Darrell Mann "Hands on Systematic Innovation"

Errata and Q&A (Part 4)

Toru Nakagawa and the Translation Team in Japan

June 25, 2004

This is a document of errata, questions, and suggestions from the translation team in Japan to the Author with the hope of response by the Author in near future.

As we wrote you before, we have recently sent the whole manuscript off to the printer and waiting for the book coming out in a week. Since we wrote you the Part 3 of this Errata and Q&A, we have made a large number of revisions and improvements in the Japanese Edition, without changing any part of the contents and texts of the original Edition. Here we summarize only the important ones. (Please refer to our Part 3 document as well, because there describe a large number of important decisions in setting hierarchical numbering to subsection titles and in making new subsection titles, which are not repeated here.)

Page; Parag.	As is	Should be
Book title	"Hands-On Systematic Innovation"	[We have chosen the book title of the Japanese Edition (when translated back from Japanese) as: "TRIZ Practices and Benefits, Vol. 1. Systematic Technology Innovation". This assumes a series of books coming in near future.]
7		[Preface to the Japanese Edition by the Author is inserted. Written by Darrell Mann on Jan. 11, 2004. (1 page)]
7		[Preface to the Japanese Edition by Toru Nakagawa is inserted. Written on May 16, 2004. (3 pages). See the separate document I sent you on Jun. 14, 2004]
7-8	Table of Contents (brief form)	[Detailed Table of Contents is prepared, as shown in our Part 3 of Q&A on Jan. 25, 2004. (8 pages)]
20; 2p	in the process of thinking in TIME, SPACE and INTERFACE	[Note added on 'INTERFACE': The term 'INTERFACE' here refers to the above description of 'how different parts of systems connect and relate to one another'. This specific terminology is used throughout this book and needs to be noticed.]
26; 2pb	The Problem Explorer -	[Note added on 'Problem Explorer': The term 'Problem Explorer' in the original text seems to be used in two contexts; one for representing the activities of problem exploration, and the other for representing a more concrete method/tool in the problem definition. Here the term is used in the former context.]
33; 3p	Every one is aware of the term 'benchmarking', but	[Note added on 'benchmarking': The term 'benchmark' originally means the 'reference point' for preparing maps; the position and height of the reference points were determined exactly beforehand, and the locations of all the points nearby are measured with reference to them. 'Benchmarking' means such measurement for map preparation, and is further extended to mean measuring the performances etc. with some clearly set reference (such as standard problems) and evaluating them in comparison.]

		[This comment is necessary in Japan because we use two different terms in the above two contexts.]
41; 1p	in which a problem owner maps from a specific problem to	[Note added on 'maps': The word 'mapping' is a specific term in mathematics. Here, without using the specific wording in mathematics, we simply translate it into 'transformation' in a common sense.] [This comment may seem strange when it is expressed in English. It just reflects wordings in Japanese.]
49; 7p	A Green hat - ... and 'lateral' thinking.	[Note added on 'lateral thinking': 'Lateral thinking' is a way thinking with emphasis on the 'association' described in Section 3.1.5. See also Section 3.3.] [These section numbers refer to the ones shown in our Table of Contents.]
51; 2p	is commonly recorded and placed in a 'car-park'	[Note added on 'car-park': 'Car-park' here means a space at the corner of the whiteboard where miscellaneous side-information is kept recorded on a temporary basis during the sessions in which CREAX' Magnotes are used. See Section 10.3.4.5.]
56; 4p	PMI or 'Po'	[Note added on 'PMI' and 'Po': PMI: A method for idea generation induced by the keywords of Plus, Minus, and Interesting. 'Po': A method for idea generation induced by the keywords of hyPOthesis, supPOse, POssible, and POetry..]
87; 1p	The 'problem explorer' is where we will set the context	[Note inserted on 'Problem Explorer': The term 'Problem Explorer' in the original text seems to be used in two different contexts; one for representing the activities of problem exploration, and the other for representing a more concrete method/tool (such as the Problem Definition Sheets discussed in this chapter) in the problem definition. Thus depending on the context, the term is translated into 'Problem Exploration' or 'Problem Exploration Tool'. In the title of this chapter it should mean 'Problem Exploration'.]

Page; Parag.	As is	Should be
104; 3pb	Both actually relate attributes to problems.	[Note added to this paragraph: In the USIT method developed by Ed Sickafus, the functional relationships are considered in some more detail and represented in a following manner: "An attribute of an object (i.e. a component of the system) acts on an attribute of another (directly-connected) object, and as a result changes an attribute of an object." In the present case, we may say: "The temperature of the piston acts on the chemical stability of the oil, and as a result reduces the durability of the oil", and "The chemical activity of sulphur acts on the chemical reactivity of the oil molecules, and as a result changes the molecular characteristics of the oil (, and hence improves the lubricity of the oil)." This sort of description urges the problem solver to consider the mechanism in the system more closely. See reference: "Unified Structured Inventive Thinking: How to Invent", by Ed Sickafus, Ntelleck, Grosse Isle, MI, USA (1997).]
106; Fig.	Texts in this figure are too small to read.	[This figure is enlarged to show the texts in a readable size.]

6.3		
115; Fig. 6.17	In this hierarchical FAA model, functional relationships are not shown explicitly.	[Functional relationships are also shown in full detail just as shown in Fig. 6.12.]
117; 2p		[Note added at the end of this paragraph: The idea to draw the functional analysis diagram in a way based on the hierarchy of importance of the functions (or components) is adopted more clearly in the USIT method (developed by Ed Sickafus, 1997). In USIT, the most important object (i.e. component) in the system is chosen depending on the problem and is drawn at the top of the diagram. Then all other relevant objects are drawn below one by one in the 'functionally preferable order' (i.e. useful function), in accordance with clearly defined USIT criteria. This type of hierarchical functional diagram is used with the aim at representing the 'original design intention'. In USIT, the unwanted effects of the problem (i.e. harmful, insufficient, and excessive functions) are analyzed in a kind of attribute analysis (called 'Qualitative Change Graphs') done besides the functional analysis.]
117; 2pb		[Note added at the end of this paragraph: The method of analyzing Causes and Effects is described rather briefly in this text, because it has been discussed in many other techniques and literatures. Beside this subsection, see Section 5.4.4 on the discussion of "root cause analysis vs root contradiction analysis". Network-type diagrams to show the causes and effects are used in many techniques besides TOC. Especially in TRIZ, Problem Formulator (PF) method has been developed by Ideation International Inc.]
118; 1p		[Note added at the end of this paragraph: The USIT tool for analyzing (Plausible) Root-Causes requests the problem solver to list up for the unwanted (harmful) effect all the potentially relevant attributes of all the objects (i.e. components) in the system. In the present case, we may list up, besides the attributes of Media 1, the attributes of the pipe (e.g. rigidity, resonant freq2uency, etc.), the attributes of the hangers (e.g. spacing, allowance for vibration, etc.), and the attributes of the pipewalls, etc. Later in the attribute analysis, the problem solver is requested to classify these attributes into two classes with the criterion whether the unwanted effect either increases or decreases if the attribute is increased.]
148; Fig. 8.15	[Texts (especially in the abstract) are printed with too small fonts.]	[Only the main parts of the patent are extracted, and the abstract and the drawing are shown much more clearly.]
155; 3p		[Note added at the end of this paragraph: As is described in Nakagawa's Preface to the Japanese Edition, during preparing for this Japanese Edition we have examined the section/subsection structures of the whole textbook and made a hierarchical numbering system of sections while inserting a number of subsection headings. Particularly in this Chapter, the principal parts originally have 19 subsections arranged in a flat manner; we worked to reveal the logic in the tool selection, to classify the subsections into sections according to the types/viewpoints of the problem, and by using the hierarchical numbering of sections/subsections to clarify the intention of the Author. The orders of the subsections and the texts

		are not changed at all.] [See Table 9.1 shown in our previous Q&A document (Part 1).]
174; 3p	because certain parts of the TRIZ community have shifted their efforts to other parts of the method	[Note added here: In particular, it is told that since 1985 G.S. Altshuller himself shifted his principal research interests from application of TRIZ to technology towards the fields of creative personality and creativity education.]
174; 4p		[Note added at the end of this paragraph: On the research project of patent analysis and its result, namely new version of Contradiction Matrix, Darrell Mann and Simon Dewulf (CREAX) presented two papers at TRIZCON2003 Conference in March 2003 (posted in "TRIZ Home Page in Japan" in Japanese translation in April 2003). The new version of the contradiction matrix was published as "Matrix 2003: TRIZ Contradiction Matrix" written by Darrell Mann, Simon Dewulf, Boris Zlotin, and Alla Zusman (CREAX Press, July 2003).]
176; 1p	- or weight or possibly even productivity.	[Note added here: The text mentions 'Productivity' (i.e. Parameter 39); but it is not suitable because productivity means how much useful things this system can produce. More suitable parameters should be 'Ease of manufacture' (Parameter 32) (for making this system) or 'Ease of repair' (Parameter 34) (for maintaining this system).]
181; 5p	We now have a very good technical contradiction:-	[Note added here: According to the logic discussed above, the 'Parameter getting worse' should be 'Ease of manufacture' (Parameter 32). But the Author apparently used the Parameter 29 'Manufacturing precision' in mistake, and listed up the four Inventive Principles taken at the 31/29 box of the Contradiction Matrix. The box 31/32 of the Matrix is vacant. Thus, even though the original text has a mistake here, it has been translated into Japanese as it is.]
184; 1p	Another well known means to achieve the 2.5 degrees or better requirement is to encourage the subject's iris to reduce in size	[Note added here: The basic direction of solutions mentioned here is to reduce the size of the iris and to make the range of reflection angle of the light causing the red-eye phenomenon even smaller than 2.5 degrees. This means that we are going to change the constraint itself.]
186; 1p	the pupil is usually small enough to allow the 2.5 degree rule to be satisfied.	[Note added here: See the Translation Note added two pages before.]
186; 3pb	This feature we will call 'solution mapping'	[Note added here: The technique to encourage the generation of ideas (or keywords) freely around a main topic and to systematize the ideas in somewhat hierarchical manner is often called 'Mind Mapping' (see Section 3.4). In the present text, the Author intends to handle not simple ideas in a general sense but various solutions/solution directions, and hence he calls the method 'solution mapping'. It is always important to consider various solutions in a systematic scheme and to explore solutions further by extending such a scheme. In USIT, this method is called "Solution Generalization Method" and is placed at the fifth among the five USIT Solution Generation Methods.]
187; 1pb	wrote down their ideas - one per Magnote - on the	[Note added here: Magnote is a hexagonal plastic plate of about 6 cm in the edge, having

	yellow hexagons.	a magnetic sheet attached on the back. Session participants write their ideas etc. on the Magnotes and place them on a whiteboard. The plates can be used repeatedly by erasing the memos (with water or with alcohol, depending on the types of the pen). Similar activities can be done with post-it notes.]
196; 1pb	2) Contradictions come in both 'discrete' and 'continuous' types.	[Note added here: The 'discrete' and 'continuous' scenarios do not talk about in which way the contradiction comes, but rather talk about in which way the problem solver has disposed (i.e. in which way the contradiction goes out). A certain contradiction (for example, the contradiction in the bicycle saddle) can be disposed with the discrete scenario in some case and with the continuous scenario in other case.]
202		[A list of Inventive Principles is inserted here. (1 page)]
207;	Principle 12. Equipotentiality A. If an object or system requires or is exposed to tension or compression forces, redesign ...	[Note added here: The explanation here in the original text apparently talks about a specific case and may not be suitable as the explanation to Principle 12. Usually it is explained as: "If an object is requested to lift or lower, redesign the object's environment and eliminate the necessity of lifting/lowering the object." With some extension, this Principle means that in case of requests of lifting/lowering an object, movement, increasing/decreasing temperature, and various other treatment, try to redesign the system and its environment so as to reduce wasteful operations and to perform operations smoothly without wasting energy.]
218;	Principle 39. Inert Atmosphere	[Note added here: The word "atmosphere" here does not mean the general feeling of a place but means, as a technical term, the gas (usually air) surrounding the system.]

Page; Parag.	As is	Should be
219; 2p	where we want the two different attributes hot and cold.	[Note added here: In the text the word "Attributes" is used. It is a terminology used e.g. in data base theory. However, we need to be careful whether this word represents a category of property or a value of property. In the present text, the word represents two values 'hot' and 'cold' of the property typically expressed in temperature. Here it does not mean one value of 'hot and cold' nor one category of property 'hot and cold'. Thus in the Japanese translation, we use the word "Attribute" to show a category of property and the word "Attribute value" to show a value of some property. This discrimination between categories and values in properties should be important, as Sickafus teaches repeatedly in USIT, but the Author seems not pay much attention.]
225; 3p	1) Where do I want characteristic A and where do I want characteristic -A.	[Note added here: In these questions the word "characteristic" is used, whereas in the beginning of Chapter 11 the word "attribute" and in Section 11.1 the word "condition" are used respectively in a similar meaning.]
233; 2pb	we'll stick to s-fields	[Note added here: Even though the English text uses the abbreviated form of "S-Field" in most cases, in the Japanese Edition we will always use "Substance-Field" in order to keep its meaning clearer.]

233; 1pb		[Note added at the end of this paragraph: As described above, it should be noticed that the concept of "Field" in TRIZ has much wider meaning than the terminology of the Field in physics (where it is typically used as electrical field, magnetic field, gravitational field, etc.). In order to show such a specific term in TRIZ, we will basically write it in the form of "Field" in the Japanese Edition.]
234; 3pb	A comprehensive list of these Standards,	[Note added at the end of this paragraph: In the original English edition, the Inventive Standards are not numbered in any way (even though arranged in a classified order). In the Japanese Edition, for the sake of clarity and ease of use, they are hierarchically numbered in the order as they appear, and called as B2, Ca3, Db5, etc. This way of numbering was approved by the Author.]
234; 2pb	fall into four types.	[Note added here: The Inventive Standards listed in Section 12.5 are arranged in the following four classes: (A) (Inventive Standards for) Incomplete S-Fields, (B) Measurement/Detection Problems, (C) Harmful Effects, and (D) Insufficient/Excessive Relationships. The Procedure in the next section (Section 12.2) is described on the basis of this top level of classification. At the second level of classification appear the four types (i.e. completing, modifying, adding, and transitioning) described here.]
235; 4p		[Note added at the end of this paragraph: In order to learn how to build the "Substance-Field Model", you are advised to study first the Function and Attribute Analysis of Chapter 6 (especially Section 6.2) and then case studies in this chapter (Section 12.4). Section 12.2 here explains how to use the "Substance-Field Model" assuming you have built it properly.]
236	Table of Fields	[Note added to the Table: As shown in this table, there are a wide variety of types of "Fields". Furthermore, any type (or sub-type) of "Field" can appear in different forms. For example, the subcategory "gravitational" implies that the gravitational "Field" (in TRIZ sense) may appear as the gravitational force, as gravitational acceleration, as gravitational field, as gravitational potential energy, etc. All these introduce various "Physical Effects". All these different appearances are implied in the TRIZ concept of "Fields". To emphasize this notion, all the items in the Table are represented by adjectives (e.g. "gravitational"). (In the original edition, though most of the items are written in adjectives, there are some written in nouns.)]
244; 1pb	in addition to the 76 Inventive Standards,	[Note added here: References to the 76 Inventive Standards developed in the classical TRIZ are shown in the form of "Reference 1.1.2". This refers to Altshuller's book of Ref. 1); but it may refer to Salamatov's book of Ref. 2) except very minor differences.]
244		[A brief list of the Inventive Standards is inserted here, because a blank space of half a page happens to be available. Up to the second level of classification is shown.]
250; 3p	the resonant frequency of electrons	[Note added here: Though the original text describes as "resonance of electrons", it is the NMR method (i.e. "resonance of nuclei") that is used commonly for the described purpose. Thus the text in corrected.]
292; 2pb	it is not surprising to see the emergence of	[Note added here on SIT: SIT implies the method (Systematic Inventive Thinking) developed in

	simplified versions like SIT.	Israel in the beginning of 1980s by simplifying TRIZ and the methods downstream of it. Currently in Israel the method is promoted in the name of ASIT (Advanced Structured Inventive Thinking) by Roni Horowitz et al. In 1995 Ed Sickafus of Ford Motor Co., USA, adopted SIT and developed USIT (Unified Structured Inventive Thinking). Since 1999 in Japan, Toru Nakagawa has been introducing USIT and enhancing it further.]
296; 4pb	there are occasions when systems can be seen to evolve in the opposite direction.	[Note added here: Besides these occasions of apparent opposition of the evolution rules, exceptions of application of Trends of Evolution are discussed in Section 13.1.5-6. There are two Trends (Trend of Mono-Bi-Poly-systems and Trend of Trimming) which may or may not be applied depending on the situations of the system.]
301; 3p		[Note added at the end of the paragraph: The text describes that there are 30 different Trends which can be interpreted in 35 ways in total. However, Section 13.7 records 31 different Trends, and this Figure 13.27 interprets them in 34 ways in total. By the way, the Trends of Evolution are numbered in the Japanese Edition in the order as they appear in the List, under the approval by the Author.]
302		[Table of the Trends of Evolution is prepared and inserted here in the Japanese Edition. Names of Trends and their Evolution Stages are summarized in a 2 page table.]
306	Fluid	[Note added here on "Fluid": A stage in this Trend is named 'Fluid' instead of more common word of 'Liquid'. The latter word is mostly defined in relation to the states of matters as 'solid - liquid - gas', and connected with a relatively clear (and hence pure and narrow) concept in physics, and is used in relatively narrow meaning in everyday life, too. On the other hand the former word "Fluid" implies everything which can flow and is related mostly to technological concept which may allow various forms of matters. 'Fluids' sometimes mean liquids and gases together in contrast to solids. So the "Fluid" stage in this Trend may be understood as "mostly corresponds to Liquid but implies wider range of material compositions and physical properties".]
316	Action Co-ordination	[Note added here: The name of the Trend is sometimes called 'Action Harmonization', but here the Author chooses the word 'Action Co-ordination', which sounds more active and wider in implication. Japanese translation reflects this naming.]
305	[In the table] (synergy effects)	[Note added here: It is not clear why the keyword 'synergy effects' is put in the parentheses (in page 321 as well). If we understand the keyword as to take advantages of the synergy effects among the bi- or poly-systems, we do not need any parentheses.]
345; 3p	Effects database	[Note added here: Original TRIZ researchers have collected knowledge of phenomena in the fields of physics, chemistry, biology, mathematics, etc. and classified them with respect to functions and attributes, which may be regarded as the resultant effects of such phenomena. Then they made a system of collected knowledge (i.e. database) which can be retrieved easily with the keys of "functions and attributes" to be realized. They named the database as 'Collections of Physical (Chemical and Mathematical)

		Effects' or simply 'Effects Database'. Since there is no suitable word to express this kind of knowledge collectively, they are usually written as "Effects" in English with the capital letter at the beginning. In Japanese some people translate it phonetically as "Effects". Even though such a phonetic translation may be allowable as a proper name of the database, it should not be a standard word for representing the concept. Since the present Japanese Edition intends to express the TRIZ concepts in the form as easy to understand as possible, we use the term (though a bit lengthy but express the original meaning) of "Physical Effects" or "Physical Effects Database". The wording of "Physical" should be understood just as representative of all the fields, including not only chemistry, biology, and mathematics but also, in the near future, information science, business, human relations etc.]
346	Table of Effects Database Classified by Functions	[Note added here: In the original edition, the "Function" column of this field lists up the functions simply in the alphabetical order in English. In the Japanese Edition we found it necessary to arrange the functions in some meaningful order. Thus we have re-arrange the functions in the following order of classification: Functions related to positions, Functions to collect, Functions to separate, Functions related to thermal change, Functions to generate, maintain, detect, etc.]
346	Table of Effects Database Classified by Functions	[Note added here: In the table many keywords are packed in narrow columns, and hence sometimes it is difficult in the original text to distinguish the separation of items from simple changes of line. In the Japanese Edition, in order to make this difference clear, second lines of items are shown with indentation by one character.]
356		[A subsection of "What Do I Do?" is inserted here, taken from the Author's reply to the question from the Portuguese translator in Brazil.]
359	d) Define the Physical Contradiction	[Note added at the end of this subsection: The text describes that one should first state for a negative functional relationship (F) as "I want F and I do not want F" and then convert it into the statement about a parameter (A) as "I want condition A and I want condition -A". The process of converting the statement about the function F into the statement about the parameter A seems not clear to me. See Chapter 11.]
360; 1p	f) Define the X-Component	[Note added at the middle of this subsection: One of the ways of understanding "X-Component" is the analogy to the mathematical concept where "Introduce an unknown variable x, set up an equation, and then solve the equation to find x". This concept has lifted the calculus up to the mathematics. The initial difficulty to understand the TRIZ concept and the power obtainable once we have understood them may just be comparable to the difficulty and power of understanding the mathematical concept.]
360; 1p	the x-component is able to eliminate the harmful function B and/or to solve the physical contradiction, C.	[Note added here: In this final statement, among negative functional relationships only the case of harmful relationship is mentioned. In other cases read the part 'to eliminate the harmful function B' as either 'to make the insufficient function B' sufficient enough' or 'to reduce the excessive function B" at the appropriate level'.]
362; 1p		[Note added at the end of this paragraph: Traditional methods of idea generation (so called know-hows of invention) in Japan and in the world mostly put stress in expanding or

		diverging the ideas first before converging them into several possible ones. Thus the TRIZ way of thinking, especially in ARIZ, is in sharp contrast to them in the point of making a focus (or converging) first and then exploring (or diverging), as shown in Fig 16.2.]
362; 2p	It is always useful to avoid this tendency and carry on with subsequent steps.	[Note added here: In the original ARIZ procedure, during the 'solve' stage (including steps g through i) solutions obtained in the earlier step are generally thought the stronger. Thus it is assumed that once a (good) solution is found, one may quit the succeeding steps in ARIZ (see Ref. 2) by Y. Salamatov). In this relation, the Author's suggestion here should be noted.]
365; 4p	the x-component is able to eliminate the harmful function 'insufficient lift'	[Note added here: The wording of 'eliminate the harmful function' should better be replaced with a more general form 'eliminate the negative function', where negative functions include harmful, insufficient, and exceeding functions. 'To eliminate an insufficient function' means to make the function sufficient, while 'to eliminate an exceeding function' means to make the function at a suitable level.]
366; 4pb	Combined use of tensegrity structure	[Note added here: 'Tensegrity' is a word composed of 'tensile' and 'integrity'. Tensegrity structure is a structure built of poles/pipes (i.e., anti-compression materials) connected with thin strings/ropes so as to disperse the tension all through the structure.]

Page; Parag.	As is	Should be
378; 2p		[Note added at the end of this paragraph: This part of text does not analyze what is the root cause of the unwanted effect (e.g. bending or jamming of the staple) in the stapler. This seems to be reflected in taking a drastic choice of the staple itself as the object for applying the trimming technique. Since the 'staple' is at the top of the functional hierarchy of this stapler system, it is usually the last to be applied the trimming operation. Trimming may be applied to other components of the system so as to keep the original essential idea of the stapler system. Nevertheless, it is remarkable that the trimming technique can inspire drastic challenges to the current/conventional ideas, as demonstrated in the text. It is the strength of the trimming technique.]
380; 1p	the useful function currently delivered by the top plate	[Note added here: 'The top plate' is a metal component just appearing below the plastic cover in the picture (Fig. 17.7). Its useful function may be partly to constrain the staples (held in the magazine) from above (as suggested in the text) and more importantly to support positioning the punch (i.e. the metal plate fixed below the cover). Since the component mainly responsible for supporting the positioning of the punch should be the magazine, it may certainly be possible to transfer some functions of the top plate (and to trimming it). Anyway, even for a simple system like a stapler, it should be important to analyze the functions and the mechanisms of the system with much care for the purpose of better problem solving. Also see the last paragraph of this case study (Section 17.3.1).]
386;		[Note added at the end of this paragraph:

1p		The text of Section 18.2 is based on the Author's paper presented at a conference: "Ideality and 'Self-X'" by Darrell Mann, presented at ETRIA World Conference "TRIZ Future 2001", held at Bath, UK, on Nov. 7-9, 2001; posted in Japanese translation in "TRIZ Home Page in Japan" in March 2002.]
402; 3p	if a part of the system (in this case the wal) is not able to move, it should not be modeled as little people.	[Note added here: This text should not be regarded as a strict rule in modeling but as an advice about the ordering of modeling.]
403; 3pb	In the meantime, the number of other published examples of the Smart Little People tool in action is relatively small,	[Note added at the end of this paragraph: In USIT, Ed Sickafus extended this Smart Little People's Modeling further into the "Particles Method". Examples of application of the Particles Methods are shown in Sickafus' USIT Textbook (1997) and in Nakagawa's "TRIZ Home Page in Japan".]
404; Fig.		[Note added to Fig. 19.10: In the original Figure 19.10, it is shown as if Time = 0 at the current position. However in the present context we are thinking about the 'time of duration of an action', which is a finite value at the current situation. We are going to think about extremes of infinitely small (T --> 0) and infinitely large duration periods.]
433; Fig.		[Note added to Fig. 21.3: In the table shown in Figure 21.3, natural logarithms ($\log_e$) are used in numerical calculations, but ordinary logarithms ($\log_{10}$) should better be used for the sake of easier understanding.]
424; 1pb	Combinations. ... See Reference 21.6 for more details of formal methods for achieving such integration.	[Note added here: When we try to combine/integrate features from different solutions, we will often find conflict between the current 'best' solution and the alternative solution in some feature, and hence we can formalize a physical contradiction in TRIZ. Then, as is explained in detail in Chapter 11, we can apply the Separation Strategy and further various Inventive Principles as summarized in Table 11.1. The technique described in this Translation Note is called 'Solution Combination Method' in USIT; it is the fourth of the five USIT solution generation methods.]
441; 1p	The aims of this research are to:-	[Note added at the end of this paragraph: The results of this extensive research program of patent analysis are reflected in various parts of this textbook, and were presented by Darrell Mann and Simon Dewulf at TRIZCON2003 Conference in March 2003 in the following two papers: "Updating TRIZ: 1985-2002 Patent Research Findings" and "Updating the Contradiction Matrix". These two papers were posted in "TRIZ Home Page in Japan" both in English and in Japanese (translated by Nakagawa).]
442; 4p	Future evolution thus looks set to occur at the detailed implementation rather than the conceptual level.	[Note added at the end of this paragraph: The integrated method of implementing VE and TRIZ together has been developed most intensively in Japan by SANNO Institue of Management. For example, see the book "VE and TRIZ: Innovative Technology Management" by Manabu Sawaguchi, Doyukan, 2002 (in Japanese).]
447; 2pb	should subscribe to TRIZ Journal, the CREAX Newsletter	[Note added here: These are WWW sites specialized in TRIZ and are accessible with the URL of http://www.triz-journal.com/ and http://www.creax.com/. In

	and ...	Japan, the WWW site "TRIZ Home Page in Japan" (Editor: Toru Nakagawa) is most informative (both in Japanese and in English).]
463	No index (in the first printing)	[A very intensive Index has been prepared for the Japanese Edition. Index having about 950 items, arranged in groups of relevant items in a hierarchical scheme, and printed in 10 pages.]
464	No Author's profile	[2 pages of information are added here: Profile of the Author (Darrell Mann) together with his photo, Profile of the Supervising Translator (Toru Nakagawa) and a photo (Mann, Simon Dewulf, and Nakagawa), and List of the Translators (16 members).]
separate	Contradiction Matrix	[The classical version of Contradiction Matrix is attached as the Appendix 2. The latest version, Matrix 2003, is supposed to be published in due course as the second volume of this series.]