Ideal set of sub spaces of a Euclidean space

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1 Conjecture

Prerequisites are only some first chapters of graduate level texts of general topology; (1).

Definition 1.1 (Ideal set in terms of a topological space)**.** Take $\forall(X, T)$ as a topological space where T is the topology. Take $\forall K$ as a set of sub spaces of (X, T).

K is said an ideal set (of sub spaces) in terms of (X, T) if (*1 $\overset{\text{and}}{\wedge}$ ... $\overset{\text{and}}{\wedge}$ *3).

K is said an ideal(*1) set (of sub spaces) in terms of (X, T) if *1.

For convenience, we may omit words inside the parentheses, i.e.,"(of sub spaces)".

1. take $\forall(k, j) :\in K^2$, then $\exists f$ as an ambient isotopy in terms of (X, T) such that f takes k to j;

Sub definition: (f takes k to j). That is, decompose k as $(X_k, T_k) := k$; then $f[X_k * \{1\}]$ can be regarded as a bijection from X_k to X_j.

2. take $\forall(K_k, K_j)$ as a pair of subsets of K such that: $\exists f$ as an ambient isotopy in terms of (X, T) such that f takes K_k to K_j;

Sub definition: (f takes K_k to K_j). That is: Define a relation L on $K_k * K_j$ as $(k, j) \in L \equiv$ (f takes k to j). Then L is a bijection.

3. $\exists g$ as an ambient isotopy in terms of (X, T) such that: take $\forall t :\in [0, 1]$, then $g[\ X * [0, t]\ ]$ takes K_k to K_j;

As a supplement, needless to say, you need to normalize $g[\ X * [0, t]\ ]$ to regard it as an ambient isotopy.

$\blacksquare$

Definition 1.2 (To identify)**.** Take $\forall(s, t)$, then s is said to identify t if it holds that: take $\forall(m_1, m_2, m_3)$ as three distinct mathematicians; (m_1, m_2) respectively define (s, t) with identical texts; m_3 defines that (s of m_1)=(s of m_2); it is implied that (t of m_1)=(t of m_2) for all cases. $\blacksquare$

For example, take $\forall Z$ as a set of multiple integers; take $\forall x :\in Z$, then Z is not said to identify x. To prove that, take $\forall Z_1$ as a set of multiple integers; take $\forall x_1 :\in Z_1$; take $\forall Z_2$ as a set of multiple integers; take $\forall x_2 :\in Z_2$; let $Z_1 = Z_2$; though $x_1 \neq x_2$ for some case.

Contrary, let $y = x + 1$ then x is said to identify y. To prove that, take $\forall Z_1$ as a set of multiple integers; take $\forall x_1 :\in Z_1$; take $\forall y_1 := x_1 + 1$; take $\forall Z_2$ as a set of multiple integers; take $\forall x_2 :\in Z_2$; take $\forall y_2 := x_2 + 1$; let $x_1 = x_2$; then $y_1 = y_2$.

Conjecture 1.1. Take $\forall(X, T, M)$ as a Euclidean space where the topology T is defined by M as a metric table.

Needless to say, (X, T, M) is not defined any coordinate system.

Take $\forall K$ as an ideal(*1) set in terms of (X, T) such that (X, T, M) identifies K. Then $\exists C$ as a countable collection such that (*1 $\overset{\text{and}}{\wedge}$ ... $\overset{\text{and}}{\wedge}$ *5).

1. take $\forall(K_1, K_2) :\in C^2$;

2. K_1 is an ideal set in terms of (X, T);

3. (X, T, M) identifies K_1;

4. (K_1, K_2) are disjoint;

5. K is a union of C;

$\blacksquare$

For example, the dimension of (X, T) is 2; $K = K_1 \cup K_2$ where $K_{i \in \{1,2\}} = \{x \mid x$ is a curved line $\overset{\text{and}}{\wedge}$ both ends of x are open $\overset{\text{and}}{\wedge}$ length$(x) = i$ $\}$; assuming $K_{\forall i}$ is ideal.

References

[1] Glen E. Bredon,Topology and Geometry, Springer, ISBN 978-1-4419-3103-0