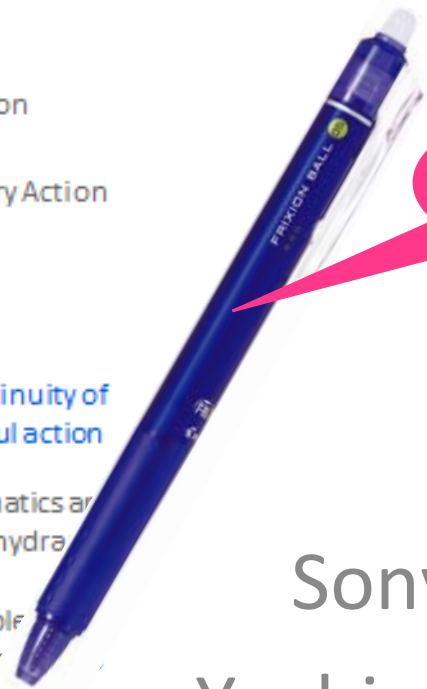


The Symbols of 40 principles

- 1: Segmentation 3: Local quality 5: Merging 7: Nested-doll 9: Preliminary counteraction
 2: Taking out 4: asymmetry 6: Universality 8: Anti-weight Preliminary Action
- 11: Beforehand cushioning 13: The other wayround 15: Dynamics 17: Another dimension 19: Periodic action
 12: Equipotentiality 14: Spheroidality Curvature 16: Partial or excessive actions 18: Mechanical vibration 20: Continuity of useful action
- 21: Skipping 23: Feedback 25: Self-service 27: Cheap Short-living objects 29: Pneumatics and hydraulics
 22: Blessing in disguise 24: Intermediary 26: Copying 28: Mechanics and substitution 30: Flexible and transformable
- 31: Porous materials 33: Homogeneity 35: Parameter changes expansion 37: Thermal substitution 39: Inert atmosphere
 32: Color changes 34: Discarding And recovering transitions 36: Phase transitions 38: Strong oxidants 40: Composite materials



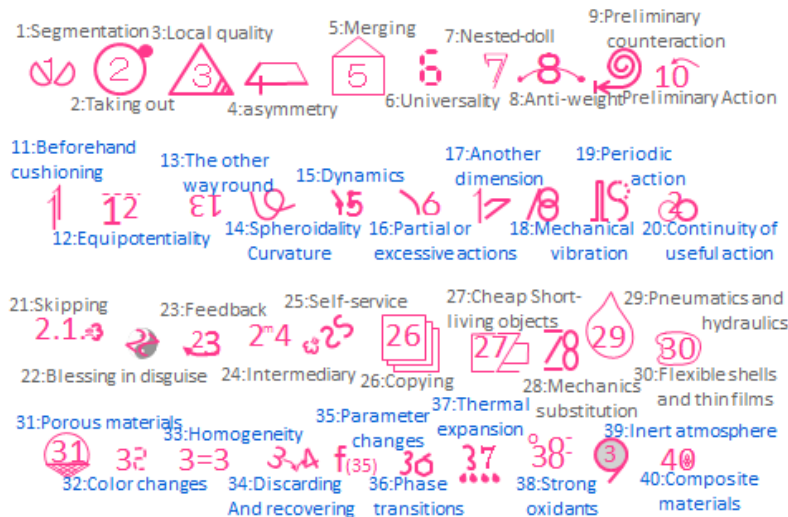
Let's Exercise!

Sony Corp.
Yoshinori Takagi

Subject

- Introduce the way to symbolization
- Exercise how to use the symbols
- Please find your favorite one

Let's Exercise!



origin

When I learned TRIZ by “Reverse TRIZ”.

The Principles are useful! But...hard to memorize

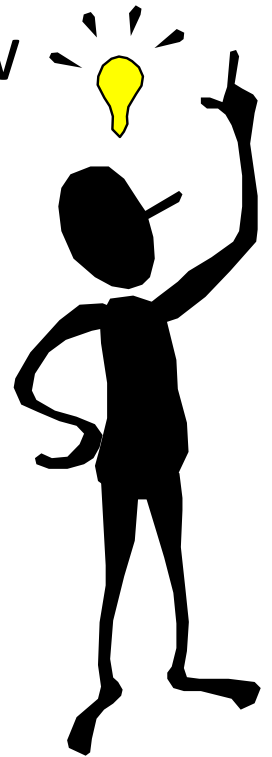
- I got an Idea when I saw principles below

- 24: mediator

- 25: self-service

- 26: copying

- I tried to **symbolize** the Principles!




It's handy!

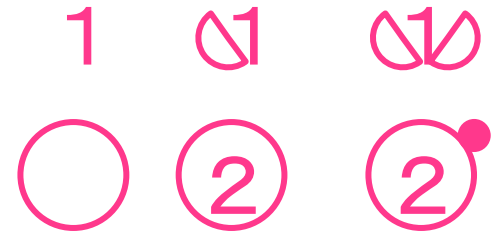


 Divide \bigcirc by '1'

 Taking out \bullet from \bigcirc by '2'

 A triangle with Local quality

 Asymmetric '4' on a trapezoid



How to Symbolize



- Combine number & image
- Universality from language
- Number is inside
- Balance number & image



combination



universality



Nesting



counter
weight

How to use the Symbols



- Combine number & image



combination

- Universality from language



universality

- Number is inside



Nesting

- Balance number & image



counter weight



Make a difference in advance(T1)



9: Prior Counteraction



10 :Prior action



11 Cushion in Advance



- Easy to write(T2)
- Easy to review (T3)

Your memo(principle) is not buried in a text.

Because it has a Cushion by Prior Symbolization.



Make a difference in advance(T1)



9: Prior Counteraction



10 :Prior action



11 Cushion in Advance



- Easy to write(T2)
- Easy to review (T3) ¹⁰

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Make a difference in advance(T1)



9: Prior Counteraction



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11 Cushion in Advance



- Easy to write(T2)
- Easy to review (T3)¹⁰

Your memo(principle) is not buried in a text.

Because it has a Cushion by Prior Symbolization.





example

mark principles on a Patent paper

公開番号	特開2009-187262	公開日	2009.8.20
特許番号	543219	特許日	2010.12.22
発明者	山本 隆夫	代理人	山本 隆夫
出願番号	2008-200000	出願日	2008.5.29

(19) 日本国特許庁 (JP)

(12) 公開特許公報 (A)

(11) 特許出願公開番号
特開2009-187262

30:Flexible shells
and thin films

(57) 【要約】

【課題】 易損品を安全に固定する。

【解決手段】 十分柔軟性が高く、形状の自由度が高い膜で構成され、粘度が変化する粘性流体が封入された囊状部からなり、易損品 1 2 に当接する作用部 3 3 を備える対象物支持装置 1 3 において、粘性流体の粘度 V を検知し、粘性流体の粘度を目的粘度 V_0 として設定し、検知された粘性流体の粘度 V と目的粘度 V_0 との差分 $V_0 - V$ を算出し、差分 $V_0 - V$ に応じて、粘性流体の粘度を制御する。 本発明は、例えば、壺などの易損品を固定する構成に適用することができる。

【選択図】 図 1

15

15:Dynamics

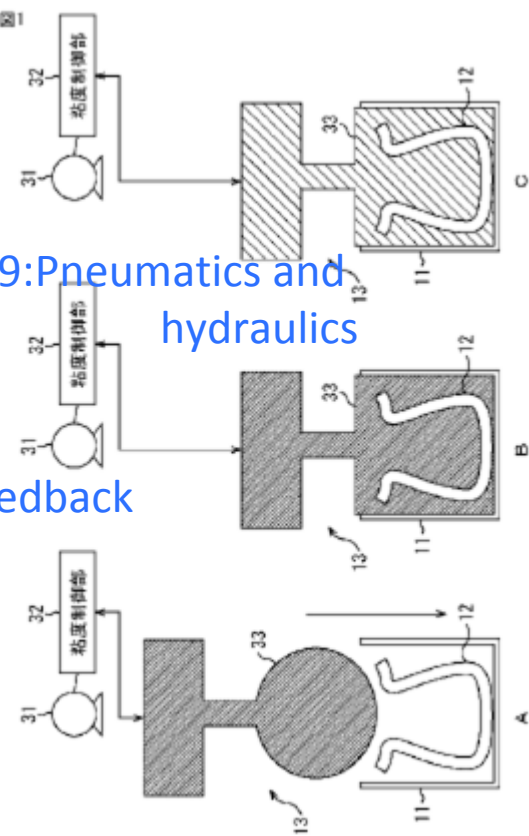
30

29

29:Pneumatics and hydraulics

23

23:Feedback



Symbols = Idea Image List



12

- 12:Equipotentiality

13

- 13:The other way round

14

- 14:Spheroidality or Curvature

15

- 15:Dynamics

16

- 16:Partial or excessive actions

17

- 17:Another dimension

18

- 18:Mechanical vibration

19

- 19:Periodic action

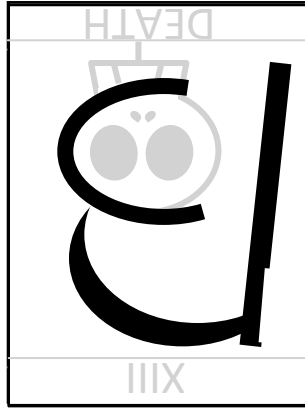
Symbols = Idea Image List



- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19



12:Equipotentiality



13:The other way round



14:Spheroidality
Curvature



15:Dynamics

16:Partial or
excessive actions



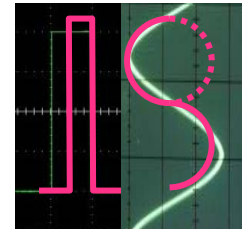
17:Another
dimension



18:Mechanical
vibration

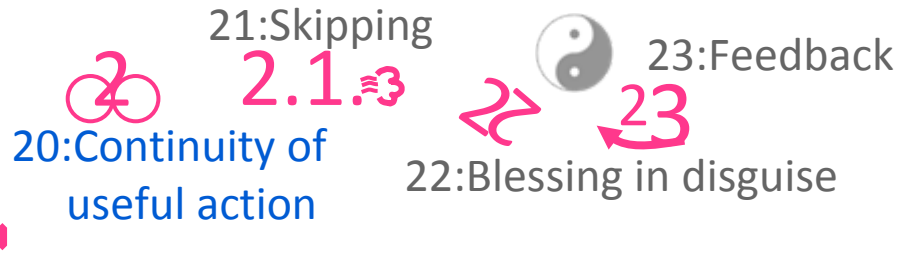
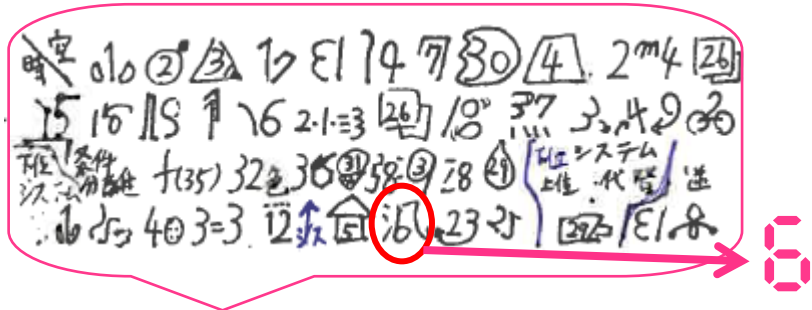


19:Periodic
action





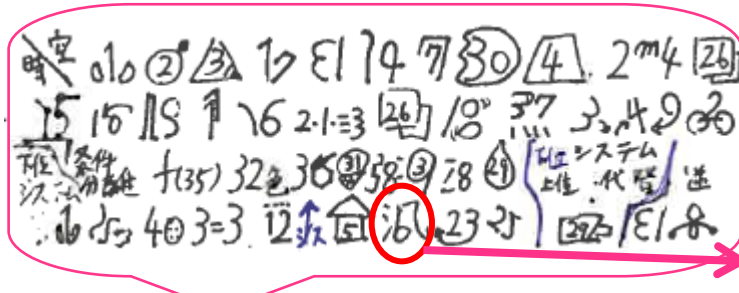
feedback by Scripting



- I feel difficulty of hand scripting, but it has become my motivation to continue the improvement of this symbols.
- It is the biggest advantage that I can associate the name of principles from the number, so can use the Matrix continuously.
- Let's use these symbols , please!

23

feedback by Scripting



20: Continuity of useful action

21: Skipping

2.1.3






23: Feedback

22: Blessing in disguise

- I feel difficulty of hand scripting, but it has become my motivation to continue the improvement of this symbols.
- It is the biggest advantage that I can associate the name of principles from the number, so can use the Matrix continuously.
- Let's use these symbols , please!

Conclusion & Thank you!



-  Symbols serve as a mediator between us.
-  Symbols explain The Principles by themselves.
-  A copy of Symbols represents me 😊

The Symbols of TRIZ40 principles



1:Segmentation 	3:Local quality 	5:Merging 	7:Nested-doll 	9:Preliminary counteraction
2:Taking out 	4:asymmetry 	6:Universality 	8:Anti-weight 	10:Preliminary Action
11:Beforehand cushioning 	13:The other way round 	15:Dynamics 	17:Another dimension 	19:Periodic action
12:Equipotentiality 	14:Spheroidality Curvature 	16:Partial or excessive actions 	18:Mechanical vibration 	20:Continuity of useful action
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32:Color changes 	34:Discarding And recovering 	36:Phase transitions 	38:Strong oxidants 	40:Composite materials