B)$ is an $\alpha$-g$\tilde{I}$-closed soft set.

Example 2.3: Suppose that $(X, \mathcal{T}, B, \tilde{I})$ is a soft topological space: $X = \{ a, b, c \}, B = \{ \mu_1, \mu_2, \mu_3 \}, \tilde{I} = \{ \emptyset, F: B \rightarrow \mathcal{P}(X) \}$ such that $F(\mu_1) = \{ \emptyset \}$ for each $\mu \in B$ and $\mathcal{T} = \{ \emptyset, F: B \rightarrow \mathcal{P}(X) \}$ such that $F(\mu_2) = \{ \emptyset, \emptyset \}$. Each $\alpha$-g$\tilde{I}$-closed soft set is a $\alpha$-g$\tilde{I}$-closed soft set.
(R, B) - int(A, B) = (int(A, B)) c - (R, B)c = cl(A, B) - (Rc, B) ∈ l whenever
(R, B) - (A, B) = (A, B)c - (R, B)c = (A, B)c - (Rc, B) ∈ l
and (Rc, B) is an α-open soft set. So (A, B) is a gI-closed soft set. Hence (A, B) α-gI-open soft set.

**Remark 2.9:** If for every α-closed soft set (R, B) ∈ l, then α-gI-CS(X) = SS(X) µ.

**Proposition 2.10:** If (X, T, B, f) is a soft topological space and x0 ∈ X, X = {x0, δ, ε}, B = {µ1, µ2, µ3}, l = SS(X) µ and T = {f(x0), δ, ε}, f: B → P(X) such that U(µ) = {x0} for each µ ∈ B, then f ∈ T.a. 

i. If f(Ω) = {δ, ε}, f: B → P(X) such that V(µ) = {f(x0)} for each µ ∈ B, then f ∈ T.a.

ii. If f(Ω) = {δ, ε}, f: B → P(X) such that V(µ) = {f(x0)} for each µ ∈ B, then f ∈ T.a.

3. **Soft Disconnection Sets.**

**Definition 3.1:** If (X, T, B, f) is a soft topological spaces and (P, B), (R, B) are two non-null α-closed soft sets then, (P, B) ∪ (R, B) is called α-closed soft disconnection sets in (X, T, B, f) if only if if (P, B) ∪ (R, B) = X and (P, B) f (R, B) = ∅.

**Definition 3.2:** Let (X, T, B, f) be a soft topological spaces and (P, B), (R, B) are two non-null u-gI-closed soft sets then, (P, B) ∪ (R, B) is called α-gI-closed soft disconnection sets in (X, T, B, f) if only if if (P, B) ∪ (R, B) = X and (P, B) f (R, B) = ∅.

**Definition 3.3:** The soft topological space (X, T, B, f) is said to be (resp., α-gI-closed, α-closed) soft disconnection sets if and only if there is (P, B), (R, B) are two (resp., α-gI-closed, α-closed) soft disconnection sets.

**Remark 3.4:** Every α-closed soft disconnection sets is α-gI-closed soft disconnection sets.

**Example 3.5:** Suppose that (X, T, B, f) is a soft topological space, where X = {a, b, c, d}, B = {µ1, µ2, µ3}, l = SS(X) µ and T = {X, f(x0), δ, ε}. Then the soft sets (P, B), (R, B) where, (P, B) f P(X) such that (P, B) f (R, B) f P(X) such that (P, B) f (R, B) = X and (P, B) f (R, B) = ∅.

**Definition 3.6:** If (X, T, B, f) is a soft topological spaces, (Q, B) ∈ SS(X) µ and (P, B), (R, B) are two non-null (resp., α-gI-closed, α-closed) soft sets then, (P, B) ∪ (R, E) is said to be (resp., α-gI-closed, α-closed) soft disconnection sets in (Q, B) if and only if satisfy the following:

1) (Q, B) f (P, B) = ∅.
2) (Q, B) f (R, B) = ∅.
3) (Q, B) f (P, B) f (Q, B) f (R, B) = ∅.

It’s clear that every α-closed soft disconnection sets in (Q, B) is α-gI-closed soft disconnection sets not conversely, by example 3.4 if we consider that α = {a, ε} for every µ ∈ B.

**Definition 3.7:** A soft topological space (X, T, B, f) is called (resp., α-gI-closed, α-closed) totally soft disconnection if and only if for every two elements σ, η ∈ X there is (P, B), (R, B) are two (resp., α-gI-closed, α-closed) disconnection sets such that σ ∈ (P, B) and η ∈ (R, B).

**Proposition 3.8:**

i. Each α-closed soft totally disconnection is an α-closed soft disconnection space.

ii. Each α-gI-closed soft totally disconnection is an α-gI-closed soft disconnection space.

iii. Each α-closed soft totally disconnection is an α-gI-closed soft totally disconnection space.

Proof: i. and ii.

For any (resp., α-closed, α-gI-closed) soft totally disconnection space there is (P, B), (R, B) are two (resp., α-closed, α-gI-closed) disconnection sets both contain an element for each different elements in X. So it’s (resp., α-closed, α-gI-closed) soft disconnection space.

The proof is clear by using remark 2.2.

**Example 3.9:**

Suppose that (X, T, B, f) is a soft topological space; X = {a, b, c, d}, B = {µ1, µ2, µ3}, l = {δ, ε, f(x0)} and T = {X, f(x0), δ, ε}. Then (P, B) f P(X) such that F1(µ) = {a} for each µ ∈ B, F2: B → P(X) such that F2(µ) = {δ, ε} for each µ ∈ B.

It’s clear that (X, T, B, f) α-closed soft disconnection space and α-gI-CS(X) µ = SS(X) µ. So, (X, T, B, f) α-gI-closed soft totally disconnection space not α-closed soft disconnection since there is c, ε ∈ X, but there is no two α-closed sets (P, B), (R, B) such that c ∈ (P, B) and ε ∈ (R, B).

REFERENCES:


