Personal Goal Realization Form of Topology Analysis

Luyao Wang, Hongkui Li, Tao Li

Abstract—**At first, this paper puts forward to the proposal of personal goal-achievement topology. Based on this, a number of topological concepts are given systematically, such as the open set, neighborhood, the neighborhood, closed set, closures, and connectivity, including their properties. Then explain the role, mechanism and meaning of them in this topology and provide a scientific reference for better achieving personal goals.**

Index Terms—**topology, personal goal, open set, connectivity.**

I. INTRODUCTION

Achieving personal goals is important in a person's growth process. The goal achievement is affected by their different characteristics.

Yulong Zhu[1] research build a team topology through the way of the core leading characters. Firstly, Zhu sets point concepts in topology, making the core leading characters as team condensation point. Then, Zhu concludes that the core leading character set is a closed set of the team topological space. Finally, Zhu analyses all topological forms under homeomorphism.

This paper constructs a topology by a person for a set, in which the elements are different characteristics. From the perspective of topology, the mechanism of goal realization is analyzed in terms of the individual's own characteristics.

II. THE TOPOLOGICAL STRUCTURE OF THE REALIZATION OF PERSONAL GOALS

One person has different characteristics, which correspond to certain sub-goals, including: hobbies, personality, ability, acquired efforts etc. These characteristics play a different effect on the growth and the degree of level, which form a complete person. A person has the ultimate goal in the process of growing up. The implementation of each sub goal depends on the other features of the collection, a consistent action strategy and the advantages of each feature to complement each other.

A collection of such a person is a topological space[2]. Therefore we can lead to the concept of open sets, neighborhood, focal point, closed set, connectivity.

Through expounding the concept and significance, this paper studies the topological mechanism of the realization of a personal goal.

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III. THE CONCEPT AND MEANING OF OPEN SET

Topology τ on X has a variety of forms: discrete topology, mediocre topology, star topology, etc. Open set U_k of τ can achieve a sub-goal A_k of the ultimate goal A, showing the topological shape that one person develops. Each feature x ($x \in U_k$) plays a role by depending on other features.

Open set U_k can achieve the sub-goals A_k of the ultimate goal A, which reflects that the development of a person rely on their own different characteristics. Through the advantage of the different characteristics, it presents one person's development process by personal initiative, understanding the different characteristics of their own, and tireless efforts to achieve the goal. For any open set U, $V \in \tau$, there is $U \bigcap V \in \tau$, which indicates the overall strategy embodied in the characters of $U \bigcap V$.

Definition 1: Let Γ be an open set family of all open sets that contains x, which means $\Gamma = \{U \in \tau, x \in U\}$. We called $U_x = \bigcap_{U \in \tau} U$ the minimum open set that feature x located.

Theorem 1: Let $X = \{x_1, x_2, \cdots, x_n\}$ be one person's character set. τ is a topology on X. Then, $\beta = \{U_{x_1}, U_{x_2}, \cdots, U_{x_n}\}$ is a basic of τ.

Proof: We can get that $\bigcup_{U \in \beta} U = \bigcup_{i=1}^{n} U_{x_i} = X$ by known to be available. If there existence $U_x \in \beta$ to make $U_x \subset U_{x_i} \bigcap U_{x_j}$ of any such $U_{x_i} \in \beta$, hence, $\beta = \{U_{x_1}, U_{x_2}, \cdots, U_{x_n}\}$ a basic of τ.

On the basis of the $\beta = \{U_{x_1}, U_{x_2}, \cdots, U_{x_n}\}$, a person's goal-achievement can be given topology diagram. Due to possible intersection between the different characteristics of a person, there is $\bigcap_{i=1}^{n} U_{x_i} \neq \varnothing$. Let $M = \bigcap_{i=1}^{n} U_{x_i}$ be a person's the dominant features in a particular aspect. For example, hobby is dominant feature in singing and painting aspects. We can conclude that the topology τ has a star topology. Core quality of a person O is in the center and the dominant feature M including $M_1, M_2, \cdots, M_t$ is on the second floor.

Then, since we know that $\bigcap_{i=1}^{n} U_{x_i} - M = \bigcap_{i=1}^{n} (U_{x_i} - M) = \varnothing$, and if $U_{x_1} - M \neq \varnothing$, $\cdots$, $U_{x_n} - M \neq \varnothing$ for any

$x_i \in X$, they are located on the third floor, which is open set of subspace $X - M$. And so on, we can obtain the figure about personal goal-achievement topology.
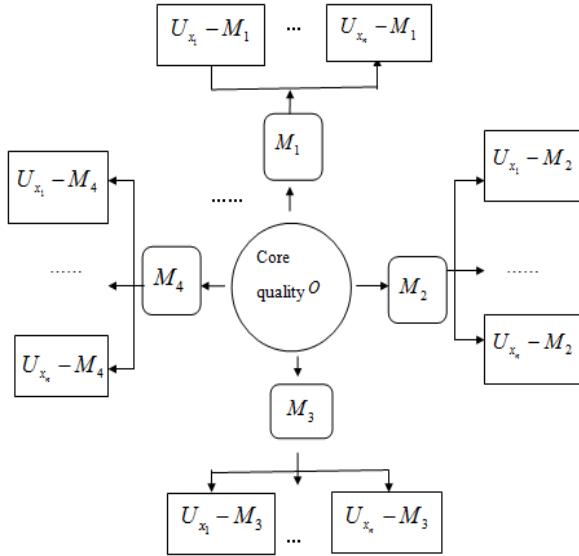

Figure 1: personal goal-achievement' topology in FIG

IV. THE NEIGHBORHOOD, NEIGHBORHOOD BASIC AND THEIR SIGNIFICANCE

Definition 2: Let $X = \{x_1, x_2, \cdots, x_n\}$ be one person's character set, τ is a topology on X, $x \in X$. If Y is a subset of X, Y meets that U_x, the minimum opening set of x, $U_x \subset Y$, then we call Y a neighborhood of X. A subset family of X by all neighborhoods of x is called neighborhood system of character x, which is denoted μ_x.

Definition 3: If the sub-family v_x of μ_x meets the condition: for each $U \in \mu_x$, there exists $V \in v_x$ such that $V \subset U$, we call v_x a basic of neighborhood-based points x, or simply call it a neighborhood-basic of points x.

Hence, a neighborhood Y about character x achieve sub-goals by open set $U_x \subset Y$. But if $U_x \neq Y$, there must be additional factors in Y assisted to achieve the sub-goal A_k, such as the acquired practice, and other's guidance to contribute to the achievement of sub-goals A_k.

V. THE CONCEPT AND SENSE OF CONDENSATION POINT

Definition 4: Let $X = \{x_1, x_2, \cdots, x_n\}$ be one person's character set, τ is a topology on X, $C \subset X$. If the minimum opening set of feature x $U_x \neq \varnothing$, and there exists an element which is different from x in C, $U_x \bigcap (C - \{x\}) \neq \varnothing$, we call x is a condensation point of subset C. One set is called the guide set of C, if it contains all condensation point of C, which is denoted $d(C)$.

The condensation point x of subset C represents there are other features in C which effect to achieve a sub-goals with feature x. Meanwhile it shows the different effect degree of different human characteristics. In particular, if there exists $r \in X$, and r is a condensation point for any subset $C(C \neq \{r\})$, r can be abstracted as the core characteristics of a person, which is core quality O. However, the member of guide set $d(C)$ is the dominant feature M about the sub set C.

Theorem 2: Let $X = \{x_1, x_2, \cdots, x_n\}$ be one person's character set, τ is a topology on X. U_x is the minimum opening set of character x. If $y \in U_x$ and $x \neq y$, $y \in d(\{x\})$.

Proof: Because $U_x \bigcap (\{x\} - \{y\}) \neq \varnothing, y \in d(\{x\}))$.

From Theorem 2 we can know that if characteristics belong to one guide set, they play a similar role to make contributions to the realization of sub-goal A_k.

VI. THE CONCEPT AND SENSE OF CLOSED SETS, CLOSURE, INTERIOR

Definition 5: Let $X = \{x_1, x_2, \cdots, x_n\}$ be one person's character set, τ is a topology on X and $C \subset X$. If C contains all the condensation point of C, which means $d(c \subset C)$, then C is a closed set of X. $\overline{C} = C \bigcup d(C)$ is called the closure of C.

If C is a closed set, it means that the dominant feature which is relative to the subset C is in C, and the closure of C is the smallest closed set that contained C. We can get the necessary and a sufficient condition which subset C is a closed set of X is $C = \overline{C}$.

The properties about closure [3] are: $\varnothing = \overline{\varnothing}$, $C \subset \overline{C} \subset X$. For any subset C, D there exists $\overline{C \bigcup D} = \overline{C} \bigcup \overline{D}$, $\overline{\overline{C}} = \overline{C}$.

In the process of realization of personal goals, the concept of closure reflects the principles of integrity, reasonable distribution and complementarities.

Definition 6: Let $X = \{x_1, x_2, \cdots, x_n\}$ be one person's character set, τ is a topology on X and $C \subset X$. If the minimum open set $U_x \subset C$, where feature x located, then we call x an interior point of C. All the interior points about C which form the set is called the interior of C, denoted C°.

C° is the largest open set that is contained in C, achieving sub-goal A_k through it. Therefore the subset of C is an open set if and only if $C = C^{\circ}$.

The properties about interior [3] are: $X = X^{\circ}$;

$C \subset C^{\circ} \subset X$; For any subset C, D of X , there exists $(C \bigcup D)^{\circ} = C^{\circ} \bigcup D^{\circ}$; $C^{\circ\circ} = C^{\circ}$. Interior reflects the target alignment principle in the realization of ultimate goal.

VII. THE CONCEPT AND SENSE OF CONNECTIVITY

Definition 7: Topological space X is called the Communication Space, if X cannot be combined by two non-empty closed and disjoint sets.

Connectivity reflects the integrity of a person to achieve the ultimate goal. In order to achieve the sub-goals first, a person should reasonably mobilize each characteristic and play the role of each other. Then he should maintain the connectivity between the various features which laid basis to achieve the ultimate goal.

VIII. CONCLUSION

Although the process to achieve one's goal will be complicated, we can adjust it: understanding our own characteristics, making proper plan, following certain rules and principles we mentioned in this paper. It is vital important to equip with the persistent efforts.

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