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bT^{μ}-HAUSDORFF SPACES IN SUPRA TOPOLOGICAL SPACES

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Abstract. In this paper, the author interpolate bT^{μ}-Hausdorff space and b$\mathrm{T}^{\mu} - T_1$ space as well as analysis some of its properties by utilizing the concepts of bT^{μ}-Lindelof, bT^{μ}-normal, strongly bT^{μ}-regular space and bT^{μ}-compact in supra topological spaces.

1. Introduction

The separation axioms of topological spaces are usually denoted with the letter T after the German Trennung which means separation.The separation axioms that were studied together in this way were the axioms for Hausdorff spaces, regular spaces and normal spaces.The first step of generalized closed sets was done by Levine in 1970 [13] and he initiated the notion of $\mathrm{T}^{1/2}$-spaces in unital topology which is properly placed between T_0-space and T_1-spaces by defining $\mathrm{T}_{1/2}$-space in which every generalized closed set is closed.

It was Mashour.et.al[14] who first came up with the supra topology concept by studying the S^* continuous as well as S continuous. They create a root for studying separation axioms and relations on supra topology. Motivation for supra topology come from the demand to procure numerous examples that satisfies few properties on the finite set, discrete topology is the only topology that fulfills T_1-spaces on finite set, whereas there are many different types of supra topology that make certain conditions of the T_1-spaces.

Takashi Noiri and Sayed [16] in their research focused on a method of introducing supra b-continuity and b-open sets in the supra topology space in the year 2010 and also elaborated the supra b-open as well as the continuous maps as well as its interconnectivity. Taha [20] first person create a root of supra compactness in supra topological

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spaces. Bringing out the idea of supra b-compact spaces and supra b-Lindelof spaces by Mustafa [4].

Later in [9], started bT$^{\mu}$- compact spaces by the author in supra topological spaces. It was Singal [19] who initiated the concept of Mildly normal spaces in topological spaces. Almost regular space initiated by Singal and Arya [17] in topological spaces. Krishnaveni and Vigneshwaran [5] newly initiated supra bT closed set along with analysed some of its main properties.

The purpose of this article to initiate bT^{μ}-Hausdorff space and $bT^{\mu} - T_1$ space. In this article, we discuss main properties of bT^{μ}-Hausdorff space manipulate bT^{μ}-Lindelof space, bT^{μ}-normal space, bT^{μ}-compact, bT^{μ} homeomorphism, strongly bT^{μ}-regular space along with bT^{μ}-continuous functions.

2. Preliminaries

Definition 2.1. [14, 16] A μ of X is defined as supra topology on X, in case

(*i*) X, $\phi \epsilon \mu$

(*ii*) if $D_i \epsilon \mu$ for every i ϵ J then $\cup D_i \epsilon \mu$.

The (X,μ) pair is known as supra topological space. In (X,μ) the elements of μ are known as supra open sets and its complement is supra closed set.

Definition 2.2. [14, 16]

(*i*) The notation $cl^{\mu}(D)$ is for supra closure of a set D as well as defined as $\cap\{E$: E is supra closed set and $E \supseteq D\} = cl^{\mu}(D)$

(*ii*) The notation $int^{\mu}(D)$ is for supra interior of a set D as well as defined as $\cup\{E$:E is a supra open set and $E \subseteq D\}$ = int$^{\mu}$(D)

Definition 2.3. [5] In supra topological space (X, μ), D be subset defined as bT^{μ}-closed set in case W $\supset$ bcl$^{\mu}$(D) at every time W$\supseteq$ D and in (X,μ), W is T^{μ}-open.

Definition 2.4. [5] A relation f:(X,τ) $\rightarrow$(Y, σ) defined as bT^{μ}-continuous in case of (X,τ), f^{-1}(C) is bT^{μ}-closed for each supra closed set C of (Y,σ).

Definition 2.5. [8] A relation f:(X,τ) $\rightarrow$(Y, σ) defined as contra bT^{μ}-continuous in case of (X,τ), f^{-1}(C) is bT^{μ}-closed for each supra open set C of (Y,σ).

Definition 2.6. [7] A relation f:(X,τ) $\rightarrow$(Y,σ) defined as strongly bT^{μ}- continuous in case of (X,τ), f^{-1}(C) is supra closed for each bT^{μ}-closed set C of (Y,σ).

Definition 2.7. [7] A relation f:(X,τ) $\rightarrow$(Y,σ) defined as perfectly bT^{μ}- continuous in case of Y the inverse image of each bT^{μ}-closed is both supra closed as well as supra open in X.

Definition 2.8. [12] A supra topological space X defined as co bT^{μ}-T$_1$ in case for every pair of different points v as well as u of X, there be bT^{μ} clopen sets E as well as D containing v as well as u such like v$\in$E, u$\notin$E as well as v$\notin$D, u$\in$D.

Definition 2.9. [12] A space X is said to be bT^{μ} locally indiscrete in case each bT^{μ}-closed set in X is bT^{μ} open set of X.

Definition 2.10. [10] A space X defined as strongly bT^{μ}-normal in case for each pair of disconnect bT^{μ}-closed sets D and E, there be disconnect bT^{μ}-open sets G as well as H such like G $\supset$ D as well as H $\supset$E.

Definition 2.11. [14] A relation f:(X,τ) $\rightarrow$(Y,σ) defined as S* continuous in case of (X,τ), f^{-1}(C) supra closed for each supra closed set C of (Y,σ).

Definition 2.12. [11] A space (X,τ) defined as strongly bT^{μ}-regular space in case for each bT^{μ}-closed set D as well as every point u$\notin$D, there be disconnect bT^{μ}-open sets G as well as H alike G$\supseteq$D as well as u$\in$H.

Definition 2.13. [10] In a space, D subset defined as regular open in case $int^{\mu}(cl^{\mu}$(D)) = D as well as its complement is regular closed.

Definition 2.14. [9] A space (X,μ) defined as bT^{μ}-compact in case each bT^{μ}-open cover of X has a finite subcover.

Definition 2.15. [9] A space (X,τ) defined as bT^{μ}- Lindelof space in case each bT^{μ}-open cover of X has a countable subcover.

Definition 2.16. [6] A bijection f:(X,τ)$\rightarrow$(Y,σ) defined as bT^{μ} homeomorphism in case f^{-1} along with f is both bT^{μ}-open map as well as bT^{μ}-continuous.

Definition 2.17. [14] A space (X,τ) defined as S-T_1 in case that any pair of different points u as well as v of X, there be supra open sets D and E such like u$\in$D despite that v$\notin$D and V$\in$E except u$\notin$E.

Definition 2.18. [14] A supra topological space (X,τ) is said to be S-T_2 if whenever v as well s u are different points of X, there exist disjoint supra open sets E as well as D such like u$\in$D as well as v$\in$E.

3. bT^{μ}-T_1 space

Definition 3.1. A space (X,τ) defined as bT^{μ}-T_1 in case any pair of different points v as well as u of X, there be bT^{μ}-open sets E as well as D such like u$\in$D despite that v$\notin$D as well as v$\in$E despite that u$\notin$E.

Example 3.2.

(*i*) Let X=$\{e, f, g\}$ along τ= $\{X, \phi, \{e\}, \{f\}, \{e, f\}\}$. Let v = f as well as u = e be any pair of different points in X. The bT^{μ} open sets are $\{X, \phi, \{e\}, \{f\}, \{e, f\} \{f, g\} \{e, g\}\}$. Let D = $\{e\}$ and E = $\{f, g\}$ such like e$\in$ $\{e\}$ despite that $\{e\} \notin \{f, g\}$ as well as $\{g\} \in \{f, g\}$ despite that g$\notin$ $\{e\}$. Wherefore (X,τ) is bT^{μ}- T_1.

(*ii*) Let X=$\{i, j, k\}$, τ= $\{X, \phi, \{i\}, \{j, k\}\}$.The bT^{μ} open sets are $\{X, \phi, \{i\}, \{i, j\} \{i, k\}\}$. Let u= i and v = j be any pair of different points in X. Let D = $\{i\}$ as well as E=$\{i, j\}$. Wherefore (X,τ) unlike bT^{μ}-T_1, being u$\in$D as well as u$\in$E.

Remark

S-T_1 $\rightarrow$ bT^{μ}- T_1.

The converse of the above connection needn't be correct as shown in the following example.

Example 3.3. Let X=$\{e, f, g\}$, $\tau=$ $\{X, \phi, \{e\}, \{f\}, \{e, f\}\}$. Assume v = g as well as u = e be any pair of different points in X. The bT^{μ} open sets are $\{X, \phi, \{e\}, \{f\}, \{e, f\} \{f, g\} \{e, g\}\}$. Assume D = $\{e\}$ as well as E = $\{f, g\}$ such like e$\in$ $\{e\}$ despite that $\{e\} \notin \{f, g\}$ as well as $\{g\} \in \{f, g\}$ despite that g$\notin$ $\{e\}$. Wherefore (X,τ) is bT^{μ}- T_1 despite that no more S-T_1.

Theorem 3.4. *Each subspace of bT^{μ}-T_1 is bT^{μ}-T_1.*

Proof. Assume (Y,τ^*) be subspace of (X,τ) as well as (X,τ) be bT^{μ}-T_1. Assume v_2, v_1 be two different points of Y. Since X$\supset$Y, v_2,v_1 are also different points of X. Being (X,τ) is bT^{μ}- T_1, there be bT^{μ} open sets D as well as E such like v_1 $\in$D despite that v_2 $\notin$ D as well as v_2 $\in$E despite that v_1 $\notin$E. Next D$\cap$Y = D_1 as well as E$\cap$Y = E_1 are τ^*-bT^{μ} open sets such like v_1 $\in$$D_1$ despite that v_2 $\notin$$D_1$ as well as v_2 $\in$$E_1$ despite that v_1 $\notin$$E_1$. Wherefore (Y,$\tau^*$) is b$T^{\mu}$-$T_1$. □

Example 3.5. Assume that Y = X = $\{e, f, g\}$ and $\tau = \{X, \phi, \{e\}, \{e, g\}, \{f, g\}\}$, (Y,$\tau^*$) subspace of X as well as $\tau^* = \{Y, \phi, \{e\}, \{f, g\}\}$.
The τ-bT^{μ} open sets are $\{X, \phi, \{e\}, \{g\}, \{e, g\}, \{e, f\}, \{f, g\}\}$ as well as τ^*- bT^{μ} open sets are $\{Y, \phi, \{e\}, \{e, g\}, \{e, f\}\}$. Let v_2 = f as well as v_1 = g. Assume D = $\{e, g\}$ as well as E = $\{e, f\}$, v_1 $\in$D despite that v_2 $\notin$ D as well as v_2 $\in$E despite that v_1 $\notin$E. Next D$\cap$Y = D_1 = $\{e, g\} \cap \{e, f, g\}$=$\{e, g\}$ as well as E$\cap$Y = E_1 = $\{e, f\} \cap \{e, f, g\}$=$\{e, f\}$. v_1 = g $\in$$D_1$ despite that v_2 $\notin$$D_1$ as well as v_2 $\in$$E_1$ despite that v_1 $\notin$$E_1$. Wherefore (Y,$\tau^*$) is b$T^{\mu}$-$T_1$.

Theorem 3.6. *In case f:(X,τ)$\rightarrow$(Y,σ) is bT^{μ}-continuous, injective as well as Y is S-T_1, then X is bT^{μ}-T_1.*

Proof. Assume v as well as u be any two different points in (X,τ). Being f is injective, we have f(v) and f(u) such like f(v)$\neq$f(u). Being Y is S-T_1, there be supra open sets D and E in (Y,σ) such like f(u)$\in$D despite that f(v)$\notin$D as well as f(v)$\in$E despite that f(u)$\notin$E. so we have u$\in$ f^{-1}(D) despite that v$\notin$$f^{-1}$ (E) as well as u$\notin$ f^{-1}(E) despite that v$\in$$f^{-1}$ (E), f^{-1}(D) as well as f^{-1}(E) are bT^{μ}-open subsets of (X,τ) because f is bT^{μ}-continuous. Wherefore (X,τ) is bT^{μ}-T_1. □

Remark
The converse needn't be correct as shown in the following example.

Example 3.7. Assume X=$\{e, f, g\}$ along $\tau=$ $\{X, \phi, \{e\}, \{f\}, \{e, f\}\}$ as well as
$\sigma=$ $\{X, \phi, \{f\}, \{e, f\}\}$. Assume f: (X,$\tau$)$\rightarrow$(Y,$\sigma$) b$T^{\mu}$-continuous as well as f defined as f(e) =e, f(f) =f and f(g) = g. Assume u = e and v = g be any pair of different points in X. The bT^{μ} open sets of (X,τ) are $\{X, \phi, \{e\}, \{f\}, \{e, f\} \{f, g\} \{e, g\}\}$. Assume D = $\{e\}$ as well as E = $\{f, g\}$ such like e$\in$ $\{e\}$ despite that $\{e\} \notin \{f, g\}$ as well as $\{g\} \in \{f, g\}$ despite that g$\notin$ $\{e\}$. Wherefore (X,τ) is bT^{μ}- T_1 despite that (Y,σ) never S-T_1.

Theorem 3.8. *In case f:(X,τ)$\rightarrow$(Y,σ) is strongly bT^{μ}-continuous, injective as well as Y is bT^{μ}-T_1, then X is bT^{μ}-T_1.*

Proof. Assume v as well as u be any two different points in (X,τ). Being f injective, we have f(v) and f(u) such like f(v)$\neq$f(u). Being Y bT^{μ}-T_1, there be bT^{μ}-open sets D as well as E in (Y,σ) such like f(u)$\in$D despite that f(v)$\notin$D as well as f(v)$\in$E despite that f(u)∉E. Thus we have u∈ f^{-1}(D) despite that v∉f^{-1} (D) as well as u∉ f^{-1}(E) despite that v∈f^{-1} (E), f^{-1}(D) as well as f^{-1}(E) are supra open subsets of (X,τ) being f is strongly bT^{μ}-continuous function, we know that each supra open sets are bT^{μ}-open sets. So f^{-1}(D) as well as f^{-1}(E) are bT^{μ}-open subsets of (X,τ). Wherefore (X,τ) is bT^{μ}-T_1. □

Remark
The converse needn't be correct as shown in the following example.

Example 3.9. Assume X=$\{e, f, g\}$ along τ= $\{X, \phi, \{e\}, \{g\}, \{e, f\}, \{e, g\}\}$ as well as σ= $\{X, \phi, \{f\}, \{e, f\}\}$. Assume f: (X,$\tau$)→(Y,$\sigma$) is strongly b$T^{\mu}$-continuous as well as f defined as f(e) = f, f(f) = e as well as f(g) = g. Assume v = g as well as u = e be some pair of different points in X. The bT^{μ} open sets are $\{X, \phi, \{e\}, \{f\}, \{e, f\} \{f, g\} \{e, g\}\}$. Assume D = $\{e, f\}$ as well as E = $\{g\}$ such like e∈ $\{e, f\}$ despite that $\{e\} \notin \{g\}$ as well as $\{g\} \in \{g\}$ despite that g∉ $\{e, f\}$. Wherefore (X,τ) is bT^{μ}- T_1 despite that never (Y,σ) is bT^{μ}-T_1.

Theorem 3.10. *In case f:(X,τ)→(Y,σ) is contra bT^{μ}-continuous, injective as well as X bT^{μ}-locally indiscrete as well as Y is S-T_1 space, then X is bT^{μ}-T_1.*

Proof. Assume v as well as u be any two different points in (X,τ). Being f injective, we have f(v) as well as f(u) such like f(v)≠f(u). Being Y is S-T_1, there be supra open sets D as well as E in (Y,σ) such like f(u)∈D despite that f(v)∉D as well as f(v)∈E despite that f(u)∉E. So we have e∈ f^{-1}(D) despite that f∉f^{-1} (D) as well as e∉ f^{-1}(E) despite that f∈f^{-1} (E), f^{-1}(D) as well as f^{-1}(D) are bT^{μ}-open sets of (X,τ). Wherefore (X,τ) is bT^{μ}-T_1. □

Remark
The converse needn't be correct as shown in the following example.

Example 3.11. Let X=$\{e, f, f\}$ along τ= $\{X, \phi, \{e\}, \{f, g\}\}$, σ= $\{X, \phi, \{f\}, \{e, f\}\}$ as well as v = g, u = e be any pair of different points in X. The bT^{μ} open sets are $\{X, \phi, \{e\}, \{f\}, \{g\}, \{e, f\} \{f, g\} \{e, g\}\}$. Assume f: (X,$\tau$)→(Y,$\sigma$) contra b$T^{\mu}$-continuous as well as f defined as e = f(e), f = f(f) as well as g = f(g).
Let $\{e\}$ = D as well as $\{b, c\}$ = H such like e∈ $\{e\}$ despite that $\{e\} \notin \{f, g\}$ as well as $\{g\} \in \{f, g\}$ despite that g∉ $\{e\}$. Wherefore (X,τ) is bT^{μ}- T_1 despite that never S-T_1.

4. bT^{μ}-Hausdorff space

Definition 4.1. A space (X,τ) defined as bT^{μ}-Hausdorff (bT^{μ}- T_2) at any time v as well as u are different points of X, there be disconnect bT^{μ}-open sets E and D such like v∈E as well as u∈D.

Example 4.2. Let X=$\{e, f, g\}$, τ= $\{X, \phi, \{e\}, \{f\}, \{e, f\}\}$, v = f as well as u =e be any pair of different points in X.The bT^{μ} open sets are $\{X, \phi, \{e\}, \{f\}, \{e, f\} \{f, g\} \{e, g\}\}$. Assume $\{e\}$ = D, $\{f\}$ = E as well as D∩E = ϕ. Wherefore (X,τ) is bT^{μ}-T_2.

Remark

S-$T_2 \to bT^{\mu}$- T_2.

The converse of the above connection needn't be correct as in the following example.

Example 4.3. Let X=$\{e, f, g\}$, $\tau = \{X, \phi, \{e\}, \{f\}, \{e, f\}\}$, v = g as well as u = e be any pair of different points in X. The bT^{μ} open sets are $\{X, \phi, \{e\}, \{f\}, \{e, f\} \{f, g\} \{e, g\}\}$. Assume $\{e\}$ = D as well as $\{f, g\}$ = E such like e$\in$ $\{e\}$ as well as $\{g\} \in \{f, g\}$. Wherefore (X,τ) is bT^{μ}- T_2.

Theorem 4.4. *Each subspace of bT^{μ}-T_2 is itself.*

Proof. Assume Y non empty subset of X as well as (X,τ) bT^{μ}-T_2. Assume v,u be two different points of Y. Then v,u are different points of X. Being (X,τ) bT^{μ}-Hausdorff, there be disconnect bT^{μ}- open sets E as well as D such like v$\in$E as well as u$\in$D. Let E_1 = E$\cap$Y as well as D$\cap$Y = D_1 are bT^{μ}-open subsets of (Y,τ_Y). We know that v$\in$Y, v$\in$E connects that v$\in$Y$\cap$E = E_1 as well as u$\in$Y, u$\in$D connects that u$\in$Y$\cap$D = D_1. Therefore $E_1 \cap D_1 = \phi$ as well as u$\in D_1$, v$\in E_1$. Wherefore (Y,τ_Y) is bT^{μ}-T_2. □

Theorem 4.5. *Every bT^{μ}-T_2 is bT^{μ}-T_1 .*

Proof. Assume v, u be any two different points of X. Being (X,τ) bT^{μ}-T_2, there be disconnect bT^{μ}-open sets E as well as D, v$\in$E as well as u$\in$D such like E$\cap$D = ϕ. This connects that v$\in$E despite that u$\notin$E as well as u$\in$D despite that v$\notin$D. Wherefore (X,τ) is bT^{μ}-T_1. □

Theorem 4.6. *Every bT^{μ}-compact subset G of bT^{μ}-T_2 X is bT^{μ}-closed.*

Proof. Assume u$\in D'$. Being X is bT^{μ}-T_2, for each u$\in$D there be disconnect bT^{μ}-open sets E_u and D_u such like u$\in E_u$ as well as u$\in D_u$. The collection $\{E_u : u \in D\}$ bT^{μ} open cover of D. Being D is bT^{μ}-compact subspace of X, there be finitely number of points u_1, u_2,...,u_n of D such like D$\subset \bigcup \left\{E_{u_j} : j = 1, 2, ..., n\right\}$. $D_e = \bigcap \left\{D_{U_j} : j = 1, 2, ..., n\right\}$ and $E_e = \bigcap \left\{E_{u_j} : j = 1, 2, ..., n\right\}$. Next E_e as well as D_e are disconnect bT^{μ}-open sets such like e$\in D_e$ and $E_e \supset$ D. Assume e$\in D'$ be arbitrary as well as D_e as well as E_e be as constructed above. Then the collection $\left\{D_e : e \in D'\right\}$ bT^{μ} open cover of D'. Being D' is bT^{μ}-compact subspace of X, there be finitely many points e_1, e_2,...,e_m of D' such like D$\subset \bigcup \left\{D_{e_j} : j = 1, 2, ..., m\right\}$. Assume N = $\bigcap \left\{E_{e_j} : j = 1, 2, ..., m\right\}$ as well as M = $\bigcup \left\{D_{e_j} : j = 1, 2, ..., m\right\}$. Next N as well as M are disconnect bT^{μ} open sets as well as being D$\subset$M, we have D$\cap$M = ϕ which connects that M$\subset D'$. This shows that D' is bT^{μ} open. Wherefore D is bT^{μ}-closed. □

Theorem 4.7. *Let Y be bT^{μ}-T_2 as well as X be bT^{μ}-compact space. Then each bijective bT^{μ}-continuous of X onto Y is bT^{μ} homeomorphism.*

Proof. Let f:X$\to$Y be bT^{μ}-continuous as well as bijective. To show f is bT^{μ} homeomorphism, it is enough to show that f(D) is bT^{μ}-closed in Y for each supra closed set D in X. From(see[6, 9])theorems(3.11 and 4.3), let D be any supra closed in X. We know that each supra closed set is bT^{μ} closed set. Next D bT^{μ} compact, being bT^{μ} closed subset of bT^{μ} compact space X. Being f is bT^{μ} continuous, from(see[9]) theorem

(3.8) f(F) is bT^{μ} compact in Y. Being Y is bT^{μ}-T_2, f(F) is bT^{μ} closed in Y(by previous theorem). □

Theorem 4.8. *Assume supra topological space (X,τ). The following statements are equivalent:-*

(i) *X is strongly bT^{μ}-regular space.*

(ii) *For each bT^{μ}- open set D as well as for every point u∈X of X there be bT^{μ}-open set E of X such like $\overline{E}$ ⊆D.*

(iii) *For each bT^{μ}- closed set D not containing x as well as for every point u∈X there be bT^{μ}-open set E such like $\overline{E}$∩$D = \phi$.*

Proof. (i)⇒(ii)

Let D be any bT^{μ}-open set in X as well as u∈X. Let X is strongly bT^{μ}-regular space. Next X-D is bT^{μ}-closed subset of X. Being X is strongly bT^{μ}-regular space, there be disconnect bT^{μ}-open sets E and F.

Now E∩F $= \phi$, X-F ⊇ E.

that is $\overline{E} \subseteq \overline{X - F}$ = X-F, being X-F is bT^{μ}-closed.

therefore $\overline{V}$∩ W $= \phi$.

Despite that $\overline{E} \cap (X - D) \subseteq \overline{E} \cap F = \phi$. Thus $\overline{E}$ ⊆D.

(ii)⇒(iii)

Let D be bT^{μ}-closed set with u∉D as well as u∈X. Next X-D is bT^{μ}-open set as well as u∈X-D. Wherefore by (ii), there be bT^{μ}-open set E such like $\overline{E}$ ⊆X-D. Therefore D∩$\overline{E} = \phi$.

(iii)⇒(i)

Let D be a bT^{μ} closed set in X with u∉D as well as u∈X. Next by (iii), there be bT^{μ} open set E such like $\overline{E}$∩D $= \phi$. Therefore D⊆X-$\overline{E}$ = F (say).

Now E⊆ $\overline{E}$, X-$\overline{E}$ ⊆X-E

that is E∩$(X - \overline{E})$ ⊆ E∩(X-E) $= \phi$

therefore E∩ F $= \phi$. Wherefore X is strongly bT^{μ} regular space. □

Theorem 4.9. *A bT^{μ}-closed subspace of a bT^{μ}-Lindelof space is bT^{μ}-Lindelof space.*

Proof. Let D be bT^{μ}-closed subspace of bT^{μ}-Lindelof space as well as U $= \{U_j : j \in \wedge\}$ be τ_D bT^{μ} open cover of D. Next $U_J = E_j \cap \wedge$ for some $E_j \in \tau$.

Now $\{E_j : j \in \wedge\}$ is $\tau - bT^{\mu}$ open cover of D. Wherefore $\{E_j : j \in \wedge\} \cup \{X - D\}$ is $\tau - bT^{\mu}$ open cover for X. Being X is bT^{μ}-Lindelof space, we can extract from this cover countable subcover of X, say $\{E_{j1}, E_{j2} \dots\}$. Accordingly $\{U_{j1}, U_{j2} \cdots\}$ is $\tau_D - bT^{\mu}$ open subcover of U. Wherefore (D,τ_D) is bT^{μ}-Lindelof space. □

Conclusion:

We have introduced bT^{μ}-Hausdorff space in supra topological spaces as well as investigated some properties of bT^{μ}-Hausdorff spaces in supra topological spaces.

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