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DIFFERENT TYPES OF CONVERGENCES, CORRESPONDING CONTINUTIES AND IRRESOLUTES IN TOPOLOGICAL SPACES

DR. BIDHI LAL PRABHAKAR

Lecturer, Department of Mathematics, Govt. Polytechnic, Gaya (Bihar), India

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The required paper "Different types of Convergences, Corresponding Continuities and Irresolutes" is discussed of different types of convergence corresponding continuties due to different types of open sets ina topological space. We have tried to find relation between them. We also try to find a relation with corresponding continuities and irresolutes. The paper contains definitions example, preliminaries, a number of characteristic properties and their proof. At last there is a number of references.

KEYWORDS : *L*-Open Set, *P*-Open Set, *L*-Continuous Function, *L*-Irrosolute.

INTRODUCTION

Here we discuss different types of convergences due to different type of open sets in a topological space and we try to find their relations with corresponding continuities and irresolute.

PRELIMINARIES

Let (X, T) be a topological space.

Definition (1.1). A sequences $\{x_n\}$ in a topological space x is said to coverage to a point x w.r.t. L-open sets; written as $x_n \xrightarrow{L} x$ if for every L-open set K containing x there exists a positive integer N S.t $x_n \in K$ for all $n \geq N$.

Characteristics Properties and Important Results : (Here L-Stands for pre, semi, α, β, generalized etc.)

Theorem (1.1). If an open subset is L-open then $x_n \xrightarrow{L} x \Rightarrow x_n \to x$.

Proof : Let k be an open set. Then K is L-open. So $x_n \xrightarrow{L} x$ implies that thee exists a positive integer N such that $x \geq N \Rightarrow x_n \in k$. This is true for every open set k. Hence $x_n \to x$.

Remarks (1.1). The converse may not be true for this we consider the following example.

Example (1.1). For this we recall a topological space. If the consider the sequence $\{x_n\}$ with $x_n = c$ for all n than $x_n \to d$.

Because open subjects containing c and d, But $x_n \xrightarrow{P} D$ because *p*-open set containing *d* is $\{d\}$ which does into contain *c*, we can also prove that :

Theorem (1.2). If L_1-open $\Rightarrow L_2$-open then $x_n \xrightarrow{L_2} x \Rightarrow x_n \xrightarrow{L_2} x.$

Proof : This can be proof similar *o* that of theorem (1.1).

Now we prove the following theorem :

Theorem (1.3). Let $f:(X, T) \to (Y, S)$ be a mapping from *X* into *Y*. If *f* is *L*-continuous at $x \in X$ then $x_n \xrightarrow{L} x \Rightarrow f(x_n) \to f(x).$

Proof : Supose that *f* is *L*-continuous at $x \in X$. Also suppose that $x_n \xrightarrow{L} x$. Let *v* be an open set in *Y* containing *f* (*x*). Than the *L*-continuity of at *x* implies that there is an *L*-open set *U* in *X* containing *x* such that $f(U) \subseteq V$.

Since $x_n \xrightarrow{L} x$, there exists a natural number *N*

Such that $n \geq N \Rightarrow X_n \in U \Rightarrow f(X_n) \in V$.

This proves that $f(x_n) \to f(x)$.

Theorem (1.4). Let $f:(X, T) \to (y, s)$ be a mapping from *X* into *Y*. If *f* is *L*-irrsolute at $x \in X$ then $x_n \xrightarrow{L} x \Rightarrow f(X_n) \xrightarrow{L} f(x).$

Proof : Suppose that *f* is *L*-irresolute at $x \in X$. Suppose that $x_n \xrightarrow{L} x$. Let *V* be an *L*-Open set in *y* containing *f* (*x*). Then there exist and *L*-openset *U* in *x*, containing *x* which that $f(U) \subseteq V$. Since $X_n x_n \xrightarrow{L} x$. There exist a natural number *N* such that $n \geq N \Rightarrow X_n \in U \Rightarrow f(X_n) \in V \Rightarrow f(x_n) \xrightarrow{L} f(x).$

Hence the result.

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