Centrisms, Noncentrisms, and Universal Q

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I will examine a number of current theoretical systems and issues in logic of science. Then I will suggest why it is that Q can serve those systems that have a substantially different logic of science. My analysis will be confined to psychology, for that is the field I know best; but perhaps some of my remarks will have some relevance to other fields as well.

I will begin with a scheme that I found useful in a textbook writing project (Smith 2001). This divides theoretical systems into groups. A system's placement in a group depends on where the locus of causality is placed in the system. If the organism causes its own behavior, the system is organocentric; if the environment causes behavior, it is envirocentric. If the social order is the center of behavior, it is sociocentric. If the system considers organism-environment relationships to constitute causality, I call it noncentric.

Both organocentrism and envirocentrism assume linear causality: A causes B. Noncentrism, in contrast, views causality not as a force or determiner or producer of action but merely as a descriptive term for *interdependent* events, which replace linear causality: that is, it is not that A causes B but rather that A, B, C, and other components are interactional and reciprocal. The four centrisms comprise different assumptions about causality and exhaust the possibilities (unless one adds mysticism or magic), and these could be reduced to three, for sociocentrism is a type of envirocentrism.

The Centrisms and Noncentrisms

Organocentrism

Cognitive Psychology

This is the dominant system in psychology today. It assumes that the person contains and produces the cognitive event. The environment is no more than inputs for the organism's internal computer program to process the world outside into appearances in the brain (e.g., Johnson-Laird 1993; Kosslyn 1994; Simon 1990). This approach has a long, entrenched history in our culture. It

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goes back to the Hellenistic culture and the School of Alexandria more than 2000 years ago, but gained impetus in late Roman times with Augustine who recommended turning away from the natural world and embracing the spiritual world. He claimed that the human soul can encompass the entire universe (Kantor 1963; Smith 2001). This *internality* of reality or of the real self became Western cultural doctrine that continued with the nineteenth century philosopher Immanuel Kant who argued that all we can ever know are our internal representations of the world which he called "phenomena," that is, appearances. The consequence of this is that we all live in a double world, the real world that is forever unknowable and the inner world that we do know but which is only a representation of that outer world. This assumption found its way into the work of nineteenth century pioneering German physiologists, Johannes Mueller and Hermann von Helmholtz, who posited that sensory organs are analyzers of the world. The type of impulses the nerves send determines the nature of the sensations received. In other words, we do not respond to the real world but to our nerve endings. Thus, Mueller and Helmholtz transformed the double world of Kant into a biological double world. The next step was to make the brain the analyzer.

Augustine's "soul" and Kant's "phenomena" became seated in the brain. The doctrine that the brain is the boss sitting in our heads operating our robot bodies and doing this amazing feat without itself having a cause is now well entrenched in psychology in general and in cognitivism in particular. As a computer processing analogy the doctrine appears as: stimulus inputs, brain processor, response outputs. This is about as thoroughly organocentric and, I might add, as mechanistic as anything I can imagine.

Evolutionary Psychology

This system is fairly new on the scene, but is rapidly gaining attention including references in the news media. It draws from cognitive psychology the construct of mental mechanisms that process information in such a way as to lead to desires, urges, and preferences that in turn are assumed to produce certain behaviors. It draws from evolutionary biology the principle of natural selection and assumes that mental mechanisms or instincts, not behavior, are selected. For example, the observation that males are more often sexually promiscuous than females might lead to a search for an adaptive mechanism that causes males to seek multiple partners and for a counter-measure that causes females to seek a single partner. In the ancestral environment, multiple partners gave males a better chance of reproductive success, and their preferences for multiplicity would be selected as a brain mechanism. That same ancestral environment might offer females a better chance in a monogamous relationship that provided a stable family situation for raising children to reproductive age, thus continuing the line of descent. The proponents contend that such a mental mechanism could be selected and passed on.

Humanistic Psychology

In this system the autonomous and self-actualizing self is the cause of behavior. Proponents have attacked the mechanistic approach of cognitivism and behaviorism, but have sought self-causing powers in the organism. This is manifest in Carl Rogers' "true self" that each person must find in order to achieve authenticity. In Abraham Maslow's "self-actualization," the individual must meet a hierarchy of more basic needs, such as food, safety, belonging, and self-esteem. Only when these needs are satisfied can the individual reach a "peak experience" of self-causation characterized as of "being one with the cosmos," living in a euphoric high of the here and now.

Psychoanalysis

Orthodox psychoanalysis draws heavily from physics and evolutionary biology for its constructs of *structures*, *energies*, and *forces*, which it then converts into biology. Its constructs of *functions* and *adaptations* came directly from biology. The world is a kind of foil against which these forces from the organism act, as well as doing battle with each other. More recently, developments in psychoanalysis have in varying degrees turned away from these constructs. As a replacement for Freud's theory of psychosexual development and conflict with the world, Kohut's (1977; 1995) theory of self and self-object assumes an infant's preadaptation to live harmoniously in the world. Disorders become deficiencies in development rather than Freudian conflicts. Kohut continued to assume the reality of the Oedipal conflict, however. Recent developments of this theory have emphasized subjectivity of relationships (Bacal 1995), intersubjectivity (Stolorow 1995), and feelings as the basis of drives (Kernberg 1992).

A more radical revision is Schafer's (1976). In an effort to move psychoanalysis away from the language of physics and evolutionary biology, Schafer discards *reasons*, *choices*, *intentions*, and *impulses*. He would say, for example, that a person "acts impulsively" rather than "has an impulse." The orthodox language, he contends, precludes subjectivity, which should be central. He rejects ego and libido, but retains the Oedipal conflict. The most far-reaching modification of Freud is the work of Joseph Weiss and Harold Sampson (1986). The only Freudian construct they retain is the "unconscious." Despite the departure from orthodoxy and the rejection of most of Freud's entities and powers, all of these variations remain organocentric, for they continue to impute self-causality to the organism, whether as an Oedipus complex or as an unconscious power.

Envirocentrism

Behavior Analysis

Where Skinner places causality is much more complex than the simple stimulus input and response output of John Watson. His 3-term contingency

of discriminative stimulus, operant response, and reinforcing stimulus tries to be purely descriptive and avoid any specific assumptions about causality. A stimulus does not cause or evoke or elicit a response. Not even *reinforcement* causes a response. Rather, an operant response merely occurs in coordination with the stimulus. Reinforcement results in behavior and the consequences are learned and have an increased probability of occurring on the next occasion of the stimulus. Behavior is selected by its consequences. Morris (1992; 1993) has argued that despite the value of the 3-term contingency, behavior analysis needs to consider context. A number of studies have demonstrated this need by introducing environmental factors from interbehaviorism and showing their advantages in prediction and control (Smith in press).

It is to Skinner's great credit that he rejected drives, minds, brain powers, processing, etc. — all the constructs of organocentrism. One can discover the orderliness and lawfulness of behavior, he insisted, by careful analysis of functional relationships. Nevertheless, this system still relies on the environment, in that the environment selects and shapes behavior through the contingencies of reinforcement. Despite the subtlety of this system and its considerable success in applied situations, it remains envirocentric.

Eco-Behavioral Science

Roger Barker's system assumes that behavior, together with inanimate objects and conditions, develops patterns called *behavior settings* that are orderly and self-sustaining (Barker 1963; Wicker 1979). For example, in a classroom the students sit facing the front; an instructor stands and faces the students and takes the lead in discussion or presentation, while the students remain silent except after raising a hand and being acknowledged by the instructor, and only one will speak at a time. This is a pattern that functions together with chairs, lectern, chalkboard and chalk, adequate lighting and temperature, walls to shut out distractions, and an occurrence at a specific time and place. If one of these is missing, the participants make an effort to remedy the situation, so that the behavior setting can function. For example, once on the first day of classes my students found that the room contained insufficient chairs. On their own volition, they went to other classrooms to bring in enough chairs to remedy the deficiency.

Behavior settings occur in the barber shop, grocery store, conference banquets, and a myriad of other places. These settings provide behavior that is predictable and self-regulating, that occurs in conjunction with inanimate objects. In our present behavior setting it includes tables, chairs, lectern, walls, lighting, public address system, etc. The behavior patterns that occur are completely independent of individual personalities, for all of the participant's behaviors in behavior settings follow the prescriptions of that behavior setting. And in a different setting the same individual will adapt to the required patterns in a highly predictable manner. We can predict with high reliability

any given individual's behavior in the workplace — a restaurant, coffee shop, movie theater, etc. Thus, causality, in this system, is in the environment.

Sociocentrism

Social Constructionism

This system, the only one that is sociocentric, is part and parcel of *postmodernism*. It assumes that no universal truths can be known. Individuals do not have objective knowledge. Knowledge is simply a type of relationship that occurs in a social group; it is a social convention structured by language. Myth and science have equal claims to knowledge and each has no further warrant than the group that gives it linguistic structure. Truth claims are just a cluster of words that are warranted by the group that produced them. Social constructionism removes individuals from the center stage that they occupy in organocentric cognitivism and humanistic psychology and sees them as a part of language and contextual relationships — that context being the social and linguistic community. Causality is not clearly defined in this system, but seems to come from the social group or the individual as a part of the group.

Noncentrism

This is the least known of the causal approaches even though it is as old as Aristotle. Without it one cannot make an informed judgment. There are at least 9 causal approaches. I will consider 3, *behavior epigenesis*, *interbehavioral psychology*, and *Q method*.

Behavior Epigenesis

This system is also called *probabilistic epigenesis*. It holds that interactions occur within the organism and between the organism and its surroundings. The organism contributes to its surroundings and is changed by them (Lerner 1989) as demonstrated by a series of infant locomotion studies (e.g., Bertinthal, Campos, and Kermoian 1994). The organism and surroundings are inextricably interdependent, and for that reason any given behavior is less than fully predictable. For example, not all children begin to walk and talk at the same time or in the same sequence. One can only offer probabilities as in weather forecasting. This differs from *predetermined epigenesis* that assumes a biological unfolding of unvarying sequence that reaches some predetermined end in which environment can only affect the rate of development.

Sources of variance have been the focus of most of mainstream developmental psychology (Gottlieb 1995), along with the assumption that genes fix the upper and lower limits of behavioral development. As a result, according to this mainstream view, if we determine the effect of one condition of rearing, we can predict the upper and lower limits of rearing as a linear relationship. However, empirical studies directly contradict this (op cit.). Behavior epigenesis has shown that development proceeds to different levels of organization that are both non-linear and unpredictable. Interactions can

occur between genes, cells, organisms, or contexts or between gene and cell or organism and culture. Genes are not independent causes, but part of the developmental process, and are influenced by other levels of the system. Causes arise not from any single level, but from relationships among levels. Analysis of variance, which ignores the individual in its averaging process, as Gottlieb notes "is not the same as the analysis of causes" (op cit., 139). Gottlieb's survey of developmental psychology textbooks showed that they continue the traditional views of behavior genetics and analysis of variance, thereby maintaining a biological concept of linear development that is not accepted in biology today. Mutual influence through all levels — genes, neurons, behavior, and environment — must be considered.

Interbehavioral Psychology

J. R. Kantor, who developed this system, provides the most explicitly and thoroughly worked out of the noncentric systems (1957-83). He insists on starting with observed events, such as perceiving, speaking, or thinking, and the thing the person is perceiving, speaking to, or thinking about. The person and the thing interacted with are always interdependent. Observation shows us that the perceiving organism and the perceived object are not cause and effect or inputs and outputs, but an interaction. The object is not a perceived object without the perceiving person, and the perceiving person cannot perceive without something that can be perceived, as Aristotle long ago observed. This interdependence or interaction occurs as a part of an accumulation of past events, called an *interactional history*, that influences the present interaction; and the interaction occurs in a context called the *setting*. Further, objects have meanings that depend on context and the interactional history of the individual. It is these meanings that we usually respond to, as well as their properties. We react to our coffee cup, not so much as molecules of baked clay having particular dimensions and mass, but more as a familiar container of a warm and pleasant beverage. It is these meanings that usually comprise our responses. Kantor calls these "stimulus functions."

Recognizing that our interactions with objects are actually with the stimulus function of objects eliminates the need to assume some unknown mental process that interprets the physical stimulus and gives it meaning. John Watson's biomechanistic S—>R psychology, an envirocentrism, did not recognize the functional properties of objects that evolve through history. He could not account for the effect of past interactions on present interactions. Jenkins has observed about S —> R formulations, "It is hard to appreciate fully what a severe constraint this is! It demands that the stimuli and responses be in a one-to-one mapping; it admits no possibility of different sets of stimuli having the same effect on responses or of different responses occurring to the same stimulus complex depending on the state or disposition of the organism" (Jenkins 1993, 356). To deal with this shortcoming, the methodological behaviorists had to invoke *drives*, which they tried to define operationally.

They added to these drives a hypothetico-deductive method with its group means and the practice of calling the information in that data which was individualistic and subjective but did not fit this scheme an "error term" and throwing it away. When the methodological behaviorist approach collapsed around mid-century, the cognitivists took over the behavioristic methods and statistics and added a processing brain that could be used to account for the outputs that were different from the inputs. With interbehaviorism, such issues as inputs versus outputs, the relationship of mind to body, public or private events, and free will versus determinism never arise. They are irrelevant and even meaningless to it; for they are not events but constructs and, therefore, not a part of the observable interdependencies.

To the interbehaviorist the psychological event is a multiplex field of interdependencies consisting of an individual organism with particular biological potentials and limitations (people can speak, but cannot fly; birds can fly, but cannot speak), (b) personal history of each individual, (c) objects with meanings to the individual, and (d) a setting. These are all observable conditions, none of which can be functionally separated from the others. There is no central or single cause, hence, no centrism. Consequently, if we want to change criminal behavior, or a child's behavior, or increase the effectiveness of psychotherapy, we cannot simply change the person or the environment. That would be organocentric or envirocentric, respectively. We need to change both the person and the environment, or, more accurately, the person-environment relationship. Similarly, we need to measure not inputs and outputs or averages but meanings or subjectivity.

Q Method

Finally, in this survey I want to indicate the place of Q method, the principal topic of this entire presentation. My task is much facilitated by Stephenson's explicit adoption of the interbehavioral system. Even without this adoption, however, Q would be clearly noncentric. Stephenson rejects the organocentric scheme of *self* or *consciousness* as a causative construct; and he rejects the envirocentrism of mechanistic behaviorism. Q is focused on the objective measurement of subjectivity. In this system the environment does not cause subjectivity and neither does the person. Subjectivity is a concrete event involving person-environment relationships, the person in interaction with items to be sorted according to a dimension of subjectivity. One of my favorite Stephenson writings is his little 3-page paper with the provocative title "Consciousness Out — Subjectivity In" (1968) in which he focuses on concrete behaviors. With Q method he replaces the notion of a private and unknowable mind with communicability. Stephenson, along with Kantor, considers subjectivity and experience to be behavior, not something that produces behavior. They both reject mind-body dualism, the reduction of psychological events to neurology, and self as an entity. Stephenson tells us that "Behavior is neither mind nor body nor physiology: it is simply behavior

whether subjective to a person or objective to others" (1953, 23). Stephenson and Kantor both start their inquiry with observed events rather than with constructs. They hold that specificities are more basic to science than generalizations and that laws are not universals but are specific to situations; they reject all absolutes and recognize changes from one situation to another. In making use of the single case, usually as an intensive study using n = 1, Q stands with Ebbinghaus, Barker, Skinner, and gestalt psychologists who used single subjects and established some of the most enduring findings in the history of psychology. Had they used groups and compared means, the means — however analyzed by further statistics — would have masked the principles. While some might think of Q as only a technique, it is much more than that. To quote Stephenson, "it is … a comprehensive approach to the study of behavior" (1953, 7); and I would add the phrase, "… where behavior is regarded as a relationship of person and surroundings."

Events and Constructs

I have occasionally used the word *construct* without defining it. Here I want to remedy that. A *construct* (or construction) is anything that is constructed rather than observed. It is an abstraction rather than a thing or event. Examples include formulae, hypotheses, theories, laws, principles, diagrams, measurements, and propositions. Even a description qualifies, for it is not the thing it describes. Specific to psychology, motives, intelligence, mind, and neural processors are all constructs. Science could hardly operate if it did not use them, but it is crucial to distinguish between constructs and events and to use each appropriately.

Observation of events must precede constructs, and the constructs must be drawn directly from observation (Ebel 1974; Kantor 1957; 1962; 1983; Lichtenstein 1984; Observer 1983; Smith 1997; 2001). Such a procedure will allow us to develop constructs consisting solely of functional descriptions; and these can take various forms so long as they are derived directly from the event. If we begin our inquiry with such constructs as a processing brain or instinct, we will impose them on the observation. Psychology is replete with such imposed constructs — mostly organocentric ones, such as *self, consciousness, mind*, and the ubiquitous *brain processor*.

Bem and Looren de Jong (1997), the authors of a recent book on psychology's theoretical issues, describe their volume as a "comprehensive guide," yet do not mention the critical issue of constructs. The authors are in venerable company, for the debates over many centuries about the nature of mind and body also failed to recognize the nature of constructs and their confusion with events (Smith 2001). The situation is no better today, yet the distinction between constructs and events is critical. It determines theory, research designs, applications, and even knowability. Wundt led experimental psychology into an early quagmire when he held that we cannot know

consciousness, only its effects. He was right in that we cannot know an ethereal construct. But did he need to invoke it, or could he have simply referred to the responses that he actually was measuring?

Constructs are necessary in science, and when properly used always have a concrete referent: they refer to a thing or event. Inferences are constructs and these play an important role in science. In the fifth to fourth century BCE, Democritos observed the behavior of matter and inferred that it was comprised of some tiny particles that he called "atoms." Although he could not verify their existence, they had space-time coordinates that gave them the potential to be observed, if they existed. In the twentieth century, the development of adequate instrumentation finally permitted the verification of these inferred particles. In contrast, the historic constructs, such as mind and sensations, imposed on human actions had no time-space coordinates, but transcended space and time. They were said to be "unextended," that is, have no extension into space. To cope with this nonphysical characteristic, analogies (of which the brain as a computer or the brain as a hologram are the most recent) were invented. This procedure resulted in constructs consisting of analogies, which in turn refer to constructs consisting of nonphysical entities--constructs about constructs. The brain as a concrete organ became the substitute for these non-material agents. As a psychological organ, the brain, too, is a construct. It clearly performs coordinating functions; but no one has observed it also performing psychological functions such as thinking, learning, perceiving, desiring, or feeling. Certainly, no one has ever observed it manifesting the construct processing. With appropriate instrumentation such as PET and MRI scans we can infer its participation in some of these activities but find no evidence of director, producer, or container of them. We also have means to observe other participating conditions, such as stimulus objects and their functions, interactional history, and setting conditions. Yet when we start with the construct of the brain as the producer or container of psychological activity, we ignore the equal necessity of these participants and interpret the event as caused by the brain alone. Thus, brain becomes an imposed construct of director or producer, having no referent in space-time coordinates.

The following list of 11 criteria for the use of constructs, derived in part from Kantor (1957; 1978; 1981), is composed of standards consistent with scientific advancement.

1) Distinguish carefully between constructs of all types and the original events.
2) Avoid all constructs derived from traditional cultural and philosophical sources.
3) When means for obtaining critical information is lacking, keep constructs extremely tentative and never base them on unobservables.

4) Note that only constructs derived directly from observed events have the potential of validity.

5) Begin all investigations with observations from which constructs may be derived; avoid starting with constructs and interpreting results in terms of those constructs.

6) Keep interpretative constructs consistent with events observed; do not base them on other constructs such as analogies.

7) Take an adequate sample of events so that the interrelationships of events may be observed. This means examining a wider array of events than genes, neurons, reinforcements, stimulus conditions, stimulus and response history, or social processes. It means taking account of the total context and its salient components.

8) Anchor all constructs such as intelligence, motivation, personality, and attitudes in observed referents and avoid giving them independent existence as things or causes.

9) Avoid turning participating conditions or those that may be necessary for the events into determining conditions. For example, the brain is a necessary condition for all psychological events but is only one of numerous necessary conditions that make up the event.

10) Avoid adopting unobservable constructs or analogies for what is unknown and regard admission of ignorance as a scientific virtue.

11) Use only those constructs that are observable at least in principle, for it is only through observation that science is possible.

Brain processing of information has no observability, but such actions as attending, discriminating, learning, etc. do. Consider a statement of Kosslyn's: "People experience visual mental images" (1994, 6). Do people experience images or do they imagine? The first refers to a construct and the second to an event. The assumptions are quite different in these two statements. Other modes of expression can invoke either a mind-body dualism or refer to a whole person or a person's behavior. For example, does it take a keen mind to solve complex problems, or does it take an intelligent person? Does the prima donna's personality cause problems, or does she behave inappropriately? Does the playwright use his imagination, or does he imagine? In short, do we give the person credit, or do we invoke an impersonal construct to carry out the action? Do we start with a construct or an observed event? Note the impersonal and autonomous character of mind in the following passage from Simon, a pioneer in cognitive psychology: "It [the mind] chooses behavior in the light of its goals, and as appropriate to the particular context in which it is working …. It can learn" (1992, 156). Here we have a *construct,* assumed to be an *event,* that is both reified and anthropomorphized. Simon also declares, "The human mind is an adaptive system. It chooses behaviors in the light of its goals, and as appropriate to the particular context in which it is working" (p. 156). The author has continued to treat the construct, which he apparently does not recognize as such, as a thing; and he has given it self-acting powers. He begins with mind as a construct and not only imposes it on the event of choosing but, in a classical case of circularity, uses it to explain the behavior he observes.

The Q literature does not entirely escape this problem. The authors of a recent multi-part paper published in *Operant Subjectivity* say, "There is a hand representation and an object representation in the brain, and they are moved with the mind first, in anticipation of their movement outside of the brain" (Knight and Rupp 1999a, 7). Further, in Q "the factor structures [are] representative of the mind's behavior, not the mind itself" (Knight and Rupp 1999b, 6) and "Q methodology is a powerful way of measuring the mind as it celebrates the mind's capacity for measurement" (p. 7). These construct-based statements may be contrasted with Stephenson's event-based approach in which Q is a measure of concrete subjective behavior — behavior from the individual's own point of view — rather than of a constructed mind that only represents behavior. Q does not measure a mind or behavior as a representation of mind but subjective behavior itself as expressed in card sorts, and its measurement of these actual events is the basis of its invaluable scientific and social contribution."

Organocentrists use vastly different approaches to events and constructs than the noncentrists and envirocentrists. In fact, their work is contrary to nearly all of the eleven criteria, whereas the three noncentrists I have described adhere to them. Have I stacked the deck against the organocentrists by setting up the criteria and then finding that they fail to meet them? I do not think so. It is not clear what the nature of a different set of criteria would be that would meet the rigors of science and be consistent with the organocentrists' work. For example, what scientist could accept a recommendation to avoid distinguishing between constructs and original events or to begin all investigations with culturally derived constructs and interpret observations in terms of those constructs? Had scientific investigation followed such criteria we would still believe the sun circles the earth and demons cause diseases. The organocentrists have taken the construct of mind-body dualism from the general culture and given it central stage in their systems. As such, all observations are interpreted in terms of the construct, and theory and methodologies become equally subservient. In order to make the mind construct more tangible, the organocentrists follow the tradition of converting it into a biological construct of brain powers to which psychological events must be reduced. Ironically they retain both the mind construct and the brain construct side by side and then invent analogies, constructs about constructs, to relate the two to each other and to behavior. Organocentric philosophers and psychologists together have given us analogies of parallel clocks, lenses,

gravity, chemical compounds, blank tablets, string vibrations, digestion, chronometers, evolution, electrical fields, biomechanics, vectors, telephone switchboards, computers, holograms, engine governors, and vibrating doors. No matter how analogized, mind in a body or a body without a mind are not observed events. What can be observed is the individual interacting with surrounding things and events in a context.

Turning to the envirocentrists, they primarily fail to take an adequate sample of events, number 7 on my list, and, as a result, focus on single cause and effect and miss the complex interactions. Despite the invaluable insights they have provided in limited situations, such as the effects of reinforcement schedules and behavior settings, they have formulated a mechanistic psychology and limited themselves to a restricted domain.

History shows us that vast disagreements about what comprises even the basic subject matter of psychology have occurred primarily because of these imposed constructs (Kantor 1963-69; Smith 1993; 2001). These disagreements began to emerge after the Middle Ages, when the soul became an increasingly puzzling topic, both logically and empirically. Alternatives to this construct and to biological reductionism have been available for a long time, but mainstream psychology has not considered these alternatives and has allowed only cultural assumptions from the past to determine the character of various approaches to psychology, most of it organocentric causality and a mechanistic causality at that.

Reductionism

Biological

As we have seen, the attempts to convert mind into brain began with attempts to deal with mind-body dualism. The result of the conversion is that this organ must play a double role, that of a psychological organ as well as a biological organ. The proponents of mind as brain (identity theory) or brain as the producer of mind (ephenomenalism) or brain as the explanatory construct that must eliminate all others (eliminativism) all confuse necessary with sufficient conditions. That is, they point to involvement of the brain in various activities but fail to notice that many other conditions are also involved. For example, the brain is certainly necessary for language, but it is not sufficient. Language also requires speech anatomy and numerous other anatomical and physiological conditions, as well as a learning history in a language community, and a context in which language behavior occurs. Every one of these conditions is necessary, but no one by itself is sufficient.

The reductionistic proponents also overlook level of organization. Nature is organized at a number of different levels, each of which follows its own principles. The gases hydrogen and oxygen have distinctive characteristics that change completely when organized into a molecule of water. Water is at a different level of organization than either of the gases that compose it, and

examining the gases separately cannot discover its properties. Psychological behavior is at a different level of organization than the biological components that comprise the organism, for psychological behavior consists of more than the organism. It involves the organism interacting with its surroundings and accumulating a history of these interactions that enters into each new interaction. Organism, stimulating object with its evolved meanings for each individual, context or setting, and past history are among the components that provide a new level of organization different from any of the components.

Acknowledgement of necessary conditions and appropriate level of organization gives full accord to biological participants as well as all others, but does not place the full load of causality for a complex event on a single component. In such an approach, a psychological event is not something in the head, in a mind, in neurons, in hormones, or in DNA molecules, but is comprised of the total interactional complex, which has principles at that level of organization that differ from those existing at the other levels from which it is composed.

Social

Social reductionism is no less unsatisfactory than biological reductionism. Stam (1990), the founder and editor of the journal *Theory and Psychology*, assumes that the only alternative to *mentalism* or *biological reductionism* is the theoretical system *postmodern/social constructionism*, which singles out the social group for preeminence. The social group is the locus of all that knowledge can be — social agreement. *Reality* consists of the words with which we describe that reality. *Truth* is whatever is coherent, and *error* is simply disagreement. Although this approach is not explicit about causality, it is plainly reductionistic, for the psychological event is relegated to a social process. I contend that an alternative is available in noncentrism. Stam and others show no familiarity with it and consequently no indication of making an informed choice.

Universal Q

There are vast differences between the philosophy of Q and that of some of the several systems of psychology, especially the organocentric ones. Consider, again, cognitive psychology. It uses R methodology and the principles of variance analysis, which compare group means and discard individual characteristics as a so-called "error term." Q centers on uniqueness: the variables are persons rather than test items, and individuals are sorted into similar factors. R measures from the investigator's point of view; Q measures from the participant's point of view. Cognitivism accepts hypothetico-deductive theories, brain reductionism, linear cause and effect of computer processing models, and mind-body dualism, whereas Q rejects these. Where cognitivism assumes that behavior is only the surface appearance of hidden processes, Q takes behavior as the fundamental datum. Consequently,

cognitivism starts with constructs of hidden operations in the brain, whereas Q starts with the observed events of human tasks, Q sortings, which determine shared meanings.

While I know of no instances in which the cognitivists have used Q, systems that also depart radically from its philosophy, namely, humanistic psychology, psychoanalysis, and social Constructionism, have used it. Moreover, I am sure that cognitive psychology could use it with equal success. But how could that be possible?

After this long presentation it is rather embarrassingly simple to indicate why Q can be so universally applied — even to systems with radically different causal assumptions. It is this: All systems can only study actual events, regardless of what they claim they are studying. They cannot study minds, selves, processing, brain powers, instincts, drives, or consciousness. In addition, Q taps into events of human subjective behavior that can actually be studied. That is all there is to it: *events* rather than *constructs*. Yet this simplicity has been elusive, for few theoretical approaches have understood this simple distinction and even fewer have utilized it in any consistent manner. Q, with its rigorous approach to subjectivity through the communicability of sorting, has cut through 2000 years of cultural belief, myths, and confusion to provide a systematic measure of the objectivity of subjectivity and has been crystal clear that that is exactly what it is doing. It is ironic that researchers have so often rejected subjectivity as too elusive or unscientific, while their claims of measuring venerable constructs abound. They do not recognize that what they say they are measuring is not the same as what they actually are measuring. They are not measuring processing, or powers, or behavior as indicators of such constructs as neural nets or representations of the world. What they are measuring are concrete interactions of organisms and things. Perhaps it should not be surprising that the fog of centuries of confusion over constructs and events and the linear causal assumptions that have arisen out of this confusion should continue to obscure the vision of contemporary theory and investigation. Yet the International Society for the Scientific Study of Subjectivity and the hard work of its members have begun to lift the fog. In partnership with other noncentric systems it should yet bring a more penetrating vision.

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