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On the Ethics of Constructing Communication

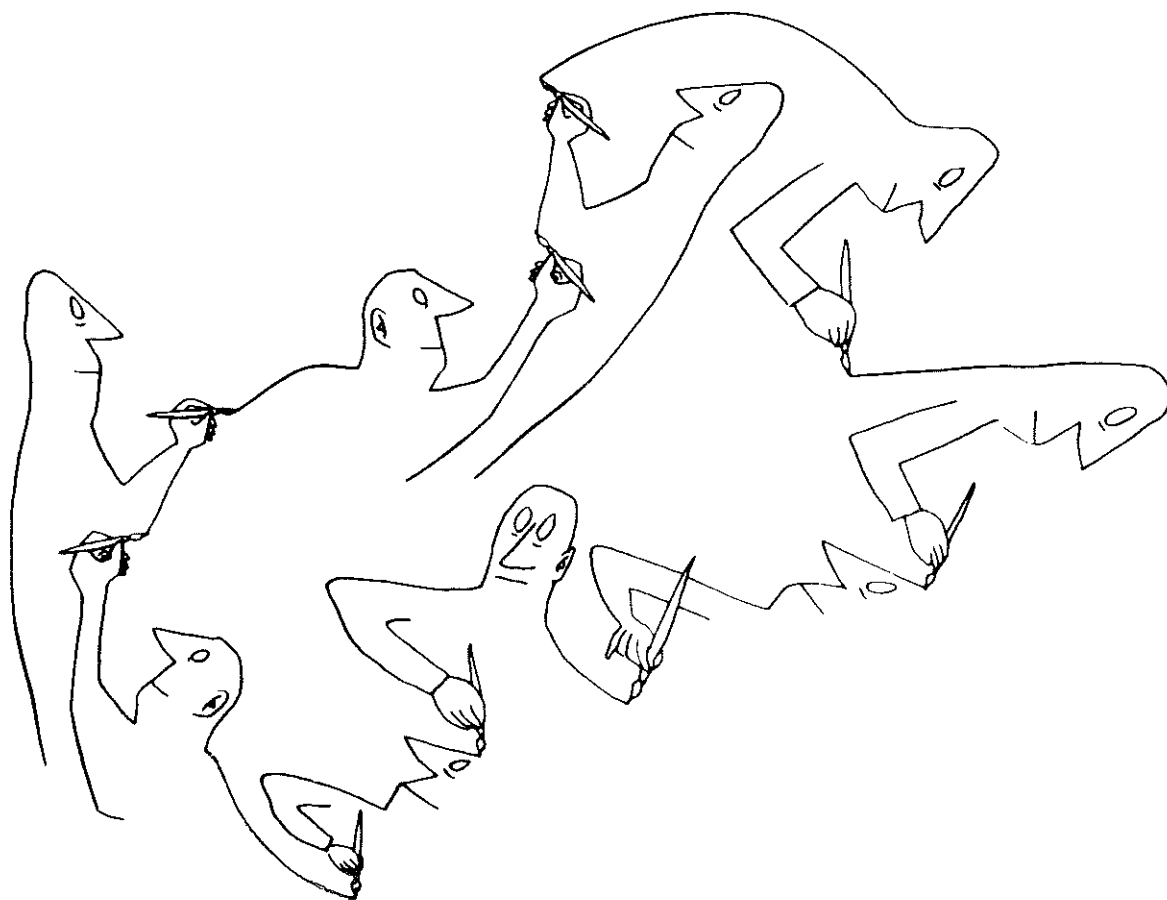
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ON THE ETHICS OF CONSTRUCTING COMMUNICATION^{*}

by Klaus Krippendorff

Abstract

Draw others like yourself.



(after Saul Steinberg)

Figure 1

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Paradigm Dialogue

To me, "paradigm dialogues" could mean, first, dialogues about paradigms, a scholarly discourse about different approaches to communication research. Under the name of Paradigmatology, Magoroh Maruyama (1974) already attempted such comparisons of "cross-disiplinary, cross-professional and cross-cultural communication" and I don't need to repeat his work here. "Paradigm dialogues" could mean, second, debates among scholars representing different paradigms and I suppose this has been practiced throughout a good number of sessions at the Hawaii conference. Fortunately or not, the format of a single-authored paper does not lend itself to such an interpretation. "Paradigm dialogues" could also mean, third, the bringing together of different paradigms, perhaps to show paradigmatic differences to be merely artificial, a matter of polemics rather than substance, a search for the unifying core of truth. It is this interpretation that I want to take as a point of departure for making my own proposal for I believe it to be difficult if not impossible to bridge true paradigmatic differences.

According to Thomas Kuhn, a paradigm is a unity of

- (a) methodology, i.e., the formal rules of scientific practice,
- (b) scientific problems which are solved against the background of
- (c) consensus of what counts as an acceptable explanation,

i.e., what it takes for a scientific problem to be solved. Probably the most important property of a paradigm is that it contains its own justification. It defines rationality, objectivity, sets conditions of truth by means of rational procedures and prevents non-objective and false elements to enter the knowledge

generated by this paradigm. Paradigms are self-sealing in the sense that no empirical evidence judged acceptable within a paradigm can challenge its validity.

Paradigms that accept the same methodology, scientific problems and explanations are commensurable and dialogue between commensurable paradigms is, according to Thomas Kuhn, normal discourse. Such discourse has the effect of reinforcing and elaborating the scientific practice in either "paradigm" and one could argue that commensurable paradigms are not really different.

Between incommensurable paradigms, communication is, according to Kuhn, either abnormal or revolutionary. It is abnormal if the established paradigm succeeds not only in protecting itself against the challenging paradigm but moreover in rendering the latter irrational, invalid, subjective, unworthy or silly. Communication is revolutionary if the established paradigm succumbs, is surpassed or transcended by the challenging paradigm, requiring radical (in the sense of going to its "roots") reformulation and a new consensus on methodology, scientific problems and solutions. Thus, if we talk about truly different, i.e., incommensurable paradigms, paradigm dialogue in the sense of bringing paradigms together or into harmony is impossible.

In view of this impossibility I shall therefore take the liberty of interpreting "paradigm dialogues" in a fourth sense and propose a new paradigm for communication studies, if not for the social sciences generally, a paradigm that has the possibility of dialogue at its roots. I believe we are witnessing the emergence of many cracks in the foundations of the established and largely naturalistic paradigm, that render this received view somewhat shaky and suggest revolutionary changes might be imminent if not timely. I am convinced that our (pre-paradigmatic,

i.e., naive) experience in communication leads up to this new paradigm and that communication scholars are or could be the avant-garde of this paradigmatic revolution. At this point my own understanding of this new paradigm is limited and my proposal necessarily highly tentative.

Since paradigms are neither challenged nor established by evidence, I am inviting you to participate in an epistemological journey. It entails constructing with me a reality, a world that the existing paradigm might consider entirely imaginary (in the sense of non-existing, not worthy of study, crazy or outrageous), entering in it as well as applying it to your own experiences, particularly in communicating with others, and then asking whether the implications of this new world realize human desires more readily than those of the established world. At the end of the tour, I hope you might find that the imaginary world I have been constructing will turn out to be not so imaginary after all and that the design principles for the construction of this reality are applicable not only to understanding communication as a dialogue but also to the scientific practice of acquiring knowledge about people, society, and if you need to treat it separately, nature.

The Existing Paradigm

The mind derives its limits not from nature
but from its own prescriptions (Immanuel Kant))

To characterize the current paradigm, against which a new one must be contrasted, let me start the journey with some of the metaphors used in our scientific practice. Recent writers in philosophy and linguistics have suggested

that metaphors play a central role in language, thought and action (Ortony, 1979; Sacks, 1979; Lackoff and Johnson, 1980, 1987; Salmond, 1982) and that they might provide the key to the realities in which their users live and do their work.

Scientific discourse seems to heavily rely on agricultural metaphors. Anne Salmond (1982) termed this the "Knowledge is landscape" metaphor. Indeed, we divide knowledge into separate fields in which we work, we define areas of study, try to draw boundaries and defend us against intrusions by those that have no business doing work where we already are. Some fields are productive and yield insights, others bear few fruits and working in them is fruitless. Related to such agricultural metaphors is a second one, called "understanding is seeing." We take positions in the field, have outlooks or points of view, choose between micro or macroscopic perspectives, look at things more closely, employ a narrow focus, include a wide range of phenomena or approach a problem with an open mind. Common to these metaphors is that a reality exists separately from the scientific observer. While work is undeniably needed to till a field and to harvest its crops, the nature of the crops is governed by another metaphor that Salmond calls "facts are natural objects." Our research reports refer to facts as hard, solid, concrete or tangible. Facts are raw, original, simple or uncontaminated. Facts are searched for, gotten, found, picked up, collected, gathered from above ground or uncovered, unearthed, dug up from below the surface. Once observers have obtained such natural and thing-like facts, they may sort them, weigh them, balance them, arrange them, tabulate them, preserve them, look at them, describe them, record them and process them in the form of data.

Additionally, metaphors like "understanding is seeing" and "facts are natural

objects" not only set observers apart from what they observe but also provide the metaphorical grounding of the notion of "objectivity." Facts are objective when they are discovered in their natural form and habitat. In every-day talk, the assertion "this is a fact" kills all questions about validity for facts are considered inherently undeniable, unquestionable, irrefutable, speak for themselves and can therefore not be doubted or argued with. In scientific discourse, it is their a priori and independent physical existence that makes facts and everything derived from them "objective". Research, literally "repeated search" or "repeated examination" of scientific facts, brings forth, reveals, unveils or unwraps the uncontaminated truth -- like the peeling of a fruit -- and shows, displays or describes its objective core.

The consistent use of such expressions in every-day talk as well as in scientific discourse characterizes the work of an extremely powerful paradigm that governs the production of knowledge in society, guides much of social research, controls virtually all inquiries into human communication and must be serving the existing institutions well.

I am suggesting that the key to this existing paradigm lies in the metaphorical grounding of objectivity in the conception of thing-like objects existing outside and independent of scientific observers. Two basic premises seem to characterize its ontological commitments. The first locates the objects of scientific inquiry in a unique domain in which they can be found, distinguished and referred to. It says:

OBSERVERS SHALL ACCEPT ONLY ONE REALITY.

Although researchers obviously can choose among various domains in this reality -- metaphorically, among specialized fields to devote attention to -- whichever domain is chosen, no two objects can be thought of occupying the same space within it just as no single object can be conceived to be two different things at the same time. It ultimately follows that the universe affords only one unique explanation and conflicting ones prove biases in perception that need to be corrected at all costs. (Witness the discomfort with the coexistence of and subsequent efforts to unify the particle and wave form theories of light which didn't even lead to conflicting predictions). Heinz von Foerster (1979) phrased the second premise of this dominant paradigm most eloquently:

OBSERVERS SHALL NOT ENTER THEIR DOMAIN OF OBSERVATION.

It simply entails the commitment by scientific observers to describe the world as is and independent of the act of observation.

Although I am trying to avoid big names for various forms of -isms and of famous philosophers of science, it is quite obvious that the ontological commitment entailed by these premises underly logical positivism, neo-positivism and the kind of empiricism that believes all knowledge is built upon elementary sensations through which the world reveals its structure and appears to its observer as what it "in fact" is. Anthony Giddens (in this volume) prefers the term "naturalistic paradigm" to refer to the same and I have no quarrel with that.

Before involving communication in my argument, let me show how this received paradigm has managed to evade the challenges it encounters by withdrawing behind

suitable limits for normal scientific inquiry within which the two basic premises do survive. The two limits I will mention are Heisenberg's Uncertainty Principle and Bertrand Russell's Theory of Logical Types. A third, Karl Popper's Falsification Criterion will be mentioned later.

Heisenberg's Uncertainty Principle recognizes that, in quantum physics, every measurement requires an exchange of energy, disturbs the natural condition of the measured object and states that it is impossible to simultaneously measure the position and the velocity of atomic particles with arbitrary precision. The principle holds in the microcosm of quantum physics. Perhaps it is less limiting in every-day (macro) physics, including astronomy, where the act of observation may not significantly alter what is observed, but it certainly has its equivalent in the social sciences where observer influences are the rule, not the exception. A generalization of the principle could say: the more the act of observation (measurement) affects an object in the observed (measured) variables the greater will be the uncertainty as to what is observed (what the measurements represent), the properties of the undisturbed object or the effects of observing (measuring) it. In other words, the more an observer probes or prompts the data of interest, the less information will these data contain about what the object was like before the observation began.

Note that Heisenberg's Uncertainty Principle and its generalization is stated entirely within the existing paradigm. It makes the normal ontological commitments and particularly upholds the traditional ideal of objectivity as an accurate representation of observed facts. Nowhere does the principle undermine or challenge the existing paradigm, but it asserts its very limit, stating that objectivity is

unachievable when observation (measurement) is not a strictly one-way process.

One latent consequence of this paradigmatic limit is that only those empirical situations are appropriate for scientific observations in which scientific observers can assure themselves and others that they have not interfered in their domain of observation. Indeed researchers working within this paradigm spend a great deal of effort to preserve a separate, natural and uncontaminated reality even when it becomes apparent that this is difficult. Our textbooks call attention to the dangers of experimental biases, the frequently demonstrated experience that preconceptions and intentions, even by minor laboratory personnel, may surreptitiously influence the results of scientific experiments. We fear methodological biases, the possibility that data may include measuring artifacts or be influenced by the choice of investigative techniques. We also try to avoid well-known interviewer biases, the effects of interviewer characteristics, interviewing situations, and ways of asking questions on the kind of responses recorded. The widely promoted use of Unobtrusive Measures (Webb, et al., 1966) in the social sciences, content analysis, for example, in preference to experiments with subjects, survey and field research, in which individuals are forced to react to the observing scientist's manipulations, point to the same conclusion. To preserve the existing paradigm, it is imperative to exclude from scientific penetration all situations in which observers are involved or of which they are constituent parts. This is particularly the case in all situations in which the acquisition of knowledge and practical action go hand in hand, for example in psychiatric work, management, community development, political communication, and of course, dialogue.

A corollary of Heisenberg's principle seems due to the less conclusive but nevertheless frequent mechanism of projection. For whatever reason, it seems more natural for researchers to recognize their own preferred (or under the existing paradigm prescribed and hence considered most "natural") relation to reality in the relations among the things, people or organizations they attempt to describe. Projecting the paradigmatically prescribed one-way communication from an undisturbed reality to its observer, not surprisingly, most communication models are also one-way in the sense that they start with a sender and end with the effects on a receiver and thereby equate communication with control. Most causal models are also linear, linking initial conditions to subsequent events. To assure such "clean" one-way causality, textbooks in statistics teach us always to distinguish between independent and dependent variables or predictor and criterion variables. Input-output models, whether their boxes are described in terms of logical nets, transition matrices, transformations or production functions, all tend to be unidirectional. And data analysis, coding and translation are generally seen as a mapping from a domain to its range. The preference for one-way processes also leads to a variety of meta-physical extrapolations. When one looks for the causes of causes, causes of causes of causes, etc. one is easily led to Aristotle's ultimate mover. And when one looks for consequences of consequences one is naturally led to ultimate purposes to which everything seems to converge.

The second paradigmatic limit is revealed in Russell's Theory of Logical Types (Whitehead and Russell, 1910). The theory was invented to literally end two thousand years of uneasy puzzlement over paradoxes in logic, in mathematics and most recently in the social sciences. In the scholarly community, paradoxes had always been a source of intellectual entertainment but taken not very seriously otherwise.

For example, did Epimenedes, the Cretan philosopher, who said that "all Cretans are liars" lie or tell the truth? Can the command to "disobey this command" be followed? What does it mean to say "I am not talking to you"? Logical contradictions indeed rob a language of its descriptive power, but paradoxes moreover introduce an unsettling circularity: when one believes Epimenedes to tell the truth one is led to the conclusion that he must be lying and when one accepts him to be a liar one is led to the conclusion that he is telling the truth, etc. Statements of this kind have rightly been called vicious and could not be allowed to enter a paradigm committed to the conception of a single and observer independent reality.

Russell clearly recognized the self-reference in these paradoxes as the chief villain of the problem. Indeed, Epimenedes made a statement about Cretans, but, being a Cretan himself, he made the statement assert its own invalidity, thus invoking the never-ending vicious cycle of alternating validations. But Russell's philosophy of science also made the by now familiar ontological commitment that reality is unique, resides outside its observer and becomes manifest through an observer's sensations. Language, to be meaningful, must then always be descriptive of something other than itself, ultimately of an observer's sensations. Instead of coping with the self-referential nature of language, Russell capitulated to his philosophical commitments and invented the injunctive Theory of Logical Types which assures that statements on one logical level make references only to things (statements) on a lower logical level, thus exorcising all circular constructions from the legitimate concerns of inquiring scientists.

The Theory of Logical Types not only rules paradoxes out of existence but also

declares as meaningless all notions that have self-reference at their roots: the conception of observers as active participants in their own affairs, the notions of self-organization, self-determination, autonomy and dialectical processes, all of which involve self-constituting or self-contradicting circular references. To exclude a great many phenomena, particularly in the social world, from scientific penetration, just to preserve the foundations of the existing paradigm (which Whitehead and Russell's work helped to build) is a rather drastic measure and a supreme demonstration of the power the dominant paradigm exercises in our scientific enterprise. In a recent paper (Krippendorff, 1984) I could link morphogenesis and structural growth in cognition, in society and in scientific constructions to the emergence and successful resolution of paradoxes. Ruling paradoxes out of existence shows the existing paradigm no longer capable of experiencing conditions conducive to structural expansion, thus marking its own limits to growth.

The Theory of Logical Types has several latent consequences, the most obvious being its exclusively referential use of language, observation and measurement. A language describes an object language and in turn is described by a meta-language which is in turn described by a meta-meta-language and so fourth ad infinitum. The fact that Goedel put a limit to this theoretically infinite expansion is rarely recognized in scientific practice. A more remarkable consequence is the associated preference for hierarchies of things, concepts, people and in social forms. For example values, which are conceived to account for and hence refer to how someone decides among alternatives, must then be placed into a logical type higher than the decisions they govern. To account for decisions among appropriate values requires values of a higher order and to account for those, requires values of an even higher order, etc. This leads to hierarchical expansions without ever reaching closure

except in some universal principle like a singular god. Or social control, which implies the ability of one person to prescribe what another should do, puts the controller on a logical level higher than the controlled and immediately favours the description of social organizations in hierarchical terms and the location of ultimate responsibility on top of this hierarchy. The fascistic nature of this social form must be mentioned, albeit in passing. Many systems theorists, working within the existing paradigm, virtually equate systems with hierarchical forms of organization (e.g. Miller, 1978) and find hierarchies in the organization of the universe (Gallaxies containing solar systems containing planets containing...), in the organization of scientific disciplines (philosophy->theoretical sciences->applied sciences->...) in the organization of living things (the Linnean system of classification, for example), etc. Coupled with this paradigm's ontological commitment, Russell's Theory of Logical Types makes social scientists, who are most obviously entangled with the social use of language, see hierarchies to be the most natural forms of organization and exclude all circular and autonomous forms from their legitimate concern or render accounts of such forms meaningless.

In summary, Heisenberg's Uncertainty Principle states the limit of what can be objectively observed within the existing paradigm. Russell's Theory of Logical Types exorcises those circular forms that would erode its foundations. Both render this paradigm rather restrictive, at least to me, and I wonder why so many communication researchers hold on to it in their daily work.

Communication

To give some "substance" to my proposal, let me start with a Zen-story. It

shows, perhaps a bit extreme, the kind of experiences I believe we all encounter when communicating with others, whether these are friends or strangers, or whether we are in pursuit of change or mere attentive observers. I would hope indeed that the experiences the story invokes shed light on our dual role as ordinary communicators and as communication researchers for I will later make no difference between the two, except for the level of awareness, observational skills, critical ability, and social responsibility we ought to assert for ourselves.

The story is as follows:

Trading Dialogue for Lodging

Provided he makes and wins an argument about Buddhism with those who live there, any wandering monk can remain in a Zen temple. If he is defeated, he has to move on.

In a temple in the northern part of Japan two brother monks were dwelling together. The elder one was learned, but the younger one was stupid and had but one eye.

A wandering monk came and asked for lodging, properly challenging them to a debate about the sublime teaching. The elder brother, tired that day from much studying, told the younger one to take his place. "Go and request the dialogue in silence," he cautioned.

So the young monk and the stranger went to the shrine and sat down.

Shortly afterwards the traveler rose and went in to the elder brother and said: "Your young brother is a wonderful fellow. He defeated me."

Relate the dialogue to me," said the elder one.

"Well," explained the traveler, "first I held up one finger, representing Buddha, the enlightened one. So he held up two fingers, signifying Buddha and his teaching. I held up three fingers, representing Buddha, his teaching, and his followers, living the harmonious life. Then he shook his clenched fist in my face, indicating that all three come from one realization. Thus he won and so I have no right to remain here." With this, the traveler left.

"Where is that fellow?" asked the younger one, running in to his elder brother.

"I understand you won the debate."

"Won nothing. I'm going to beat him up."

"Tell me the subject of the debate," asked the elder one.

"Why, the minute he saw me he held up one finger, insulting me by insinuating that I have only one eye. Since he was a stranger I thought I would be polite to him, so I held up two fingers, congratulating him that he has two eyes. Then the impolite wretch held up three fingers, suggesting that between us we only have three eyes. So I got mad and started to punch him, but he ran out and that ended it!"

(Reps, undated: 28-30)

What can we learn from this? One lesson is that each communicator lives in an entirely different reality. The other, that despite the absence of cognitive sharing there is apparently no misunderstanding. A third is that information flows circularly between the two debaters and this interaction or alteraction, one should say, produces knowledge that makes the traveller leave. I shall refer back to the details of this story but want to ask first what a communication researcher working under the naturalist paradigm could learn from the incidence had he been a participant.

In a debater's position, this communication researcher would have to regard the dialogue an experience that is contaminated by personal and subjective elements which the received paradigm can not admit as a basis for evidence. Trying to be objective, he might not be aware that it is his own interpretation of the situation that casts the other's intentions, which leads him to confuse what he sees with what takes place "in fact." Being aware of his own interest in the outcome of the debate would make his assessments value-laden. And being forced to interact with his opponent, actively influencing what he observes without comparable controls, violates the demand for unbiased observation and provides no experimental basis for generalizations. Finally, the "hard facts" he could have recorded by a camera, for

example, the sequence "one finger, two fingers, three fingers, fist" says nothing about why the traveller left and the younger monk was left angry. In other words, should this normal communication researcher end up raving, as the traveller probably does, about the brilliant one-eyed monk to whom he lost the debate, he would have to speak as an ordinary individual. A behavioral scientist would have to subtract nearly everything that might be meaningful to those involved, tell an interesting anecdote at best, but contribute nothing to a theory of human communication.

Presumably, our communication researcher would be more comfortable in the position of the older brother who, being the medium through which the story is revealed, resembles that of an objective, detached and superior observer, a position the received paradigm favours. In a way it is the older brother who sets up an "experiment" by telling the two other monks to debate (in silence) and receiving in return each individual's "response" in the form of a report of what happened. But, since it is impossible for our communication researcher to conceive of the existence of multiple realities--even so, each debater claimed his version to be the fact and the zen-story does not present judgements as to who is right--his ontological commitments disposes him to construe the two debaters' reports as two different interpretations of the same facts. However, since he did not observe these presumed facts himself, in order to preserve this paradigmatically required form of explanation, he will have to infer a reality from these reports and distinguish between facts and interpretations or between the objective situation and their subjective reflections. Ascertaining such differences and ascribing biases to them clearly implicates the naturalistic paradigm and reveals the outside observer to be in a position privileged to see the world as is while denying this ability to those observed. We can dismiss the whole story as mere fiction but we could also ask

outselves whether the facts involved are the very linguistically revealed constructions, and for the older brother the linguistically revealed interpretations of these constructions, as it were, each constitutive of different realities through which communication makes sense. I am suggesting that the received observer position will lead to numerous difficulties of understanding that cannot be resolved within the existing paradigm. The unilateral claim to objectivity by scientific observers at the exclusion of the observed other observers being a particularly untenable position to take.

Clearly, there must be something wrong with a paradigm that is so little suited to produce knowledge about human communication and creates so many epistemological problems for itself. Let me squarely suggest that the age-old conception of a single reality and the injunction against letting the scientific observers enter their domain of observation needs to be removed from our scientific practice and be replaced by other, empirically less restrictive and ethically more acceptable imperatives. In what follows now I am proposing five imperatives, an aesthetical, an empirical, a self-refential, an ethical and a social imperative. They constitute not a collection from which to pick one and not the other, but an integrated whole, a system that hangs together and defines a paradigm in its own right. Needless to say, I find this paradigm far more attractive than the one it hopefully challenges and replaces. Let me consider these imperatives one-by-one and elaborate their implications, keeping in mind the tentative nature of my proposal.

The Aesthetical Imperative

The aesthetical imperative quite innocently reads:

CONSTRUCT YOUR OWN REALITY TO SEE

and is intentionally ambiguous, for it means both that "in order to see we must engage in the construction of reality" and "what we see is the realities we have constructed." The Zen-story exemplifies this with considerable clarity.

Apparently, each communicator lives in very different realities indeed. We ought to respect this empirical fact. Each has constructed an individually coherent dialogue that gives meaning to the sequence of individual experiences. Had the older brother watched the silent debate as well, he may have come up with a version of his own. There is no question about who is right and who is wrong. Each makes sense of his own actions and experiences and does so in his own terms. Through the eyes of the older brother, we are witnessing the existence not of a universe but a 'duo-verse'. And, if the older brother's reality and that of other possible observers would be added, we must admit the existence of a multi-verse of ideo-typical and tenuously connected realities.

Furthermore, the "things" that were accounted for in the two debaters' reports are nowhere objective or outside the two communicators. Each re-presents its own actions and its own experiences subsequent to these actions, and these are entered into each's own construction of the dialogue. Even though some of the words are used in both reports, e.g., "one finger," "two fingers," etc., they play different roles in these constructions. I am suggesting that whatever is seen is always preceded by, or seen through, a construction that entails certain expected perceptions. In the story, the gist of these constructions is an alternating sequence of non-verbal signs ultimately deciding on whether the stranger could stay

or would have to leave. None of the two reports is more objective than the other. The older brother has two texts to compare and the privilege of this comparison does not set him above the two debaters' ability to construct their own realities.

There are many biological examples where seeing and constructing go hand in hand. The blind spot in our retina demonstrates that we do not miss what we can't sense and we make up, albeit unconsciously, what we think should be there (after von Foerster, 1981: 288-289). Binocular vision helps explaining why the nervous system had to virtually invent a third dimension in order to cope with the conflicting images in our two retinas (after Bateson, 1979:77-79). Color perception experiments revealed no demonstrable correlation between the spectrum of light reflected from objects and the colors we perceive as an intrinsic property of their surfaces, but a remarkable mechanism through which the experience of color is created (Brou, Sciascias, Linden and Lettvin, 1986). So-called color illusions arise from a mistaken conception of visions as a kind of optical system for accurately representing what is in front of someone's eyes. New research on the neural organization of perception strongly suggests that whatever we see is largely generated from within the brain, the product of active, iterative and semi-autonomous cognitive processes that have a life of their own. The circular construction of realities largely evolves from their own history of construction, occasionally perturbed by sensations from the outside (after Varela, 1984). I mention biological insights here because of the widespread reliance on photographic metaphors for explaining vision with the claim implied that we manipulate pictorial representations of an existing reality in our brain. Such conceptions are unable to account for what seems to be a unique feature of human cognition: the autonomy of its constructions under constitutionally unknowable perturbations.

In sociology, the idea that knowledge is socially constructed and governed by processes that result from the collective history of these constructions is not new. However, the early proponents of this sociology of knowledge, Berger and Luckmann (1966) for example, carefully limit their concern to social reality which has a history of being seen as superimposed and defined on top of a material reality, Marx's notion of ideological superstructure, for example, thus avoiding the issue of how deep this construction penetrates human existence. Recent studies in social psychology (Gergen and Davis, 1985; Harre, 1986) go further and suggest that human emotions, which we commonly think to be biological, instinctive and hence involuntary in nature, are the very product of cognitive constructions and have a social history of their own, romantic love, its suddenness, its physiological arousal, for example having been invented no more than 700 years ago (Averill, 1985). Even self-consciousness, the practice of self-ascription of perception and action and the "crown" of human cognition may not be so natural either as we like to believe. According to Julian Jaynes (1982), it may have been invented by the Greeks sometime between the composition of the Iliad and the Odyssey. There seems to be no doubt, we very much live in, feel, and act upon our own constructed realities, just as the Zen-monks did, but are scientists an exception?

I believe the foregoing is generalizable to scientific pursuits as well. In fact, as social scientists we naturally assume considerable freedom in developing theories, in deriving from them hypotheses and policy recommendations and applying them to experiments and work with subjects. The history of communication research is not so much about communication but about creative scholars, about researchers talking to each other and playing with ideas, about intellectual circles that form around particular theories or methodologies and break up when the workings of that

theory or methodology seem exhausted or about social institutions in need of certain kind of knowledge. In other words, the frequent revisions in the organization of scientific knowledge seems related less to the "landscape" it claims to depict than to the nature of the community of inquiring scientists. Even Albert Einstein, who otherwise believed in the existence of a single and consistent universe ("nature does not play games"), frequently emphasized that the universe we see is constructed by creative scientists and that such constructions unquestionably precede observations:

We now know that science cannot grow out of empiricism alone, that in the constructions of science we need to use free invention which only a posteriori can be confronted with experience as to its usefulness. This fact could elude earlier generations, to whom theoretical creation seemed to grow indirectly out of empiricism without the creative influence of a free construction of concepts. The more primitive the status of science is the more readily can the scientist live under the illusion that he is a pure empiricist. (Pais, 1982:14)

The a priori nature of scientific constructions is also claimed in other criticism of the established paradigm which, as we said, is founded on the belief that observations are neutral to competing theories, form the sole basis on which scientific knowledge is to be constructed and thus provide the ultimate controls for what we may know for sure. According to Daniel O'Keefe, who is specifically addressing issues of communication research, criticism of the established view maintains

that observations are inherently "theory-laden," that "facts" are not facts independent of a conceptual (theoretical) framework and thus that there is no theory-independent observation language. As Hanson (1958) puts it, "seeing is a 'theory-laden' undertaking" and thus "there is more to seeing than meets the eyeball". (O'Keefe, 1975).

In his review of Nelson Goodman's Ways of World Making (1978) W.V.O. Quine

observed that physical theory is "ninety-nine parts conceptualization to one part observation," and concludes that this would make "nature" a poor candidate for the "real" world (cited from Bruner, 1986:100). Obviously considerations other than an independently constituted reality governs theory construction even in physics and probably more so in the social sciences. I am suggesting not only that a good deal of these ninety-nine percent conceptualizations is currently accounted for by paradigmatic commitments to the received naturalistic paradigm but moreover that this commitment is also unconscionable. By making an objective and observer-independent reality the principal ruler over the constitution of scientific knowledge, this dominant paradigm in effect absolves scientists from taking responsibility for their constructions. Indeed, how could a scientist be blamed for finding or discovering something when one believes that someone else, nature or god, has put it there to begin with? How could a scientist be held responsible for merely describing something when one believes that a description is independent of what it describes and merely pictures what others could see as well?

One can not deny that the naturalist paradigm has served the scientific community well. Its claim that scientific practice is value-free and neutral in effect has enabled the institution of science to survive political and religious upheavals but it is this very paradigm that has made science into an unreflected generator of potentially dangerous forces in society. The aesthetical imperative I am proposing here aims to turn the determinism around, make scientists aware of their own creativity in constructing the realities we will all have to live with and to enable them to take responsibility for their constructions. The psychological and political consequences of this imperative are, I believe, profound.

For example, all scientific knowledge has social consequences. Those who generate and communicate scientific knowledge ought not to hide behind the facade of an objective reality they in effect build and then disown, but to assume responsibility for its construction. Speaking as a member of the scientific community, it is we who have to take responsibility for the kind of technology that follows from our theoretical propositions. B.F. Skinner is responsible for the deterministic teaching machines and reinforcement programs that emerged from his theories, reducing man to a stimulus-response device. We have to take responsibility for the kind of institutions our research findings support or help develop. Administrative mass communication research is responsible for "improving" media control of large audiences. We ought to be able to decide against creating theories that favour the interest of a ruling minority (fascist governments, for example). We have to take responsibility for the kind of image of man we portray in our theories of human communication and of human participation in social affairs. Sigmund Freud is responsible for having invented a basically hydraulic model of the human psyche, with its drives, repressive mechanisms, magnitudes of feelings, childhood determinism that has little place for human creative self-determination and, although largely outdated, still controls how people think, see and talk about themselves including how judges make decisions in the courts. Had another theory taken hold of the conceptual vacuum that existed in Freud's times, we would presumably see ourselves differently today. Finally, it is we who have to take responsibility for the kind of knowledge that can be generated from the paradigm we choose to work under. All of these responsibilities can be claimed only if one realizes the freedom the aesthetical imperative asserts.

The need to take responsibility for our theoretical constructions is

particularly important in the social sciences where theories are largely subject to reifications including institutionalizations. Social theories are about people and people are likely to respond to them, either by opposing them or by conforming to them, rendering them either invalid or making them truer thereby. Ethnic stereotypes, self-fulfilling hypotheses or certain principles of effective management (e.g., the Hawthorne effect) are of this kind. I mentioned the theories of Freud and Skinner which have become truer the more they are published or converted into technology. I shall address some communication notions later.

I want to mention that the view expressed so far is not entirely my own but, I believe, consistent with Jean Piaget's (1970), Heinz von Foerster's (1981, (Segal, 1986)), Ernst von Glasersfeld (1981), Nelson Goodman's (1978, 1984), Jerome Bruner's (1986) and related to various less radical forms of social constructivism, for example Kenneth Gergen's (1985), Luthar Berger and Thomas Luckmann's (1966), and Luckmann's (1983) including perhaps Jesse Delia's (1977). The wording of the aesthetical imperative is in fact a rephrase of von Foerster's: "If you desire to see, learn now to act" (1981:308).

The Empirical Imperative

The attribute "aesthetical" was deliberately chosen to allow considerations of beauty, the cognitively grounded pleasing of the senses without strings attached. But by itself, this imperative might smell of solipsism, the belief that everyone makes up, lives in and is indeed in the center of his own world. The empirical imperative aims to limit the arbitrariness of constructed realities without making references to a structured world before we know. It calls for an active exploration

of the constraints experienced in the act of construction:

INVENT AS MANY ALTERNATIVE CONSTRUCTIONS AS YOU CAN
AND ACT TO EXPERIENCE THE CONSTRAINTS ON THEIR VIABILITY.

With this imperative I am suggesting that viable constructions say nothing about a reality external to us except when they fail in some respect and that we should therefore actively strive to explore the limits beyond which constructions become non-viable and can then no longer serve as premises for action. Information lies in this negative form. Going back to our Zen-story, while it is obvious that the three monks share very little of what is dramatized therein, it is equally clear that there is no misunderstanding whatsoever. The traveller experiences that he lost the debate and moves on. The younger brother is insulted and, having threatened his opponent, perfectly understands why the traveller would want to leave the scene. After receiving the two reports of the dialogue, the older brother also understands why the stranger left and his brother is angry. From each monk's perspective, communication was perfect, unambiguous, answered all relevant questions, terminated with one of several expected outcomes and none of the monks had experienced any reason to revise their constructions within the context of their experiences. All three rather different constructions therefore remained viable in the sense that they did not make their beholder run into difficulties.

However, had the debate been continued with words, had the older brother intervened, in other words, had the two monks been able to see themselves in a context larger than called for by the silent debate, most likely one or both of them would have experienced problems with holding on to their highly idiosyncratic

dialogue constructions. Any inability to understand, explain, predict or make sense of a situation indicates the non-viability of a construction and always is context bound. The experience of misunderstanding in communication is a case of this. A pathological response to this is to keep the construction, to narrow the context to where it applied successfully, consider the larger context incomprehensible or crazy and leave the paradoxical scene. This is what Heisenberg's Uncertainty Principle has done to science in effect. The empirical imperative suggests instead that non-viable constructions be actively sought and rejected or replaced by new, not-yet-proven-faulty constructions. As it were, the two monks neither made an effort to do something that would challenge their conceptions nor did they receive clues from each other that would force them to reject the understanding they had achieved. The debate remained within a context in which their constructions proved viable.

One might argue that the "external reality", whatever that may be, always is "a poor communicator." It knows only one message. It says either "NO" to a construction--when its predictions fail, or when the actions it calls for don't yield expected perceptions --or it says "NOTHING at all." From "nothing" or "no comment" one can not possible infer anything about the validity, adequacy or correspondence of a construction and something else, and this "something else" can therefore never "reveal its" structure. The empirical imperative merely calls observers to continuously generate new constructions or to expand, elaborate and combine existing ones in order to bring forth the experience of constraints on the freedom to construct them at will. Without stipulating what viable constructions might represent it suggests regarding them just as what they are: not yet proven faulty.

Gregory Bateson (1972) anticipated this imperative by linking its negative form of reasoning to processes of evolution. In biology, evolution does not favour the fittest (which is a popular misinterpretation of Darwin's theory even though he himself was responsible for this slippage) but selectively eliminates those organisms that cannot survive the interaction with their environment. Those surviving may have features that have been adaptive till now but may well turn out to fail them in the future. They may have also features that are totally irrelevant for survival, mere creative variations of no consequence. Evolution says nothing about future advantages of anything. All we can say is that the organisms of a species that do survive possess none of the features that have prevented it from existing throughout its history of interaction in its particular environment. Bateson linked the theory of evolution to cybernetic forms of explanation which are negative in that they explain why certain constructions are not tenable but say nothing about why not-yet-proven-non-viable constructions work.

The empirical imperative can also be seen as a radical generalization of Karl Popper's (1959) Falsification Criterion. Concerned with how generalizations may be supported by empirical evidence he plainly concludes they cannot. There never are enough data available to support a theory but already few may reject it. Recognizing this, Popper suggests that verification (empirical support for the truth-value of a theory) is not possible and that falsification lies at the heart of the scientific procedure. Positivists after him have accepted the impossibility of establishing the degree of correspondence between a theory or hypothesis and the empirical evidence it claims to describe but interpreted "non-falsified" constructions as "corroborated" or as "implicitly verified" which Popper did not intend. Although Popper's falsification criteria did not manage to challenge the

established paradigm, it clearly makes no claim as to what, if anything non-falsifiable theories describe. This point is echoed in Donald Campbell's (1974) "Evolutionary Epistemology", Peter Skagestad's (1978) sequel and in Ernst von Glasersfeld's (1981) work.

A logical consequence of the empirical imperative is the radical abandonment of the belief that constructions, theories, hypotheses or practical guides for action must describe something accurately (in the sense of a referential theory of language), particularly an externally existing reality. Viable constructions are what they are, speak entirely for themselves and should not be taken as depicting something. von Glasersfeld used the analogy of a key in a lock to describe the fit between a construction and what it does. There may be many keys that would open the lock but there are also some that don't. The key does not describe the lock it opens.

Among the conceptual consequences of the empirical imperative is the rejection of cognitive sharing as a criterion for good communication. Cognitive sharing in the sense of same, similar or overlapping cognitive representations between communicators is first of all difficult to establish. We can't simply open up someone's brain without destroying what we wish to observe and if we could, we would face the problem of not knowing how to identify the pattern of neuronal activity to which these cognitive representations supposedly refer. In the Zen-story, the two debating monks knew perfectly well how the dialogue went and all they had seen about each other became part of their own construction and a premise for their action. Even so the older brother could see differences in the two accounts, these would have been his own constructions had the story told us what they were. Only if he

would have claimed privileged access to the two monks brains could he have become a judge and decide who was right or what they had in common, but he did not and this is part of the story. I am suggesting that the concept of cognitive sharing is a social myth imported by the positivistic paradigm into human communication theory (and practice?) and unethical for two reasons: first, it supports authority claims based on either privileged access to a singular reality in which overlapping conceptions or cognitive similarities could be ascertained objectively or the power to interpret their own constructions as valid representations of the constructions held by others. Second, it supports the idea of communication as unilateral or one-way control. Accordingly, communication would be judged successful if a sender manages to get his/her point across to a receiver and makes this receiver do, think or desire what s/he intended him/her to by that sender's measures. From this position, the two monks would appear to not have communicated at all even so neither of them would have agreed had one asked them separately. Although control notions of communication are indeed practiced, and many social institutions from advertising to totalitarian governments thrive on it, for the study of human communication the normative implications of this view are unnecessarily restrictive and in its exclusivity oppressive. Anthony Wallace (1961) comes to the same conclusion when he shows cognitive sharing to be neither a necessary condition for society nor a desirable feature of culture and of human communication. He suggests complementarity as a better criterion for good communication, and indeed the two debators' cognitive systems seem to fit like hand in glove, like key in lock or like two neighboring pieces of a jigsaw puzzle, visibly touching each other at the fringes of their constructed interfaces. There is no need to invoke the image of cognitive sharing here and then show how little they did.

As a footnote, I might point to another sense of sharing to which the above does not apply. This is the sense invoked when someone sees someone else as separate but belonging to the same whole. This always is someone's self-involving part-whole construction and might not be cognitively shared by the involved other's part-whole construction.

The Self-Referential Imperative

The self-referential imperative is most directly in conflict with the second positivist premise and suggest:

INCLUDE YOUR SELF AS A CONSTITUENT OF YOUR OWN CONSTRUCTIONS

I have shown some limits of the existing paradigm and must now show why the virtual reversal of its premise is essential to my alternative.

Let me begin by stating the obvious that communication scholars, whether their intellectual roots are in the humanities, in the social sciences or in technology -- can never escape participation in the culture they grew up in, observe, theorise about, interact with and change. We derive our problems from this participation, solve them with the instruments we acquired from others and feed the knowledge we generate back to the context in which the problem arose and to which it might be applied. Participation is circular and involves us as part of this circle. The circle may be small when we apply our knowledge to ourselves to become better communicators, more effective teachers or more aware of human relationships. The circle is large when our contribution to knowledge is deemed useful by students,

published and read by others, helpful to solving social problems or instrumental to the institutions that ultimately reward us with status and research facilities. To capture these generalities conceptually requires us to develop constructions that include our own constructions as constitutive parts.

One may appreciate the difficulties of recursive theory construction when one is asked to describe a map that includes the maker of the map which must therefore include the cognitive map the map maker has of the map he is making which of course contains the map of the map of the map, etc. Self-reference easily leads into an infinite regression in which the distinction between the map and its maker disappears in the process of mapping. This is precisely what the self-referential imperative implies. Observers who, by acting on an object, observe that object as acted upon and who in response to the construction of what they experience, further act upon the object observed, ultimately end up seeing themselves in the object they have been making.

Historically, the reason for excluding observers from their domain of observation was not merely an arbitrary fixation. It had its root in the inability to cope with the vicious circularity and infinite regression just described. Whitehead and Russell (1910) implicitly admitted this inability by inventing their injunctive Theory of Logical Types. However, this situation has changed thanks to Goedel's (1962) proof, von Foerster's (1981) calculus of infinite regression and the theory of Eigen behaviors, G. Spencer-Brown's (1979) Laws of Form and Francisco Varela's (1975) calculus of self-reference. All point to different solutions of what was before seen as problems rooted in self-reference.

Before elaborating on the epistemological implication of this imperative let me move from the global self-referential circularity to the microcosm of our Zen-story. We note there is a ruling presupposition. "If the wandering monk wins a debate on Buddhism, he may stay at the temple." This limits the context of concern to that of a debate. In the three monks' constructions, the world outside this context and surrounding them is already known to them, taken for granted or irrelevant to the debate that follows. Initially, the two brothers and the stranger hardly know each other and this lack of knowledge is neither bothersome to anyone nor of interest to the monastic life. All that the dialogue needs to make known is whether the stranger may stay at the temple. This knowledge lies in a finite sequence of alteractions. It is procedural and terminal, if you wish, and unrelated to what existed before the debate. During the debate the traveller's unfolding construction made the younger brother into the winner and the younger brother's construction led him to experience the traveller as an insulting wretch. In the sequence of alteractions the debators shaped different conceptions of their opponents that converged on two different but fully complementary realities of the debators' own making.

Why would particularly Heisenberg's Uncertainty Principle suggest that this alteractive form of observation would not be amenable to scientific observation and measurement whereas the monks find it a perfectly normal procedure to gain knowledge of each other? I think this again stems from the existing paradigm's ontology. The belief in an observer-independent reality makes it a natural task of science to obtain state descriptions of what exists, the position and velocity of particles in quantum physics, the attitudes of voters, the espoused theory of a social organization (Argyris and Schon, 1974). Heisenberg's principle sets a limit to the

possibility of obtaining state descriptions by observation from the outside. But if we are no longer interested in describing what exists (an aim Popper's Falsification Criterion in its more radical form of our empirical imperative no longer pursues) and focus instead on the operations of bringing ones own experiences to a decision point, as the monks in fact did, then Heisenberg's principle is no longer applicable. In a very important sense the self-referential imperative forces us into a circular alteration and in trying to gain insights under these conditions we make what we want to know or at least influence or contribute to these creations and thus we are both cause and consequence of what we observe.

The condition of being both cause and consequence of observation is common to numerous social situations and it is only the power of the existing paradigm that has prevented scientists from connecting their own actions to the observations caused by them and from coming to grips with longer sequences of such self-effecting conditions. Even when we apply a questionnaire to find out what people think we can't help but interact with the interviewees, raise their awareness about the questions asked, focus their attention to something that may not have occurred to them and force them to decide among alternatives that may be alien to their thinking. Nicholas Bateson (1984) rightly suggested that we do not collect survey data but we construct them. Much more obvious situations are therapeutic interventions in which therapists learn about their patients as they interact with them, attempting to change their attitudes or behavior at the same time. Decision making in management too can usually not wait for having collected all data and then grind them through an optimizing calculus. A typical inquiry process in management may start with initially blind actions and yield some information in return, continues with somewhat more informed actions and yields further information in

return, etc. and is more likely to resemble psychiatric interaction than linear causal information processes.

I want to mention one methodological implication and three conceptual opportunities. From a methodological point of view it will be important to shift gears from the discovery and description of states to the engagement of operations in a process of interaction. In this process the starting position is usually less important and often unknown indeed than its convergence towards some equilibrium or Eigen Behavior which is stable under the repeated applications of the very operation that brings this process about. In fact when stability is reached the logical difference between the operation and the operand, the observer and the observed, the map maker and the map or even the psychiatrist and the client (as conceptualized by either one in relation to the other) becomes no longer distinguishable and disappears into stable "objects" or concepts of which the beholder is an active part. To realize this in our research practice requires a new set of procedures for data construction and analysis.

Among the circular constructions encouraged by the self-referential imperative is autonomy. Conceptually, autonomy means self-government and operationally involves a network of communication among the parts of a system whose behavior is constituted entirely in terms of that network of participating components. The self-reference in this notion of autonomy is again obvious. To constitute means to define from within and it is a mark of autonomous system that their organization cannot be explained in terms of agents, causes, controls, governors from its outside. The positivistic paradigm which requires the distinctions between cause and consequence, dependent and independent variables, definiens and definiendum,

controller and controlled, cannot describe much less see the scientist involved in an autonomous system which is operationally closed.

In our Zen-story, the constructions that co-emerge within the two debating monks are autonomous. Through the older brother we know that the debate converges in the knowledge of whether the stranger is welcome or must leave. But how the monks proceed to construct each others qualifications and the nature of the realities that appear in their final report seems explainable from nowhere other than from the alteration of a debate that directs its own progression.

The second concept I want to tie to the self-referential imperative is self-realization. It shares its prefix with the above mentioned self-government (=autonomy), self-determination, self-organization, self-production (=autopoiesis), self-reflection (=introspection), etc. In human terms, self-realization is the use of ones own potential to constitute oneself in the context of others, the ability to make oneself distinct. However, this process can only be seen as the property of a construction involving the self in communication with other people and in interaction with other things that converge as it unfolds towards an increasingly complementary circularity and towards an increasingly distinct self. Any explanation of self-realization in terms of innate properties of the organism (Chomsky regarding language), in terms of responses to stimuli (B.F. Skinner's behaviorism), in terms of modes of production (Marx's historical determinism), in terms of early acquired drives (Freud's psychological determinism) contradicts the very notion of self-realization and I might echo Juergen Habermas' suggestion that Freud with his very invention of psychological determinisms deserted and destroyed his own idea of psychoanalysis as a process in which an individual realizes what

s/he is. The self-referential imperative allows if not encourages the liberation from unilateral external determinisms.

I cannot help but mention the possibilities of constructing Gregory Bateson's (1979) notion of mind which would be an inconceivable undertaking within positivism. Translating his ideas freely, the brain contains a complex of loops accounting for the tremendously creative, active and autonomous role of cognition in the construction and computation of realities (which may be thought of as located within the brain to start out with). But the nervous system is also open and can connect itself with the circuitries of a great variety of environments with which it interacts and through which it becomes at least partially closed. The circularity that emerges (involving parts of the brain and parts of the environment) develops its own wisdom and converges towards stable multi-verses each with its own circuitry, interfaces and complementarities. Mind, suggests Bateson, is not a property of the brain but of the circuits in which it may take part. There is mind in cognition but also possibly in society, ecology and nature. Self-referential loops are its basic units.

The Ethical Imperative

The three imperatives so far given enable scientific observers to assume responsibility for their own creations, call on them to strive to experience the non-viability of their constructions and suggest that they include themselves in them thus operationalizing notions of autonomy, self-realization and mind. But under these conditions communication may still be essentially monologue with other communicators playing a complementary but possibly inferior role in the

self-referential circle, logic may still be mono-logic with each communicator capable of occupying superior positions in their own multi-verse. The two debating monks could have been as far apart as a martian and a dolphin, each perceiving the other as an object, as a machine-like creation, that he may shape in the process of gaining understanding of himself in relation to others. Remarkably, the two monks did not consider their own constructed realities as one of many possible ones and much less did they reflect on the constructions employed by their opponents.

Standard methodology in communication research is notorious for allowing scientists to create any research idea, any new theory they may wish to put to test or any new experiment, survey or content analysis that might yield the desired evidence, while at the same time regarding the observed subjects, the people that could have been and may in fact be scientists in their own right, as input-output devices whose variables need to be associated, correlated, explained, predicted or accounted for. Delia (1977) correctly labeled the type of research this tradition favours "variable research." But what is really underlying these constructions is the fundamental inequality in the conception of scientific observers and observed subjects. This inequality in cognitive capacity claimed by us for ourselves and denied to our subjects is staggering and borders on institutional oppression. On a small scale, Rita Atwood and her students (1984) noticed this when trying to interview women on how the image of women in television had changed. Starting with an elaborate set of content analysis categories, they were soon confronted with the experience that the interviewees themselves had much more elaborate and detailed conceptions than the researchers had at their disposal. This fundamental inequality is also underlying much of the justified criticism of western social research applied to developing countries. For example, when a survey of a Turkish village is

designed far away at Harvard University, when an army of trained interviewers suddenly descends on that village, without warning, so as to keep the village in a "natural state" and the villagers from talking to each other about the survey, and when the data are then flown back to Boston to be ground through a sophisticated computer that assigns each villager to a point in a multidimensional space in which their own creativity and knowledge is irrecoverably buried, the results can not possibly reveal anything other than what the designers of the study wanted to hear, making creative participation of the subjects impossible.

In what has become known as Participatory Research or as one of my students put it "Socially Shared Inquiry" (Alfonso, 1983), this inequality has become the target of a conscious effort to reformulate basic research assumptions. Paulo Freire (1972, 1974) maintains that the role of those committed to this form of inquiry is not to fabricate liberating ideas and bring them into a community but to invite people to creatively participate in a process that involves above all an understanding (conscientization) of the reality in which these people live. In such a research effort subjects are recognized as having minds of their own and are allowed to participate in a process of communication that ends up in knowledge about themselves as individuals and as a community.

I maintain that both scientists and ordinary human beings have the capacity to participate in social realities of their joint construction. These realities may be different in content but not in that they ought to recognize each individual's ability to think, to construct their own realities, to act and to communicate about them with each other. Therefore the principles of communication should be applicable to the individuals we theorize about as well as to our own process of

coming to know about them.

I might mention in passing the well meaning efforts of ethno-methodology. While probably most fair to the collective realities constructed by an indigenous population, it does not include the observer in that description and thereby describes these realities from the outside and tends to exclude communication between the observer and the observed.

Views of Observer-Observed Relations (first three from Salmond, 1982)

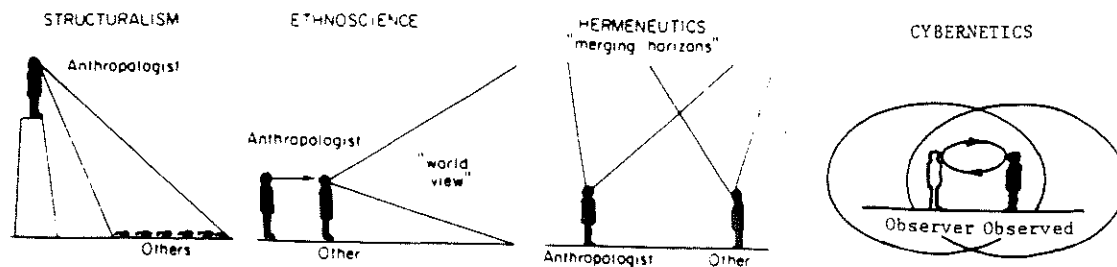


Figure 2

The preceeding provides a point of departure for the ethical imperative I am proposing. When two individuals meet, observe each other and communicate with each other, just like the two monks did, it is possible for each communicator to regard the other as a mere vehicle through which each realizes himself and maintains his superior and self-centered position. The existing paradigm through its premises has built this inequality into its own methodology. I am suggesting that the pervasiveness of this paradigm, even in every-day life, leads us to develop communication theories and apply them to our own world in ways that reify this inequality.

However, when two individuals communicate with each other about their position (a situation which the naturalist scientist cannot become involved at least not within the context of social inquiry) then it is no longer possible for both to be superior to the other and to remain in the center of their own reality. What is violated by such communication is what von Foerster (1981:307) calls the Principle of Relativity, which calls for the rejection of a hypothesis that holds for each of two separate instances but not for both of them together. Accordingly, as soon as an observer, who claims for himself the autonomy of constructing his reality, invents another observer who claims the same autonomy for himself, the former can no longer remain singularly autonomous. Hence, the ethical imperative:

GRANT OTHERS THAT OCCUR IN YOUR CONSTRUCTIONS

THE SAME AUTONOMY YOU PRACTICE IN CONSTRUCTING THEM.

Interestingly, Marxist theory of knowledge is entangled in the kind of inequalities this imperative attempts to avoid. One such inequality can be seen in the following paradox: A cornerstone of Marx's thinking is that all knowledge is biased by the ideology of its beholder and its surface meaning can therefore never be trusted. This seems plausible and has served critical theory well. However it can be accepted as referentially true only if the statement does not apply to its originator or believer who must have (had) the unbiased access to the facts which are denied to all others. The statement is true for all knowledge only if some knowledge is excluded. Russell's Theory of Logical Types resolves this paradox by making Marxists into superior observers and those to whom the statement applies into dupes. The ethical imperative is in a sense radically egalitarian and suggests that the statement should be applied to Marx's assertions as well. It makes sense only

if its generality and its self-reference is taken to its consequences.

I am claiming that the acceptance of the ethical imperative by the participants in a social process turns communication into dialogue. One conceptual consequence of this imperative is that it enables the modelling of one of the most fundamental bases of meaningful social relationships: respect and empathy, --not as a separate variable to be correlated with communication success, but as a property of the very constructions within which dialogue occurs. Another is that even the simple alteractive notions of communication do not suffice and must be replaced by recursive reality constructions in which the multi-verse of one communicator is embedded in the multi-verse of the other. The infinite regress this entails is resolved by a process that one might call dialoguing. It does not entail aims like to convince, to manipulate or to control, it rather means being together in mutual respect, empathy and caring for the identity of others just as much as for ones own.

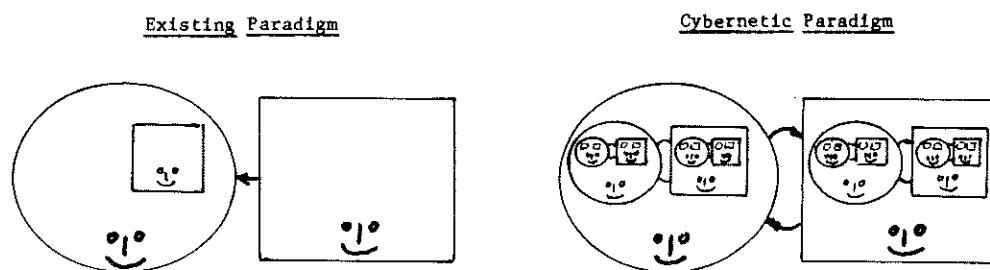


Figure 3

Figure 3 serves to compare the received scientific observation of others with the kind of processes the aesthetical, self-referential and ethical imperatives do

suggest. With its commitment to a single and independently observed reality and to an exclusively (operationally defined) referential language, the naturalist observer of someone else is encouraged to represent that other as an observed object to be analyzed as something quite apart from that observer:

$$\text{Representation} = \text{Observe}(\text{Object})$$

This one-step application of the operation "Observe" is straight forward and simple. In contrast and on the right side of this figure, the new paradigm suggests that each observer engage in a circular process through which they understand or construct themselves in relation to some other observer(s) with constructive capabilities much as their own. In other words and to initiate the process, a first approximation to the Self-construct is obtained by observing (or applying the operation "Observe" to) a Self and its Other:

$$\text{Self-construct}^1 = \text{Observe}(\text{Self} + \text{Other})$$

and this would be as far as the self-referential imperative would go.

However, if this Self and that Other is realized as nothing but a construct which is derived as such from the history of observing interactions with others, we find a second approximation to the Self-construct to involve the operation "Observe" applied twice to itself and the other:

$$\begin{aligned}\text{Self-construct}^2 &= \text{Observe}(\text{Self-construct}^1, \text{Other-construct}^1) \\ &= \text{Observe}(\text{Observe}(\text{Self}+\text{Other})+\text{Observe}(\text{Other}+\text{Self}))\end{aligned}$$

In the continuing interaction between observers, their respective selves and others are repeatedly and interactively reconstructed and thus become the product of an iterative sequence of embedded operations in which the original self and the original other disappears in the background while bringing in view the recursive process of observation which, under the constraints included in the empirical imperative, is exactly what construction entails. Hence:

$$\text{Construction} = \text{Observe}(\text{Observe}(\dots\text{Observe}(\text{Self}+\text{Other})\dots))$$

and taking one observation in time it follows that:

$$\text{Construction} = \text{Observe}(\text{Construction})$$

or:

$$\text{Construction} = \text{Constructing Constructions.}$$

The process and product direct each other within the constraints alerted to by the empirical imperative.

The methodological consequences of these imperatives are beginning to emerge in the kind of participatory research in which the members of a community are engaged in dialogue that results in the increased competence of the community to understand itself, to develop and revise as deemed needed its own collective realities, leaving

room for its members to create their own complementary constructions and to realize themselves in them. Researchers who accept the ethical imperative are more facilitators than experts who know by virtue of their position and training. They are participants who are committed to the process of dialoguing without assuming all the power to determine its direction. They possess the empathy that allows them to switch positions and see the world including themselves through someone else's constructions. The ethical imperative permits love to be part of the process.

The Social Imperative

What happens now to objectivity, the kind of unquestionable truthfulness of scientific insights on which modern society has built its institutions, its technology and serves or is served by its members? What can be relied upon, after the "fall" of the dominant paradigm which relied on this notion of truth? How does the challenging paradigm regard the wealth of knowledge that served us well historically? Let me sketch a possible answer which will then lead to my fifth and last imperative.

When one accepts the aesthetical imperative and sees reality as constructed or invented by an observer to see, the external reality on which naturalism relies and in which a positivistic observer finds or discovers "interesting things" to describe, must be seen as a construction or invention as well. It is used by those who are either unaware of their creative acts or unwilling to take responsibility for their own creations. There are good reasons for the unawareness about the constructed nature of reality. The first is that it may be inefficient to recount each time one wants to use a concept the whole interactive history of its

construction. Life is sometimes easier without that awareness. The separation of the philosophy of science, which raises, debates and makes an effort to settle issues of the genesis and acceptability of scientific explanations, from the practice of scientific inquiry conveniently delegates this awareness to a specialized group within the academic community, thus freeing the ordinary researcher from having to deal with those issues. The second reason is that scientific observers have inherited most of their concepts and procedures without the knowledge that they have been constructed by others, who may have lived many generations before them. Being detached from the process of creation (Berger and Luckmann, 1966) they can no longer see what lead to them and therefore take the social product as an unquestionable fact. The third reason is that construction does not take place inside the observer alone. Communication is the interactive construction of realities including the communicators in them and has created such objects as language, technology and social institution which are no longer easily recognized as arbitrary or human constructions. They live a life of their own, often outside the individual scientists' unaided cognition, and have perhaps therefore an apparently overwhelming existence that is difficult to grasp. These are not excuses for the lack of awareness but perhaps explanations.

The reason for the unwillingness of scientists to take responsibility for their creations are complex and cannot be elaborated here except to say that willingness to take this responsibility presupposes an awareness of this possibility that is discouraged in the complicity between the naturalist paradigm and the institutional role of the western scientific enterprise.

The view that the external reality is an invention implies that objectivity

must be an invention as well and one that is rooted in the very society in which the knowledge to be judged is also constructed and applied. Objectivity is thus involved in a self-referential circle of its own and subject to the dynamics inherent in this realization. To merely replace the word "objectivity" by the word "intersubjective agreement," which connotes this social root, does not quite address the dynamics and the empirical constraints involved and I want to note this briefly by resolving the concept of agreement and of stability respectively.

Under the existing paradigm two observers must first agree to look at the same thing before they can match their descriptions of it and resolve whether one or both have been duped by perceptual illusions or measurements biases. Thus agreement is involved even in the belief that a single reality rules supreme. It is difficult to conceive of objectivity without agreement. But what does the statement "I agree with you" mean? How is it used? Strictly speaking, it can not mean the sharing of perceptions, thoughts or judgements for, as I have argued, there is no way of establishing whether two cognitive patterns are the same, similar or overlapping. I am suggesting therefore that a statement of agreement, mutually affirmed, most likely indicates that two observers have each reached a satisfactory level of understanding or coherence in their own constructions, that the constructions we have of each other are no longer judged problematic, that neither is willing to put the potential non-viability of these construction to further tests, that there is adequate certainty in their "fit", all of which would thus indicate a satisfactory level of complementarity.

Except for short or interrupted encounters, all human communication eventually converges towards complementary constructions whether the Eigen Behavior resulting

from these constructions is conflictual, harmonious or the adaptation to a jointly created technology. Complementarity entails a certain level of stability of expectations in interaction with others at the experience of which the constructions involved are no longer seen as a threat to each other's viability and no longer need elaboration or adaptation. Complementarity implies a kind of self-evident closure and is invoked in all constructions that relate observers to each other via a medium including to the environment they share (in the sense of each seeing each other as parts of the same whole). Language, technology and social institutions have acquired such stabilities, provide the medium through which we see us communicating with each other and define our roles in these constructions, using such inventions as physical laws, linguistic rules, and social conventions to keep our constructions coherent and in place. Complementarity is probably the most important consequence of every-day human communication and of the process of scientific practice as well.

In the new paradigm, I believe one must replace the received notion of objectivity but not by an unqualified search for complementarities (which may include objectivity as a special case). To appreciate the damages of an unqualified replacement one must realize first, the great variety of cognitive constructions human beings can invent, and the great variety of linguistic forms, technological structures and social institutions that could evolve and be tried. This variety is far from being exhausted through our own history. One must also realize, second, the extraordinary reificative power of social theories. We know that predictions may effect what is predicted, communication theories may influence how people communicate with each other, theories of the unconscious may create classifications and treatments of mental illness, political theories may institute new or erode old governments, etc. I say may, but if these theories are convincing they will come

true by reification. The kind of objectivity on which the positivistic paradigm relies has blinded social researchers from seeing reality as observer, dependent, as made to a significant extent by their individual or collective actions or as invented and is thus restrictive from within the scientific enterprise. But published social theories will have social consequences whether one wants it or not (even their public rejection can be regarded as such). Complementarities will emerge from convincingly presented knowledge and such complementarities can ultimately end up being restrictive to scientific pursuits but from the outside. They can stifle the very creativity that gave rise to them and retard the very humanness that they were meant to serve. What it boils down to is that the criteria we adopt to evaluate the constructions we introduce into our world ought not to yield stabilities without the assurance of continued freedom if not further liberation from historical oppressions. The fundamental property of dialogue is that it yields complementarity (which gives us structure and certainty) while protecting the creativity to reflect on and to overcome any inadequacies we are forced or choose to see in our constructions. On the level of scientific dialogue, (and I wouldn't mind seeing it extended to all social situations), I am suggesting the social imperative to read:

IN COMMUNICATION WITH OTHERS,

MAINTAIN OR EXPAND THE RANGE OF CHOICES POSSIBLE.

The movie "My Dinner with Andre" contains a vivid description of the self-trapping qualities social conceptions and institutions can have, reifying itself through practice and converging toward a state of complementary fits from which it might no longer be conceivable to leave:

..he said to me, "Where are you from?" And I said, "New York." "Ah, New York, yes that's a very interesting place. Do you know a lot of New Yorkers who keep talking about the fact that they want to leave, but never do?" And I said, "Oh, yes." And he said, "Why do you think they don't leave?" And I gave him different banal theories. And he said "Oh, I don't think it is that way at all." ... "I think that New York is the new model for the new concentration camp, where the camp has been built by the inmates themselves, and the inmates are the guards, and they have this pride in this thing that they've built--they've built their own prison--and so they exist in a state of schizophrenia where they are both guards and prisoners. And as a result they no longer have--having been lobotomized--the capacity to leave the prison they've made or even to see it as a prison." And then he went into his pocket and he took out a seed for a tree, and he said, "This is a seed for a pine tree." And he put it in my hand. And he said, "Escape before it's too late." (Shaw and Gregory, 1981:92-93)

Concluding Remarks

While the use of the word positivism or naturalism has lately come in disrepute, its premises still permeate much of our social research, influence the language we are using and through it the technology we are developing and the institutions we are supporting. Received paradigmatic limits on scientific theory construction forces the social sciences to increasingly become socially irrelevant and to surrender control of the fabric of our lives to an unacceptable metaphysics. But when one denies these premises, as I have done, turns them into their opposite or upside-down, as Marx might have said, one comes to the surprising conclusion that there are possible worlds this all-pervasive paradigm has prevented us from seeing, worlds we can co-construct and can take responsibilities for, worlds in which others have creative capabilities similar to our own, worlds in which we can realize ourselves in relations to others, and worlds that may support the liberation from the history of metaphysical determinism without denying experiential constraints.

Communication is central to all of these worlds, not in the sense of control,

which a positivist ontology naturally favours, but in the sense of dialoguing, an ongoing process that respects the autonomy of different reality constructions, enables each participant to interrogate their own histories and grow beyond them. Dialogue probably is the most noble form of human interaction and communication scholars should be the first to appreciate its outstanding human qualities.

I like to leave the naming of this new paradigm to others. For Ernst von Glasersfeld it is "radical constructivist" (1981). Since it can do without the meta-physical assumption of a single experience-independent reality, some have called it "realist." However, many ideas for this proposal, especially the self-referential and ethical imperatives, come from modern cybernetics, which has always understood itself to be a science of communication and organization though of a particular kind, calling it a "cybernetic" paradigm would be fair as well.

Whatever its name will be, I believe the five imperatives initiate profound changes in our scientific thinking, encourage challenging constructions and imply the most noble human concerns imaginable. I am asking for cooperation in elaborating the methodological, theoretical and social consequences of this new paradigm and in applying it to scientific research. I am convinced that should we as communication scholars succeed in this effort, we will have made our discipline not only central to all of the humanities and the social sciences but also the intellectually most exciting one.

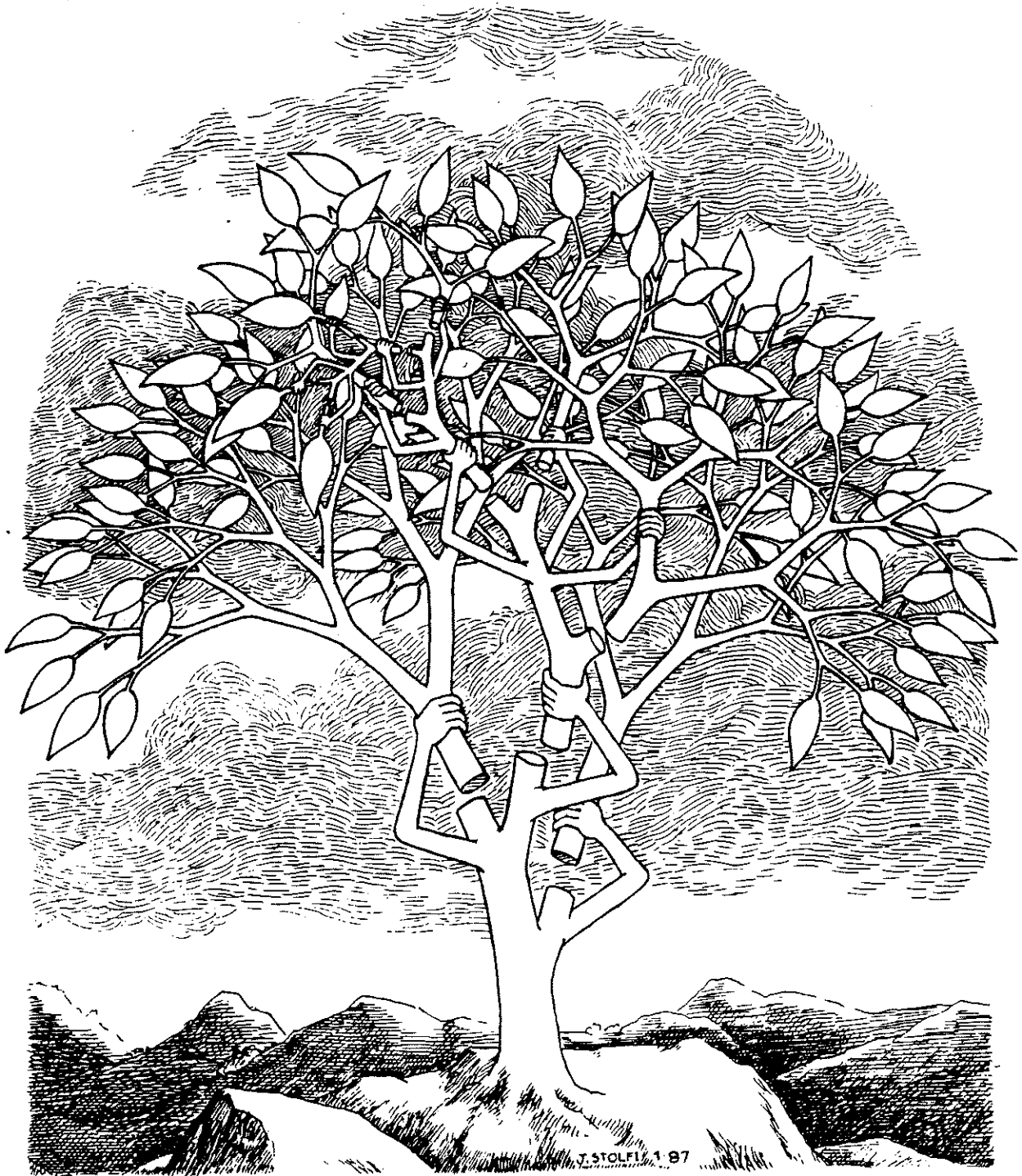


Figure 4

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