U-SIT And Think News Letter - 71

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. **H**euristic **I**nnovation is an extension of **USIT**.

Subject Keys

PD = Problem definition
H = **Heuristics**
T = **Theory**
M = Metaphors
A = Analysis
BH = **Brain hemispheres**

Dear Readers:

. "Two Brains are Better", a short series on using both cognitive hemispheres as tools for innovation, is continued in this issue of the newsletter. Feedback has been very favorable. Some people worked the problem. One didn't because he already knew the answer, having heard the problem as a joke. He was quite surprised on reading the rest of the material to learn that the 'joke' was a legitimate problem.

Mini USIT Lecture – 71

Two Brains Are Better – II

Did you catch it?
In the closing of the last mini-lecture a rather questionable assertion was made:
" Furthermore, that the answer "1" and its rationale, "hearing birds flew away", were spontaneous, having no obvious dependence on logic, is an example of spontaneous intuition solving a problem independently of the logical hemisphere." The point being made was the spontaneity of finding the answer and its rationale. But it included the assertion that the discovery did not involve the logical hemisphere. However, on examination the assertion may raise questions about being independent of the logical hemisphere, since the rationale is logical. It is logical to assume that hearing birds would be frightened away. And it is logical to assume that the logical hemisphere had some role in this assertion.

Mental quandary such as this is created when we toy with trying to rationalize the "unseen" actions of the intuitive hemisphere. Rationalization is the work of the logical hemisphere. It is brought into play after the fact; i.e., after the spontaneous appearance of an idea. Hence, the assertion of independence refers to the instant of discovery not to later description of the discovery where rationale thickens.

Who does the assuming?
In the Five-Birds problem you were asked to list assumptions that justify the rationale supporting your numerical answers. My experience was that identifying assumptions required more logical reasoning than did listing rationales. For the most part, my numerical answers and their rationales seemed to come to mind together. An assumption, on the other hand, came to mind following logical concentration on a rationale, and included logical wording and rewording to produce a satisfactory answer. In each case, rationale was thought of and stated without first thinking of

assumptions.

It looks like, in this instance of introspection, that the logically-thinking brain hemisphere at least organizes and verbalizes an assumption. It could be that both hemispheres contribute subconsciously to discovering its makeup.

My last answer, zero, resulted as a forced condition arising from taking the numerical value to extremes (a heuristic). Five had already been used, so zero was the remaining extreme. Thus, the problem was shifted from finding a numerical value to finding a rationale to support the assumed value. This created a new thought path. (See Thought Paths, p. 67 ff, in Heuristic Innovation.)

Here we have a heuristic for solving a problem: "Assume an answer then discover its rationale." But how can that be done?

This is reminiscent of a mathematical method for testing a derived equation's ability to predict a known. One inserts a parameter's value into the equation and compares the modified equation's prediction with the known. The difference, if any, or a portion of it, is use to correct the parameter's value producing the next modification of the equation. Iteration of this technique produces any desired accuracy in a converging system.

A role for attributes

An interesting effect that occurs while searching assumptions is how the search begins to broaden the problem with newly identified attributes. These can bring to mind more objects and more functions. In my case several attributes surfaced: Birds went from being *alive* on a wire, to being *aloft* (flying), to being *hearing*, to being *frightened*, to being *deaf*, and to being *inert* (decoys). This demonstration illustrates how attributes can inspire subconscious thought paths – presumably, for seeding both hemispheres.

To see this in action, let's revisit the 5-bird problem. This time we'll start with the answers and our problem will be to discover assumptions. Seeding will be done with attributes. The problem is given with only two objects; birds and wire. Here are some attributes to consider. You may think of others.

birds		**wire**	
alive	inanimate	metallic	insulated
animate	asleep	vibrating	ice coated
deaf	short	slippery	rusty
edgy (nervous)	tall	non-metallic	braided
endangered	singing	non-slippery	frayed
fat	calling	swaying	
hearing	sick	robust	
inert	healthy	frail	
kin (as in birds-of-a-feather)		sagging	
messy		taut	
noisy		thick	

Notice that the attributes were not selected to be relevant to the problem. They were simply thought of randomly by trying to imagine the objects doing something or being in use. Determining their relevance provides new thought paths.

Notice also that having just thought of, critiqued, and written these attributes they are freshly planted seeds. I can move now to the problem and give no further specific attention to them, they are at work. Once spontaneous answers are found, the list of attributes can then be examined and each attribute in turn considered as a thought path.

The problem posed is, given the number of birds left determine a plausible rationale for the number. Later we will consider assumptions.

There are five birds on a wire. If you shoot one how many are left?		
Ans.	Rationale	Assumptions
0	Shot didn't kill any	5 flew away.
1	4 flew away	Hearing birds flew away. Dead bird was unable to flee.
2	One is shot, one remains to give aide, three give chase after the shooter.	Birds are inanimate. Birds is the name of a sports team.
3	Shot bird falls off the wire. Reaction vibrates wire knocking off a second one leaving 3 on the wire.	Birds are inanimate targets in a shooting gallery.
4	Four decoys remain after a live bird was shot.	A hunter's ruse – decoys attract a live bird.
	Four birds are left of one or more to their right.	Left can refer both to space (left-hand) and time (remaining).
5	1 dead + 4 deaf	Deaf birds were not disturbed.
	5 decoys	No deaths or disturbance from fear

My rationales for answers of 0, 1, and 5, from the last mini-lecture, are shown in light print.

This exercise came to mind while writing the last mini-lecture: *"My parting thought was a question to myself, wondering if one could write a rationale for each number, 0 through 5, as plausible answers?"* I didn't know that it would be so easy to find six answers. Two brains do work.

Try your hand at all six values. In the process, see if by introspection you can detect which brain hemisphere is doing something and what it is doing. Obviously, the value of the exercise is the subsequent introspection and what you learn from it.

Two readers responded: Thomson Graeme noted, "There is only one that is LEFT all the others are to his RIGHT". I am always impressed with the variations of images and rationale different brains can generate from the same information. Rich Kucera noted, "5 [birds remain] because the wire went through the birds, they were decoys"

The thinking path being used here is a heuristic from USIT: start with an answer and work back to the problem. From a logical perspective, this may seem to produce 'contrived' answers. Nonetheless, this path produces new insights.

Images of imagination

For me, images played an important role in this 5-bird problem. From the beginning I imagined 5 birds sitting on a wire. It was a subconscious assumption that they were alive. Later the idea that they might not have to be live came to mind. This produced images of decoys on a river and targets in a shooting gallery. A shot bird produced an image of a bird falling. Fleeing birds were imagined as flying away in different directions.

In the process of listing random examples of attributes for birds and wire I had an image of each attribute. On recognizing that images had been formed before using the list, I felt confident that they had already become seeds for this problem situation.

Images arise spontaneously from objects, attributes, and effects; they arise from their language representations, spoken, heard, and thought. Visible attributes may be included in images of objects. Sometimes invisible attributes may be evident such as facial and body expressions that characterize a mental state of a person. The object-to-image link is the strongest and is a useful heuristic for seeding the subconscious (to be discussed later).

The five birds on a wire problem has served as a simple exercise to enable, by introspection, examination of our personal thinking. It was an attempt to make evident how problem concepts and take form in three stages: pure intuition, intuition and logic, and pure logic. These stages have blurred boundaries.

---------- Two brains are better – and more fun ----------

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
2. See also "Heuristic Innovation", and register for multiple resources.

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_67	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.