A Preparatory Study for Resolution of Contradiction of Unity
—For the Way of Life—

Toshio Takahara ( )

Abstract

Dialectical Logic had been widely taught in former Soviet Union. Attitudes to review this Dialectical Logic by Genrikh S. Altshuller gave TRIZ a powerful possibility. Every philosophy, every thought even every method was appeared to the earth by attitudes of the originator to review existing one. It is a valuable lesson taught from history for us if we forgot to continue to review every philosophy, every thought or every method, they stopped to expand and even corrupted. Originally Dialectical Logic teaches us the way of object how to interact each other and how to change all the time. We should continue to review Dialectical Logic all the time.

Contradiction consists of two opposites and mutual relation between two opposites from inner point of view. It has function of movement from outer point of view. It is an approximate element of structures and processes of the world.

Contradiction has three types which consist of autonomous movement, movement to ignite action and that of unity. "Physical contradiction" has three types. "Technical contradiction" has four types.

The form of human history especially in institutional area is segmenting objects and partly merging object to acquire progress in life. But now we need some unification between object and I, between community and I, between viewpoint and attitude, between philosophy and method and humble attitude and critical attitude etc. These "opposites" form contradiction of unity.

The final ideal can be obtained by resolving "Technical Contradiction 2" and Contradiction of unity. Continuous every action or thought of every person can contribute to the final ideal.

1. Introduction

TRIZ is an assemblage of methods consisting of changing one attribute, solving "physical contradiction" and "technical contradiction" and segmenting and merging of attributes and Objects, as I presented at the 4th Japan TRIZ Symposium. [TS2008]

This seems to mean that TRIZ could be a unified thought and method applicable to every action in every area to become formal basic of operational science.

Dialectical Logic had been widely taught in former Soviet Union. Attitudes to review this Dialectical Logic by Genrikh S. Altshuller gave TRIZ a powerful possibility. Every philosophy, every thought even every method was appeared to the earth by attitudes of the originator to review existing one. It is a valuable lesson taught from history for us if we forgot to continue to review every philosophy, every thought or every method, they stopped to expand and even corrupted. Originally Dialectical Logic teaches us the way of object how to interact each other and how to change all the time. We should continue to review Dialectical Logic all the time.

My previous works are as follows.
Review of Object [TS2005]
Review of existing Dialectical Logic and enumeration of types of contradiction in 2011

Investigation of Object change which was to be results of contradiction [TS2006] [TS2007] [TS2008]

These contents depend on Radical Thinking for Enumeration (RTE) [TS2010] [FIT2010]

Agenda of this paper is as follows.

Chap. 2: Outline of RTE. Outline of review of basic concepts such as Object, judgment and law which are results of RTE.

Chap. 3: Review of contradiction, Enumeration of types of contradiction. [FIT2011]

Chap.4: A preparatory study for resolution of contradiction of unity or ideal final problem.

2. Radical Thinking for Enumeration

2.1 Radical Thinking for Enumeration RTE
[TS2010]

Radical Thinking for Enumeration RTE humbly and critically continues to enumerate kinds of Object World and review granularity and structure of Object World. Object World includes basic concept, judgment, law and contradiction.

RTE works at three timing: study in advance, decide viewpoint and attributes at this moment, judge how to act taking some time.

2.2 Review of basic concepts

Requirements of grasping Object (or basic Object World) are able to describe differences

between Object and other thing, to describe inner structure of Object and to enumerate kinds of Object which need different way to handle.

These three are indispensable to make us recognize, define Object and change Object.

Anything recognizable is called **Object**. I recognize three kinds of Objects as follows. [TS2006] [TS2007]

1. Matter: System Object
2. "Idea": System Object
   21. Information of individual or common notion which is taken by physical entity
   22. My idea
3. Movement or Action: Process Object

Movement is process from a viewpoint of time and action from a viewpoint of relation between itself and other thing to change itself and other thing.

Object is I, Other Person, Matter and Movement at different granularity.

Let us summarize some other basic concept of my previous paper. [TS2006] [TS2007] [TS2008]

Granularity is size, magnitude or scope in space and/ or time and degree of abstraction.

Density is density of inner structure.

Function is primarily meaning of Process Object, secondly meaning of attributes of Object.

Structure is granularity and inner structure.

Property or Attributes is content of Object with specific description. Property or attribute of Object should be grasped accurately and treated at adequate granularity.
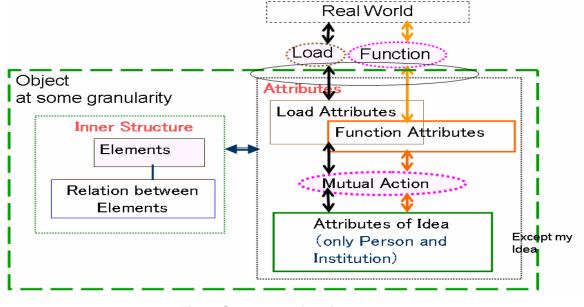

Fig. 1 Structure of Object [TS2008]

We have three granularities of attributes in Object.

Attributes 1 is everything that concretely describe Object.

Attributes 1 includes attributes 2 in narrow sense and inner Structure.

Attributes 2 in narrow sense includes attributes 3 in most narrow sense which is difficult to change and state which is easy to change. [TS2008]

Object has inner structure and attributes which produce function to the outside.

Structure is an assemblage of elements and their relations. Structure of something consists of the relation between the whole and itself and inner structure of something. The granularity of Object is a part of structure

because it provides the relation between the whole. And density belongs to inner structure.

Technology is an assemblage of matter and its movements. Institution is an assemblage of common idea and its movements including religion and sense of value.

Examples of institution: Politics, Economy, Family, Company

Intentional change (Resolving Differences) is executed via technology and institution.
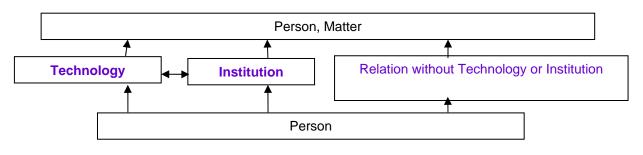
Fig.2 Human Life via Technology and Institution[TRIZJ2003Jun]

2.3 Review of judgment and law

Contents and form of element of judgment and law are as follows.

Element of Judgment

1. Contents: Existence of Object or attributes, movement of existence+ contents of law

2. Form：Subjective part + objective part

Law

1. Contents:

11. One Object: Change of one attribute, relation(including movement) between attributes, change as results of movement

12. Objects; Relation (including movement) between Objects, change as results of movement

2. Form： Input + output

Review of judgment

Change granularity of judgment or each part of judgment. And we get a new framework. Some examples are shown.

A. Change judgment maintaining subject, object and structure

Enumerate attributes of subject and object. And,

1. Change them.

2. Delete them (replace subject or object with coarser granularity),

3. Add attributes (replace subject or object with finer granularity. We have many examples of this),

4. Enumerate subjective part having the same objective part to make new subjective part. (Replace to new subjective part having coarser granularity)

B. Change structure of judgment

5. By doing 4, subjective part and objective part have same contents. We can get a new definition by exchanging subjective part and objective part.

Example: We got a definition of existence from judgment "Existence mutually acts other existence" (I. Kant and K. Marx). And furthermore we got definition of Object consisting of existence and mutual action.

Example: From judgment "Commodity is an assemblage of attributes" (K. Marx), we got definition of existence or Object.
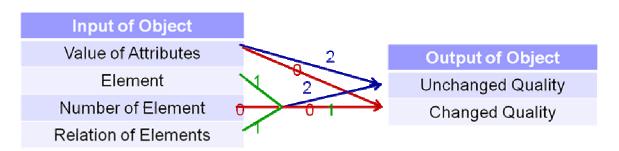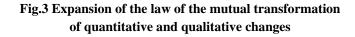
Review of law

Enumerate elements of input, output and conditions of law and change each of them and granularity of law extremely. We can obtain a new law.

e.g.: Expansion of the law of the mutual transformation of quantitative and qualitative changes **0**

First addition; change of element and inner structure can change quality of Object. By this addition we obtain enumeration of factors to cause quality change of Object. **1**

Second expansion; this law is expanded to mean that change of attributes, element itself, number of element and inner structure can change quality or quantity of Object. **2** [FIT2009] [TS2010]

Fig.3 Expansion of the law of the mutual transformation of quantitative and qualitative changes

3. Review of contradiction

Contradiction is **mutual action to cause movement** from functional point of view**.**

Contradiction is **element of approximation of structure and change of the world.**

Contradiction consists of **opposites and mutual action** from viewpoint of inner structure**.**

How to grasp contradiction is studied from many points of view.

1. **How to classify kinds of inner structure. Enumeration of kinds of inner structure.** In this paper study is performed only from this point of view.
2. Mutual action is cooperative or hostile?
3. How to classify kinds of solution. Enumeration of kinds of solution.
4. How to classify kinds of area. Enumeration of kinds of area.
5. Enumeration of law of contradiction.

Classification of contradiction

We classify contradiction from two viewpoints.

First we classify kinds of contradiction from a viewpoint of contents of whole movement consisting of autonomous movement, human action and thought.

Secondly we classify kinds of contradiction from a viewpoint of form of Object.

1. Opposites can be any kind of Object consisting of matter, mind and movement. Mutual action can be in any area including physical world, attitudes or thinking world.

2. Enumerate granularity of contradiction.

3. Enumerate density of contradiction: Opposites are two values of one attributes, two attributes of one or two Objects [TS2008] [TS2010]

Then we have rough outline of contradiction as follows.

1. Autonomous contradiction
   This is usual contradiction.

2. Contradiction to start action or thinking
   "Physical Contradiction": Opposites are two values of one attribute. Intentional effort to recognize differences between these two values and resolve differences is mutual action to form contradiction. The

solution starts real action or thinking. This is resolving differences. Differences are resolved contradiction is resolved. "Physical Contradiction" after TRIZ is not good term.

"Technical Contradiction": Opposites are two attributes. Intentional effort to make these two attributes compatible or to make them equal is mutual action to form contradiction. The solution starts real action or thinking. "Technical Contradiction" after TRIZ is not good term.

Contradiction of unity: This contradiction can be considered as a kind of "Technical Contradiction". Originally united thing is divided to two things. These two things are re-united by intentional effort.

We can show classification of inner structure of contradiction in detail.

A) Contradiction having two values of one attribute to resolve differences
   10) "Physical Contradiction 1"
   Change itself in autonomous contradiction.
   Contradiction of real world at density of change itself.

20) "Physical Contradiction" having two values of one attribute
   201) "Physical Contradiction 3" PC3
   Contradiction to start action having a value "a" at this time and a value "b" of <u>simple purpose</u> at different time.

   Viewpoint of <u>simple purpose</u>:
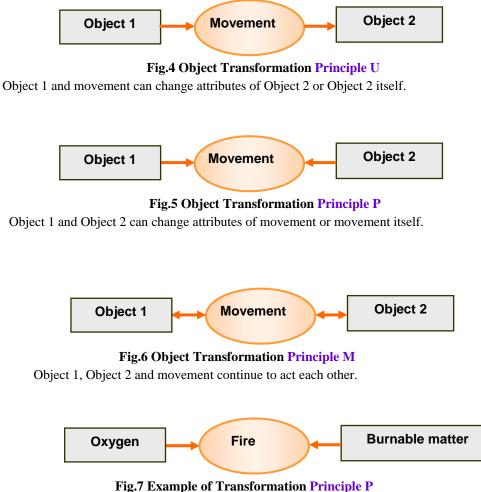   1) Make new function：Make new system or add new function to existing system,
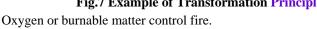   2) Solve issues：Solve problems in existing system,
   3) Idealize：Improve functions in existing system or realize existing functions with less resources.

   The differences between these three [TS2006] are relative.

   This is solved by <u>simple</u> solution using Principle U, P, M, D, R. [TS2007][TS2009]

   a. Transformation Principles U, P, M from outside

Fig.4 Object Transformation Principle U

Object 1 and movement can change attributes of Object 2 or Object 2 itself.

Fig.5 Object Transformation Principle P

Object 1 and Object 2 can change attributes of movement or movement itself.

Fig.6 Object Transformation Principle M

Object 1, Object 2 and movement continue to act each other.

Fig.7 Example of Transformation Principle P

Oxygen or burnable matter control fire.

b. Transformation Principles D from inside

Object Transformation Principle D: Change of inner structure consisting of elements and the relation between them can change plural attributes of Object, generate new Object and delete Object itself from inside.

The law of the mutual transformation of quantitative and qualitative changes or its expansion is available for Transformation Principles U, P, M, D. [FIT2009]

c. Operation Principle R of replacing, adding or deleting Object

Object Operation R：We can bring in, bring out or replace Object or its element of existing single Object or Object in "Object 1- Process Object- Object 2 model" freely regardless they are existing or not. But usually this Operation Principle R is only available for technology.

Note 1：Phenomenon and Essence, or Concreteness and Abstraction are usually dealt with contradiction. But these are not contradiction but only two mutually dependent recognitions. Only when, for example, we seek essence from phenomenon as purpose, both opponents and mutual action can be dealt with elements of contradiction. In this case this is "Physical Contradiction 3".

Examples of two mutually dependent recognitions are as follows.

Part and Whole

Phenomenon and Essence

Concreteness and Abstraction

Granularity and Inner Structure

Function and Granularity

Definition from outside and inside

202) "Physical Contradiction 2", PC2 which is usual "Physical Contradiction" in TRIZ

Contradiction to start action having a value "a" and a quite different value "b" at the same time.

Solution by Separation Principle in TRIZ can start action.

B) Contradiction having two attributes of one or two Object

Intentional effort to make two attributes compatible or to make them equal is mutual action. Making two attributes equal is part of making them compatible.

11) Structure of change in autonomous contradiction

111) Opposites are two attributes in one Object

112) Opposites are two attributes in two Objects

21) "Technical Contradiction" TC having two attributes

211) "Technical Contradiction 1", TC1

This is usual "Technical Contradiction" in TRIZ.

Resolve side-effects <u>afterward</u> to make two attributes compatible.

212) "Technical Contradiction 2" TC2

Intentional effort to make two attributes compatible or to make them equal <u>in advance</u> is mutual action.

2121) TC21 of generating or maintaining system having compatible two attributes without some Object

2122) TC22 of Intentional effort to make two attributes compatible or to make them equal <u>in advance</u>

21221) TC221 of Intentional effort to make two attributes compatible <u>in advance</u>

21222) TC222 of Intentional effort to make them equal <u>in advance</u>

Invention of "barter" [TS2010] is a resolved solution to have equal two attributes.

22) Contradiction of unity

Two Object formerly united is united by effort. Some examples are shown.

221) Two attributes form contradiction of unity

2211) Basic contradiction of unity

Opposites are individual and object or individual and community.

2212) Unity of separated two actions

2213) Unity of action and thought

22131) Unity of action and thought

Recognition and action, Purpose and means, Emotion and logic

22132) Unity of two thoughts

Viewpoint and attitude, Analysis and synthesis, spread and advance, thinking and learning

22133) Unity of two attitude

Humbleness and criticism, Liberty and love

2214) Unity of two fixed thing and movement

System and operation, Manual and operation

2215) Unity of history and logic

What can we do by these reviewed contradictions?

1. We have come to grasp whole movement consisting of autonomous movement, human action and thought as contradiction in a unified way. We can specify contradiction by selecting granularity and density and setting viewpoint of purposes.

2. This is to decide my attitude at this moment.

3. Synthesis for recognition and change can be done using contradiction as elements. Method of Resolving Differences and Compatibility [TS2010 3.3] will be easily enhanced using enumerated contradiction. This is performed by combination of simple PC3 and other contradictions.

Note 2：Function and structure in evolutional history is not "Technical Contradiction". Because no intention is involved in this case. Function and structure in the case someone want to make two attributes of function and structure compatible is "Technical Contradiction". Because intention is involved in this case.

4. Contradiction of unity
4.1 History

Originally there is unity. Technology and institution started at some stage of history. Technology deals with relation between individual and object. Institution deals with relation between individual and community. Development in each area was reached almost by separation.

We have problems of alienation in relation between individual and object, and hostility in relation between individual and community.

We need unification.

4.2 Formularization of the final ideal

Let us consider the final ideal according to the attitudes of TRIZ.

1. **Sense of value**

I and others have attitude to seek for ideal sense of value in common.

Value is a kind of attributes. Intentional effort should be made that attributes of sense of value is compatible or equal in the world.

2. **Function for object and community**

Everyone continue to do effort to realize the value for every object and community. Every object and community continues to enhance.

We need to change technology, institution and subject simultaneously.

We need continuous change to reach ideality.

3. **Function for subject**

The effort to realize value is performed by our whole ability better than before. The effort contributes to enhance us better than before.

In this viewpoint we also need continuous change to reach ideality.

4. **Mind**:

I and others recognize real world, ability of us, and action of us are better than before and recognize them better than before. I recognize I, others and community are more united in the sense that they are mutually dependent than before and I recognize that better than before.

Consciousness of possessing and that of belonging should be replaced to new consciousness that is a equal relation between I, others and object.

These final ideal can be obtained by resolving "Technical Contradiction 2" and Contradiction of unity.

For everyone and every action every time, we can have the final ideal both from the viewpoint of Object and community, from the viewpoint of unity of individual and object, other person and community and from the viewpoint of change.

Continuous every action or thought of every person can contribute to the final ideal.

5. Conclusion

Framework of whole thought is RTE which continue to enumerate kinds of Object World and review granularity and structure of Object World and Resolving Differences and Compatibility.

According to this thought autonomous movement, human action and thinking were grasped as contradiction in a unified way. Grasping contradiction is to decide my attitude at this moment.

We made a preparatory study for resolution of contradiction of unity.

Continuous every action or thought of every person can contribute to the final ideal.

Lastly I express my deep gratitude to Prof. Nakagawa Toru for his kind comments.

References

[TS2006] TAKAHARA Toshio: "A Method of Resolving Differences Based on the Concepts of Function and Process Object", The Second Symposium in Japan, Japan, Sept. 2006. A Collection of Papers Written by Toshio Takahara (2003-2007) http://www.osaka-gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/epapers/e2008Papers/eTakahara2003-2007/eTakaharaBiblio080323.html
[TS2007] TAKAHARA Toshio, A Method of Resolving Differences Based on the Concepts of Functions and Process Objects: Part 2, The Third TRIZ Symposium in Japan, Japan, Sept. 2007." A Collection of Papers Written by Toshio Takahara (2003-2007) http://www.osaka-gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/epapers/e2008Papers/eTakahara2003-

2007/eTakaharaBiblio080323.html
[TS2008] TAKAHARA Toshio, The General Picture of TRIZ From the Viewpoint of Changing Objects —A Method of Resolving Differences Based on the Concepts of Functions and Process Objects Part 3—The Fourth TRIZ Symposium in Japan, Sept. 2008.http://www.osaka-gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/epapers/e2009Papers/eTakaharaTRIZSymp2008/eTakahara-TRIZSymp2008-090708.html
[TS2010] TAKAHARA Toshio, The Ideal of TRIZ TRIZ as the Way of Life? Part 2, The Sixth TRIZ Symposium in Japan, Sept. 2010. http://www.osaka-gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/eforum/e2010Forum/eTRIZSymp2010Rep/eTRIZSymp2010TNRepH.html#Takahara

[FIT2009] TAKAHARA Toshio, "Dependency of Dialectic Logic on Granularity and Density", FIT2009, 2009. (In Japanese)
[FIT2011] TAKAHARA Toshio, "Re-structuring Dialectical Logic", FIT2011, 2011. (In Japanese)

[TRIZJ2003Jun] TAKAHARA Toshio, "Application Area of Thinking Tool or Problem Solving Tool", The TRIZ journal, Jun.2003.
[TRIZJ2003Sept] TAKAHARA Toshio: "Logical Enhancement of ASIT", The TRIZ journal, Sept.2003.

[NKGW] NAKAGAWA Toru,
[LB] Larry BALL, "Hierarchical TRIZ Algorithms", Third Millennium, http://www.3mpub.com/TRIZ/, 2005.

Presenter's Profile

TAKAHARA Toshio graduated from Waseda University in 1968. At FUJITSU and its subsidiary company he had been worked as a system engineer. He met TRIZ in 2001. After retired from the company in 2002, as also retired from technology, his interest is in formal theory using TRIZ and application to institution especially common subject. You can read his previous papers on TRIZ at "TRIZ home Page in Japan" in Japanese and in English thanks to Prof. NAKAGAWA.

Email: takahara-t@m.ieice.org
Home page:
http://www.geocities.jp/takahara_t_ieice/
(Under construction and almost in Japanese)