E-Prime & Linguistic Revision

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As an exponent of the E-Prime dialect of English, I presently refuse to use any form of to be in what I write and/or say. The underlying theory suggests that I may expect to derive certain distinct advantages from complying with this constraint. When I tabulate these advantages, I generally place near the bottom of the list the structural fact that by rejecting to be I make it impossible for me to generate locutions in the passive voice. When I restrict myself to active voice by using E-Prime, so the argument goes, then I must bring out of hiding the agents involved in whatever situations I set out to discuss. This constraint supposedly prevents me from unawarely using psychological tricks such as concealed denial, self-reproach, blame-casting, unaware projecting, etc. In that sense, I can use E-Prime to help keep me honest with myself. Certain experiences from my past tell me that to achieve that, I need all the help I can find.

Perhaps, on first blush, this supposed advantage may sound trivial, unimportant. "Bring the agents out of hiding"—very nice, but does it matter? Well, let me tell you a tale, and then I'll turn you loose to draw your own conclusions.

This incident occurred in the spring of 1972, a few weeks after a Named Professor of Physics at a prominent Eastern university had invited me to give a brief guest lecture to his research group. He had become interested in studying social systems by the methods of physics, and had already gathered together a diverse company of colleagues.

The research group met for an hour once a week, each time to hear and discuss two twenty-minute presentations. By that time, I had written a comprehensive theory of human behavior, and had mathematized it—framed it as an axiomatic system stated in a set theory notation. A few months previously, I had done a research study which involved movies taken of non-verbal encounters between unselected strangers and a known participant. I had shown these recorded encounters to panels of independent judges, who rated each one on a scale derived from my theory. Then I had done the appropriate statistics to establish the degree of inter-judge agreement (which turned out quite high). Perhaps I had something to offer to The Professor and the eclectic company of his colleagues. So I prepared a twenty-minute talk on this study, complete with overhead transparencies to present my data and conclusions.

When I gave my talk, I started off by stating the fundamental question which my long-term study of human behavior asks and answers:

We humans function as dynamically-changing organisms, dealing with our dynamically-changing environments; and we guide ourselves mainly by sensory intake, which remains intrinsically inaccurate, incomplete, and self-referential. Operating within these daunting constraints, we nevertheless manage to keep

ourselves more or less intact, and more or less growing, from one moment to the next for a whole lifetime.

My question: How do we do it?

Well, the physicists, sociologists, geographers, etc., who made up the research group seemed quite comfortable with this "fundamental question".

Then I stated my most fundamental assumption:

I reject the logical construct of identity—I disallow the notion of "absolute sameness in all respects or negation of difference" as a valid construct, in any guise or form, explicit or tacit.

And suddenly, I had twenty-five people pounding on their desks and yelling at me.

At first I felt astonished. Then I glanced again at my audience and made a surmise—after a bit more uproar, they will subside, and I can finish my talk. However, the uproar went on and on. I looked at my watch, and started timing this performance. They still continued unabated, pounding and yelling, for all of ten minutes. Then The Professor got to his feet and went to the blackboard, and the group fell silent. The Professor drew some letters on the board, connected pairs of them with squiggly lines, and said, "In physics, we specify states, and draw relations between them. You cannot do physics unless you specify states, and draw relations between them. Physics is the process of drawing relations between the states we specify. In physics, we specify states and..." And for another ten minutes by my watch, he continued to repeat these few key terms in every grammatically acceptable combination, over and over again. Eventually, one of the graduate students—I remember her as small and attractive-looking—raised her hand, and, not waiting for anyone to call on her, sang out, "hey! If we keep on arguing with his major premise, we'll never get to hear his results."

So everyone fell "politely" silent, and I finished my presentation. When I gave the non-verbal cues that I had finished talking, twenty-five people got up and staggered out like zombies—having offered no comments, asked no questions, given no "thank-yous", nor further acknowledged my presence in the room.

As for me, in this unexpected sequence I had noticed something utterly new to me: I had spoken in terms of rejecting the logical construct of identity, and they had replied in terms of states-and-relations. What connection exists between these two notions?

Before I tell you what I figured out (and this insight I regard that as the most important I had developed to that date, and probably ever will), let me focus more explicitly to one advantage which habitually working in the spirit of E-Prime—"bringing out of hiding the agents involved"—appears to have provided me. To see this, please notice the relation with myself I displayed in the face of the challenge offered by The Professor and his research group. On the day discussed above, far

from convincing me of my own error and general unworthiness, the startling vehemence of my audience elicited from me careful observing of them-and-me. Then, by the time everyone else had left, I had already begun contemplating that unexplained connection I just mentioned.

Now let me tell you a contrasting story, concerning a version of "me" twelve years earlier, just before I learned some ways to bring general semantics to bear on my own ways of living.

In 1960, I attended the Summer Seminar/Workshop of the Institute of General Semantics (as recipient of the Fulkerson Memorial Scholarship). The training offered there included a permissive discussion group. During one of the sessions, I got into a squabble with another participant. I responded to that conflict situation with prolonged discomfort—anxiety symptoms and self-reproach. After some days of this, I mentioned my discomfort out loud during one of the sessions. The group leader, Lynn Gates, questioned me closely about my discomfort, and then asked, "What did you assume, that made you so uncomfortable?"

I felt vaguely terrified at the question—the reasons for terror seemed vague, the terror did not—but then found that I could answer the question. "I thought that I had made a fool of myself in front of the group." And, having handled that challenge, I heaved a sigh of relief.

But Gates had not finished with me. In his most acid tones, he asked, "Well, are you going to find a way to put that assumption to test, or not?"

This seemed like an even more frightening challenge. But then I saw a way to do it. I proceeded to poll each of the other participants in turn, asking first, "Do you remember the incident?" (every one of them said they did); and second, "Do you think I made a fool of myself in front of the group?"

Each participant answered the second question in a different way, but in terms that did not match my painful view of the incident. I found no evidence for the existence of the shared, monolithic, harsh, condemning judgment on me and my behavior which I had expected. I had assumed that they saw me as a fool, and that I therefore was a fool. My agonized fantasy of rejection by my fellow-participants appeared severely off the mark—disoriented.

In that immediate situation, this way of testing my own assumption, and finding it so thoroughly disconfirmed, provided immediate and profound relief. But more than that, it showed that I had made a beginning in using a method which I could apply again in any situation that seemed important enough to warrant the effort. At need, I could disclose my own personal assumptions, and find ways to put them to test; and could reject and replace the assumptions that appeared disconfirmed.

From that point on, I poured my passion into a concerted study of and revision of my own personal assumptions. In the phrase of Ray Bontrager, one of the chief presenters at that Seminar/Workshop, I started the process of making my own life more to my own liking—and for three or four years, I kept written records of things that happened in the process.

At the time, I did not say it this way, but now it appears that I had found-and-created my own approach to the study of human behavior and our theories of human behavior. As my domain of study, I had selected what I now refer to as transacting, or, as a run-on phrase, the dealings of one particular human organism-as-a-whole-with-his-environment-at-a-date, as viewed by a specified observer.

That led, eventually, to my writing a theory of human behavior stated in ordinary scientific English (cited above, endnote 2); and later, to my collaborating with John F. Randolph, then Fayerweather Professor of Mathematics at the University of Rochester, to perform a logical analysis on that doctrine. We ended up framing it as an axiomatic system stated in a set theory notation (also cited above, endnote 3). This mathematized version of the theory asks and answers the fundamental question I recited to the research group. In 1968, this ongoing project also led me to further contact with D. David Bourland, Jr., who encouraged me to use the E-Prime dialect he had recently proposed. Then, using E-Prime in my further research helped me to become more sure of my own boundaries, so that when in 1972 The Professor's research group burst into uproar, I almost immediately saw that as a matter of their choices (in response to what I said), and not directly my own doing.

Now I invite you to compare the two versions of "me" in relation with "myself" which I have presented, and draw whatever conclusions about the importance of "bringing out of hiding the agents involved" that to you seem warranted by the evidence.

Meanwhile, I'll complete the tale of what I learned from The Professor and his research group. Remember, I had noticed that when I spoke to them in terms of rejecting identity, they replied in terms of states-and-relations. Puzzling over this fascinating observation, at length I remembered that the anthropological linguist Benjamin Lee Whorf has a passage in one of his papers in which he brings these two notions together. The next morning, I found the relevant passage. Sometimes, research consists of the art of reading things very slowly. I spent all morning reading and re-reading that single paragraph from Whorf's collected papers.

Just before lunchtime, I saw, and expressed in words, the elusive relation between those seemingly disparate constructs. This insight draws the relation between logic—fundamental assumptions—and the grammar common to the western Indo-European (WIE) discursive and mathematical languages (such as English and set theory).

I can express this insight as the conjunction of three points:

1. Linguistic structure of a sentence

Linguists of various schools agree that in a WIE language like English, the vocabulary consists mostly of items that belong to two main groupings—"parts of speech"—sometimes called nouns and verbs, which native speakers treat as grammatically different. Then a complete sentence (S) consists of at least one noun or noun-phrase (NP) coupled with at least one verb or verb-phrase (VP):

S = NP + VP 1

The cat grinned. (Intransitive pattern) 1A

The cat lashed her tail. (Transitive pattern) 1B

Furthermore, Whorf points out the relation between WIE discursive languages and our scientific languages, (e.g. mathematical logic):

What we call "scientific thought" is a specialization of the western Indo-European type of language... (Whorf, 1956, p. 246)

Thus a well-formed formulation in the mathematical theory of sets follows a pattern markedly similar to that of the WIE discursive languages: The vocabulary of set theory consists almost entirely of noun-cognates (e.g., sets) and verb-cognates (e.g., relations, such as not—or subset of); and we combine at least one term of each type to generate a well-formed formulation:

Not-E (Cognate of intransitive pattern) 2A

D Ì E. (Cognate of transitive pattern) 2B

2. How we distinguish between noun and verb

In re-reading that passage from Whorf (1956, p. 241), I came to realize that—in terms of what we do rather than what we say we do—as speakers-and-listeners, writers-and-readers of WIE languages such as English or set theory (whether or not we subscribe to E-Prime), we distinguish between the nouns and the verbs by means of Aristotle's Law of Identity, which holds that

What is, is. 3A

or

C is C . 3B

Then we regard each noun (or noun-phrase) as subject to the Law of Identity, and so as identical with itself (or self-identical); whereas we regard each verb (or verb-

phrase) as not subject to the Law of Identity, and so as not-self-identical. Using º to signify identical with (or in set theoretic terms, "not only consist of the same elements but also have the same name"), I can write these two conditions as:

NP º NP . 4

VP VP 5

To see this, try substituting the noun-phrase from the discursive test-sentence (1A) into the two positions in the Law of Identity usually reserved for a noun-phrase; and then try substituting the verb-phrase from that test-sentence (1A) into those two positions. In the first instance, we obtain an acceptable sentence—we speakers of English (outside of E-Prime) feel comfortable enough saying

A cat is a cat. 6

In contrast, when we substitute the verb-phrase from (1A) into the two positions within the Law of Identity usually reserved for noun-phrases, we obtain

Grinned is grinned. 7

We do not do not regard this as an acceptable "sentence", and do not feel comfortable saying it.

Likewise, the symbols in set theory follow similar rules. When we try substituting the noun-cognate from (2A) into a notational version of the Law of Identity, we obtain

D º D . 8

We regard this as a well-formed formulation. But when we try substituting the verb-cognate from (2A), we obtain

* Ì º Ì 9

This we do not regard as well-formed or acceptable.

3. WIE sentence structure vs. my most fundamental presupposition

As I indicated to The Professor and his research group, as my most fundamental presupposition, I disallow identity as a valid relation. But, within the WIE frame of reference, if I disallow identity, I remove my ability to tell the difference between the nouns (or their cognates) and the verbs (or their cognates). Thereupon, I cannot form a complete sentence by the rules of WIE grammar, and so, for me, the entire grammar collapses—and with it, the specializations of WIE languaging: the logics, sciences, philosophies, jurisprudences, religions, etc., of the WIE tradition. To me in 1972, that "collapse" proved anything but alarming—it turned six to nine months of failure into the prelude to a major success. Within my experiencing, research

generally takes place under an injunction: "Solve this problem, Buddy—answer this question—or quit!" That new insight and the consequent "collapse" answered a question which had previously stopped me.

After Randolph and I had finished the four long papers we wrote together, and after three of them appeared in print, I had set about to apply our set theory calculus of human behaving-and-experiencing (behaving as viewed from the "outside", experiencing as viewed from the "inside") to other domains. We had addressed the domain of the transacting of an individual with his environment. I successfully extended the theory into the domain of the "doings" or "happenings" of small groups and of large social institutions, the domain of biological theory and the transacting of non-human organism with their environments; and made some timid incursions into the physical sciences and mathematics. In the fall of 1971, I began inquiring into the logical and mathematical foundations of our theory and our set theory notation. That proved alarming. I quickly convinced myself that I faced a possible self-contradiction of a new type, one which arises between the presuppositions underlying my findings and conclusions, the "content" of the theory, and the presuppositions underlying the set theory notation I had used to state these findings and conclusions. For, as I had told The Professor and his group, as my most fundamental presupposition, I reject identity (I rely on Korzybski's non-aristotelian premises, including the Postulate of Non-identity); whereas, by the premises of set theory, every set satisfies the modern Logical Axiom of Identity, and therefore "IS" identical with itself.

That sounds like a self-contradiction. And I hold any theory which includes a self-contradiction as unacceptable.

I spent the rest of the fall of 1971 trying to find some way to get around, under, over, or through that possible self-contradiction, without success. Around Christmas of that year, I concluded that probably, I had run afoul of a matter of principle, and could not do so. I could see only one other way to proceed further—I would have to reject and abandon the mathematical theory of sets, and all other WIE languages, discursive as well as notational, and generate a new language of known structure, based "from the very beginning" (whatever that phrase might mean, under these altered circumstances) from my chosen premises (the non-aristotelian premises of Korzybski).

When I set out to do this, however, I quickly found that I didn't know how. No matter how inventive or "outlandish" my efforts seemed when I tried a new tack, the result ended up "smelling" Western.

But now, some six months later, in light of the recent insight prompted by contact with The Professor and his group, I had uncovered a principled way to jettison the WIE frame of reference—abandon the noun/verb distinction; and with it, the encoded usage of map-territory identity. Further, I could now see that in everything I had tried up till then, I had still included some cognate of the noun/verb distinction

(and therefore, map-territory identity). Until then, by the way I framed my struggles to break free of the WIE frame of reference, I had continued to lock myself in.

After figuring out what my encounter with The Professor and his group meant, however, I saw that that "collapse" of the WIE grammar which I had provoked actually opened a way for me to develop an alternative frame of reference, based on non-identity.

In the process, I had disclosed the assumptions underlying the grammar shared by (or the shared logical structure of) at least one discursive language, namely, English, (even including E-Prime), and an associated mathematical language such as set theory. That allowed me to derive a notational "grammar" from the non-aristotelian premises. Then, in collaboration with a linguist, the late Ronald V. Harrington, I built up a "Let's Keep Track of What We Say" notation on this derived grammar, and with it, an alternative frame of reference (or "World View"). Subsequently, I have applied this alternative frame of reference in such a way as to propose fundamental revisions to theories within the human psycho-social sciences, biology, relativity and quantum theory, as well as to the foundations of logic and mathematics.

DISCUSSION

Here I shall briefly set the E-Prime dialect into a wider perspective, centered on our exponentially increasing knowledge of knowledge. Over a period of not quite two hundred years, Western scientists have performed increasingly incisive analyses of aspects of the received WIE world-view, and made increasingly sweeping proposals for revising it—including the non-euclidean geometries, the non-newtonian physics, revised premises for our logics and mathematics, non-aristotelian systems and general semantics, etc. We have begun developing an increasingly acute appreciation of the internal connectedness and inter-connectedness of human viewpoints and human frames of reference.

For the E-Prime dialect, the most fundamental insight comes from Korzybski:

We start with the negative [non-aristotelian] premise that words are not the un-speakable objective level, such as the actual objects outside of our skin and our personal feelings inside our skin. It follows that the only link between the objective and the verbal world is exclusively structural, necessitating the conclusion that the only content of all 'knowledge' is structural.

Korzybski expresses this move toward increasingly sweeping departures from tradition in terms of the construct of linguistic revision. In line with the innovations already available when he started writing, he proposes

...changing not the language, but the structure of language...

Like Aristotle, Korzybski had no formalized notation specific to his frame of reference, in which to frame his analyses or otherwise pursue his revisionist goals. His two books and other writings abound in innovative proposals. Reluctantly, I acknowledge that I must resist the temptation to try to summarize, characterize, classify, etc., these innovations here. But at the level of overt written (or spoken) modifications, introduced for the crucial task of "changing ... the structure of language," Korzybski relies primarily on

the habitual use of the extensional devices in our evaluational reactions.

By using these devices, we can make our formulations more nearly similar in structure to what we observe than we can without them. But I point out that in general, Korzybski does not alter specifically linguistic items—he does not introduce any new prefix, suffix, infix, nor new endings for any "parts of speech" such as nouns and/or verbs, etc.; and he neither introduces nor eliminates entire categories of grammatical forms, entire "parts of speech".

Most students of general semantics have followed Korzybski's guidance in this arena, and strive not to change the language, but "only" its structure.

In contrast, when he proposes E-Prime, Bourland does show the courage to alter linguistic forms—he disallows to be as a verb, or as the copula (which we perhaps do not "treat" linguistically exactly the way we treat most "active" verbs).

As I point out above, I first started using E-Prime in 1968. When I did, I found that this made my native language and my mathematical frame of reference seem at least a little unfamiliar. As I explored the capabilities and limitations of the new set theory calculus of human behaving-and-experiencing, this slight unfamiliarity made it easier for me to detect and at least attempt to de-fang and elude linguistically-determined restrictions. But even though I had adopted E-Prime, like the majority of exponents of general semantics, I had restricted most of my attempt to develop a thorough-going non-aristotelian frame of reference to the domain of what already existed, linguistically. I had sought to "[change] not the language, but the structure of language".

When, in the fall of 1971, I disclosed a possible contradiction between the presuppositions of the "content" (the findings of my explorations in theory) vs. the presuppositions of the notation I used to state this "content", then I abruptly shifted the focus of my activities. As noted, I inferred that if I wanted to press on with my explorations, I had only one procedure available to me—to jettison set theory and all other WIE languages (discursive as well as formalized), and build up a language of known structure (possibly notational rather than discursive) based "from the very beginning" on the non-aristotelian premises of Korzybski. And that meant that by the time I had framed that inference, I had already called into question, and revised, the construct of linguistic revision.

As it turned out, I found ways to derive a notational "grammar" from the non-aristotelian premises, and (in a collaborative setting) to generate a "Let's Keep Track of What We Say" notation based on that derived grammar.

In his 1921 book Language, Edward Sapir compares literary with scientific modes of expression. When he gets to the topic of science, he writes:

The proper medium of scientific expression is therefore a generalized language that may be defined as a symbolic algebra of which all known languages are translations. One can adequately translate scientific literature because the original scientific expression is itself a translation.

In an unexpected way, our non-standard notation may turn out to fulfill Sapir's vision. Preliminary findings indicate that our non-standard notation satisfies the criterion of generality in relation to at least two or three other languages, discursive English, the WIE mathematical theory of sets, and discursive Chinese.

I know of no precedent—no one else who has even discussed the possibility of deriving a grammar from known presuppositions and of then building up a notational language on that derived grammar. However flawed the present instance of this notational language may appear on more extended scrutiny, this non-standard notation and the alternative frame of reference which underlies it do seem to open up new possibilities for humans. In particular, these accomplishments, which of course still amount to only small beginnings, still suggest that we humans have it within our grasp to generate a single axiomatic frame of reference which could properly house virtually all forms of systematized human knowledge.

As time-binding humans, we only need to invent the wheel once. I trust that my peers and/or successors will sooner or later extend this new possibility, and not only make the non-standard notation useful for certain tasks that we cannot accomplish in any other way—but also use this precedent to generate a discursive language based on some grammar derived from known presuppositions.