

How to learn TRIZ with ease and fun

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About the author

- Dr. Shin is a Chief Creativity Officer of an innovation consulting firm, eTRIZ.
- He worked for LG electronics as a TRIZ team leader from 2005 to Feb. 2012.
- His current research interests include developing an efficient methodology for creative problem solving based on TRIZ and its practical application for solving real industry problems.

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Abstract

As TRIZ is undoubtedly one of the most popular methodologies for systematic problem solving, it is now widely used to improve products, services, and systems. However, most of the people who learn TRIZ for the first time think that TRIZ is very difficult and assume that it takes much time to go to the level of applying TRIZ. In order to invite them to the TRIZ world, there should be a measure to help them. This paper introduces three approaches that help learn TRIZ with ease and fun. Firstly, the SCM (Simple Contradiction Modeling) has been developed for easy modeling of contradictions using a diagram that consists of 5 components. A user can easily describe contradictions and explain to others with the help of the visual diagram. Secondly, the Invention Song helps memorize invention principles. Each line of the song stands for one of 8 invention principles selected from 40. Lastly, the Invention Card can be used for playing as well as brainstorming. Using this card, a user can easily check all the invention principles and those typical examples and apply to generate ideas like playing. It is illustrated that easy and funny approaches can be utilized as good instruments for training TRIZ beginners.

* The SCM diagram and the Invention song have been firstly introduced in TRIZ Future conference 2011 with the title of 'Development and Application of the Simple Contradiction Modeling and the Invention Song'.



Research Questions

Contradiction

It is too difficult to understand and model it as a beginner

40 Invention Principles

I learned all 40 invention principles, but forgot all except 'Segmentation'.

How to make those easy ?
How to enjoy TRIZ ?





SCM diagram

Simple Contradiction Modeling



About SCM Diagram

- Based on the problem description part of ARIZ
- Developed for outlining components and their relationships of Contradiction using diagram
- SCM diagram can contain more information
- Useful and efficient for computational processes



Part 1.3 of ARIZ

1.3. describe graphic models for technical contradictions

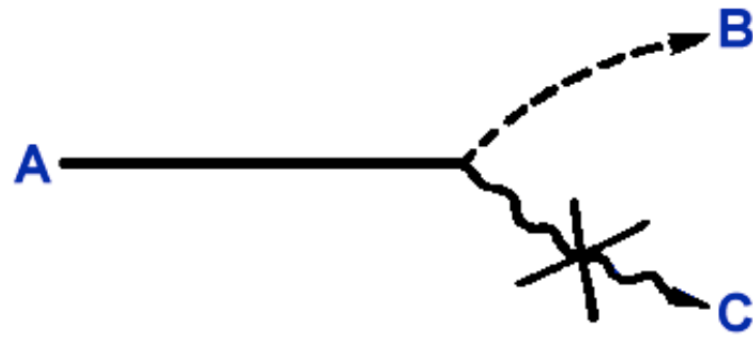
Build graphic models for conflicts TC-1 and TC-2 using Table 1. Typical Graphic Models of Technical Contradictions.

Example:

TC-1: Many conducting rods



TC-2: A few conducting rods

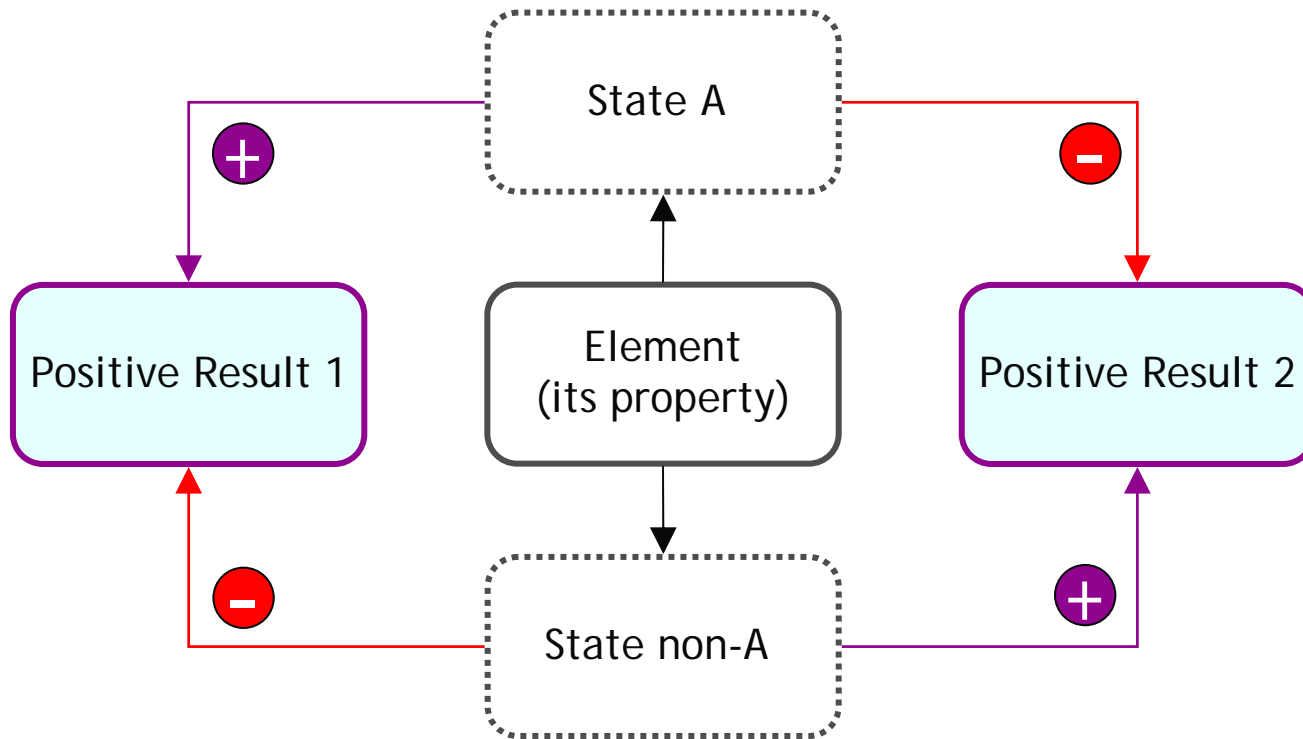


Components of SCM diagram

<p>Element (its property)</p>	<ul style="list-style-type: none"> • Located at the center of the diagram • Indicate a tool or its property that can be in two states. • Directly interacts with the result to achieve
<p>State A</p>	<ul style="list-style-type: none"> • Located at the top of the diagram • Indicate one of two opposite states of Element
<p>State non-A</p>	<ul style="list-style-type: none"> • Located at the bottom of the diagram • Indicate the other of two opposite states of Element
<p>Positive Result 1</p>	<ul style="list-style-type: none"> • Located at the left side of the diagram • Indicate the result or product that can be achieved, if the Element is in State A
<p>Positive Result 2</p>	<ul style="list-style-type: none"> • Located at the right side of the diagram • Indicate the result or product that can be achieved, if the Element is in State non-A
<p>+, -, arrow</p>	<ul style="list-style-type: none"> • The '+' mark in the diagram means improving and the '-' mark means worsening • The arrow denotes the flow of problem modeling.



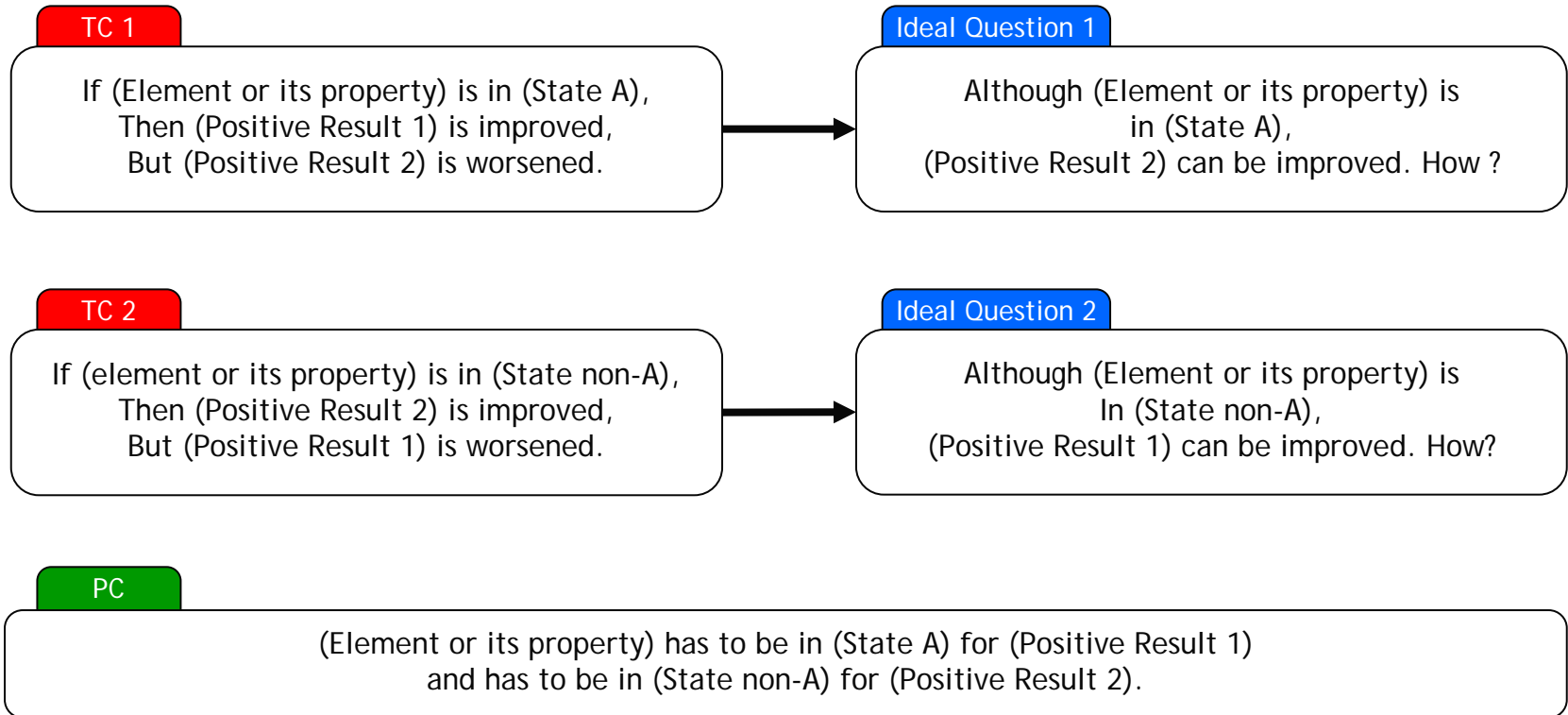
SCM Diagram



*Reference : Jeongho Shin, "Development and Application of the Simple Contradiction Modeling and the Invention Song", TRIZ Future conference, Dublin, Ireland, 2011

Deriving Contradictions

- TC : Technical Contradiction
- PC : Physical Contradiction



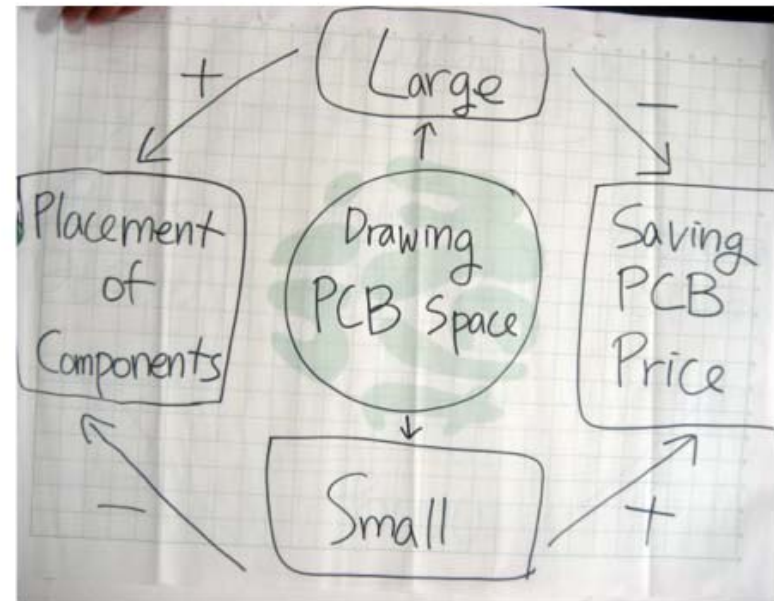
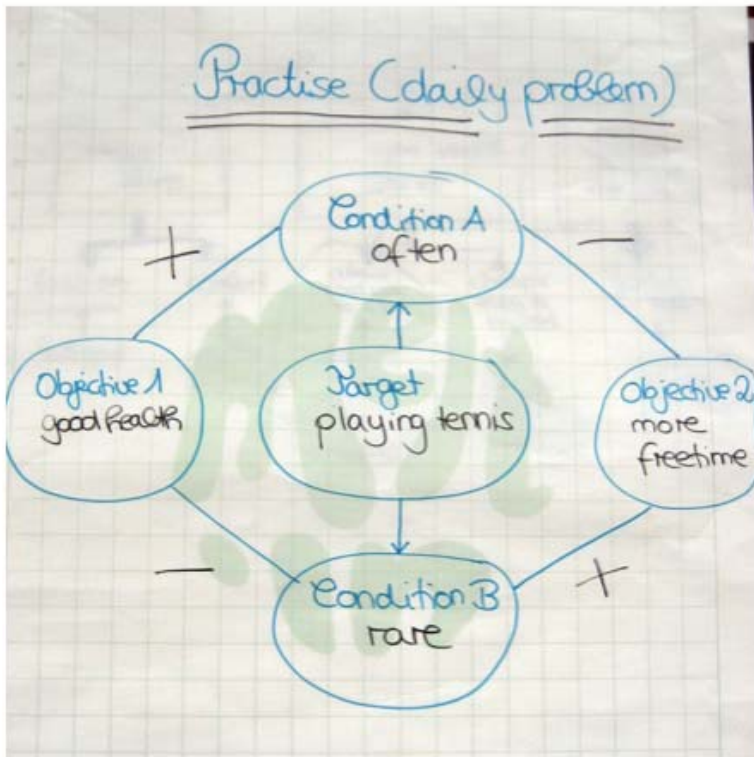
*Reference : Jeongho Shin, "Development and Application of the Simple Contradiction Modeling and the Invention Song", TRIZ Future conference, Dublin, Ireland, 2011



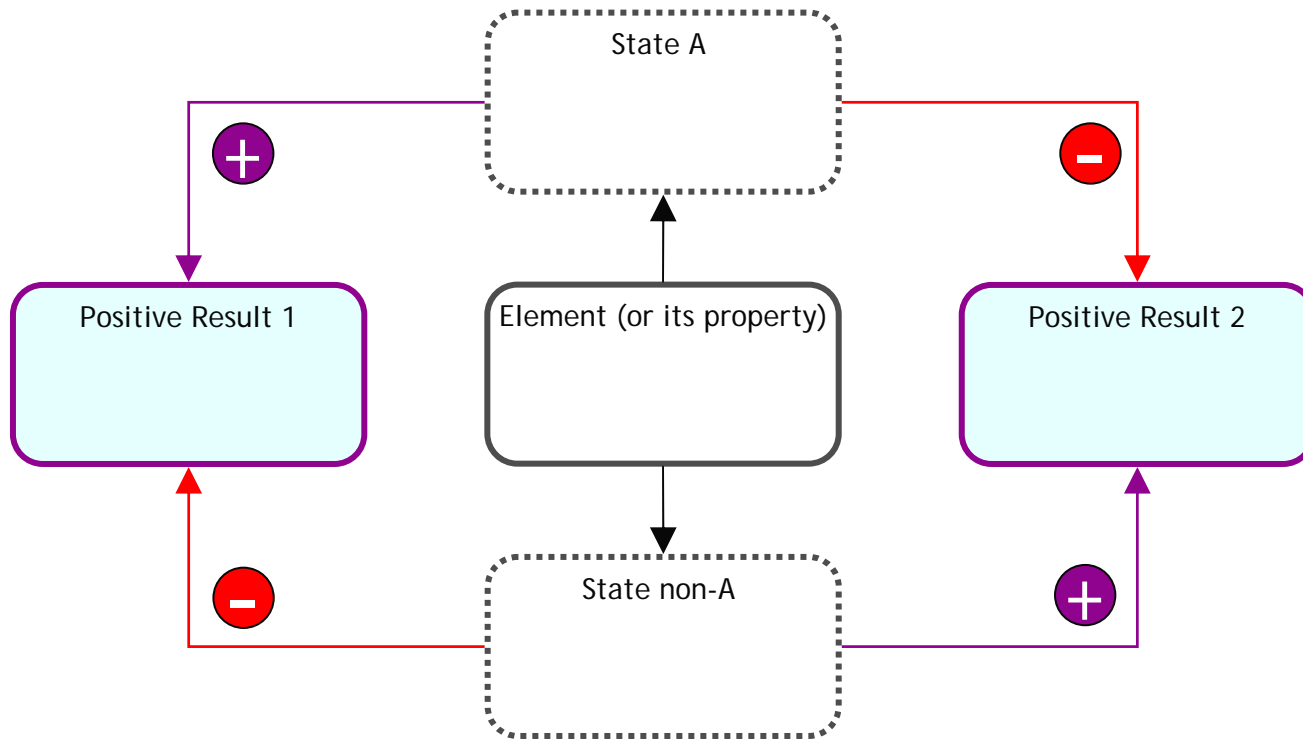
Examples from Trainees



Examples from Trainees



Let's try !



*Reference : Jeongho Shin, "Development and Application of the Simple Contradiction Modeling and the Invention Song", TRIZ Future conference, Dublin, Ireland, 2011



2 Invention Song

About Invention Song

- Selected 8 from 40 Invention principles
- Wrote the new words for the Do-Re-Mi song
- Multi-language versions are available
 - Formerly, Korean, English & Chinese
 - Now, Japanese version with the help of 中川 徹



Original Do-Re-Mi song

Note by the Program Chairperson (T. Nakagawa):

Publishing the original song here without permission is not allowed.

Let's play the music and sing it together,
because we have obtained the authorized permission from JASRAC.



Invention Song (English)

Note by the Program Chairperson (T. Nakagawa):

Publishing and presenting the new words as a modified version of the original song is not allowed without copyrights owner's permission.

Let's play the music and sing the invention song together without recording, because we have obtained the authorized permission from JASRAC.

Invention Song (Japanese)

Note by the Program Chairperson (T. Nakagawa):

Publishing and presenting the new words as a modified version of the original song is not allowed without copyrights owner's permission.

Let's play the music and sing the invention song together without recording, because we have obtained the authorized permission from JASRAC.



Benefits of Invention Song

- It is very easy and funny.
- It can be taught easily even for children.
- It helps to overcome the psychological inertia.
- It is easily memorized.
- It can be used anytime, anywhere.
- It can be introduced before or after teaching the 40 invention principles.



Conclusion

- SCM diagram enables easy modeling of contradictions.
- Invention song enables memorizing 8 invention principles with fun.
- SCM diagram and Invention song can be a good combination for TRIZ beginners and young students.
- Let's enjoy TRIZ !!



Thank You !



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