‘Mind-Slicing’: Some Thoughts on Entropy and Semantic Reactions

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Raymond Sutton is originally from London. He has lived and worked in Denver, Colorado, since 1996 as a software engineer. He was introduced to general semantics through the A.E. Van Vogt *Null-A* novels.

In June 2004, I attended the Institute of General Semantics Summer Seminar-Workshop held at Alverno College in Milwaukee, Wisconsin. As part of the program, instructors-leaders-facilitators, Milton Dawes, Andrea Johnson, and Steve Stockdale, asked the participants to give a short presentation relating two words or phrases in a general semantics context. How could this pair be useful-beneficial in their application? Each participant randomly received a phrase/word pair. I drew *entropy* and *semantic reactions*. At this point in the seminar, the group had acquired a history of shared experiences, awareness, information, and anecdotes that influenced our ten-minute talk.

Some of these incidents, such as the various semantic reactions to Steve’s bottle of maple syrup that was labeled “whiskey,” were incorporated into my work. This essay summarizes my presentation and represents a ‘slice through my mind’ at that point in time.

My Approach

In my approach I wanted to emphasize what these terms meant to me and how I saw a relationship between them. Towards this end, I decided to avoid using external references, although I did need to refresh my memory on the definition of *entropy* in an information theory context. As a way of organizing my thoughts, I created three diagrams, which I then used as handouts. The presentation essentially described the diagramming techniques and explained their content.

Whiskey?

Mind Maps

The first technique I used was to create mind maps for the two terms. Briefly, *mind mapping* is a non-linear way of recording ideas and connections between them. In this case I created the two maps in parallel and each underwent modification in an iterative process as my thoughts evolved. The diagrams represented the final outcome of this process.

Semantic Reactions

As I understand the term, a *semantic reaction* describes the total response of an organism-as-a-whole to some external or internal stimulus. Using this as my working definition, I saw a *semantic reaction* as consisting of three distinct components: the triggering event, the individual’s current “world-map,” and past experiences which I chose to view as “previous world-maps”. In creating the mind map, a number of related ideas and examples occurred to me, as did the consequences of semantic reactions, as I came to see them exhibiting stronger (or less conditional) subsequent reactions. Diagram 1 shows the result of this process. I added dotted lines after completing both diagrams as a way to indicate the relationship between concepts.

Entropy

The term *entropy* gave me more difficulty, as I had encountered the term in a number of contexts but not explicitly in a GS context. I started by recording my understanding of the term as an abstract concept, first in terms of physics and then in terms of information theory. The definition from information theory seemed most relevant to me. I reasoned by analogy how the term might apply in a GS context. I settled on the working definition, in a general semantics context, that *entropy* describes the noise in our perception system caused by inaccurate maps, inexperience, identifications, etc.

Having arrived at this working definition I considered the consequences of increased entropy. Diagram 2 summarizes this process.

Influence Diagrams

Having collected my thoughts, I needed to explore the relationship between the terms. For this I chose to create an influence diagram. This, perhaps, needs a little more explanation than the mind map.

I encountered the idea of an *influence diagram* while taking a course on Systemic Analysis with the Open University in the United Kingdom prior to moving to the United States. A systems approach to a problem uses the concept of “a defined system operating as a whole within an environment.” You can use an influence diagram to explore the interaction between components of

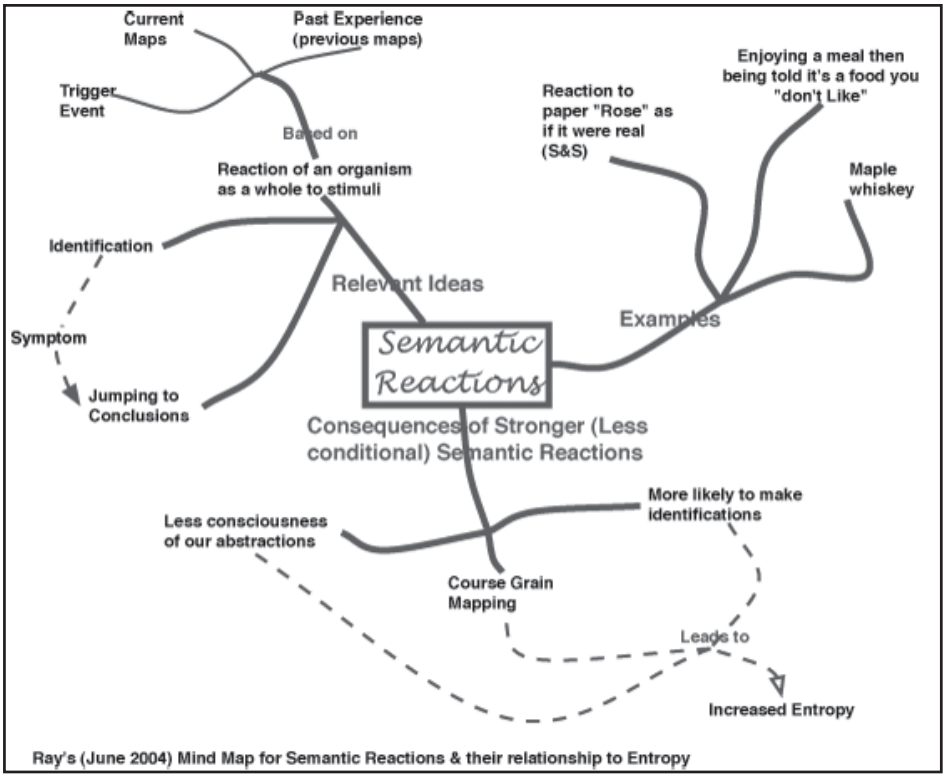


Diagram 1

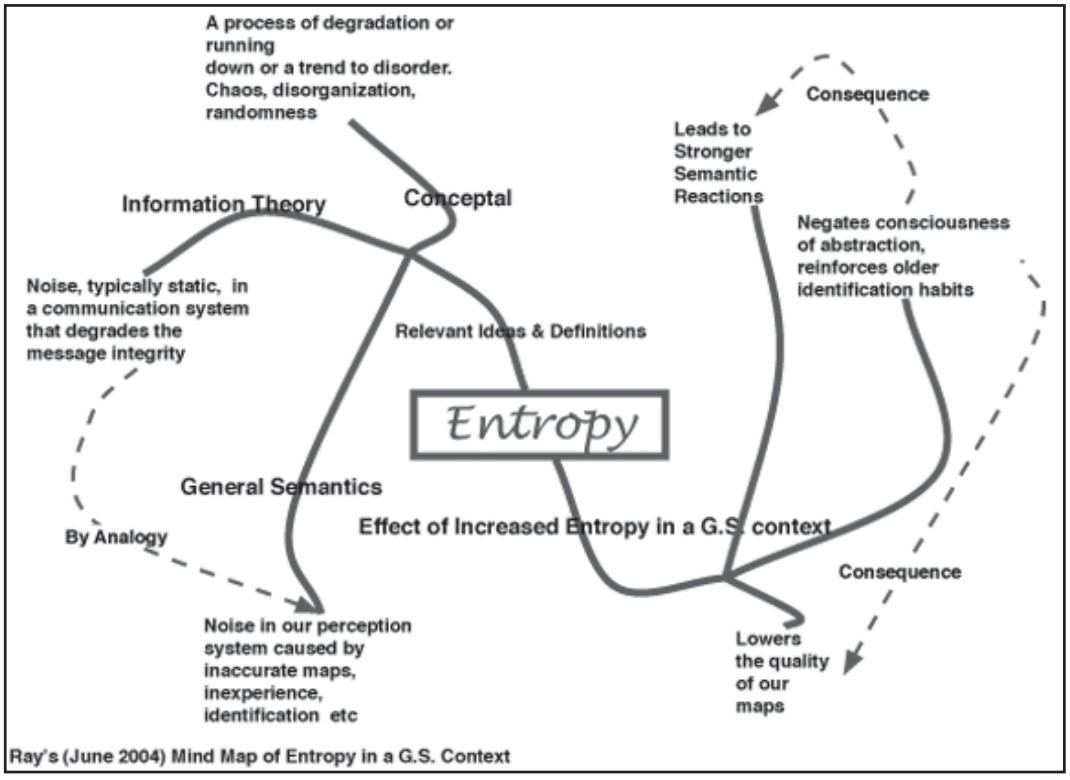


Diagram 2

the system and between the system and its environment. Here I'm using it in a slightly different way to explore the consequences of my working definitions.

To create an influence diagram you express the factors in a situation in a quantitative way. You then decide if each term belongs in the system or the environment. This defines the system boundary. Next, you consider each pair of factors in turn, trying to establish how an increase in one quantity will affect the other. Finally, you examine the diagram looking for self-limiting (negative feedback) or self-reinforcing (positive feedback) loops. In a systemic analysis these loops can sometimes provide an insight into ways to alter the behavior of the system.

In this exercise I've adapted the technique slightly to highlight what I consider *positive* and *negative* influences, and to indicate the "triggering event" and the abstraction process.

The third diagram shows the result of this process to the ideas developed in my mind maps.

Observations

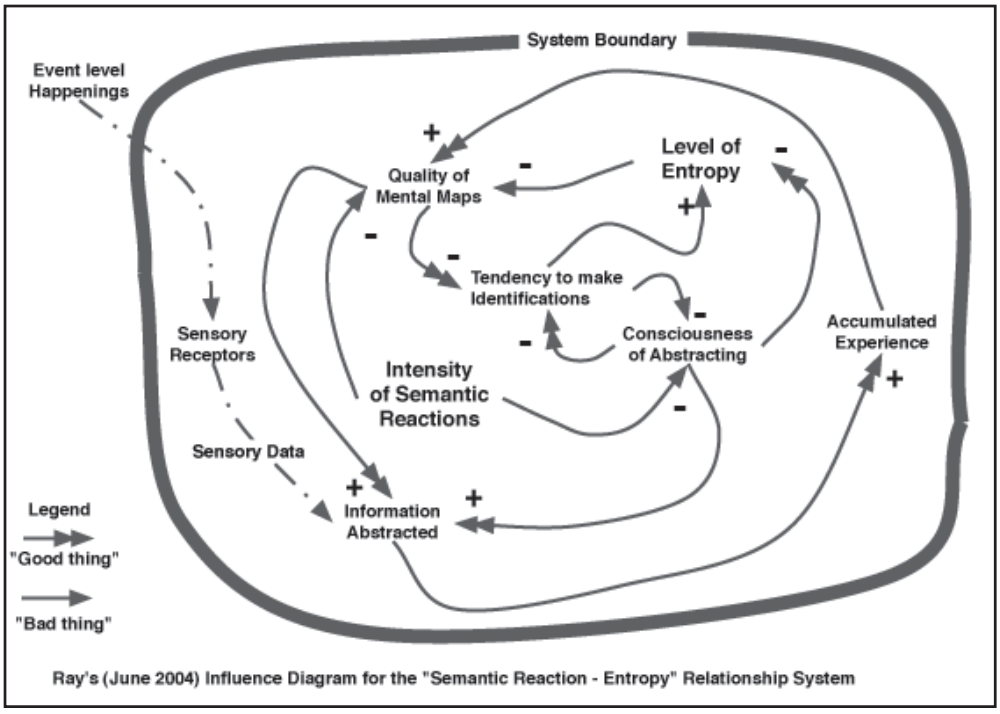
I found a self-reinforcing connection between consciousness of abstraction and the tendency to identify. You can view this as a positive or negative (or *degrees* of positive or negative) characteristic depending on which factor you increase. For me, this helps explain the difficulty sometimes experienced in adopting general semantics as an operational methodology rather than an intellectual pursuit.

I found a second self-reinforcing negative behavioral loop as follows: The more intense (less conditional) the semantic reaction, the lower the consciousness of abstraction which increases "semantic entropy" leading to poorer maps which in turn increases the intensity of semantic reactions.

Finally I noted a positive connection between the quality of maps, the abstracted information, and accumulated experience.

I should note that you would typically apply this analysis technique to more 'concrete' problems; in this situation I'm applying it to abstract concepts that appear more 'coherent' internally so the results may seem to some extent artificial. For me, as much as anything else, this assignment provided an opportunity to practice a technique I hadn't used in a while and to apply it in a novel way.

Despite this caveat, I believe the result supports the goal of increasing consciousness of awareness/abstraction and illustrates part of the mechanisms by which this benefits us.



Ray's (June 2004) Influence Diagram for the "Semantic Reaction - Entropy" Relationship System

Diagram 3