U-SIT And Think News Letter - 58

Unified **S**tructured **I**nventive **T**hinking is a problem-solving methodology for creating unconventional perspectives of a problem, and discovering innovative solution concepts, when conventional methodology has waned.

Updates and Commentary

Dear Readers:

. In Feedback, reader John Dunbar offers a very interesting example of the use of the symmetry heuristic. His example involves the use of "agents" in computer software. Reading his article brought to my mind an incident while scuba diving in Lake Huron. My diving buddy and I were 25 feet down examining the remains of an old boat when suddenly there was no light. We looked up to find a huge school of smelt doing synchronized swimming as they slowly passed over us.

. An article in today's New York Times sparked today's mini-lecture.

3. Mini USIT Lecture – 58
5. Heuristics for Solving Technical Problems

Using the heuristic "Anthropomorphism"

Anthropomorphism, as a concept-generating heuristic, ascribes human attributes to an object. Since our goal in innovation is to think creatively, it behooves us to find new vantage points for looking at a problem. A very useful and unusual heuristic for this purpose is anthropomorphism. (Yes, there are probably easier names to use for this heuristic. Let us know what you prefer.)

The particles method of USIT ascribes human attributes to otherwise inert "particles" as a gambit for generating new perspectives. The use of some form of anthropomorphism in creative thinking has been around for a long time. In one method you imagine being in an object and wondering how you might possibly behave in the unwanted effect under examination. When examining the point of contact of two objects supporting an unwanted effect, one can center one's thoughts in either object. In USIT, inert particles are placed either in, on, or around an object involved in an unwanted effect. The problem solver then examines the inert particles and wonders what attributes they might possess that would aid in resolving the unwanted effect. In this process, assignment of human attributes is encouraged for unusual insights.

When writing the USIT textbook (See the table of publications at the end of this newsletter), I used, as an example of assigning human attributes to otherwise undefined particles, the problem of removing earwax. One of the solution concepts that resulted in this exercise is given in EW11 on page 335: "Perhaps a new gene could be developed that would prevent wax formation or change the

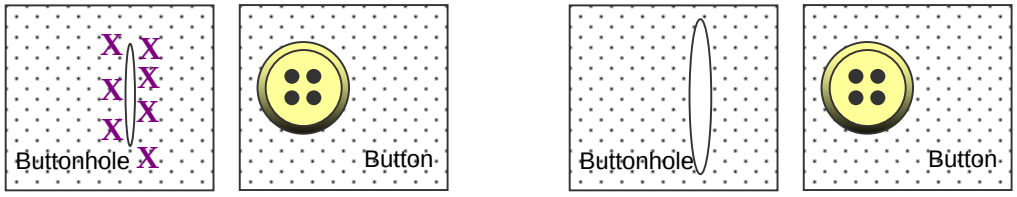
character of wax that is created to make it easier to be removed."

This brings me to an article in today's New York Times: "Scientists Find Gene That Controls Type of Earwax in People", The New York Times INTERNATIONAL Monday, January 30, 2006, p. A8. A team of Japanese researchers, Kohichiro Yoshiura and colleagues from Nagasaki University, have reported in Nature Genetics the discovery of the gene that determines whether one's earwax is wet or dry – the ATP-binding cassette C11 gene. (It makes me wish I could claim that they had read the USIT textbook. ☺)

Suppose we were trying to solve the problem of buttoning and unbuttoning a blouse or shirt using one hand. What's the problem? I imagine that for a majority of the population it is not a problem. But for people with finger-joint problems, or simply the aging of dexterity, this may no longer be an easy task. In order to identify the unwanted effect, let's examine the process of single-handed fastening of a shirtsleeve button. [Without reading ahead, or actually doing this, can you verbally describe how you button a shirt cuff one handed?]

Using the thumb and an opposing finger, I grasp the buttonhole side of the cuff and spread the buttonhole open on my thumb as the button hole is pressed against the button and my wrist. The nail of the opposing finger catches the button as it protrudes through the buttonhole with pressure still applied to my wrist. The button can then be pulled through the hole. This works most of the time.

When doesn't it work? It is a more difficult task when the buttonhole is too tight, the cuff is too stiff, the button is too small, and the fingers lack dexterity. What is the unwanted effect? During the operation just described, spreading the buttonhole open and pushing the edge of the button into it are too difficult. Lets sprinkle some inert particles on the buttonhole (X's in the figure) and find out what attributes they could have to address this unwanted effect.



Problem state Solution state

One way to visualize this problem is to give the particles human attributes and then imagine what they might do. Obviously, they could make the buttonhole longer and wider, as well as making the cuff supple (not shown in the figure). Done! Now what?

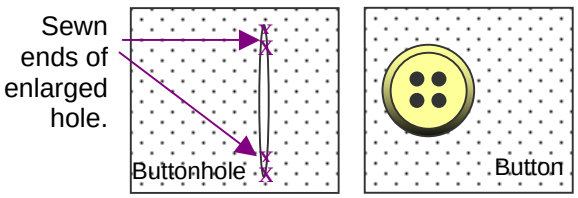
Not so fast! This exercise is supposed to cause us to continue and translate these generic actions into some meaningful embodiment of a solution concept. I started to continue but stopped to consider the new problem these actions create. Such an enlarged buttonhole and supple cuff are good conditions

for automatic unbuttoning of the just fastened button!

This, of course, is the kind of situation we are good at recognizing and addressing. We have looked at spatial attributes, what about temporal attributes? Larger buttonhole and supple cuff are spatial attributes only needed while buttoning and unbuttoning.

Now a useful idea comes to mind. Lengthen the buttonhole and sew together its extended ends with elastic thread. This will enable the buttonhole to open easily while being spread apart on the thumb. When released, the elastic thread will return the buttonhole to its original size.

I will not be surprised to learn that some reader already knows this solution concept.



6. Feedback

"Here's an example of symmetry to answer your question on USIT #55. Feel free to use it if you think it is worthwhile. [' I do.']

An example of symmetry as a heuristic could be the use of "agents" in software. There you write software agents that react to events or conditions as they unfold over time. There can be many types of software agents; each type can scale up the number of its agents into large numbers. The advantage to agents is that they can scale quickly, can react over TIME as events and conditions unfold, and can be made to follow simple rules. Please notice that there is often a TIME dependency: how agents react to events depends on prior numbers of agents of various types.

An analogy would be the immune system in the body. There are different types of immune system cells that attack "alleged" invaders. Each of these types of cells is programmed to react in certain ways. Over time, conditions change, producing different reactions by the immune system "agents" because they are increasing from starting numbers based on differing initial conditions.

Another place where "agents" can be used is in simulating the flight of birds. Each bird could be an agent and software would be written following simple rules (like fractals). One rule could be "Keep an equidistance between the bird on your left and the one on your right." A small number of flying rules would simulate the flocks and flocking of birds, fish, or shoppers.

Both the immune system reactions and the birds flocking rely on "repetition": repeating something in the small scale, using rules, many times. Both such agent systems rely on heuristics, simple rules of thumb.

Software agents are like fractals but have the advantage of more complicated rules. Both change dramatically based on initial conditions."

John Dunbar
Sugar Land, TX

Apologies to readers:

Recently I was reminded of my limited skills in matters of the English language, especially skills in spelling and matters of grammar. I blame it on a gap in my education occurring over a period of time when I was first learning the art of creative thinking (then known as daydreaming). This is a problem I have not solved but have developed a technique for reducing the frequency of its embarrassing occurrences (some of the time). When I remember to, I recite my mantra: "Always remember how many zees there iz in izz!" ☺

7. Papers and essays

The following materials can be read by clicking on their titles. Links are also available on the USIT website (www.u-sit.net/Publications)

1. "Injecting Creative Thinking Into Product Flow"
2. "Problem Statement"
3. "Metaphorical Observations"

8. Other Interests

1. Have a look at the USIT textbook, "Unified Structured Inventive Thinking – How to Invent", details may be found at the Ntelleck website: www.u-sit.net (*Note*; not at www.ic.net)
2. USIT Resources Visit www.u-sit.net and click on Registration.

Publications	Language	Translators	Available at …
1. Textbook: **Unified Structured Inventive Thinking – How to Invent**	English	Ed Sickafus (author)	www.u-sit.net
2. eBook: **Unified Structured Inventive Thinking – an Overview**	English	Ed Sickafus (author)	www.u-sit.net
	Japanese	Keishi Kawamo, Shigeomi Koshimizu and Toru Nakagawa	www.osaka-gu.ac.jp/php/nakagawa/TRIZ/
	Korean	Yong-Taek Park	www.ktriza.com/www/usit/register_form.htm
"**Pensamiento Inventivo Estructurado Unificado – Una Apreciación Global**"	Spanish	Juan Carlos Nishiyama y Carlos Eduardo Requena	www.u-sit.net
3. eBook "**Heuristics for Solving Technical Problems – Theory, Derivation, Application**" -- **HSTP**	English	Ed Sickafus (author)	www.u-sit.net
"**Heurísticas para Resolver Problemas técnicos – Teoría Deducción Aplicación**"	Spanish	Juan Carlos Nishiyama y Carlos Eduardo Requena	www.u-sit.net
4. **U-SIT and Think Newsletter**	English	Ed Sickafus (Editor)	www.u-sit.net
	Japanese	Toru Nakagawa and Hideaki Kosha	www.osaka-gu.ac.jp/php/nakagawa/TRIZ/
	Korean	Yong-Taek Park	www.ktriza.com.
Mini-lectures from NL_01 through NL_56	Spanish	Juan Carlos Nishiyama y Carlos Eduardo Requena	www.u-sit.net click on Registration

Please send your feedback and suggestions to Ntelleck@u-sit.net and visit www.u-sit.net

To be creative, U-SIT and think.