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ON A GENERAL THEORY OF COMMUNICATION

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Here is presented an overview of the many approaches to the study of human communication and preliminary notes on the formulation of a generalized theory of communication.

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Recent developments in several areas of study tend to underscore the need for a general theory of communication. The communications revolution of the nineteenth and twentieth centuries has now progressed enough to provide us with the beginnings of a coherent theory of information. Within the past few decades, the social sciences have begun to grow away from their age-long use of folk-methods and piecemeal empiricism. Literary criticism has begun to shift from its classical practice of categorical comparison to interpretations of communication content using more general and less-compartmentalized concepts.

To the worker in any one of these areas, developments in related areas may seem almost incomprehensible and only vaguely applicable to his own work. From the area of the natural sciences come the concepts of entropy in communication (21, 18), the logon, the metron, etc. (20). Social sciences contribute views of communication in human affairs such as field theory (11), intercultural studies (19, 16), action theory (13), content analysis (10, 1), and effect analysis (8). Letters and humanities contribute materials as seemingly diverse as studies of linguistic function (4, 17, 3) and rhetorical criticism (5).

With such varied and promising paths before us, it seems almost intolerably wasteful for us to follow the example of the man who, in Stephen Leacock's story, mounted his horse and rode off furiously in all directions. Unless these various activities in the study of communication

can be seen as parts of a larger concept, the very diversity of the communication researcher's interests, as compared with his individual capabilities and the amount of study he may devote to each area, threatens to make of him little more than a professional dilettante. At this stage in the history of our culture, there seems to be a greater necessity for a general theory of communication than ever moved Newton to formulate his statements about motion and matter or urged Einstein to generalize Newton's work. In the face of such necessity, it seems reasonably certain, if the history of ideas is some guide, that we shall have a general theory of communication. Likelihood that a suitable theory may be formulated within our lifetimes has been increased considerably by the work, during recent years, in linguistics, content analysis, communication theory, and other areas of study.

And we need such a unified philosophy of communication as a context for devising and conducting particular research projects. When a researcher conducting a study is aware only of its importance to his own specialized field of interest, he cannot, for one thing, be sufficiently long-sighted to draw all the conclusions from his data that they warrant.

But more importantly, and this is true of *any* broad research area, a general theory is necessary for the initial orientation of research and as an intellectual environment from which hypotheses may be drawn.

Furthermore, it is required for full understanding of the data we already have from past research. It is no use acting as tho Black's research in intelligibility (2), Aristotle's study of rhetorical principles, and the Hanover Institute studies of perception (12) have something in common which makes them important to students of communication unless we can show *what* they have in common and *why* one is relevant to the other.

Take another example. At present there is no logical structure that will immediately clarify the relevance of Shannon's information-theory approach (18), to epistemological statements about information, or, to take still another example, that will relate the idea of entropy in language to the principle of least effort in language (22).

If a general theory of communication is to be formulated, by what tests shall we judge it? Tradition and philosophy make certain normal demands.

First, under Ockham's razor, the best general theory of communication is that which most simply and parsimoniously states what is acceptable.

Second, at the suggestion of John Stuart Mill, the theory should be of such nature as to be either proved or disproved by comparison with the observed facts.

Third, if the theory cannot be verified directly, it should be so stated as to make its products derivative from mathematical or other deductive processes.

Fourth, the theory must certainly subsume the widest possible range of phenomena and predict their course with least possible error.

Finally, and most importantly, the theory must be so stated as to attract not necessarily the largest following but surely the most penetrating intellects in the related areas to which it applies.

Let us attempt to visualize what a general theory of communication might be like.

Communication, like all human functions, has an end or desideratum. But for this discussion, we ought to try to avoid the type of thinking that specific examples may lead us into. It is all too easy to say that different acts of communication have different purposes and that therefore there can be no *generalized* desideratum of communication. Such thinking would lead us to make up a theory for each particularized function separately.

Any human function can be evaluated, in part at least, by measurement of the degree of attainment of its desideratum. For a generalized theory of communication, we must postulate a generalized desideratum, that is, a rationale for the existence of communication. This will be an anthropological concept perhaps. Or a sociological concept. Possibly a mathematical concept.

We believe that it would be profitable to search for this generalized desideratum of communication in the generalized concept of freedom. There are strong arguments in favor of building our generalized theory around the proposition that communication as a human function has a generalized purpose which can be defined in terms of freedom. What we are saying is simply this—that, when we communicate, our reason for doing so has something to do with freedom, and that furthermore, freedom is involved in the way we go about it.

Now that is a fairly conservative statement of our present views. But it does give us the responsibility of devising or discovering a definition for a general concept of freedom. We may well look first to mathematics for this, for mathematics contains some of the most generalized concepts to be found in science and philosophy.

It becomes clear at once that the most common of modern statistical technics, such as chi square, Student's t-ratio, and analysis of variance, depend for their usefulness upon a concept of freedom. To interpret these statistics, it is necessary to know the number of degrees of freedom in which they operate. If there is but one way of doing something, you have no freedom of choice in the way you do it. If there are two ways, you have one degree of freedom of choice; if there are three ways,

you have two degrees of freedom, and so on. The rule is that the number of degrees of freedom is one less than the total number of choices at hand. This way of measuring freedom is simple enough to warrant its application to other areas in which freedom is an important concept.

Indeed, this particular concept of freedom has become central to information theory, because statistical work has been the basis for applying ideas about thermodynamic entropy to information. Information theory describes information as negative entropy, which simply means that the more you restrict the irrelevant parts of a message, the more information you pack into that message. Your freedom to toss anything at all into the message decreases your chances of putting the most information into it. As your freedom to put anything in the message *decreases*, the chances that you will put the greatest possible amount of information into the message *increase*. Without this concept of freedom, what we know as information theory would not exist.

In addition to the mathematical concepts of freedom, we have other definitions of freedom stated in mathematical terms.

Social freedom has been defined as the ratio of the sum total of the means to satisfy our desires to the sum total of our desires. (Note the close similarity of this definition of freedom to those that apply in statistical odds and in information theory.) Following this line of reasoning, economic freedom has been demonstrated as the ratio of the amount of work a person can do minus what he has to do to satisfy his desires, to the amount of work he can do. According to this definition, the less work a person has to do to satisfy himself, the freer he is. Further development of this thesis shows that capital represents a reserve of economic freedom—a reserve which is the result of putting less into an economic system than you desire to take out of it. Political freedom, in turn, may be expressed in a similar ratio (15).

Some *psychological* concepts of freedom have already been the subject of considerable study. Ruesch and Bateson (16) and others give us support for extension of the general idea of freedom into the psychology of communication, particularly as regards the limitation of freedom by inhibition and prejudice.

Other psychological concepts of freedom give rise to such questions as: If freedom is measurable as the number and value of the choices open to an individual, does a large vocabulary imply greater associational freedom? And what, for example, would this imply about the fact that vocabulary tests frequently correlate quite well with other measurements of intelligence?

And what of artistic communication? Does it seem improbable that a useful theory of artistic creation and experience could be based on concepts of freedom? Nearly all the existing aesthetic philosophies

appear to include such a concept, altho with varying labels and importance.

Certainly, then, there are differences, but there seems to be a common factor in the various concepts of freedom. We know this intuitively and by the fact that the word "freedom" seems to apply to each one. This common factor is most simply stated in the mathematical definitions. These mathematical definitions are of special importance to us because they may provide a rationale for integrating communication as natural science, with communication as social science, with communication as arts and letters.

Plenty of questions arise when we attempt to construct this generalized theory of communication. Let us mention just a few: (a) Has information theory struck upon as fundamental a principle for our understanding of human communication as it has for our understanding of mechanical communication? (b) Communication is obviously an essential function in the establishment of the "togetherness" and rapport we call friendship. Might we learn something about communication by an examination of the rhetoric of friendship? (c) Is there a yet-to-be-discovered psychological correlative of the informational bit, just as loudness is the psychological correlative of intensity? (d) Are freedom and power different names for the same thing? (e) Is it proper to say that interest is latent attention and that attention is interest in action? If so, what does this imply about rhetoric, about listenability, about drama? (f) Do we actually "give" information when we communicate, or are we only influencing the listener's attention to rove to already-established memories in a sequence which will allow him, so to speak, to discover our message within his own experience?¹ And by the way, (g) what is memory? And (h) attention? And so on and on.

Now, a summary and a final word. There is a definite need—very nearly a necessity—for a general theory of communication to pull together the many profitable but philosophically isolated special theories like those of Shannon the mathematician (18), Burke the rhetorician (5), Wiener the cyberneticist (21), Korzybski the semanticist (9), Sapir the linguist (17), Potter the phonetician (14), Flesch the stylist (7), Ruesch the psychiatrist (16), and Zipf the ecologist (22).

A general theory of communication would also provide a context for individual research projects, past, present and future, and a logical system for the development of hypotheses upon which to base future research.

¹The writers developed a general definition of communication in a paper presented to the Southern Speech Association at Greenville, S. C., in April 1953. This paper appeared in the November 1953, issue of the *Journal of Communication*.

We have suggested that a general theory of communication requires a general definition of communication and that examination of the mathematical concepts of freedom may be rewarding in this respect. That freedom is a biological, evolutionary, anthropological, political, ethical, aesthetic, and mathematical concept seems to be relevant to the suggestion. Freedom appears to be a generalized human desideratum. Communication appears to be essential to the attainment of most human desiderata. That communication is fundamentally concerned with freedom should add impetus to the quest for a general theory.

We believe with Dewey that there can be no distinction between philosophy and science (6). If we are to progress in either, we must progress in both. We therefore wish to stress the necessity not only of intensified specific research, but of intensified effort to construct a rationale, a theory, a philosophy of communication.

Probably, a general theory of communication will only come into being as part of a new general metaphysic. And if, as Burke (5) has been saying for some time, nearly all human activity is rhetorical, a general theory of communication will be a very large and important part of such a metaphysic. A general theory of communication, then, may well deserve the label of meta-rhetoric.

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