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NOTES TOWARD A THEORY OF COMMUNICATION AND SOCIAL CHANGE.(U)
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NOTES TOWARD A THEORY OF COMMUNICATION AND SOCIAL CHANGE

By

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ABSTRACT

The author outlines a number of methods for identifying parts of the social system to which the individual belongs and "the nature of communication" in the systems context. He emphasizes "expectation" as a crucial condition for reception as well as the basis for redundancy. He defines a number of useful constructs such as "communication", "change", Ashbey's Law of Requisite Variety, circumstances as probability vectors, systematic errors, S lags, P lag, and R lag.

He presents an integrated format on which his future work on this project will be based.

NOTES TOWARD A THEORY OF COMMUNICATION AND SOCIAL CHANGE

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INTRODUCTION

Change and Communication

Change constitutes deviation from what has gone before. Social systems have an averaging process as a part of negative feedback systems they incorporate for the sake of the continuity and stability such feedback nets provide dynamic systems. Only some of these nets can be said to be of conscious construction. This is no more than to suggest the statistical conception that the best guess as to the height a particular child will attain is the average height of the human of that sex, in that family line, weighted by a factor determined by the trend line for successive genenerations of humans in that socio-economic system. That is, recently in the United States it has turned out that sons will probably be taller than fathers. And sons of tall men will be taller than sons of shorter men at corresponding stages in their growth cycles, so long as they stay in the same general socio-economic system. Should the sons of the taller men go to a region in which they cannot obtain an adequate diet they will not attain the height their genetic code permits to them - perhaps they will not even attain to the height of the sons of the shorter men. It will

remain an unrealized potential. Perhaps social systems, too, have potentials variously, and only incompletely realized due to their focus and the quantities of energy and matter available to it in the requisite forms in the local enviornment, as their focus defines that environment.

In dealing with the question of communication in relation to social change - whether communication be thought antecedent, concomitant, or consequent to social change - first there is the question of the underlying value orientation of the individual, and the collectivity, *vis a vis* the generalized concept of "change". There are interesting and difficult questions regarding the extent to which a collectivity may at all be considered to <u>have</u> a value orientation. And if sufficient of this set of questions be answered affirmatively, then the nature of the process by which the value orientation. And if sufficient of this set of questions be answered affirmatively, then the nature of the process by which the value orientation of the collectivity is derived from the individual's, and *vice versa*, becomes a knot of knotty issues. Assuming further that there is a way to undo these knots, and hopeful that some answers to these questions will form the content of papers to follow in this series, I will go on to consider that any change, local or general, represents a deviation from the expected. So, I will try to deal with the question surrounding the topic of this paper as they are implicit in the word "expected." I will try, too, to show how this approach affects communication.

The Uses of the Expected

In the methodologies of research in the behavioral sciences the word "expected" proposes the conceptual framework of statistics. In the frameworks of standard inferential statistics "expected" immediately suggests an array of index numbers. One of these index numbers is perhaps the most commonly encountered, and also it is certainly one of the most useful. It is the average, or arithmetic mean. One way to talk about this number is to say that it describes the amount of "stuff" you would have gotten if you had gotten the same amount each time you got "stuff". It is a redistribution, then, of all the "stuff" you got over thenumber of times you got "stuff". It is always worth noting that the average amount of "stuff" may never have been an amount you got. Themean is potentially a myth insofar as any percise measure is concerned.

What the mean does, as myth or as matter, is give us a base line: Archimedes "place on which to stand". It gives us something to use in making comparisons. The comparisons we always make are projections of the future. These are derived from "expectations" derived, in turn, from our past as we perceive it. I've heard it said that the best prediction of the weather, most places in the world, is the same weather as that you are presently having. What happens to that prediction system should we ever have a world meteorological bureau charged with manipulating the global weather system, I couldn't say. The point, of course, is that our expectation of the future as a continuation of the past is right until it is wrong. The issue before

us is what happens when the expectation is more wrong than right in the minds of some, and more right than wrong in the minds of some,and neither wrong nor right, because out-of-awareness, for many.

So then, the paper will examine some definitions of terms - a necessary and desirable attribute of efforts to communicate fact as well as feeling - and then attempt to work with these definitions in specifying the costs of social change, and in specifying the part communication plays in creating those costs as well as in paying them. The paper will end with some speculation on the extent to which this has immediate application to the media through which the citizenry of this nation exchange information and the resources which impede or facilitate social change.

DEFINITIONS

Rationales

Whether you use *genus et differentia* or operationalization the problem of getting someone to agree with the definition remains. I offer some *a priori* defense of my definitions. These definitions have stood me in good stead as I make my daily effort to understand what is happening to me and around me. (All I can do here is assert that.) Further, I am accustomed to finding these words and phrases arranged as they are here in the written materials I encounter, and from which I get the necessary vicarious confirmation or information of hypotheses of the formal and of the informal varieties. Beyond this, these definitions permit me to work with some variables that are seen as most useful by many others interested in the same sets of phenomena. I suppose that "most useful" must mean that they contribute largely to the predictive quality of a regression equation which tries to establish a time expected value for a variable or variables in some array of variables of interest.

Communication

Let's take the task of defining "communication" first. There is expression, uttereance, which has not "communication" as any part of its character. Phatic communication (36 pp. 57 ff. and *passim*) occurs when a member of a group of apes sees a predator approach and begins a chatter. Though the other apes may be excited by the chattering of the ape that first spots the predator, that the ape would be chattering even if alone suggests the chattering is expressive of internal states of the organism and not part of the warning system of "communication".

Not to pursue too far this argument the possibility remains that the human organism is capable of similar expressive occasions. For example, in the dead of night in the unfamiliar hotel room one sometimes stumbles in search of a glass of water, and in stumbling stubs a toe. The expression which follows the toestubbing seems not to have much value for an interactive system predicated upon the alteration of the forms, and the probabilities of occurance of forms of behavior in those around one. But somehow, such expression in my own case at least, is quite satisfying!

The present discussion takes as granted that one of the most satisfying things known to a man is the working out of things according to a set of values which are prescriptive statements about the future. This means that there are bound to be discrepancies between the values and what the values would have predicted and what the reality tied human organism predicts. This seems to engender a shift in behaviors in order to rearrange the probability distribution the individual would see. This redistribution is going to amek more probable the sets of events that the individual would like to see occur and less probable the events he would not like to see occur.

Language is formed, in part, by an accumulation of past experiences of some collectivity. Even if we only consider that there must have been some shared satisfaction regarding the extent to which those who used arrays of symbols and signals came to be more satisfied with their life than those who did not and that this distinction was apparent and that the recognition of the distinction operated to produce a tendency to acquire

the capacity to use the symbol/signal system. If we can assume that language is then a product of the pasts of the persons using it, to large degree, then it follows, perhaps that any natural language is not well suited to the expression of the future.

By "communication" I mean that there is an exchange of some kind or other. It is not at all hard to defend this since it is so genreral. The sophomoric may wish to ask, but do you mean that you can communicate with a cloud? And the Einsteinian answer is that both are systems that are subsystems of some inclusive system and therefore they can be shown to be, at however many removes, interdependent, which is, of course, only another way of saying that they engage in "an exchange of some kind or other".

Obviously that is, so far, defensible, but who would wish to attack it since it is so useless. And perhaps in the final word of that sentence we have an additional compoment of the term. Usefulness.

Change

"Change" signifies the exchanges that must ranspire across all kinds of boundaries under a wide range of conditions in order that the world may go on and may know that it goes on. Please remember that the "going on" of the world implies that we partake and participate. I cannot exist intellectually, so far as anyone has yet convincingly demonstrated to me, unless I have a supply of potable water and bound energy in certain very definite forms. By seeking that supply and using it for myself introduces change into the world. (A few years ago that set of statements would have required elaboration and discussion, but thanks to contemporary

concern for the ecological system the points now may be more economically made.

I will venture one homely illustration. The farmers whose soil have diminished while the construction of housing has encircled his land does not resist, usually, the many changes that attend upon his selling of his land to the develoner. Should his land still have had agricultural value of some degree, the question then would become very much more complicated. It might be that the farmer would not make the decisions alone. A wife, as well as a child or two might well figure in the discussion and in the decision process. The point is that what is considered change is a complex function involving the user's emotional coloring for the term, and the extent to which the user of the term sees himself as playing a role in order to have influence upon those about him. If he sees himself thus then there is the change that the significane of the term for him is not nearly so important to him, in his use of the term as a tool in manipulating those about him, as is his estimate of what that term may mean for those whom he wishes to manipulate.

Though I have heard much argument about it about, and even offered some myself, I remain convinced that one characteristic that all communication occasions involving human interaction possess is that of adjustment, as well as reaffirmation, of the relationship. And this comment I think constitutes persuasion, in its most general sense. This constant component is also referred to by some as a metacommunication component of communication occasions.

TWO MODELS

Some Homilies

In saying something about communication and social change there is a temptation to plunge immediately into reductionism. Eventually that general technique must be considered in application to our materials. But first let us say something about the forest *qua* forest.

Some most homiletic statements need to be gotten out of the way. One is that neither communication nor social change is necessarily antecedent to the other. Like "feedback" in any system, the point of view determines which transactions across which boundaries or interfaces are defined as "feedback". Any exchange *can* be defined as "feedback".

Although not every communication can be defined as having to do with social change, nor can social change be defined as having to do with all communication, there exists a subset of the set "communications" that can be seen as either having some dependency relationship, in a probabilistic way, with social change.

Another statement we must deal with is that change is all about us and always taking place. There can be no denying that on the physical level. However there is some evidence that the capacity to deny social change - however incompletely, however transiently - may be one of the factors distinguishing *homo sapiens* from other bipedal erect vertebrate mammals. To complete the parallelism, the capacity to adapt/adjust to altered social conditions if often argued as a distinguishing characteristic of "good" societies.

That "good" cries out for definition. It always has. I'm not sure I'll do much better than anyone before me. But perhaps you will not predict all of the approach I'll use.

One good is to be alive. It is certainly possible for a moderately compassionate modern man to think of situations or contests in which to be dead may be possible be thought better by some. But to be alive is good, I hope most would agree, because to choose and to act and to observe and to predict and to control and to work and to love is better than not to do those things.

The Holistic

If I can take some sort of agreement as granted then I can go on. To survive requires some sort of adaptability. And thus we have it, almost. For a "good" society is one which preserves the totality without sacrificing the singularity. By managing this the "good" society also manages to maintain a variety which gives it a change to control some other system it needs to exchange with for its survival's sake. W. Ross Ashby is credited with formulating this as "The Law of Requisite Variety" (2 Ch. 11) now often referred to simply as "Ashby's Law". As indicated above it says that to control a system, even to the extent of establishing and maintaining a pattern of exchange that is mutually beneficial you must have at least as many degrees of freedom, as many alternatives to choose from among as does the system. Note that the system may be what you are playing on, or what or whom you areplaying with in some gaming metaphor.

A crude illustration of this is that if your automobile possessed as many degrees of freedom, as many alternatives of action, as you do a trip to the ocean might require several weeks. [Even, and this surely depends on the weather and the season, to the Atlantic Ocean!?]

My argument then is that once things change a social grouping must be able to change, too. William Buckley says(10 p. 206):

> A simple cybernetic feedback model of explicit group goal seeking does not fit most socieities of the past and present because of a lack in those socieities of informed, centralized direction and widespread, promotively interdependent goal behaviors of individuals and subgroups."

I'd put it this way: Perhaps an amoeba with its pseudopodia and very simple total-organism-survival goal is a better model than is, perhaps, the tightly organized, at the electronic/mechanical level, large scale high speed digital computer capable of on-line-real-time data net operation. Bertalanffy's paramecium is an even better metaphor. (6 p. 228).

But the problems of trying to maintain an orderly front in the face of the stresses introduced by variety often get out of hand. Eisenstadt says (23 pp. 40,41):

> All the varied characteristics of modern societies [...]their mass-consensual orientation, their continual structural differentiation and impingement of broader groups on the center of the society, indicate what probably is the most central problem of modernization--its inherent tendency to system transformation.

Merton (41 p. 511) expresses this thought even more forcefully:

> With increase in social conflict, differences in the values, attitudes and modes of thought of groups develop to the point where the orientation which these groups previously had in common is overshadowed by incompatible differences. Not only do there develop distinct universies of discourse, but the existence of any one universe challenges the validity and legitimacy of the others. The co-existence of these conflicting perspectives and interpretations within the same society leads to an active and reciprocal *distrust* between groups. Within a context of distrust, no one longer inquires into the content of

> beliefs and assertions to determine whether they are valid or not, one no longer confronts the assertion with relevant evidence, but introduces an entirely new question: how does it happen that these views are maintained? Thought becomes functionalized; it is interpreted in terms of its psychological or economic or social or racial sources and functions.

And Eisenstadt seems to give us a rationale for the emergent disparate groupings (22 p.43):

> Thus the very nature of the crystallization of institutional systems creates the possibility that antisystems, groups with negative (passive or active) orientations toward the premises of the system, will develop within them. (...) Some of these antisystems can be viewed as temporary reversals by various lower groups of the dominant values of the given system and as attempts to uphold, at least on certain occasions, a different value scheme.

And a little later (p. 43-44):

> The existence of such contradictions or conflicts among the different institutional spheres and among different groups does not, of course, preclude the possibility that the system will maintain its boundaries more or less continuously, through a hierarchy of norms and an accommodation or partial insulation of different subsystems, and that a definite order and stable relations among the system;s parts will persist. But the possibility of conflict and potential change is always present, rooted in the various process of crystallization and maintenance of institutional systems, and the direction and occurence of change depend heavily on the nature of this process. Just as the predilection for change is necessarily built into any institutional system, so the direction and scope of change are not random but depend on the nature of the system generating the change, on its values, norms, andorganizations, on the various internal forces operating within its, and on the external forces to which it is especially sensitive because of its systemic properites.

This seems to summarize Eisenstadt's position nicely. When a boundary is constructed another shunt is erected directing, or more accurately, redirecting the flows of energy through the system.

These redirected flows create new stresses on boundaries to contain them. And so it goes.

Eisenstadt speaks of change using the term "moderization", saying (23 p. 43):

> Modernization evinces thus two closely connected but distinct aspects. The first is the development as a social structure with great variety of structural differentiation and diversification, of continually changing structural forms, activities, and problems, and of the propensities to continual change and system transformation. But the mere development of these propensities does not in itself assume the development of an institutional structure capable of dealing in a relatively stable way with these continual changes and concomitantly of assuring the maintenance of a civil order. Thus, the crucial problem of the emerging social structure to deal with such continual changes, or in other words, the problem of *sustained* development, i.e., the ability of developing an institutional structure capable of absorbing continually changing problems and demands. It is this which constitutes the central problem and challenge of modernization.

What, then, permits large scale groups to function in some orderly fashion? Shibutani suggests (63 p. 141):

> Role-taking is a complex process involving the perception of gestures, vicarious identification with another person, and the projection upon him of one's own behavioral tendencies. This suggests that the ability of a man to participate effectively is concerted action depends on his capacity to become several people in his imagination.

Shibutani continues (p. 168):

> Perspectives are always hypothesized, and they are enforced each time an anticipated event actually takes place.

When a hypothesized perspective is confirmed a number of times, the possibility always exists that it will be reified. That is, it will be moved into a category of assertions that are beyond test. To the extent this is a pure category that is entirely beyond test the system is insulated from inputs which either additionally confirm or which infirm that hypothesis.

If an organization wished to test the validity of its operating assumptions it might deliberately insulate itself from information of any kind that might modify *ad hoc* those assumptions. They would eventually have to reopen, if possible, the channels through which reality testing might take place in order to determine the efficacy of their test. The test of insulation from inputs is a powerful one. I have read that in some cases a form of internal oscillation may occur which has some relationship to the catatonic condition of the mentally ill.

This is the vegatative state that schizophrenia sometimes leads to according to Shibutani (p. 172).

Saral and others (59) supported their hypothesis: That role information will generally be projeced in an interpersonal interaction and will affect the meaning and interpretation assigned to that interaction. This proposes a shift in the analytic approach. Before I do that, there is one more perspective from which the aggregate, the social system, can be profitably viewed.

From a slightly different perspective Shibutani (p. 568 and *passim*) returns to the question of conflict and differentiation when he credits Thomas and Znaniecki with the idea:

> That *social disorganization is an incidental part of the process of social change* . [...] *Social change*, the transformation of social structures, is not likely to occur without a temporary breakdown of consensus.

The emphasis is Shibutani's. The question that needs to be answered is, of course: How long is "temporary"? Since time can be so variable in subjective assessment the answer will be heavily dependent on many variables and can be given only in terms of some variable array. But that takes us

into yet another form of analysis thus the present more or less phenomenological approach.

Let's take a look at what happens when one attempts to push one form of analysis as far as it may go. Mathematical modeling, as proposed here, begins in a reductionist mode. Machine-like definitions are sought. Relationships, if sufficiently reliable in a probabilistic sense are treated as causal.

The Reductionist

It is possible to write a statement which represents the present posture/action/trajectory of a series of categories of behavior in an individual. That is, it is possible to specify the structure (residue of past function) and action potential (alternative activity modalities) of an individual's behavior repertory. Let I_i stand for individuals, and x_i to stand for behaviors of an individual. One way to write the array described above then would be:

$$[\ X_i\ X_2\ X_3^{\ I_i}\ \ldots\ X_n]$$ (That last subscript could be ∞.)

The initial level of analysis is thus at the behavior of an individual. The unit of analysis is a particular behavior/action by an individual. On the basis of theory (the ordering of past experience in the effort to predict/control the future) we generate another set of arrays. Each of these arrays is a probability vector, an estimate of the likelihood of the behaviors included in the I_i array being emitted *under given circumstances*.

These "circumstances" would be the parameters of these probability vectors. Here it can be stated with some confidence, that the appropriate

subscript for $\underline{p}$ is ∞ indicates that the set is an infinite set. It is in the design of these arrays that individuals are coupled with each other to form society. This coupling can be discussed as occurring in several stages or across several levels.

We briefly return to the antecedents of the individual's behavior array. The system state vectors and transform rules would have to do with genetic, biological, and social psychological variables. The number of these could become quite large.

Time will catch us up if we pursue this form of analysis. Let's see why.

Evans, Wallace, and Sutherland (26 pp. 137-138) give as computing time requirements the following:

T=total computing time B_b= input parameters (b=1,2,3,...,B)

n=number of values for each B_b

$\bar{P}$= average number of plays [of the game/simulation] required.

or

(Computations in the program.)

$\bar{t}$=average computation time/play

$$T\left(\prod_{b=k}^{B} = \bar{n}_b\right)\bar{P}t \qquad \text{where } \bar{n}_b = \left(\prod_{b=1}^{B} n_b\right)^{1/B}$$

They suggest one codification of the parameters that reduces this time considerably. Three categories of parameters are established. In one of these all values are used, in another the mean, maximum and minimum values are used, and in the third only the mean values are used. Thus;

$$T = (\bar{n}_b)\ B_1\ (3)\ B_2\ (B-B_1-B2)\ \bar{P}t$$

where $B=30$ $B_1=5$ $B_2=10$ $\bar{P}=10$ and $\bar{t}=1$ The former = 10^{31} The latter = $9 + 10^{10}$

I use the illustration for several reasons. First of all, I am

interested in what people do and am therefore focused on people variables, on the human side of things. Time, to a human being, is measured very interestingly. We have a plethora of clocks and watches. But we still speak of time passing "rapidly" and "slowly".

More important than this subjective evaluative dimension of time, is the related variability in the Δt of learning. There is a significant difference in its perceived value for a learner when in one case his goal is the accurate regurgitation of a rote memorization process, and when in another instance the goal is the formulation of a new non-trivial synthesis.

I am interested in attempting the latter, and in people who are also interested in that general goal, no matter what labels they may wear. Some memorization is necessary. Who wants to have to look up the telephone number of a commonly called handset every time he wants to try for the connection? Besides, no other device stubstitutes for the brain. Kenneth Boulding once said that knowledge is only what somebody knows. I've always understood him to mean that knowledge is not in the library, because it is not in books, papers, or any other document format. But the important thing is the formulation of the new synthesis. And it is here that computers, for reshaping time, are useful, possibly. But the reshaping of time I refer to here does not have to do with the difference betwen realtimeonlinetimesharing and unit record batch processing. It has to do with what happens in a man's head, not with what happens in a computer's memory and central processing unit.

All this leads to the generation of yet another set of vectors. Those may be variously constructed. They may be probability vectors. These would

describe or be derived from the probability distribution(s) of the event called "that a particular behavior of the individual's repertory be manifest within some time span".

We now have three vectors defining the individual's behavior.

1. The vector defining his behavior repertory.
2. The vector giving the probability of these behaviors being emitted under set of circumstances $\{a\}$.
3. The vector giving the probability of these behaviors being emitted within some time span t.

These latter two vectors could be combined. This paper section is only intended to suggest the nature of the analysis that may produce a model of society that begins with the behavior repertories of individuals. This societal model occurs where the arrays, or system (as they have become once the system state vector is joined by a set of transform rules for producing the next system state vector), are combined to form new units of analysis and thereby move us to new levels of analysis. Thus we move from one individual to one group und so weiter.

There are at least several different schema which each suggest what the levels of analysis could be considered to be. Here we might use as our system of levels of analysis that which consists of: the level of the individual; the level of the small group; the level of the formal organization; the level of the social institutional; and the social/cultural level. Following the notation used in describing the approach to the individual we might now define the SG (small group):

$$[X_1\ X_2\ X_3\ \ldots\ X_n]^{I_1}\ [X_1\ X_2\ X_3\ \ldots\ X_n]^{I_2} \ldots [X_1\ X_2\ X_3\ \ldots\ X_n]^{I_n}$$

and so forth.

The interesting thing, here, is that we must now specify not only the individuals, but also take into account the relationship among them. According to one view this might be a place to begin the specification of the input parameters. These were called "the circumstances" above. Outside that the number of single dimension relationships (socialpsychologically speaking) produced within an N sized group is given:

$$\sum_{r=2,N}^{N} \binom{N}{r}$$

This number is then multipled by the number of dimensions of relationship one wishes accounted for in the modeled system.

When all this is carried a few steps further we have an array that might look like this:

SG_i (Small group)

$[R_{111}\ R_{112}\ R_{113}\ \ldots\ R_{ijk}]$ Where ij specifies a set of individuals and k the relationship.

FO (Formal Organization)

$[R_{111}\ R_{112}\ R_{113}\ \ldots\ R_{ijk}]$ ij and k are used similarly only with regard to small groups.

SI_i (Social Institutional)

$[R_{111} \ldots\ldots\ldots\ldots\ldots\ R_{ijk}]$ ijk as above

SCC (Social Cultural Complex)

$[R_{111} \ldots\ldots\ldots\ldots\ldots\ R_{ijk}]$ ijk as above

The computation time has become astronomical since we have made no effort to specify how computational economies might be realized. And They would have to be quite great in order to permit us to use any computer I know of, no matter how powerful we might think our measures.

Perhaps all we have shown is that if nature be a lock and each mindful effort to understand/manipulate be a key, the locks seemingly certainly will yield to no single key, nor, indeed perhaps to any finite subset of all keys yet tried or to be tried.

Now consider these *caveats*. It is said there is/was a voter behavior simulator that produced scenarios interpretable as programmatic statements that could, and perhaps did, guide a major political figure in campaigning for office. Further consider that, although the approach sketched above may be flawed, the major difficulty is/was not with the analytic scheme but with the analyst.

A THIRD PERSPECTIVE

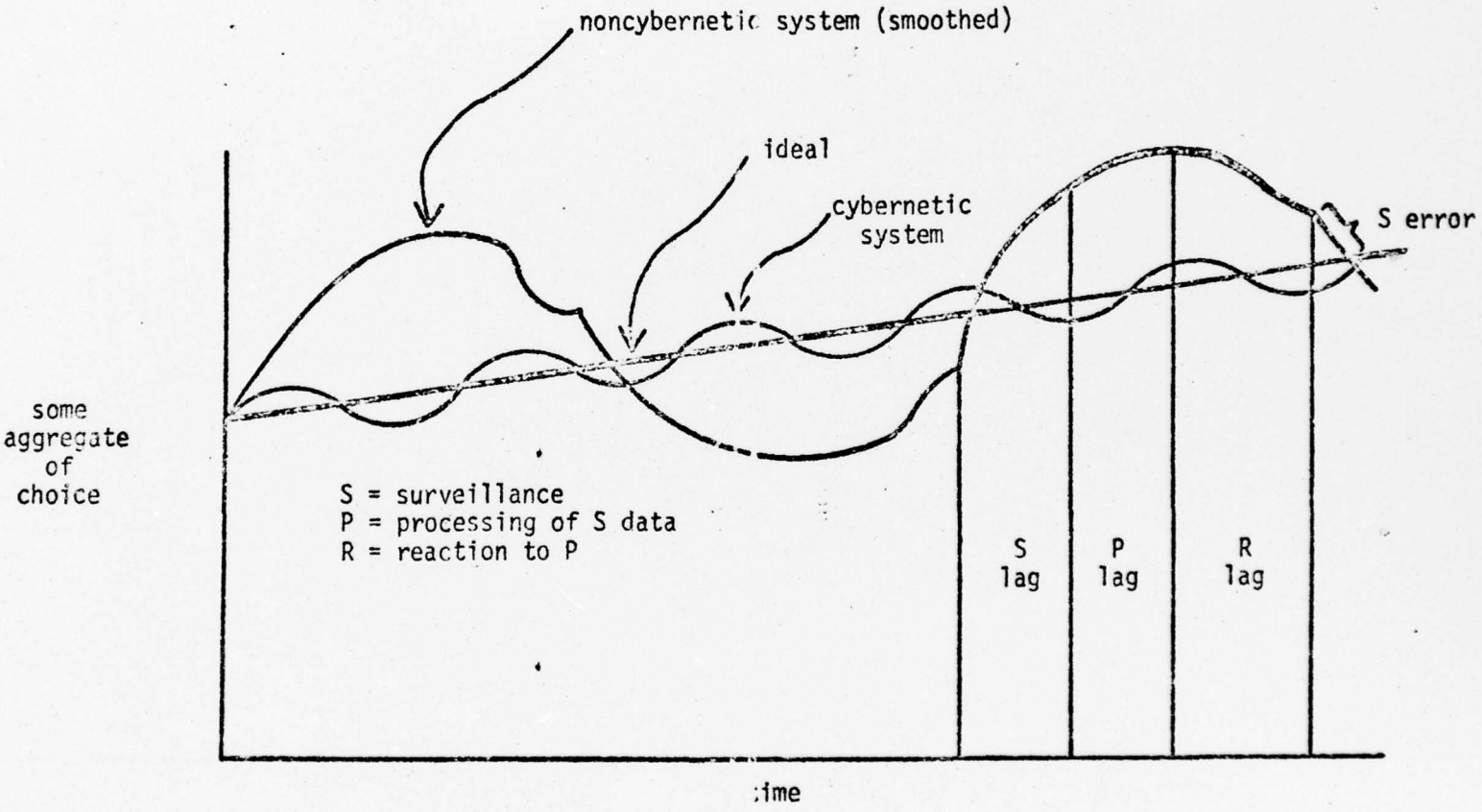
No matter what we call it we are always interested in the response curve of some entity, simple or complex. We are interested in inferences about the operating characteristics of other systems based upon criteria we have for placing a response curve of a certain configuration in a certain class in our taxonomy. That class identification consists of some specification regarding what sorts of routines are useful in the interaction, and what sorts of cues we will get that no routine will work except one that we must develop *ad hoc*.

In the next few pages, let's look at a model of organization response in terms of a curve, or the comparison and contrast of a pair of curves each thought to represent a type of operating modality in organizations.

In the discussion leading to the presentation of the original form of this model Ericson says (25 pp. 56-57):

> Thus the dynamics of organization-in-action should be viewed as an evolving social system, with management attention focused on the continually emergent system resulting from the reciprocal influences exerted by new activities (jobs), interactions (relationships), and sentiments (values) --- to use Homans' terminology. Now, because historically management simply did not have the communication and control tools to deal adequately with such emergent phenomena on a "real time" basis, we usually find that a subtle and intricate set of "implicit behavior norms" comprises the real essence of the actual control mechanism operative in large-scale organizations. That is, something is usually needed in order to "make the organization work" and to fill the behavior interstices left by the formalized statement of the system found in such paraphernalia as organization charts, manuals of operating procedure and the like. Organizational cement is therefore manufactured by organizational participants within the framework of the inadequate formal control system specified. This cement comprises the behavior norms which are based upon the "evolving pattern of expectations" which organizational role-playing develop. A *sub rosa* dynamic control system arise, most often in terms of the tacit problem and pattern of agreements which evolves among interacting organizational participants, reflecting their needs and values, as well as the orgnaization's.
>
> Now when management belatedly becomes aware that, for example engineering standards are habitually not being met in work outputs, the usual reaction is for the activation of formal authority and

GENERALIZED MODEL (F GOAL-SEEKING-SYSTEM RESPONSE
(URVE*



*After Ericson (24 p.58)

> control mechanisms. Unsatisfactory performance evaluation more often than not seem to lead directly to the imposition of explicit, formal, manifest control mechanisms. And, as subsequent events all too often show, such delayed and prescriptive reactions either merely trigger a search for newmodes of behavior which will put management off for another period of time, or to a divergent cycling and organizational explosition which we usually refer to as a "positive feedback" phenomenon.
>
> If things deteriorate sufficiently--and they usually do--the cycle depicted on the accompanying schematic is usually completed by someone in management concluding that "it's time we recognize." Indeed, a favorite bureaucratic pathology seems to be "If in doubt, reorganize," either in terms of restructuring positions, or reshuffling people, or both. It is hypothesized here, however, that an *index of managerial quality* is to be found in the frequency with which managers have to resort to the instruments of formal control: the move the need for using explicit sanctions, the greater the likelihood is that the managers in question does not adequately understand the nature of the problem(s) with which he seeks to deal. The cliche "Having lost sight of our objectives, we redouble our efforts" reflects this over-anxious and erroneous managerial reaction. As the chart indicates, the fact may be that what really needs to be called into question is the organization's *stated objectives*.

He goes on to argue that the on-line real time computer system, alone with its scientific andphilosophic substrate offers the opportunity to operate a cybernetic system. Hardware systems are not cybernetic systems and Ericson amply demonstrates his awareness of this in his paper. Note that "management" can refer to governments, or to parents, as well as corporations.

"What I propose is that some analytic discussion of this model may well serve to illustrate some contemporary social change issues and, possible, imply some approaches to various communications occassions thought to be interrelated with the change issues. Immediately it should be noted that the analysis avoids any *a priori* assumption about the superiority of one of the types of systems.

In fact, let us begin by considering that the area underneath the curves may be viewed in at least two ways. From the point of view which considers that deviation from the ideal is a cost, and a cost not necessary to oepration, the curve enclosing the smaller area is definitely preferable - on that dimension, at least. Suppose, though, that the deviation is considered to be some sort of index of creativity and that the organization has other steady states that it views as goals. Then the area under the curve might well be thought to be a major component of the overall index of organizational effectiveness. In that case, then, the curve enclosing the largest area would be thought representative of the preferable system.

A question that needs to be dealt with early in any discussion of change is a question having to do with the way in which the ideal state of the system comes to be defined. Here we can not hope to thoroughly analyze that question and so let us assume that the decision has been made and signaled generally acceptable. In other words, while remaining aware that exactly that functioning of the decision process is often called into issue, I will leave it to one side for the remainder of the discussion of this model.

"S error" is just the difference between what is and what the system thinks is there. Although not marked with regard to the "cybernetic system" it is there. One way itmight be shown in the "cybernetic system" would be by indicating a region within which the response curve of the system might lie,and further specify a probability distribution of the curve's location within that region.

"S lag", "P lag", and "R lag" are alike in some ways and unalike in others. They are partial subsets of each other. One way in which they are alike is that the cost of transmitting and receiving across a boundary is often greater than the cost of propagation through an equivalent "distance" in some medium. Think of it this way, if the onion skin were two feet thick many fewer onions would be eaten or smelled! Therefore the cost of redundant transmission is higher than the cost of non- or less redundant transmission. In addition, the cost of boundary-crossing varies with many other factors, including the level in the hierarchy at which the level exists and from which direction the boundary is being sustained. The boundary-crossing introduces time delays for at least two reasons. They are:

a) It takes time to accumulate or acquire the resources necessary to push the redundancy required through or across the boundary.

b) The actual transmission itself occurs in a protracted form required by the redundancy necessary.

Most detection nets operate on the discrimination of redundancy. Even the discrimination of differing qualities of sound and light is so handled usually. The amount of redundancy in the optic system of man is estimated as high as 10^6, for example.

Obviously, this possible explanation of "S lag" also applies to "P" and "R". To some extent this may account for a larger proportion of the "P lag" than it accounts for in either the "S lag" or the "R lag".

Briefly in addition to the above, the "S lag" may also result from a failure to detect due to signal/noise conditions (figure/ground to the Gestaltist), and other factors. "R lag" might be further rationalized in terms of the inertial character of systems, very definitely including human social (communication) systems. (Here see Mehrabian *passim* 40).

SUMMARY

There is a man. He lives a life inside his head, and that life is presumably not unrelated to that outside his head in which he is thought to be a participant. Within his head he may be capable of only the most monotonous of monologues, or he may comprehend a brilliant array of *personae* maintaining a running commentary on everything he kens. In either extreme case the man uses a set of signs which have become useful to him symbolically. It is difficult to say what these signs are, exactly, except that they are most likely electrical impulses variously transmitted and triggered, and biochemically sustained. The medium in which this occurs is called a brain. The brain is part of a body which consists of many tissues and systems that influence the nature of the brain's organized acitivity. None of this may be thought a closed system. The whole apparatus can survive only on the basis of a regular throughput of energy and mass in very definitely limited forms and arrays.

There is a man. He lives in a world rich in occasions. But how rich that world *seems* to him is not a matter for adjudication. No one is able to control that man's perceptions of that world based on a short term weak realtionsip. Something can be done over time, however, How much, or how little depends on many factors, inluding some having to do with the extent to which those who attempt the control see limits on the effort they are making. Of the limits they might see, many might be their own internalization of social values. Some subset of these social values might be legal constraints, another subset might be social sanctions.

There is a man. He can be seen as a member-of-groups. Not all of these groups may be apparent, or seem real, to some other man. Some of the groups he belongs to may be constructs of his imagination. Of these imaginary reference groups, many may be functional for him to the extent they operate to produce in him behaviors for which his environment rewards him, physically and socially. His membership in these various types of groups may be described in ways ranging from counting the number of times he smiles at a particular member of some face-to-face group, to the thoroughgoing abstraction which considers him as a vertex in a graph. The size of the groups this man belongs to ranges from the group of *personae* inside his head which asserts his plurality while to the observer he appears solitary, to the group formed by the species throughout its duration.

There is a group made up of two or more men. In what does it differ from a large set of simple summations of characteristics of the individual men who make it up? In some situations the group may behave less well, according to *a priori* criteria, than any one of the members of the group. In other situations any one member of the group would not surive, let alone handle the situation well, without the cooperation of the other members of the group. At the very least the members of a group provide stimulation for each other that possesses a variety probalby beyond that they can each provide for themselves. In dealing with this variety it is, perhaps, that they are alive. And it seems likely that only when they are dealing with this variety are they perceptibly alive to an onlooker.

The interactional pattern generically described as "onlooker" is one to which much more attention needs to be paid than can be devoted here. But he is related to the system he observes, at the minimum, by the exchange itself that is necessary for the act of observation. There is some evidence that in addition to observing outside his head, he observes inside his head. These interior observations are often described by others as his values, his attitudes, or his beliefs.

To change aught, we must alter all.

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ERRATA

NOTES TOWARD A THEORY OF COMMUNICATION AND SOCIAL CHANGE by James H. Campbell

(line count does not include headings)

page	line	correction
2	3	them for it
	4	environment
	13	delete
	14	delete
	22	questions
5	8	infirmation
	14	time2
	17	utterance
6	8	But somehow such expression, in
	14	predicted, and
	17	make
	24	not, and ... apparent, and
7	3	perhaps, that
	7	sophomoric: But
	15	component
	16	transpire
8	2	made.)
	3	farmers ... soil values
	9	two, might
	14	chance
	18	it and about
9	5	almost
	13	~~they~~
	21	is
10	1	delete
	2	"
	3	"
	5	contexts
	6	be possibly
	14	chance
11	6	Walter Buckley
	9	societies
14	3	eventually
	9	leads to in individuals
	27	some
15	1	than the present
	The heading "The Reductionist" belongs between lines 2 & 3.	
	13	to stand
16	1	indicating
18	17	to the group
19	9	then multiplied by
20	2	locks
23	26	along with its scientific
24	3	as a cost
	4	operation
26	9	Within
28	9	probably
Bibliography entry #36		The Human Animal