Quantumstuff in Communication: Some Implications of Stephenson's Concept

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ABSTRACT: The fundamental proposition of quantum theory, that observed phenomena interact with the observer, was seen by Stephenson as an important link to his construction of theory about communication. Key linking concepts are communicability—oral public culture/discourse, or consciousness—and intentionality, which is based on the fact that all possible responses for a person are contained in a culture, subculture, or counterculture. Of these responses, only a few are highly significant possibilities. Another key concept, complementarity, makes allowances for inevitable social discontinuities. Parallels are drawn between the transitive, subjectivity, and communication theory (which involves self-reference) on one hand, and the substantive, objectivity, and information theory (which involves matters of fact) on the other. Stephenson contended that more emphasis needs to be placed on self-reference and less on information. Q methodology, by drawing on Pierce's concept of abduction, Stephenson said, makes possible the application by subjects of "all probability states." We provide a set of six basic postulates that sum up

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Stephenson's argument for the relevance of quantum theory. We contend that what counts for journalism, in applying quantum theory, is the communicability of the masses, not the messages themselves. The concepts of concourses (the sum of an individual's knowledge and self-reference are indispensible to understanding mass communication. Factoring rankings of self-referent statements leads to uncovering significant beliefs common to a culture, but also allows identification of subcultures and countercultures. Rogers and Kincaid's convergence model is seen as useful to this process.

"When I use a word," Humpty Dumpty said, in rather a scornful tone, "it means what I choose it to mean—no more no less."

"The question is," said Alice, "whether you *can* make words mean so many different things."

"The question is," said Humpty Dumpty, "Which is to be master—that's all."

"Contrariwise," continued Tweedle-dee, "if it was so, it might be; and if it were so, it would be; but as it isn't, it ain't. That's logic."

"Curiouser and curiouser!"

Lewis Carroll, *Alice in Wonderland*

Introduction

One of the primary premises of quantum theory—perhaps the foremost premise—is that real-world phenomena interact with the observer. Thus the real world, not just our individual perceptions of it, is unique for each of us. Stephenson saw this contention as a means of connecting his theoretical propositions about communication, beginning with Q methodology, fundamentally with quantum theory. The purpose of this paper is to explicate these connections as best we can.

Stephenson linked the phenomenon/observer interaction with individual observing episodes, which psychologists have long called *psychological events* (PEs). An example, he said, would be a person sitting in front of a television set for an hour. He said, in beginning to explain the relationship of quantum theory to communication, "A beginning is made ... with individually experienced phenomena", and he followed with, "All that the Q-sorting and its quantum factor probes have achieved is, apparently, to clear aside some of [the] bias and control, leaving bare the basic causative influences" (Stephenson, 1988, pp. 24-25).

Two key concepts in putting communication into a quantum theory framework are *communicability* and *intentionality*. Stephenson defines communicability as oral public culture, or oral public discourse, and substitutes it for what we normally refer to as consciousness, at least in terms of consciousness as a scientific construct (Stephenson, 1995/1996). Subjectivity, according to Stephenson, is the basis of reality. But subjectivity is a factor of one's culture, through the knowledge we share with others in our culture. The origin of all self-referent statements, Stephenson says, is in the oral, public culture in which a person lives. Because of this, each culture, subculture or counterculture contains all possible responses for a person reacting within that culture, subculture or counterculture. Hence, each culture, subculture and counterculture has *intentionality*. While there are many possible responses to a given public issue, there are only "a few highly significant possibilities" at issue and these significant possibilities are intentional, not accidental or random. It is not possible to predict significant factors among all the possibilities, but the oral public culture does presage the factors because all the possibilities exist within the culture (Stephenson, 1998). For Stephenson, the factors in an application of Q methodology are complementary to one another. A key concept of complementarity, in turn, is discontinuity. He quotes Walter Ong, McLuhan scholar: "The concept [complementarity] would presumably enable us to make allowance for obvious and seemingly inevitable *discontinuities* in industrial society just as modern physical theory countenances expressly the discontinuity of the atom" (Stephenson, 1986, p. 16). He then adds:

> In physics the phenomenon of the complementary theories of light—wave and corpuscular—had led Niels Bohr (1950) to wonder how far the principle had universal application. He got to know the observations of William James, and agreed that every thought, when expressed, displays complementariness. The thought *as thought* is one thing; as printed it is another. And if thought is mainly *orally* expressed, then thoughts *as spoken* are likely to be close to what James called transitive, whereas as written or printed, they would be substantive (p. 16).

Professor Stephenson drew parallels between the transitive, subjectivity and communication theory on one hand, and the substantive, objectivity and information theory, on the other. Information here refers to matters of fact, while communication involves self-reference. That is, the substantive, written down, becomes static and frozen in time, subject to examination and evaluation as to its accurate represen-

tation of reality; while the transitive remains enmeshed in a dynamic process, with a unique set of referents (a concourse) in each individual. This analysis of the communication situation gives new depth and insight to the observation, made early in the study of communication, that meanings are in those involved in the communication, not in the messages (Berlo, 1960).

In fact, by emphasizing the unique interaction between a phenomenon and the observer on one hand, and a message and its receiver on the other, quantum theory appears able to explain what has long been puzzling communication scholars—why the intended messages do not produce the same effects on all receivers .

Again, because facts are testable without self-reference, information actually can be proved or disproved. In communication, however, self-referent statements are incapable of proof or disproof. Thus mass communication and journalism, for Stephenson, take two forms: one is called communicative, and involves self-reference, and the other is informational, involving no self-reference. He contended that overemphasis on the informational function of mass media messages has led to the neglect of the role that audiences play in the communication process. Applying quantum concepts to the interpretation of data from a Q study, he said:

> The three factors [in the example] are *complementary* to one another. The information for each cannot be added to give a meaningful Q sort—the statements are left in a chance formation.
>
> And indeed, the table of operant factor scores ... is of profound importance: It represents *complementarity*, as a quantum principle of mind (so-called), or of communicability in our system of subjective science (Stephenson, 1995/1996, p. 8)

It is not a purpose of this paper to attempt a comprehensive explanation of what Stephenson meant by complementarity, in part because the implications go somewhat beyond its relevance to quantum theory. At any rate, that task has been accomplished with distinction by Robert Logan (1991). In his explanation, he said:

> To Stephenson, complementarity meant that when physical or behavioral scientists examine what scholars cannot directly see, touch, feel or otherwise experience, which includes subatomic particles as well as the inner-workings of the human mind, it is methodologically and theoretically imperative to assume all probability states are operant before one measures or applies operational definitions, empirical methods and

subsequent descriptions (p. 29).

Stephenson contended, of course, that Q methodology fulfills this obligation by—drawing on Pierce's concept of *abduction*—leaving the results of a Q sort open to application by the subjects of "all probability states."

Let us return for a moment to the idea of discontinuity. Those who have had extensive experience in interpreting Q factors, most often expressed as ordered arrays of statements on an agree/disagree continuum, will probably agree that the task can be looked at as finding the key to what is *systematic* about the array. That is, when the interpreter hits on the underlying logic of the array, everything seems to fall into place. Likewise, in interpreting the relationships among the factors, we maintain that these relationships also can be looked at as systematic and logical at a higher level. Is this view in conflict with Stephenson's claim that there are discontinuities involved?

We would argue that there is no such conflict. The factors may be *paradoxical*, and (in a case where all the sorts come from the same subject, under different conditions of instruction) the subject "may not be able to experience them more than one at a time" (Stephenson, 1998), but this does not deny the claim that they exist in systematic relationship. In the same Stephenson example, the three factors from the TV viewer were explained as expressing her fantasy (A), her reality (B), and her hidden fantasy (C). "They hold within them not only something of the viewer's *past* experiences, and of the *present* (when she was interviewed ...) but also a pointer to her *future*, creatively considered" (p. 75). The factors also are *indeterminate*:

> [The subject] is quite unaware that her utterances can be 'reduced' to such factors, and next week ... what was fantasy may now be reality; and what was reality, now fantasy. Her 'hidden' fantasy may emerge (p. 75).

The final dimension or characteristic of the "quantumstuff" that Q factors represent is *intentionality*, "a creative nexus, that is itself not predictable, yet quite possible" (p. 75). It is "a concept foreign to current thought. The problem is to trace the consequences from operant factors to creation. It is achieved, it is suggested, in relation to *culture* formation" (p. 76), Stephenson gives the example of President Eisenhower, a career soldier, reacting in horror to suggestions that the atom bomb be used to deal with problems in Korea during his presidency, and with other problems in Asia during his life time. "How," Stephen-

son asks,

> could a Commander-in-Chief, who knew war in triumph, attest to such a *conscience*? Surely a cultural matter was involved .... If we could have *measured* Eisenhower's psychological experience (PE) regarding the atom bomb, it would have indicated, we may be absolutely sure, two or three totally distinct *intentionalities*—one would be moral beneficence, actualizing as conscience, and one other would represent the thrust of *power*, of a Pentagon at war (pp. 76).

He concludes the example by pointing to the involvement of acculturation:

> Any culture, subculture, or counterculture is represented as quantum-stuff by the oral public communicability (self-referential) it engenders (p. 76).

He explains by going back to the TV viewer whose PE yielded three factors:

> We used *her* oral public communicability as quantumstuff to represent *her* culture, subcultures, or countercultures. We do so to discover what *really* is at issue, free from any psychological theory other than that which quantum theory calls for (pp. 76-77).

We shall have more to say about the involvement of cultures in this process a bit later in our paper.

It should be clear that the phenomena we study—communicabilities—as Q methodologists, if we allow Stephenson to point the way, are no less internally complicated than the real-world phenomena that confront the microphysicist. For him, the rather familiar and comfortable object that we designate as "table" becomes an extremely complex *physical event* made up of so many levels of real-world quantumstuff interacting in such complex relationships that he could spend a lifetime trying to explain and understand without being able to complete the job. The quantumstuff we try to explain and understand by examining human communicability with Q methodology is no less complex. Let us try to sum up our challenge, just from the point where our subjects have provided the data as Q factors. First, we are reminded that we approach the data from the perspectives of our own concourses and communicability. To quote once more: "All that the Q sorting and its quantum-factor probes have achieved is, apparently, to clear aside some of this bias and control, leaving bare the basic causative influences."

Stephenson went on to say:

> New ideas arise by clearing away dross. All that concourse has provided is the initial language, in self-referential form, so randomized that everything about it is indeterminate and probabilistic, ready for quantum theory to do its job (1988, pp. 24-25).

Thus, the data before us have the properties, first of *complementarity*, meaning that they may be paradoxical, there are likely to be discontinuities, and the subjects may not be able to express more than one dimension at a time; nonetheless all the dimensions, or factors, are needed to fully represent what is at issue for the subject. Second, the data have *intentionality*, meaning that they are informed by a cultural milieu into creative expressions that are self-referent and not predictable. Third, the data are *transitive*, meaning they have been extracted from an ongoing dynamic process within the framework of the subject's communicability.

To summarize in yet another way, we can distill Stephenson's argument regarding the relevance of quantum theory to communication into six basic postulates:

1) A member of an audience can make two types of statements: statements of fact and statements of self-reference. The former can be proved or disproved; the latter cannot.

2) The concern of the researcher is with communicability, or "oral, public culture."

3) A collection of self-referential statements about the event constitutes a concourse, the quantumstuff upon which quantum phenomena depend.

4) Q methodology provides the procedure for quantification of any psychological event.

5) Operant factors derived from administering Q technique are subject to the principle of *complementarity* and provide the essence of the subjectivity at issue.

6) The system makes possible a new epistemology, in which subjectivity is *real*, a *fact*, the essence of reality.

Clearly, once we have proceeded operantly to the point where our data are to be interpreted, the main challenge still lies ahead.

Quantumstuff and Culture

We should like now to address some implications of quantumstuff as communication for journalism. Quantum theory helps to put the focus of communication on communicability of the masses, rather than on the messages of the mass media. It shows that what really counts in successful mass communication (eliciting in the audience a reasonable facsimile of the communicator's intention) is not the message but the communicability of the masses, who provide their own meanings to various messages by way of feeling. Further, communicability implies a common culture and is the manifestation of culture (Stephenson, 1998).

For Stephenson, every concept, notion, idea or even an object, there is a concourse or several concourses that are rooted in the culture associated with such concourses. Every statement in a concourse tends to be shared knowledge, and everyone has some cognizance of every statement, although the statement may have different meanings for different persons—or even for the same person in different functional contexts.

The concepts of concourse, shared knowledge and self-reference are indispensable in understanding the mass communication process. What has made mass communication possible is exactly what is described by the concourse, and shared knowledge expressed in each and every concourse. We need some cognition of the statements before we can read a newspaper or watch a television news program. At the same time, each of us gets something different from our Psychological Experience with the newspaper or news program. While two persons may be able to recite the facts contained in a news story in basically the same way, they may derive different meanings and see different reactions as appropriate. In Stephenson's words, " ... all new meaning forms in relation to statements of a concourse by way of feeling" (Stephenson, 1994).

Tapping into a concourse reveals a common flow of ideas, ideology, perceptions, understandings, values, beliefs, symbols—"as a reality"—that is part of the conversation, or dialogue, of discourse, of which public opinion and, indeed, culture is composed. Different concourses represent different cultures, subcultures, and countercultures that make up a society.

The factoring of self-referent statements provides the researcher with a test for identifying significant beliefs common to a particular oral

public culture. But it also works in the opposite direction: Factoring self-referent statements allows the researcher to identify specific subcultures and countercultures. And the comparison of data from across cultural boundaries can reveal likenesses and differences as well as the extent to which mass communication contributes to hegemony. An important issue for cultural studies scholars is the connection between cultural products, such as mass communication, and the audience. Many cultural studies identify the ideas found within a culture, but fail to show that those ideas have actual effects upon the people who consume them, or to show how the audience interprets and uses the ideas. The study of self-referent statements can provide a methodology for this type of study.

The relationship between communication—particularly mass communication—and culture has been firmly established. Beginning in the 1880s and through the first half of the 20th century, John Dewey, Robert Park, George Herbert Mead and Charles Cooley, who together became known as the Chicago School of sociologists, conceived communication as a process by which a culture is brought into existence, maintained over time, and assumed by the various social institutions (Carey, 1989). The influence of the Chicago School, of course, was still prominent during Stephenson's years at Chicago. Harold Innis, Walter Ong, and Marshall McLuhan built on the Chicago School's theoretical foundation to reveal more fully the cultural effects not only of the content of mass communication, but also of the media of communication (Innis, 1951, 1950; Ong, 1971; McLuhan, 1951, 1962, 1967). Stephenson gave considerable attention to the work of Innis and McLuhan in his "Quantum Theory of Advertising" (1986). In recent years, Neil Postman and others have examined the effects on American culture of television's domination of mass communication (Postman, 1986; Fiske, 1990).

Carey, a prominent American mass communication scholar in cultural studies, has proposed a "ritual model" of communication, as opposed to the more traditional transportation, or transmission of information, model (Carey, 1989). The ritual model, he says, "sees the original or highest manifestation of communication not in the transmission of intelligent information but in the construction and maintenance of an ordered, meaningful cultural world that can serve as a control and container for human action. Mass communication projects a community's ideals through popular culture of all kinds to create a symbolic order "that operates to provide not information but confirmation, not to alter attitudes or change minds but to represent an underlying order of things, not to perform functions but to manifest an ongoing and

fragile social process (Carey, 1989, p. 19).

Complementary to the ritual model of communication is the convergence model of communication presented by Everett Rogers and D. Lawrence Kincaid (1981). "Mutual understanding and mutual agreement are the primary goals of the communication process," they assert (p. 69). Both the convergence model and quantum theory draw heavily from Charles Sanders Pierce's idea that "no man's interpretation of words is based on exactly the same experience as any other man's." They both recognize that the codes and concepts available to transmit and interpret information are based on each individual's past experiences, because each individual's life experience is unique to his or her own; no two persons' interpretations of the same message can be identical although they may be similar if the two persons have had very similar life experiences. In other words, the interpretation of any code, concept or idea in a message is unique to a person involved in the communication process. Another similarity between the convergence model and quantum theory lies in their emphasis on meaning acquired rather than the verbal or other forms of message transmitted. Interpretation, meaning and understanding are given more importance by both the convergence model and quantum theory, shedding light on the important role a receiver can play in the communication process.

Although many of the examples used to demonstrate the convergence model of communication are interpersonal in nature, the convergence model is by no means limited to interpersonal communication. The basic idea underlying the convergence model that "every symbol, word, sentence or scientific formula must be given meaning if it is to communicate intelligent thought" covers interpersonal as well as mass communication. Mutual understanding and mutual agreement are primary goals for not only interpersonal but also mass communication. The success of mass communication also depends on the convergence in meaning, attitude and behavior reached by the senders (who could be journalists themselves, or their sources) and the receivers (the audience). Although a message transmitted through the mass media is aimed at a large and anonymous audience, the receivers would not act in any uniform way in interpreting the message. The interpretation of a message carried through the mass media is also subject to the unique interaction between the message and the receiver. The meaning of a particular message in the mass media is determined for each member of the audience by his or her personal, unique experience.

The concept of communication as culture has not been lost on cultural studies scholars in the humanities (Lears, 1983; Marchand, 1985; May, 1980; Lasch, 1990). But what has remained problematical,

even controversial, is the question of hegemony in culture and the role that mass communication plays (Williams, 1958, 1966; Geertz, 1973; Hoare & Smith, 1973, 1977). What is still not clearly understood is the relationship among the dominant culture, the countercultures, and mass communication (Denning, 1987; Reynolds, 1989; Davidson, 1986; Tompkins, 1985; Woodward, 1971; Howe, 1975).

It is just this question of the interrelationship of a modern society's various subcultures and its mass communication that we believe quantum theory, guided by Stephenson's insights and admonitions, can address.

Finally, where quantum theory may really have impact generally is in providing new insight on how mass media messages are processed. To paraphrase Stephenson, you can list the prices of the goods and tell where to find them, but nothing happens until a sale is made.

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