Q Methodology, Quantum Theory, and Psychology

Simon Watts, Ph.D.
University College Northampton
Paul Stenner, Ph.D.
University College London

> *...one of the most striking features of factor-analysis is this: not only in its general nature, but also in many minor details the peculiar type of mathematical argument which the psychological factorist has developed is almost exactly the same as that which is employed by the quantum physicist in analysing the fundamental constitution of the material world. (Burt 1940, 92)*

For William Stephenson, who had doctorates in both physics and psychology, Q methodology offered the chance to "bring quantum theory to bear upon psychology, not as speculation and analogy, but by force of experiment and determination of phenomena particular to psychology" (1988/89, 2). Indeed, Niels Bohr (1950) shared the conviction that quantum theoretical principles could (and indeed should) be rendered applicable to "other domains of knowledge" (Stephenson 1986a, 520). Bohr mentioned biology, sociology, and psychology in particular. Despite this optimism, however, and despite the quantum theory being described as both "the most generally applicable of all theories" (Edelman 1992, 215) and "arguably the most successful scientific paradigm ever" (Stewart 1997, 331), bringing it *to bear* on psychology has always been a problematic pursuit.

This is largely because the traditional Copenhagen interpretation of the quantum theory (see Cushing 1998) creates an apparently insurmountable ontological rift between the microscopic domain and the everyday, macroscopic world in which humans reside. To cut a long and complicated story short, Copenhagen quantum theory tells us that the principles of physical continuity and a Newtonian, deterministic system of causality no longer hold in the microscopic domain. In Heisenberg's words, we must abandon the "idea of an objective real world whose smallest parts exist

---

A previous version of this paper was presented at the 18th Annual Conference of the International Society for the Scientific Study of Subjectivity, Centre for the History of the Human Sciences, Dept. of Psychology, University of Durham, Sept. 20th 2002.

Authors' Addresses: Watts, Psychology Dept., University Collge Northampton, Park Campus, Boughton Green Road, Northampton, NN2 7AL; simon.watts@northampton.ac.uk. Stenner, Dept. of Psychology, Univ. College London, Rm 505, 26 Bedford Way, London, WC1H OAP; p.stenner@ucl.ac.uk.

Operant Subjectivity, 2003 (July), 26 (4), 157-175

objectively in the same sense as stones or trees exist" (1958, 149). The word *reality* can have a defined referent in the microscopic domain only *in the context of a particular experimental setting* and only *in relation to a particular act of measurement.* It follows "that an atom existing with uniquely definable properties...even when it is not interacting with a piece of equipment, is meaningless within the framework of this point of view" (Bohm 1957, 92).

The quantum theory duly seems to deny all possibility of analogous or conceptual exchanges between the microscopic and macroscopic domains. This is particularly irritating for psychology, since the discipline has long exploited the *atom* as a means of metaphorically grasping the nature of *individual persons* (Leary 1990). Indeed, the "notion of a separately existent *self*" now seems to follow automatically, as a function of this metaphor and "of the generally accepted metaphysics which implies that *everything* is of this nature" (Bohm 1998, 98). Neither, as Stewart confirms, can this relationship be dismissed as "the fruit of a loose analogy between molecules and individuals in a population...[for] close mathematical correspondences" link the behaviour of these differing populations (1997, 45). Yet even the *persons-as-atoms* metaphor could not remain coherent in the quantum context, since elementary particles were no longer considered to have *uniquely definable properties* or even to exist on a continuous basis.

It is notoriously difficult, therefore, to locate *phenomena particular to psychology* which might profitably be explained along lines prescribed by the Copenhagen interpretation. A satisfactory psychological phenomenon would certainly have to be microscopic to the person; it would normally exist in a fundamentally *meaningless* state, and it could be allowed to become a coherent and meaningful reality only when observed by a macroscopic person within a particular experimental setting. Bound by these strange limitations, attempts to employ the quantum theory in psychology have invariably led *inside our heads* and to the application of quantum principles as a means of explaining the function of the brain and the related psychological phenomena we call consciousness and mind (see Wolf 1985; Penrose 1989; Lockwood 1989; and most speculatively, Zohar 1990). Even here, however, arguments are not convincing. Gerald Edelman (1992), for example, makes a powerful case for seeing the quantum theory, and physics more generally, as merely a *surrogate spook* when it is invoked directly as an explanation of brain or mind.

Q Methodology in the Copenhagen Image: Culture as a Passive Entity

Stephenson was evidently aware of the quantum implications of Q methodology from the outset, yet he developed a full quantum theoretical interpretation of the method only very late in his life (Stephenson 1982, 1983, 1988a, 1988/9). A related series of purely theoretical papers also

appear at about the same time, under the collective heading *William James, Niels Bohr, and Complementarity* (1986a; 1986b; 1987; 1988b). In these various papers, Stephenson strives to elucidate the possibility of psychological experimentation in the quantum image. Like everyone else, however, his progress was dependent upon the discovery of appropriate psychological phenomena — a psychological system of some kind — on which such experiments might profitably be conducted. Ever less than formulaic, Stephenson did not believe this system would be found *inside* the mind of an isolated person. Instead, quantum experimentation in psychology was to involve:

> ...preparing phenomena of mind, so-called, so that it can display its structure. The preparation involves two steps. One is to dispense with mind as "non-essential" and to replace it with what is observable, namely, communi-cability. (1982, 237)

> The theory of subjective communicability...dispenses with consciousness and its surrogates as "nonessentials," replacing them with what is "essential," namely, consciring, the "sharing of knowledge." (1982, 240)

It is this field of communicability — this field of shared knowledge and meaning — which constitutes Stephenson's psychological system. This field is the *quantumstuff* of psychology (see Stephenson 1988; 1988/89). Within this overall field Stephenson proposed, there exists a discernible "universe of *statements* for [and about] any situation or context" (1986c, 44). Each of these "universes" he called a *concourse*. There exists a concourse "for every concept, every declarative statement, every wish, [and] every object in nature" (1986c, 44). Each represents *the range of statements or assertions* that can sensibly be made about any particular situation, event, or subject-matter (Stenner, Dancey, and Watts 2000). Indeed, it is the range of assertions (this *field of the sayable*) which we access and sample as we construct our Q sets.

All the "statements of a concourse are," Stephenson continued, "common knowledge. Everyone...is familiar in some sense with every statement" (Stephenson 1982, 239). The shared knowledge of the concourse, he said:

> ...as [a] psychological field, is the individual's cultural heritage, born of history. It is the single most significant contribution to subjective science. All Q-sorts dip into it, as an empirical field out of which new subjectivity grows. (1982, 242)

So, in a first step, Stephenson distinguishes between the non-essential and non-observable — namely the *psychic* phenomena called consciousness and mind — and the essential and observable nature of *consciring*. The latter he associates with a *cultural* field of the sayable, which he nevertheless insists is *psychological* in nature: the very source of *subjectivity*. Communication,

psychology, and culture are bound together within this field. Cultural theorists employ similar ideas. Schweder (1984, 20), referring to the work of Robert LeVine, defines culture "as an inherited system of ideas that structures the subjective experiences of individuals." Whilst Clifford Geertz refers also to the historical transmission of knowledge, and provides an image of culture as the fertile soil from "which new subjectivity grows." Culture is, he suggests:

> ...an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic form by means of which men [sic] communicate, perpetuate and develop their knowledge about and attitudes toward life. (1973, 80)

The common assertion is that subjective experience — so-called *phenomena of mind* — are in some way shaped by a pre-existent cultural field of shared knowledge, narratives, concepts, meanings, ideas, and so forth. This is not a popular idea in mainstream psychology. Dominated by a tacitly accepted Newtonian metaphysics which implies that persons are separately existent and self-contained entities, the discipline has long considered phenomena of mind to be *a propos* a psychic domain that can be analysed in isolation from context. Hence, the idea that social communications and culture more generally may be implicated in this domain is less readily accepted. Having said this, it should be recognized that such a notion has played a constant role in the margins of the discipline. Wundt's *Volkerpsichologie*, Mead's *Social behaviourism,* Bühler's *Sprachtheorie,* and Vygootsky's *Sociogenic developmentalism* are just four notable historical examples of psychological theories based upon the recognition that psychic process are thoroughly mediated and transformed by the symbolic resources circulating in the social domain. These themes continue in the work of cultural psychologists such as Valsiner (2000) and in the predominantly European tradition of *social representations* theory (Moscovici 1984). The latter was one of a number of strands of work which led to the so-called *discursive turn* or *second cognitive revolution* in British psychology (Harré and Gillett 1994). In the United States, they have informed the development of a social constructionist psychology (Gergen 1985).

It seems at first glance, then, that Stephenson, cultural theorists (see, for example, Schweder and LeVine 1984) and supporters of a social constructionist approach in psychology may well be voicing the same discourse or at least communicating the same message. In pointing to the structuring role of *communication* (communicability, culturally organised narratives, and discourse) on *subjectivity* (subjective meaning and experience), cultural theorists and social constructionists are drawing a similar distinction — albeit often an implicit one — between a *socio-cultural*

domain of communication and an inner (personal or individual) domain of subjectivity. This distinction is made in order to indicate the influence and priority of the former over the latter, or even paradoxically to question the very existence of a discrete *inner* domain of subjectivity. As Stephenson (1953, 87) says, "it is unsound, except on grounds of convenience to distinguish between 'inner' and 'outer', 'internal' and 'external' frames of reference." The cultural is then distinguished from the personal only as a matter-of-convenience and only insofar as any *inner* domain of subjectivity is understood to be intimately connected to, and shaped by, the organised narratives and structures inherent in the cultural domain of communication.

Stephenson's assertion that the cultural field of "communication is ubiquitous" to human life (1986c, 39) is hence directly comparable with Rom Harré's acceptance of the "ubiquitous role of discourse" in the formation of psychological phenomena. Harré, one of the main proponents of the discursive turn in British psychology, cites remembering, deciding, reasoning and persuading as examples of phenomena which are "brought into being through the public and private use of symbols under all sorts of normative constraints" and which are, as such, "either...performed wholly discursively or make use of discourse in important ways" (1999, 35).

On second glance, however, differences in perspective are apparent. These differences are clearly illustrated by Stephenson's quantum theoretical writings. For in analogously considering his hybrid psychological/cultural field to be the *quantumstuff* of psychology, Stephenson also needed this field (and all of the statements which constitute it) to be inherently *meaningless*. The Copenhagen interpretation would otherwise be compromised. The meaningless state of each individual statement, he suggested, was equivalent "to an atom's lowest state of energy" (Stephenson 1988/89, 7). Whilst, therefore, advocates of a social constructionist psychology promote the idea that psychological phenomena are produced under all sorts of *normative* constraints, Stephenson's cultural field (limited by the supposedly meaningless state of its contents) can embody and convey "no...normative dimension" (Stephenson 1982, 239).

Stephenson certainly accepted that his field of cultural communication was inherently structured (see Stephenson 1979a). Nonetheless, this structure did not influence the subjective experiences of individual persons. In Stephenson's terminology, the normative or substantive elements of the psychological system have no impact upon its transitive elements (1986b). As a consequence, Stephenson's psychological/cultural field is a largely *passive* entity. Linking this interpretation back to the quantum theory once again, Stephenson suggests that the concourses of the cultural field, "like Heisenberg's potentials, are tendencies for action, yet such that nothing ever happens" (1988/89, 8). It follows, therefore, that it cannot be the:

> ...message systems [or "shared significance in a culture"] which define for a

> person 'the realities and potentials of the human condition,' but the way in which the person confronts these and other systems, based largely on past experiences, which are organised, however loosely, into 'perspectives of existence,' priorities [and] values...all of which are subsumed under the concept of schemata. (Stephenson 1986c, 51)

The most direct consequence of the passivity Stephenson attributes to his cultural field is that it leaves him in the awkward position of having to identify an active principle that might lend it psychological meaning. That active role becomes assigned to the very *inner* domain that the theory of consciring had rendered virtually insignificant. In 1982, in keeping with his earlier behaviourism, Stephenson rejects the psychic component of mind as a *non-essential.* This rejection of the psychic is retained throughout his later work. Yet having denied his system of communicability an independently meaningful and structured existence, in 1986 he does return to an isolated inner domain as a way of explaining our meaningful experiences. A domain of subjectively real schemata, familiar to a long tradition of cognitive psycho-logy, seems once again to play the role of the system of measurement that collapses the otherwise meaningless cultural system of communication into a locally and temporarily meaningful form. The prodigal subject, we might say, returns to centre-stage. Where once the concourse represented *the single most significant contribution to subjective science,* it is now these Bartlettian schemata or apperceptive mental contents that are seen as "fundamental to all else" (see Stephenson 1986c, 51). "For me," Stephenson confirms, "phenomena had to be found 'inside' the mind of anyone, to which, probably, quantum theory could apply directly" (1986b, 532).

These contradictory conclusions necessarily impact upon our understanding of Q methodology. If, as we implied earlier, our sample of statements in a Q methodological study is drawn from the concourses of the cultural field, then such statements must be considered *passive* and *meaningless* entities prior to the sorting process. Only when individual participants project their own feelings, conceptions and concerns — i.e. the contents of their own schemata — onto the statements is their essentially indeterminate and meaningless nature overcome. Each participant merely lends the statements a determinate meaning within the overall structure of their Q sort. Stephenson's cultural/psychological field is hence reduced to the status of a passive *reference library* — a mere repository of shared knowledge — which individual persons can accept or reject with *complete freedom*, on the basis of their own *perspectives of existence.* The participant is under no pressure to conform or to uphold any *normative* standards of understanding or behaviour. On this interpretation, therefore, all meaning seems to issue from an isolated mind. Steve Brown outlines this position nicely in the following passage, when he suggests that "the supposed *a priori* meaning of the statements does not necessarily enter into the Q sorter's

considerations: participants inject statements with their own understanding" (1997, 11).

To the extent that an inner domain of subjective experience actually exists, these conclusions represent a completely legitimate and eminently sensible interpretation of Q methodology. A good Q sort item (unlike a good R methodological item) is precisely a proposition that might be rejected by one person and accepted by the next on the basis of divergent understandings of the item's meaning. A good Q methodological study will allow access to these divergent understandings and to the schematic structures of the inner domain. The isolated mind gives up its secrets (Stephenson 1986b). Equally, however, to the extent that a distinct cultural domain of structured communication exists, such an interpretation restricts the potential of the method as a tool for exploring the patterns of a cultural manifold: of a concourse that is meaningfully *pre-structured* into distinct and identifiable discourses or communicative themes. And this is precisely the way Q methodology is employed by those advocating a non-foundationalist (social constructionist or discursive) framework within psychology (Stainton Rogers, W. 1997/98; Stenner and Watts 1998; Stenner *et al.* 2000).

If what we have argued is correct, the two traditions of Q methodology that have been labeled with the geographical markers of the *UK dialect* and the *US dialect* (Stainton Rogers, R. 1997/8) each represent a development of just one of the two contradictory possibilities that we have made explicit in Stephenson's theorizing. On the one hand the prioritizing of consciring (a focus on the communicative *act* of sharing knowledge which "*dispenses with consciousness and its surrogates as 'nonessentials'*"), and on the other the prioritizing of internal schemata (in the face of which the symbolic resources of the concourse play a passive role). Although we cannot develop the point here, Stephenson's contradiction is in fact better understood as a profound attempt to grasp the fundamentally *paradoxical* nature of the problem at issue, a problem which precisely cannot and must not be reduced to *either* 'internal' subjectivity *or* 'external' communication. As Bühler (1928) was aware, the development of symbolic communication is grounded in the impossibility of any direct contact between the consciousnesses of different individuals. Stephenson's oscillation between a focus on subjectivity and a focus on communication thus demonstrates a faithful responsiveness to this paradoxical grounding of the sharedness of communication in the solipsism of the inner subjective world.

From the non-foundationalist perspective of the UK dialect (and here this means precisely a refusal to have subjectivity play the role of foundation for communication), which echoes the views expressed in Stephenson's 1982 article, the cognitive tradition in psychology has sought reliable mental parts and structures where none exist — namely, in an isolated inner domain. We do produce mental states of course, no doubt they are a primary feature of our

being, but the suggestion is that we *only* produce them on an ongoing and *ad hoc* basis, during and in response to the everyday ebb and flow of our lives (Heidegger 1962; Dreyfus 1995). No deeper or more objective layers of psychology exist inside our heads. No reliable schemata can be found here. For the non-foundationalist psychologist our subjective experiences, "skills and capacities are not grounded in unobservable psychological levels, but in the neurophysiology of our bodies" (Harré 1999, 14). All that psychology can find *inside* is the *matter* of our minds. It is our brain's capacity to impose value on incoming stimuli, to learn and to restructure itself on the basis of those stimuli, which is important for the purposes of psychology (see Edelman 1992).

If, on the other hand, we wish to access consistent and meaningful *perspectives of existence* — what Thomas and Baas (1992/93) called the *reliable schematics* of the subjective domain — then *inside* is precisely the wrong place to look. As individual minds we are inherently *ad hoc* and *unreliable.* We are the "untamed horse of the scientific ranch" (Stephenson 1953). If we want to find reliable schematics, therefore, we must instead turn our attention *outward* toward the multiple story lines and diverse readings which constitute our shared fields of knowledge and communicability. In so doing, we fully acknowledge the active and meaningful nature of the cultural field. Culture is understood to be a coherent, tightly interrelated, *self-referential system*, preformed into distinct and meaningful conceptual/ discursive structures (D'Andrade 1984; Valsiner 2000). These structures, we are proposing, contain and embody the norms and quasi-objective criteria that lend coherence to a given human collective (what LeVine 1984, 67, calls "the intellectual, moral, and aesthetic standards" of the group). This account parallels contemporary social representations theory, according to which social representations are defined as "organizing principles of symbolic relationships between individuals and groups" (Doise, Spini, and Clémence 1999, 2). As well as defining the group (Moscovici 1984) such structures serve as a normative "guidance system...for the production of proper behaviour" (Freilich 1980), and also as "the basis for the *right* decision" (Levy 1984, 232). On this matter, following Valsiner (2000), conceptual confusion may be avoided by referring to behaviour that has been imbued with culture as *conduct.* Group cohesion and individual conduct alike are thoroughly culturally mediated and imbued. People cannot simply ignore the substantive and meaningful structures of their culture, therefore, for these structures are always impacting upon them.

This last assertion represents a quite radical departure from Stephenson's ideas. The normative and transitive elements of the psychological system, we are suggesting, exist in a process of reciprocal determination. Normative thought is characteristic of the *outside* and of shared knowledge, transitive thought of the *inside* and of individual minds, but they are not discrete or

complementary processes. To use a Jamesian metaphor which Stephenson himself employed (1986a), we are saying that our *flights* of transitive thought necessarily take place in a cultural *environment* shaped by the familiar and safe *resting places* of normative thought. When we come to *perch* or to take up a substantive position, therefore, as we surely must in a real-life or Q methodological context, it is to these safe resting places — these environmental semantic affordances (to adapt Gibson 1966) — that we invariably return. We shall return to these arguments in the next section.

For the moment, however, we need only recognise that, in contrast to Stephenson, we are now rejecting the premise that meaning can ever issue exclusively from an isolated mind. On the contrary, meaning and meaningful structures are seen as a cumulative and distributed property of the cultural system of communication itself (such that any reliable schematics ultimately *belong to* and can be *found* only in that system of *shared knowledge*, not in an individual and isolated mind). Such ideas were central to the development of the alternative (mostly British and psychology based) *dialect* of Q methodology influenced by the discursive turn (Stainton Rogers, R. 1997/1998; Stainton Rogers, W. 1997/1998). In the next section, we shall explain this alternative interpretation of Q methodology in more detail. Of course, the main premises of this interpretation can be made independently of quantum arguments or analogies. Yet Stephenson spent much effort in his attempts *to bring quantum theory to bear upon psychology*. It seems fitting, therefore, to contribute to this debate and to show, via our interpretation, how we believe Q methodology satisfies this aim.

Q Methodology in the Bohmian Image: Culture as an Active Entity

Perhaps the most direct quantum analogy drawn by Stephenson linked the statements of a Q set in a Q methodological study to the microscopic particles of the quantum theory. The statements were, he suggested, the *quantumstuff* of Q methodology and psychology. This is problematic, however, since the analogy is not consistent with the mathematics of Q methodology, which actually operates *by-person* rather than by-item or statement. It analyses the relationships pertaining between *whole Q sorts*, not between individual statements as seems to be implied. Shift the analogy correspondingly, however, and Q methodology suddenly takes on a new appearance. Now the analogy suggests the possibility that *persons* might be the quantumstuff of psychology. In the context of a Q methodological study, it is *the communicative contribution provided by a person in Q sort form* that acts as the quantum phenomenon. This is interesting, for it may partially explain why the search for *quantum phenomena particular to psychology* has been so unsuccessful. Psychologists simply believed that suitable phenomena would have to be *microscopic* to the person. As Dirac (1958, 3) wisely points out, however, "*big* and *small* are merely relative concepts." Physically, of course, we are macroscopic. As *contributors to the cultural field of*

communication, however, we are but a microscopic drop in the ocean of incessant message circulation.

To recognise that persons are the microscopic or quantum phenomena in the context of psychology, is also to offer ourselves a new view of Q methodology. Whilst the quantum theory proper allows physicists to ascertain the various states or positions taken up by an *ensemble of basic particles* in relation to a particular experimental setting and a particular act of measurement, we are suggesting that Q methodology similarly allows the psychologist to ascertain the various states or positions taken up by an *ensemble of persons* in relation to a particular subject-matter and a particular research question (i.e., it allows the psychologist to say something about the subjective positioning or meaningful orientation *of the ensemble*).

This reconnection of particles and persons also invites us to rejuvenate the *persons-as-atoms* metaphor, albeit now in a quantum form, which might more accurately be called the *persons-as-basic-particles* metaphor. Such analogy, however, was effectively rendered inoperable by the Copenhagen interpretation of the quantum theory. Other interpretations of the quantum theory exist, however, which enable us to profitably develop this metaphor once again. David Bohm and Basil Hiley's (1993) *Ontological Interpretation* of the quantum theory, for example, allows for the permanent existence of basic particles. Such particles do have *uniquely definable properties* and they do follow definite and continuous trajectories. Bohm and Hiley's interpretation offers further possibilities for metaphor, however, insofar as it also suggests the presence of an objectively real *field* in the microscopic domain (known, conveniently in a psychological context, as the Ψ field).

In later works, Bohm described the impact of this field in terms of a new concept he called *active information* (see Bohm and Hiley 1993). The field, he proposed, contained information about the immediate environment or situation of the particles, such that mathematically speaking, the wave function of the quantum theory could be said to represent "the effect of the environment on the microsystem under consideration" (Cushing 1998, 334). In using the term *information,* Bohm wished particularly to bring "attention to the literal meaning of the word, i.e. to in-form, which is actively to put form into something or to imbue something with form" (Bohm and Hiley 1993, 35). The information in the Ψ field is active, therefore, in the sense that it helps to *inform* and shape the conduct of all basic particles in the microscopic domain. It cannot *determine* that conduct, however, for the particles turn out to be differentially receptive to the information provided.

They are, as Bohm says, differently *attuned.* Whilst all the information is *potentially* active everywhere, therefore, it can only impact where it is actively *taken up* by a particle as a guide to its behaviour (in much the same way as a radio wave can only become an audible *broadcast-reality* when a radio is tuned to the appropriate frequency). In effect, the particles *make their*

own choices about the relevance or otherwise of the information contained within the field. The field is always responsible for guiding a specific particle, therefore, but ultimately only "in its *self-movement* under its *own energy*" (Bohm and Hiley 1993, 105, emphasis added). An experimental analysis in this context would then reveal different states of attunement in various ensembles of particles. We discover their position — literally *where they are at* — in relation to the active pool of information that is the Ψ field.

Bohm was quick to develop similar ideas in the context of human cultural systems (see Bohm 1996; 1998). As Bohm and Hiley confirm:

> We may make an analogy here to human relationships in society. The most immediate and concrete reality is the collection of individual human beings. In so far as these are related by pools of information, this latter will become manifest in the behaviour of human beings. The behaviour of both the individual and of the society depend crucially on this information (rather as happens with the particles of physics). (1993, 105)

This new quantum analogy impacts first upon our view of the person. As we implied earlier, the metaphysics of Newton had suggested that persons were separately existent, self-contained and essentially isolated *objects*. Employing a quantum metaphysics, however, one can no longer draw "such [a] sharp division between things in reality" (Bohm 1998, 99). As persons become the quantum phenomenon of psychology, so we lose the capacity to:

> ...observe a 'self' that can be sharply distinguished from the total environment. Rather, in every aspect of his [sic] being, the boundary of an individual man is to be compared with that of a city — in the sense that it can be at times a useful abstraction, but that it is not a description of a real break or division in 'what is'. And, ultimately, the same is true of the boundary of anything. (Bohm 1998, 99)

This image has interesting consequences. If the boundary of any individual is no more than a useful abstraction, then an isolated, inner domain really cannot exist within us. We return, in other words, to Stephenson's conclusion that inner/outer distinctions are just a matter-of-convenience. Like non-foundationalist psychologists, Bohm wants to use this conclusion to question an assumption that has long sustained the cognitive tradition in psychology, namely:

> ...that our thought is our own individual thought...I'm trying to say that most of our thought in its general form is not individual. It originates in the whole culture and it pervades us. We pick it up as children from parents, from friends, from school, from newspapers, from books, and so on. We make small changes in it; we select certain parts of it which we like, and we may reject other parts. But still, it all comes from that pool. (1996, 51)

In language notably similar to that of Stephenson in 1982, Bohm duly rejects the primacy of individual thought and individual minds. In identifying

an active principle that might lend our lives psychological meaning, he turns instead to a highly active cultural system. Our understandings, imaginings, the stories we tell, the accounts we find plausible, the nature of our interactions, and so on, are all shaped by the pre-existent narrative and conceptual structures of our cultural field or *pool of information.* They represent, as the theory of consciring suggests, familiar and explicitly *shared* knowledge. This structured information then impacts upon us in various ways during the course of our lives. Parents, friends, books, and so on, encourage us to uphold the normative standards of our community. As a consequence, the active information of a culture is inescapable, prevalent, ubiquitous, and widespread, and it serves to shape and in-form the subsequent nature of our *own* thoughts and understandings.

Social psychologists, of course, have long recognized that we are placed under great pressure to conform to social standards (cf. Deutsch and Gerard's 1955 classic statement on normative and informational influences). The above considerations, however, draw attention to a profound source of conformity inherent in the communicative practices of culture. Just as Bohm's active information *probabilises* (but does not *determine*) the conduct of basic particles, rendering them more orderly and predictable as a function of their *attunement* to the Ψ field, so the communications of the cultural field *probabilise* the conduct of those human beings that use and are used by them. At a basic level, and in conformity with contemporary information theory and second-order cybernetics, any successful communication presupposes the overcoming of an original contingency and improbability (Clam 2001). The structures of culture would thus represent *probabilised* nodes of communication that permit a certain taken-for-granted attitude that one's utterances and actions will not be met with sheer incomprehension (Luhmann 1995).

This reduction of communicative chaos to relative order is, for us, the fundamental accomplishment of culture. This accomplishment does not remove contingency and improbability, of course, but merely shifts them to a higher order of complexity. Such probabilising pressure inevitably shapes us as persons (not least since the very concept of *person* is a cultural product with its own historical specificity), and through this pressure the people of a culture become similarly attuned. As a result, they respond to an enormous variety of situations and stimuli in a highly correlated way (see Bohm and Hiley 1993, for similar ideas in the quantum context). We *value* similar things, show similar preferences, and *account for our experiences* in similar ways, in culturally acceptable terms and on the basis of the information that has been made available to us by the cultural pool (a phenomenon Heidegger 1962 called *averageness*). We really do *share knowledge*, such that:

> ...most of our representations arise collectively, and...[it is precisely this collective or shared nature which] gives them greater power. If everybody agrees on something, we take that as evidence that it's right...This then

> creates a pressure on us — we don't want to get out of the consensus. This means that we are constantly under pressure to accept any particular representation, and to see it that way. (Bohm 1996, 57)

To affirm the autonomy of the cultural field is not, however, to invoke an oppressive regime. Nor does it deny our individuality (although *the individual* was a late arrival on the cultural scene compared with *the person* — cf. Luhmann 1995, chapter 7; but also Foucault 1979a). This is not a matter of cultural determinism. On the contrary, the probabilisations effected by the cultural field bring many benefits to the human beings whose lives are thereby stabilized and patterned. If there are no human beings without culture, then this should be taken as an indication of the phenomenal adaptive advantage the use of symbolic media brings to organic life (Holzkamp 1991). Its reliable schematics allow us a clear and easy idea of what we might normally or realistically expect of particular phenomena (including ourselves). These normative structures help us to orient ourselves in the world, to recognise potential dangers, and to otherwise deal with things in an appropriate and culturally acceptable fashion: to monitor our own behaviour, to properly interpret our own feelings, the events that we encounter, the objects we use, the actions and feelings of others, and so on. As Foucault (1979a) makes clear, the possibility of being a one-off, a genius, a creative, a deviant, or even a pervert, is actually *dependent upon* the existence of standards from which one can deviate. All are phenomena that can be more or less *probabilised.*

Hence, we remain free (even in the most prohibitive of cultures) to appropriate provided information in a positive and creative fashion, to select certain parts of it and to reject others. This is the essence of transitive thought. When in flight we have enormous room-for-manoeuvre (Dreyfus 1995). We can turn the normative to our own purposes, personalising and rendering it self-referential in a variety of different ways (Luhmann 1995). We are free to *make choices* — which we undoubtedly do, often with great creativity and originality. This freedom is at the heart of Stephenson's view of Q methodology. Whilst, however, our culture leaves us free to accept some norms and to reject others, we cannot avoid appropriating each in an effective and *culturally acceptable* manner. This premise, we would suggest, is absent from any view of Q methodology which grounds meaningfulness in the solipsism of an inner subjective world.

Expressed in a different form, the same premise suggests that processes of *self*-reference are indelibly tied to simultaneous processes of *cultural* reference. We have the freedom to make a whole series of *perverse* choices, but such self-referential processes will ultimately be measured and judged in relation to the normative benchmarks provided by our cultural field. Our processes of self-reference need to be *justifiable* in cultural terms. Perversity

is, by definition, not generally accepted. Our freedom is hence delimited by this (essentially moral-aesthetic) need for *accountability* (Shotter 1994). If I am to be a culturally acceptable individual, I must be able to account for my processes of self-reference (for all my decisions, acceptances and rejections) and for any overall position or viewpoint which results from this original pattern of preferences. Whilst, therefore, we have some freedom to resist convention and to operate in an original and creative fashion, in practice pressures of consensus draw us back toward the *acceptable* representations and viewpoints of the majority (Sherif 1936). When we come to *perch* or to take up a substantive position, therefore, as we surely must in a real-life or Q methodological context, it is to the vicinity of our culture's normative and reliable resting places that we invariably return. It is these *resting places*, we are beginning to suggest, which are revealed by the factors of a Q methodological study.

Of course, such resting places and hence the reliable schematics of the cultural field can be changed across time. In other words, transitive thought will have a reciprocal impact on the normative structures of our culture. Yet such cultural schematics are nonetheless highly consistent and reliable (and are, as such, also highly susceptible to scientific analysis using Q methodology), precisely because change at this macroscopic level demands a *wholesale shift in consensus* amongst the population at large. Cultural change requires that large numbers of individuals refuse the conventional *perches*, as, indeed, would a change in factor structure in a Q methodological study.

Conclusion: A New View of Q methodology?

As a final task, these theoretical conclusions must be mapped back onto the Q methodological procedure. The first major difference in approach is evidenced by our assertion that the statements of a Q set are *active* and *meaningful* entities prior to the sorting process, although this does not imply that each has a single, fixed and predetermined meaning. It simply acknowledges that they all possess a normative content of some kind and that they are, as such, considered to be pertinent and meaningful within this cultural context. In trying to prepare a *broadly representative* Q set, therefore, we are effectively trying to mimic (in an experimental setting) the type of information or *cultural environment* that would ordinarily be active on our participants in a real world situation. The Q sorter is then free to accept or reject any part of the provided information, or to otherwise render it self-referential in any chosen way. As Stephenson implied, the way in which a participant *confronts* the statements — self-referential processes — lies at the very heart of the Q methodological procedure. The possibilities are hyper-astronomical in this regard (Brown 1980).

This need not mean, however, that multiple-participant Q methodological studies reveal phenomena *inside the minds* of particular individuals. A

participant's own Q sort certainly tells us how that individual has chosen to *relate* to a whole host of normative ideas. Yet this needn't be indicative of anything schematic in an *internal* sense. In doing a Q methodological study we ask our participants to relate to things *outside* (a set of statements with a normative content). The same individual will probably relate differently next time, in different circumstances, with different people present, and so on. Indeed, in offering different conditions of instruction Q methodology actually takes advantage of this contextual sensitivity. In responding to circumstances, individual persons tend toward the *ad hoc* and the *unreliable.*

A Q methodological *factor*, on the other hand, reveals a more consistent and reliable phenomenon. Again, however, this reliability need not be indicative of schematic structures in the minds of isolated individuals. A factor demonstrates only that a particular *ensemble* of individuals have *related* to a whole host of normative ideas in a similar fashion. They have sorted the statements in a similar way. That is the observable phenomenon. We empirically discover the substantive position of the ensemble — literally *where they are at* — in relation to the active pool of information that constitutes their cultural field.

But this leaves a question. If no *shared* schematics exist with us (if we are completely *free*), then why do so many of us sort the statements into a limited number of reliable, repeated configurations? In the absence of internal schematics, the hyper-astronomical sorting possibilities of a Q methodological study and the apparently unreliable nature of our participants would seem to delimit our chances of finding *any* reliable *factors*. The answer, we are proposing, is that the Q sorter is *not* entirely free to accept or reject any part of the provided information, nor, in the final analysis, can they render it self-referential in just *any* way that they choose.

What Stephenson called the *message systems of a culture* are actively delimiting possibilities in this regard. When sorting the statements, a participant is undertaking a task that requires them to *negotiate* the *artificial* cultural environment that we have prepared for them in the form of a Q set (much as they would ordinarily have to negotiate the real thing). Participants accept the normative content of some statements and rejects others. In the end, however, they cannot avoid the need to appropriate each in an effective and *culturally acceptable* manner. Their completed Q sorts must *make sense* in this cultural context and should, ideally, communicate a substantive and culturally acceptable viewpoint. Some viewpoints are simply more *probable* than others.

Far from being indicative of structures in individual minds, then, we believe that the reliability of our factors and factor structures is dependent upon the normative impact and influence of inherently *cultural schematics.* These cultural entities provide the only reliable schematics of the subjective domain. Pressures of consensus draw our participants back toward the most

probable and acceptable viewpoints of our culture. That is what we observe in a Q study. We watch various groups of participants return to the limited independent variety of normative *resting places* their culture allows. Of course, some participants will not exemplify these viewpoints. A few will fall between two familiar *perches*, others will chart a still more *improbable* and revolutionary path. It is perhaps symptomatic, however, that the Q sorts produced by both types of participants (which will either be confounded or non-significant) will effectively be ignored when construction of the factor arrays take place. In this sense, such participants are little represented come the final analysis.

A set of Q factors thus provides a scaled-down model of the relatively stable patterns that emerge through communicative iteration and which, in constraining possibilities, enable the operation of otherwise highly improbable forms of cultural life. Just as existing culture is a reduction in the complexity of the otherwise incapacitating manifold possibilities of social life, so the factor structure of a Q study represents *a reduction in the complexity of the concourse.* It follows that the concourse, as is implicit in the word, should be defined, not just as the totality of sayable propositions relating to a specified issue, but also, in the context of a Q study, as a state of maximal connective possibilities between the statements of the Q set (i.e. a state in which each statement can be combined with the others in a maximum number of ways). This state of maximal possibility is the cultural equivalent of white noise. To put this another way, it is paradoxically an *overabundance of meaningfulness* within the concourse that might lead one to mistakenly assert its meaninglessness. A given factor structure can then be seen as mimicking the cultural process through which certain concrete communicative possibilities are *probabilised* through a reduction of the complexity of the concourse. A given *discourse* or collective representation (as indicated by a factor) would then be nothing but the *reduction in complexity of a concourse* which lends the latter meaning: a simplification that opens up a definite world, in the phenomenological sense (Merleau-Ponty 1973). If the assumed meaninglessness of the concourse is due to the fact that it often seems to point in *all directions*, then a *discourse* cures paralysis by taking just one of the available probabilised routes, or *chreodes,* (Curt 1994). As such, we use Q methodology to chart the *paths of meaning* taken in a given culture.[1] What is the Q methodologist? In this interpretation, a cartographer of the reliable schematics and consistent patterns of a cultural manifold.

---

[1] For the reader sensitive to 'contradictions' we recommend an attunement to paradox. For instance, the metaphor of 'paths' can be squared with that of 'resting places' when it is recognized that, as with any complex phenomenon, stability is achievable only through constant movement, just as the process of iteration yields increasingly stable factor estimates.

REFERENCES

Bohm, D. 1957. *Causality and chance in modern physics.* London: Routledge.

———. 1996. *On dialogue.* London: Routledge.

———. 1998. *On creativity.* London: Routledge.

Bohm, D., and Hiley, B. J. 1993. *The undivided universe.* London: Routledge.

Bohr, N. 1950. On the notions of causality and complementarity. *Science* 111:51-4.

Brown, S.R. 1980. *Political subjectivity: Applications of Q methodology in political science.* New Haven: Yale University Press.

———.1997. The history and principles of Q methodology in psychology and the social sciences. Paper presented at a conference celebrating the life and work of William Stephenson, University of Durham, Dec. 13.

Bühler, K. 1928. *Die symbolik der sprache.* Kant-Studien 33:405-9.

Burt, C. 1940. *The factors of the mind.* London: University of London Press.

Clam, J. 2001. The specific autopoiesis of law: Between derivative autonomy and generalised paradox. In *Law's New Boundaries: The Consequences of Legal Autopoiesis*, ed. J. Přibáň and D. Nelken. Aldershot: Dartmouth Publishing Company.

Curt, B. 1994. *Textuality and tectonics: Troubling social and psychological science.* Buckingham: Open University Press.

Cushing, J.T. 1998. *Philosophical concepts in modern physics: The historical relation between philosophy and scientific theories.* Cambridge: Cambridge University Press.

D'Andrade, R.G. 1984. Cultural meaning systems. In: *Culture Theory: Essays on Mind, Self, and Emotion*, ed. R.A. Schweder and R.A. LeVine. Cambridge: Cambridge University Press.

Deutsch, M., and Gerard, H.B. 1955. A study of normative and informational influence on individual judgement. *Journal of Abnormal and Social Psychology* 51:629-36.

Dirac, P.A.M. 1958. *The principles of quantum mechanics.* 4th ed. Oxford: Oxford University Press.

Doise, W., Spini, D., and Clémence, A. 1999. Human rights studied as social representations in a cross-national context. *European Journal of Social Psychology* 29:1-29.

Dreyfus, H.L. 1995. *Being-in-the-world: A commentary on Heidegger's Being and Time, Division 1.* Cambridge, Ma.: MIT Press.

Edelman, G. 1992. *Bright air, Brilliant fire: On the matter of the mind.* London: Penguin.

Foucault, M. 1979a. *The history of sexuality.* Vol. 1: *An Introduction.* London: Allen Lane.

Freilich, M. 1980. Culture is 'proper' not 'smart': A conceptualisation that makes a difference. Paper presented at the American Anthropological Society Annual Meeting, Washington, D.C.

Geertz, C. 1973. *The interpretation of cultures.* New York: Basic Books.

Gergen, K.J. 1985. The social constructionist movement in modern psychology. *American Psychologist* 40(3):266-75.

Gibson, J.J. 1966. *The senses considered as perceptual systems.* London: Allen and Unwin.

Harré, R. 1999. *The singular self: An introduction to the psychology of personhood.* London: Sage.

Harré, R. and Gillett, G. 1994. *The discursive mind.* London: Sage.

Heidegger, M. 1962. *Being and time.* Translated by J. Macquarrie and E. Robinson. Oxford: Blackwell.

Heisenberg, W. 1958. *Physics and philosophy.* New York: Harper & Row.

Holzkamp, K. 1991. Societal and individual life processes. In *Critical Psychology*, ed. C.W. Tolman and W. Maiers. Cambridge: Cambridge University Press.

Leary, D.E., ed. 1990. *Metaphors in the history of psychology.* Cambridge: Cambridge University Press.

Le Vine, R.A. 1984. Properties of culture: An ethnographic view. In *Culture theory: Essays on mind, self, and emotion*, ed. R.A. Schweder and R.A. LeVine. Cambridge: Cambridge University Press.

Levy, R.I. 1984. Emotion, knowing, and culture. In *Culture theory: Essays on mind, self, and emotion*, ed. R.A. Schweder and R.A. LeVine. Cambridge: Cambridge University Press.

Lockwood, M. 1989. *Mind, brain, and the quantum: The compound 'I'.* Cambridge: Blackwell.

Luhmann, N. 1995. *Social systems.* Translated by J. Bednarz, Jnr. with D. Baecher. Stanford: Stanford University Press.

Merleau-Ponty, M. 1973. *Consciousness and the acquisition of language.* Evanston: Northwestern University Press.

Moscovici, S. 1984. The phenomenon of social representations. In *Social Representations,* ed. R.M. Farr, and S. Moscovici. Cambridge: Cambridge University Press.

Penrose, R. 1989. *The emperor's new mind.* Oxford: Oxford University Press.

Sherif, M. 1936. *The psychology of social norms.* New York: Harper & Row.

Shweder, R.A. 1984. Anthropology's romantic rebellion against the enlightenment, or there's more to thinking than reason and evidence. In *Culture theory: Essays on mind, self, and emotion*, ed. R.A. Schweder and R.A. LeVine. Cambridge: Cambridge University Press.

Shweder, R.A., and LeVine, R.A., eds. 1984. *Culture theory: Essays on mind, self, and emotion.* Cambridge: Cambridge University Press.

Stainton Rogers, R. 1997/98. Q methodology and 'going critical': Some reflections on the British dialect. *Operant Subjectivity* 21(1/2):19-26.

Stainton Rogers, W, ed. 1997/98. Using Q as a form of discourse analysis. *Operant Subjectivity* 21(1/2).

Stenner, P., Dancey, C.P., and Watts, S. 2000. The understanding of their illness amongst people with irritable bowel syndrome: A Q methodological study. *Social Science & Medicine* 51:439-52.

Stenner, P. and Watts, S.D. 1998. [Re]searching for love: Subjectivity and the ontology of the Q factor. *Operant Subjectivity* 21(1/2):27-48.

Stephenson, W. 1953. *The study of behavior: Q technique and its methodology.* Chicago: University of Chicago Press.

———. 1979a. Q methodology and Newton's fifth rule. *American Psychologist* 1979 (April):354-7.

———. 1982. Q methodology, interbehavioural psychology, and quantum theory. *The Psychological Record* 32:235-48.

———. 1983. Quantum theory and Q methodology: Fictionalistic and probabilistic theories conjoined. *The Psychological Record* 33:213-30.

———. 1986a. William James, Niels Bohr, and Complementarity: I - Concepts. *The Psychological Record* 36:519-27.

———. 1986b. William James, Niels Bohr, and Complementarity: II - Pragmatics of a thought. *The Psychological Record* 36:529-43.

———. 1986c. Protoconcursus: The concourse theory of communication. *Operant Subjectivity* 9(2):37-58.

———.1987. William James, Niels Bohr, and Complementarity: III - Schrödinger's cat. *The Psychological Record* 37:523-44.

———. 1988a. Quantum theory of subjectivity. *Integrative Psychiatry* 6:180-7.

———. 1988b. William James, Niels Bohr, and Complementarity: IV - The significance of time. *The Psychological Record* 38:19-35.

———. 1988/89. The quantumization of psychological events. *Operant Subjectivity* 12(1/2):1-23.

Stewart, I. 1997. *Does God play dice? The new mathematics of chaos.* Harmondsworth: Penguin.

Thomas, D.B., and Baas, L.R. 1992/93. The issue of generalization in Q methodology: 'Reliable schematics' revisited. *Operant Subjectivity* 16(1/2):18-36.

Valsiner, J. 2000. *Culture and human development.* London: Sage.

Wolf, F.A. 1985. The quantum physics of consciousness: Towards a new psychology. *Integrative Psychiatry* 3:236-42.

Zohar, D. 1990. *The quantum self: Human nature and consciousness defined by the new physics.* New York: William Morrow.