

Invention principle SUGOROKU

~ TRIZ Invention principle Symbol 40 on 9 Screen ~
 (Numerical order of invention principle Making to group)

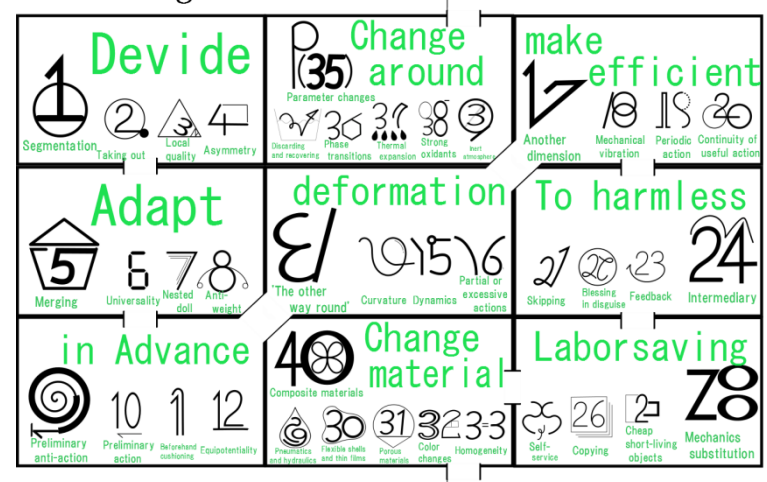
Idea Creator Yoshinori Takagi

It is easy to teach if it makes it to nine groups.









































Two composition

- In the first half: What is making the invention principle a group?
- In the latter half: Effect experience of making to group (Training experience of group ⑥)

TRIZ-Sugoroku The Symbols of TRIZ 40 principle on 9-screen



40 Invention principle symbol of TRIZ

									
Division	Separation	Locality	Asymmetry	Match	Generality	Nest	Fishing suitable	Taking in advance Reaction	Taking in advance Action
									
Prior protection	Potential	Reverse-conception	Curved surface	Dynamic	About	Use of another dimension	Mechanical Vibration	Periodic Action	Continuousness
									
High speed Execution	Fortune and misfortune	Feeding Backing	Mediation	Self Service	Copy	Disposable	System Substitution	Fluid action	Thin film use
									
Porous quality	Discoloration	Homogeneity	Exclusion Reproduction	Parameter	Phase change	Thermal expansion	It is strong. Oxidant	No revitalization Atmosphere	Compound Material

Though the invention symbol was made

- There are at a time a lot of 40 pieces though it teaches.

Cannot the invention principle be grouped?

It sequentially thought about relativity from one.

- If it is about four, I think that I am taught.
It is possible to group it.

Division



Locality



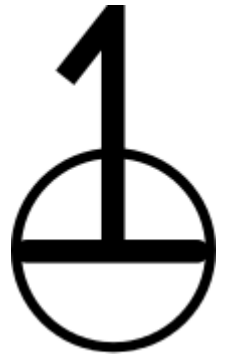
Separation



Asymmetry



It divides into almost four.



- 4x10 group
→ Consider nine screen arrangement and to nine groups

①	1	2	3	4
②	5	6	7	8
③	9	10	11	12
④	13	14	15	16
⑤	17	18	19	20
⑥	21	22	23	24
⑦	25	26	27	28
⑧	29	30	31	32
⑨	33	34	35	36
⑩	37	38	39	40



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⑧	29	30	31	32	33	40
⑨	34	35	36	37	38	39

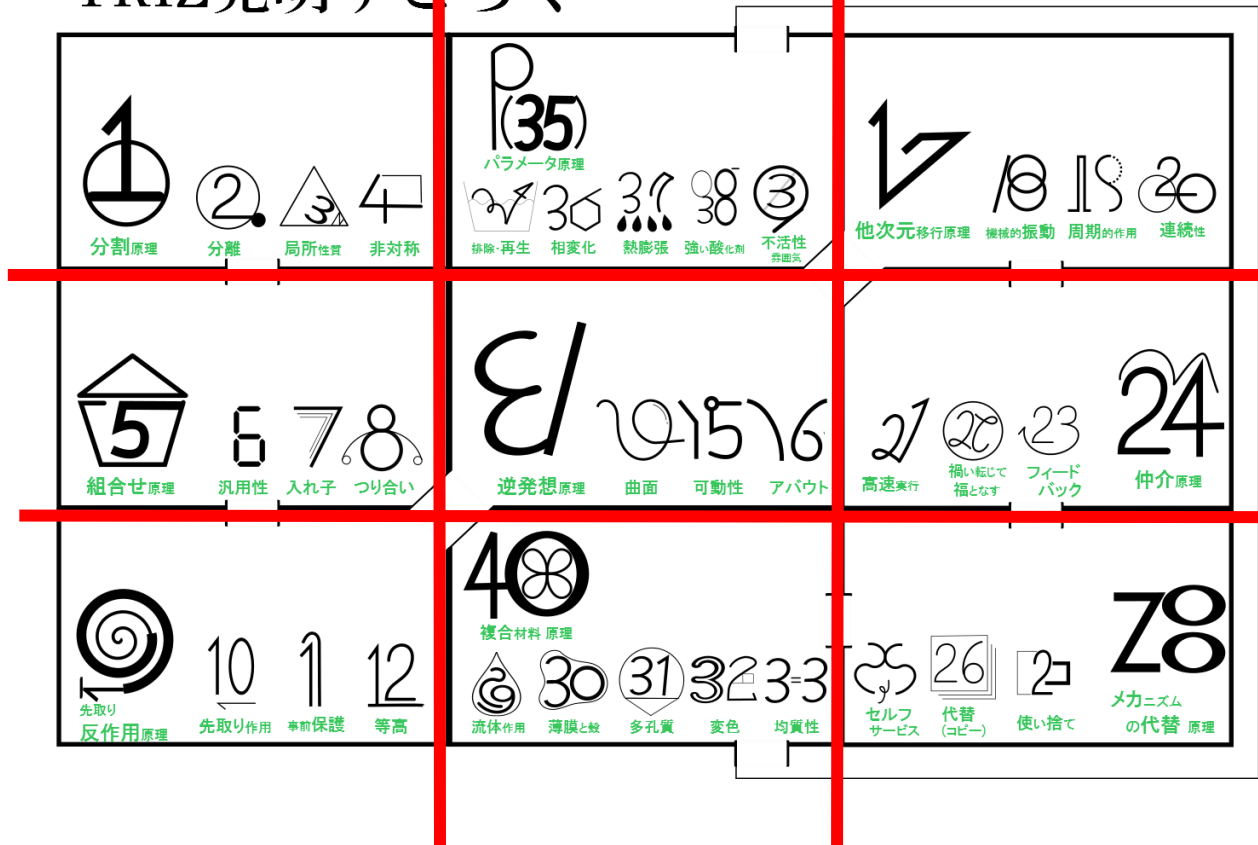
It arranges it like nine screens.



他次元移行原理

TRIZ発明すごろく

発明シンボル40 on 9画面法

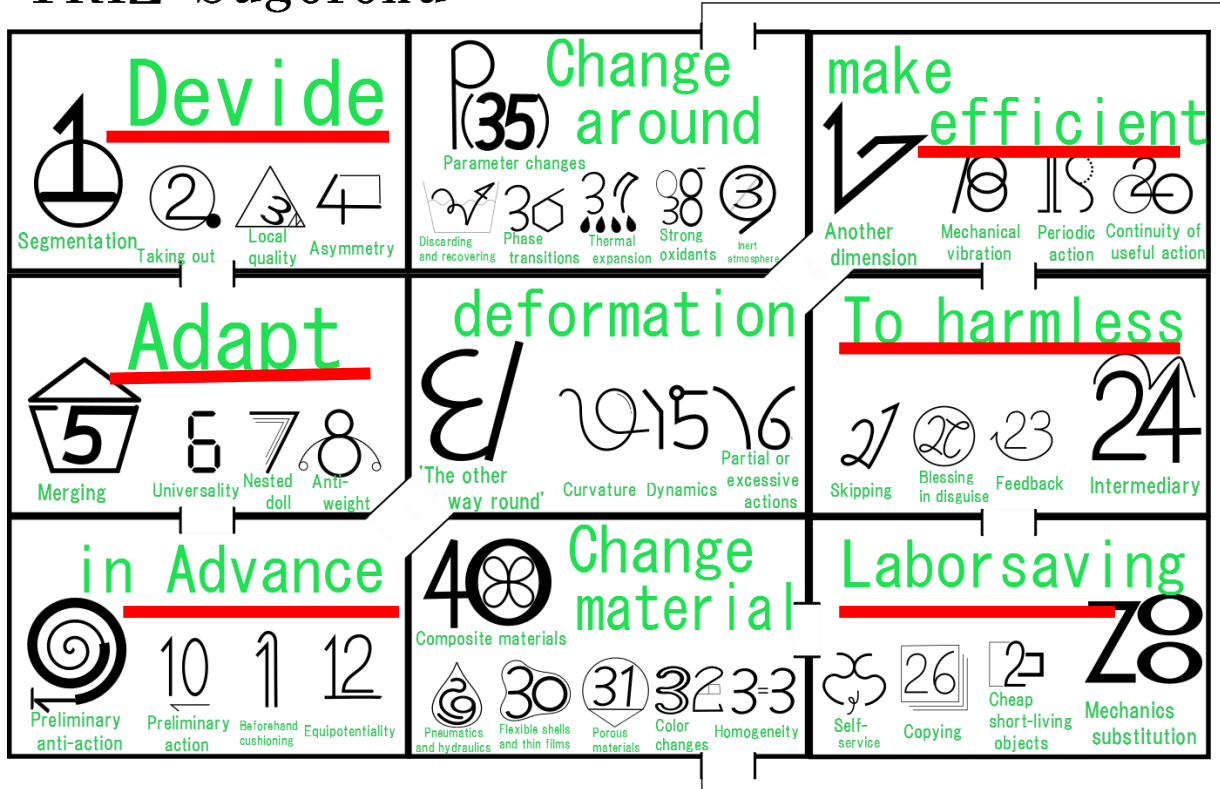


Of each is named.

It is easy to treat because it is an existing concept.

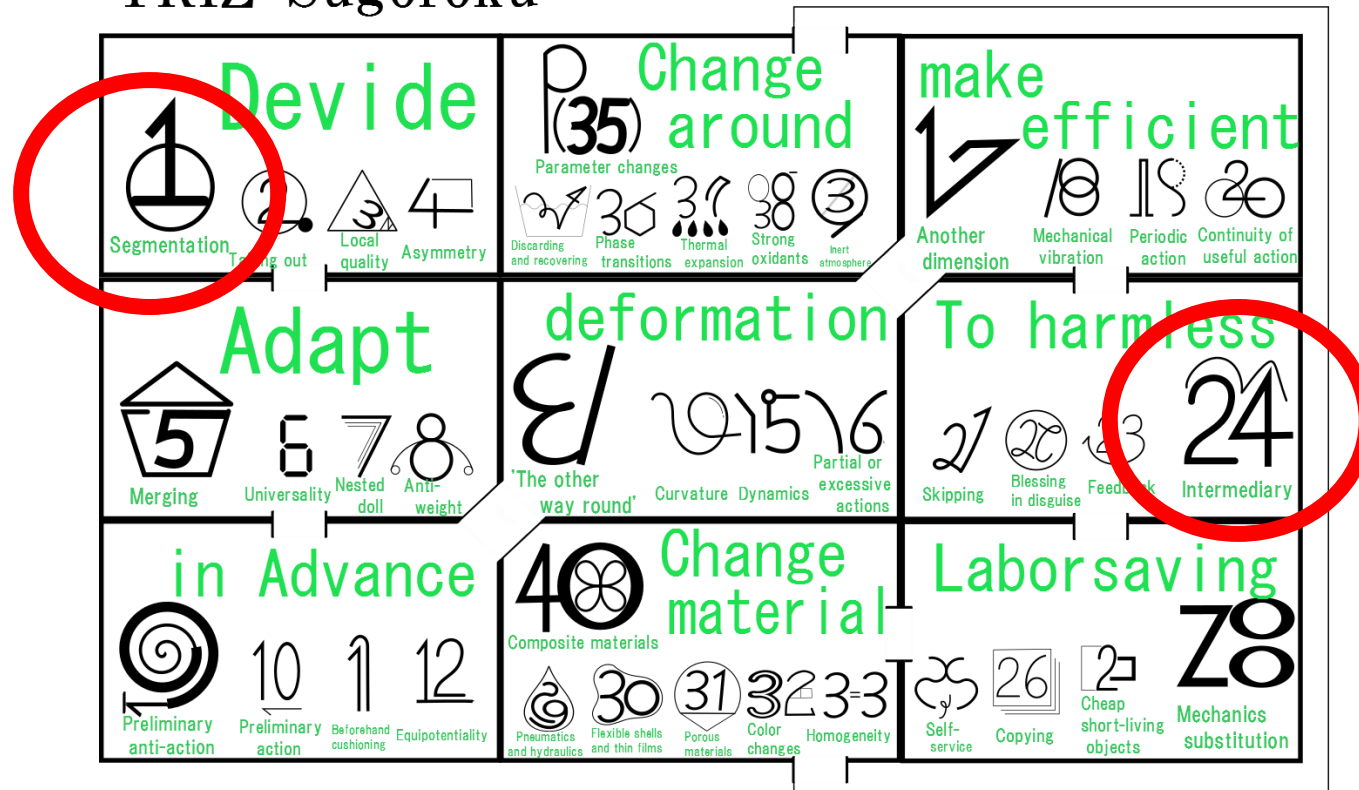
Point about which worry of person who occurs problem on site

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It proposes the representative of each group.

TRIZ-Sugoroku The Symbols of TRIZ 40 principle on 9-screen



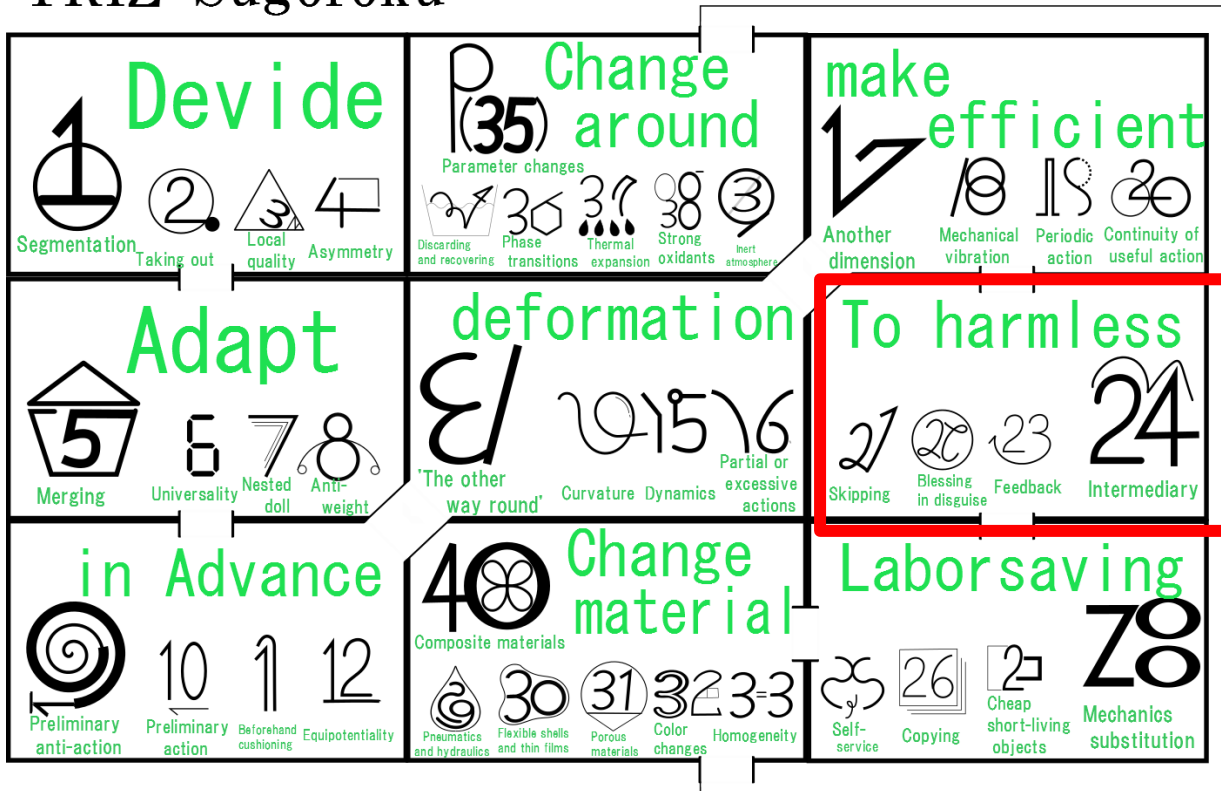
The effect of grouping it?

Even if neither the contradiction definition nor the contradiction matrix are taught, the invention principle can be selected.

- It becomes easy to teach.
- ↑ I can feel the effect at once.
- ↑ The person who hears it can hit on the idea at once.

Detoxification group that explains easily

TRIZ-Sugoroku The Symbols of TRIZ 40 principle on 9-screen



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(training experience of group ⑥)

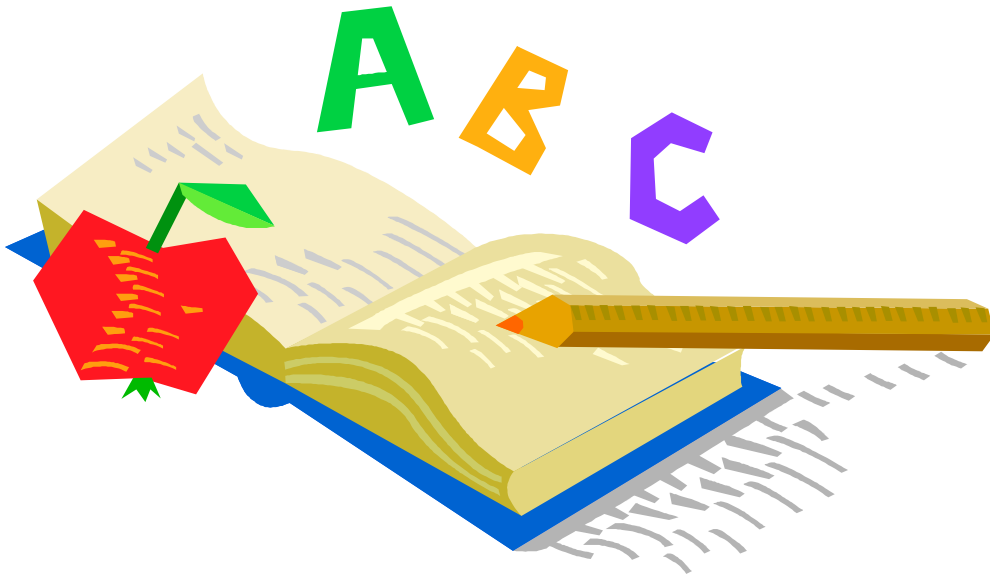
The invention principle of 40 is remembered.
Workshop ⑥ Detoxification

Idea Creator Yoshinori Takagi

Trial version

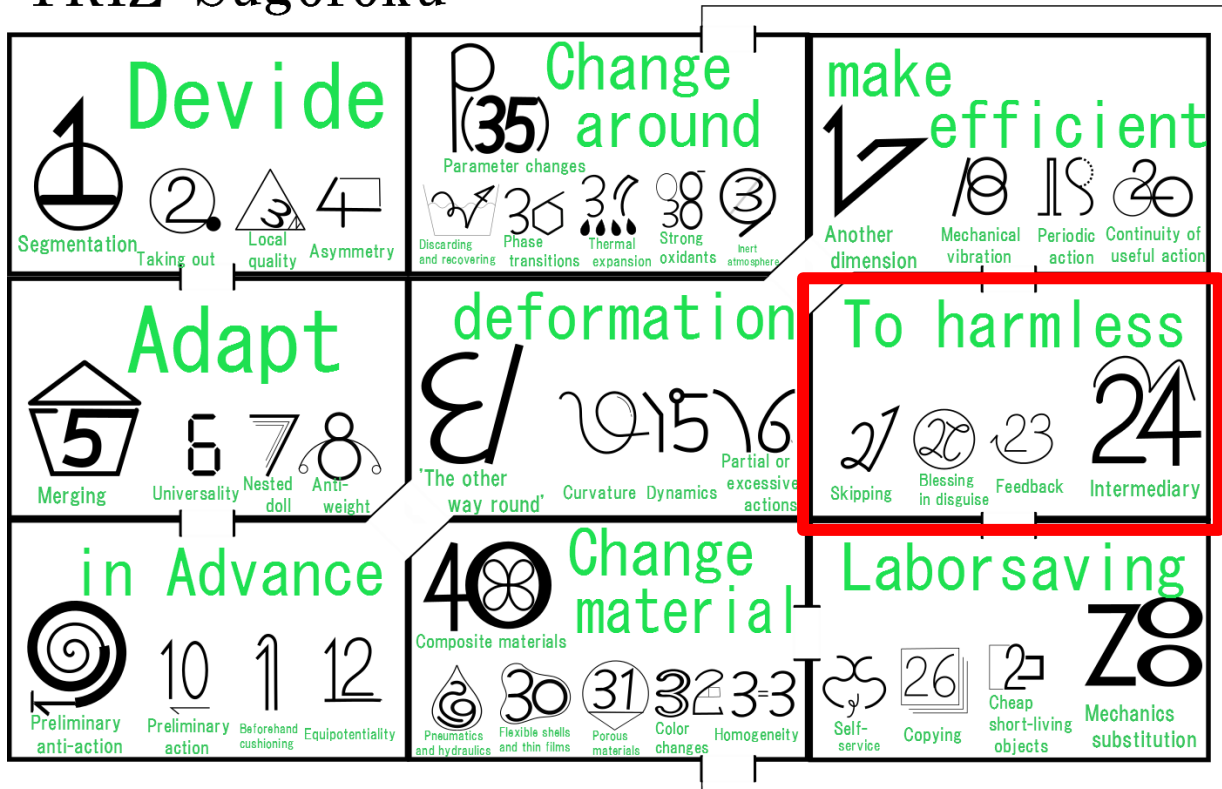
Is they 40 English word words or the invention principles?

- TRIZ the invention principle of 40 is a concentrated extract of the patent.
- It was possible to enjoy it enough for two years only by these 40 principles.
- The property as the engineer is guaranteed. ! !



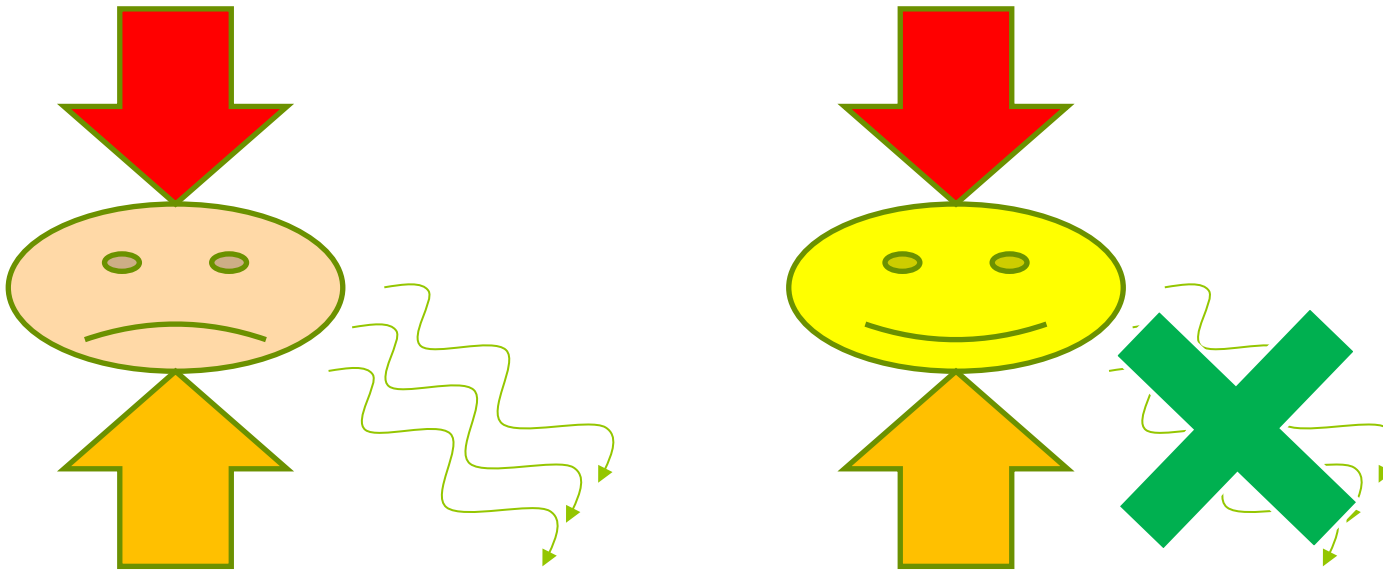
⑥ Detoxification

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⑥ Detoxification

- Cannot the adverse effect (adverse effect) that occurs by the trade-off (contradiction) be solved by "Detoxification"?



They are four hints in the detoxification.

21

- Fast execution (skip) principle
 - Time to do is a little.



22

- “Turn misfortune to good account” principle
 - It is assumed, the adverse effect is "Resource" and makes it usefully.



23

- Feedback theory
 - The adverse effect report/is detected and it adjusts it because of the style.



24

- Mediation principle
 - The mediator who makes the adverse effect harmle is put.



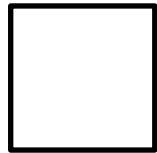
The invention principle is observed with the tempura.

21 Fast execution

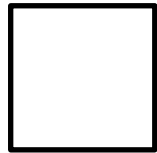
20 Turn misfortune to good account

23 Feedback

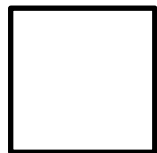
24 Mediation



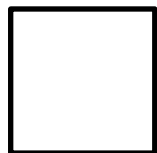
- Heating through not direct flame but oil



- The color and the bubble are seen and the oil temperature (the degree of fire) is adjusted.



- It is short time that deep-fries so as not to scorch.



- It deep-fries or though it does if you collect 「TENKASU」



2/ 2/ 2/

Fast execution (skip) principle (skipping)

– It will finish in a short time and the detoxification

- Tumbling doll drop and blink
- X rays and high-speed response



20

Turn misfortune to good account (Blessing in disguise)

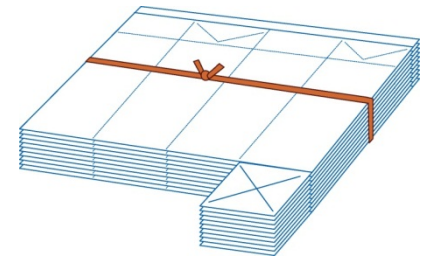
– Harm is made the best use of. 、 Counterbalance、 Many a little makes a mickle

- One man's meat is another man's poison. 、 Fermentation food
- Milk carton recycling

20

20

20

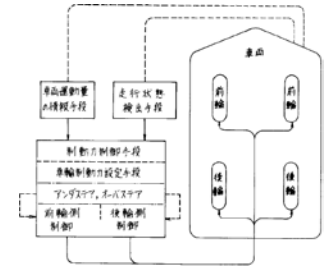


23

Feedback theory (feedback)

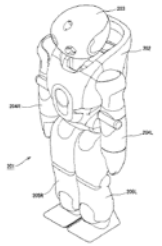
– It reports on the adverse effect and the detoxification in the upstream.

- It is standard in the control system. 、 Brake control of car
- Two-legged robot、 Emergency stop button



23

23



24

Mediation principle (Intermediary)

– The middle career、 It is a detoxification in the process.

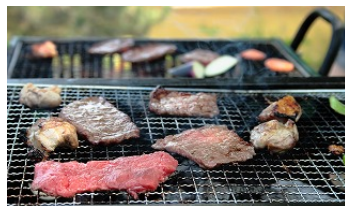
- Patch of iron. Net of BBQ、 Hot water to be boiled
- Glasses、 Pharmacist



24

24

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The invention principle is observed with the tempura.

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- It deep-fries or though it does if you collect 「TENKASU」



Tempura → Buck Wheat by TRIZ

21 Short time tightened by water

24 Hot water to be boiled

23 It straightens it by tasting.

20 It begins to melt to the hot water. → Hot water of Sova



TRIZ in the rest room

- Fast execution (skip) principle
- Turn misfortune to good account principle
- Feedback theory
- Mediation principle

They are four hints in the detoxification.

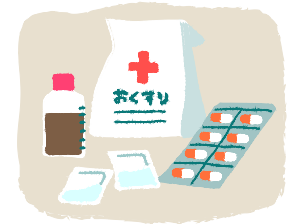
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 - The mediator who makes the adverse effect harmless is put.



Finally, does your favorite :?

21 • Fast execution (skip) principle

22 • Turn misfortune to good account principle

23 • Feedback theory

24 • Mediation principle

Advantage of making to group

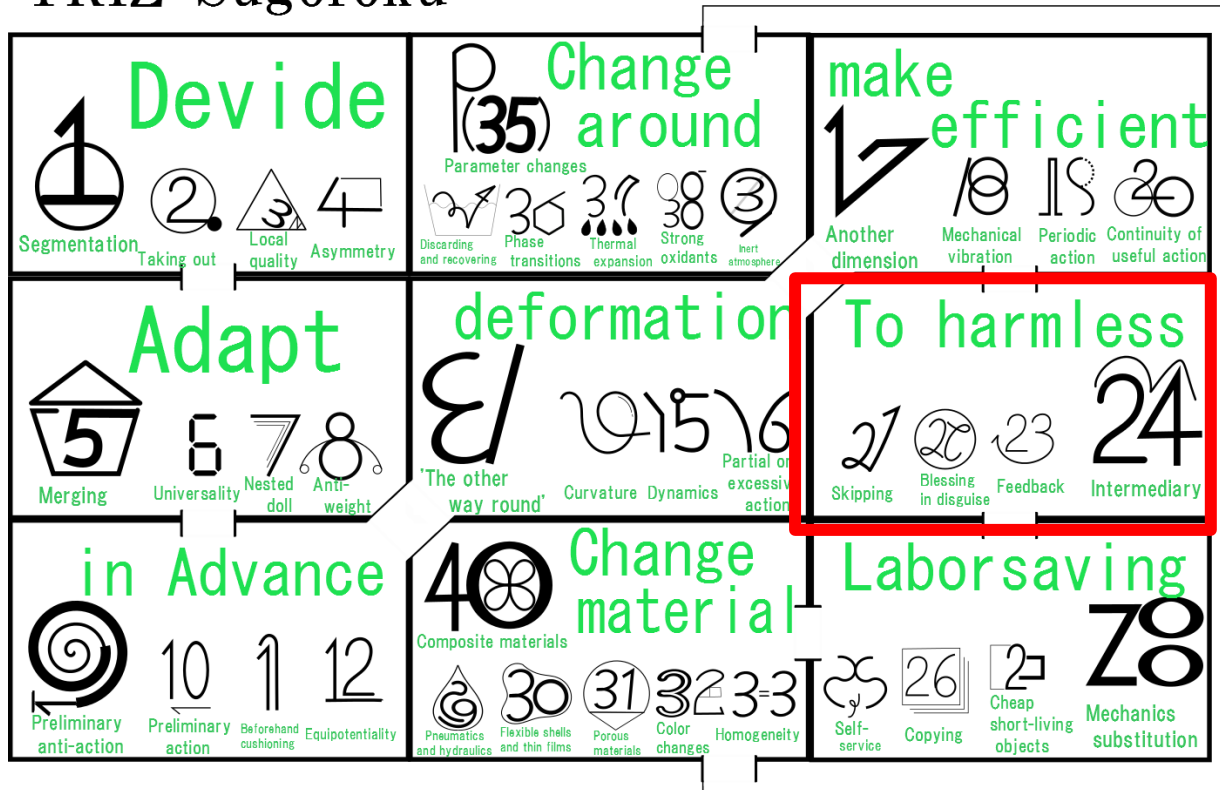
- Four are taught.
- If the favorite can be done by one for four, it is well-done.
- The story can be done the invention principle.

For that

- With 80 percent person's target, comprehensible label

Invention Sugoroku drawn in easily to TRIZ

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It becomes easy to learn TRIZ if the invention principle of 40 is remembered with a jerk.

Thank you.