

Q as a Constructivist Methodology

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Abstract. *Following a brief discussion of the meanings of constructivism an argument is made to the effect that Q methodology is a constructivist methodology in a sense that is compatible with the philosophy of Alfred North Whitehead. A brief comparison of the ideas of Stephenson and Whitehead is followed by a section outlining Whitehead's notion of the 'actual occasion' as the core of a constructivist approach to nature. It is argued that a comparable conception of the event is at play in Stephenson's thinking about Q methodology, and that this is key to understanding the quantum theoretical aspects of Q. Some of the procedures of Q methodology are then interpreted in the light of this conception. The conclusion uses the distinction between experience and expression to integrate the ideas of Stephenson, Whitehead and William James into a novel synthesis of potential use to Q methodologists.*

Introduction: Constructing Constructivism

Why am I so upset? (Stephenson, 2005, p. 114).

In approaching the concept of constructivism, it seems to me that William Stephenson would take the view that if we are to avoid entering into fruitless discussion at cross- purposes, it would be wise to recognise that the meaning of constructivism has first to be constructed. On its own the word is a mere pattern of ink on paper, or a momentary flicker of air-born sound. One can find it written and defined in a dictionary, for sure, but the word acquires living importance only as a more or less carefully wrought concept that might take its place in a system of such concepts.

In exploring constructivism, I feel reasonably sure that Stephenson's next impulse would be empirical. He would put together a Q methodological study to illustrate a variety of constructions of constructivism. Let me even risk predicting three of the factors that might emerge from such a study. There would be a factor expressing that constructivism is a form of social critique designed to denounce any claims to truth on the basis that knowledge is always conditioned by the times and spaces of its articulation, and by the power games of social life. There would be a second factor (or perhaps a negative version of a

first bi-polar factor) taking a dim view of constructivism as part of the trendy, anarchic, 'postmodern', relativistic literary theory which threatens to smother good science and scholarship. And there would be a third factor holding that constructivism is a more advanced 'post-Newtonian' form of scientific ontology that begins with the notion of complexity and is predicated upon a creative account of nature grounded in process.

To stretch the thought experiment a little further, three distinguishable practical orientations might be seen to flow from these positions (indeed, Curt, 1994, would recommend designing Q studies with separate concourses to tap the intentionality of practical 'prescriptions'). For factor 1, constructivism can be debunked as a 'mere construction' constructed differently for different purposes in different circumstances. For factor 2, the meaning of constructivism is fixed and clear and, knowing one's enemy, can be discouraged accordingly. From these perspectives there is little future for constructivism, and no reason to think much further about it. For factor 3, constructivism is something to be crafted and put to work in an ongoing creative and constructive process. The remainder of this paper, notwithstanding the mutual complementarity of these hypothetical factors, is designed to encourage more people to load factor 3. I will make the case that Stephenson's thought is constructivist in the same sense that A. N. Whitehead's process philosophy might be considered constructivist, and that Q methodology is an archetypical constructivist methodology. This 'third' sense of constructivism is neatly expressed by Stengers (2008, p. 91) as oriented towards 'the inherently constructed and constructing character of all existence'. The key question for human being is what are we *becoming* and how can we maximise the powers of our creative input into that constructive process?

Stephenson and Whitehead

There are numerous parallels between the work of Stephenson and Whitehead, the most obvious of which are: their positive efforts to move beyond Newtonian science; their foregrounding of the importance of feeling to scientific reality; their orientation towards complexity as a central concept in the rethinking of causality; their aims to integrate different sciences, from physics to psychology and sociology; their sensitivity to multiplicity of perspective; their insistence on the real importance of value to existence; their foregrounding of the centrality of interpretation to science; and their re-thinking of the pervasive subject / object duality along lines suggested by William James. Both were trained as physicists and were able and innovative mathematicians. Both engaged in a sustained way with relativity and quantum theories in physics. Both men also emigrated from England to the USA. However,

whilst Stephenson moved from physics (Durham) into psychology (Oxford)—via a formative spell at UCL—Whitehead moved from his post at Cambridge to become a philosopher at Harvard in 1924 (also via the University of London). Apart from these parallels there is a more direct reason to juxtapose Stephenson and Whitehead. Although Stephenson's psychology was somewhat philosophically informed, he was not a philosopher, and hence Whitehead's more metaphysical efforts might provide an illuminating ontological background to Stephenson's psychology ('One is not disposed', wrote Stephenson in 1987 [p. 529] 'to discard metaphysics quite so readily'). Likewise, although Whitehead had much to say about psychology (see Stenner, 2008), his approach was thoroughly abstract and calls out for practical illustration in the psychosocial domain via an appropriate scientific methodology.

Stephenson was familiar with the older man's work (which he cites on several occasions), and with the work of some of those who were explicitly inspired by Whitehead (e.g. Prigogine [1980], Bohm [1980], Lasswell [1948] and Griffin [1986]). For the most part Whitehead's philosophy seems to have met with his strong approval. In Part II of 'William James, Niels Bohr, and complementarity', he notes (with Cyril Burt) that Russell and Whitehead's groundbreaking *Principles of Mathematics* (1912) had pre-empted modern physics in re-thinking subject/object as relational systems, and that this position 'had been reached before the advent of relativity and quantum theory' (1986, p. 531).

Despite this high praise, Stephenson does not appear to have engaged systematically with Whitehead's process philosophy. To my knowledge, the only place where he pays more than brief attention to it is in Part IV of the Complementarity series entitled 'The significance of time' (Stephenson, 1988a). There, following a brief discussion of Bergson, he outlines the five conceptions of time discussed in *Process and Reality*, and briefly summarises the notions of prehension, becoming and causal efficacy in relation to time. He gives the philosophy a good deal of importance, and appears to rate it above other inspirations such as Gestalt psychology:

The concern in all this gestalt-related research was with *now*, *present situations*, the *becoming* of Whitehead's classification. One pays homage to the many experimental psychologists at the turn of the century for constructive and highly creative work on time, in which clockwork time, of stopwatches, reaction times, and Hipp chronometers played no part whatever, and in which there was an awareness that time presented problems that watches were bypassing. But equally at odds with reality is the lack of recognition that it is a person, a subject, who perceived. . .

Whitehead's *becoming* did not make this mistake. (Stephenson, 1988a, p. 22).

Indeed, Stephenson sets up Whitehead and his followers as the genuine alternative to Bohr's 'Copenhagen interpretation' of quantum phenomena: '... for Whitehead [the present / being / actuality] was time-related in a fundamental sense. He was mistaken if we accept Bohr's quantum theory; he is correct if we accept the new physics of Prigogene... the possibility that Whitehead's *becoming* provides the answers, in new concepts of time, is a burden of postmodern theoretical physics' (1988a, p. 21). Ultimately, Stephenson sides with Bohr, claiming to 'dispense with time altogether' (21), holding it to be a 'non ens', and stating that Q factors are 'time independent' (27). However, one gets the vague sense that he had more expertise with respect to the scientists influenced by Whitehead (especially Prigogene and Bohm) than with Whitehead himself. The evidence for this speculation is merely anecdotal, and these may simply be the result of careless expression. Namely, Stephenson misquotes Whitehead (describing subjective experience as 'filled with feelings of deprivation' rather than '*derivation*'); he seems to miss the close connections that exist between Prigogene's 'transition layer', Bohm's 'implicate order' and Whitehead's 'actual occasion'; and he construes the Whiteheadian position as effectively holding a moment of time to be an *instant* (Stephenson, 1988a, p. 31), when Whitehead's position was certainly more complex:

At an instant there is nothing. Each instant is only a way of grouping matters of fact. Thus there are no instants, conceived as simple primary entities. . . Thus all the interrelations of matters of fact must involve transition in their essence' (Whitehead, 1934, p. 48).

Having said this, it is important to note that in perhaps the last article he wrote, Stephenson (1989/2005, p. 112) commented on the valuable assistance that philosophy of science might provide to psychology, specifically regarding the need to articulate a viable alternative to the determinism of a discipline of psychology that is 'mired in the stupor of Newtonian methodology'. Stephenson argues that it was Whitehead who tackled the problem of providing a philosophy adequate to the physics of Heisenberg, Born, Bohr and co. and hence, by implication, adequate to the psychology of Stephenson. He chides contemporary psychologists for not engaging with this work: 'All of this was around, in literature to which Boden, and Skinner, had access. Yet no hint of it appears in their work'. Of particular relevance is that Stephenson quotes Whitehead as remarking of the quantum theory that 'if this explanation is allowed, we have to revise all our notions of the ultimate character of material existence. For when we penetrate to these final entities, this startling

discontinuity of spatial existence discloses itself' (Whitehead, quoted in Stephenson, 1989/2005, p. 112).

The Complexity of Events

It should be clear that Stephenson envisaged Q methodology as far more than simply one more technique in the methods arsenal of psychology. He envisaged Q as a methodology appropriate to 'post-Einsteinian theory' and to the post-quantum sciences of chaos and turbulence which begin, as he put it, '*with the complexity of events*' (1989/2005, p. 97). He considered the dominant paradigms of psychology (then behaviourism and cognitivism) to be thoroughly stuck within the outmoded coordinates of Newtonian science. According to these coordinates, deterministic processes can be divided into self-contained and localizable units related by determinate forces of cause and effect ('Modern psychology is locked in the tradition of ideal causality' [Stephenson, 1986, p. 530]), which can be known objectively by a detached knower. Whatever ontology is to be adopted in Q methodology must affirm and accommodate the uncertain and non-localizable realities of quantum theory in which a) nature is an interconnected (relational) continuity punctuated by unexpected discontinuities; b) the observer cannot be excluded from the data of observation; and c) the principle of indeterminacy replaces mechanical causation. In contrast to Newtonian metaphysics, in short, Q begins with the complexity of *events* and explores the ordering of such complexity by way of *feeling*. Stephenson's vision of a science of subjectivity grounded in communicability and studied by way of Q methodology is thus predicated upon a thorough rethinking of certain key ontological concepts, including space and time, that were forever altered by the relativity and quantum revolutions in physics.

At a more general (*metaphysical*) level, Whitehead was engaged in a rethinking of the basic concepts of nature. He associated what Stephenson referred to as Newtonianism with a doctrine of scientific materialism that is blind to subjectivity since its success was predicated precisely upon the exclusion of what it construes as subjectivity, e.g. the rejection of issues of teleology in favour of efficient modes of causality and the privileging of the third person perspective (as Stephenson, 1987, p 534 put it, 'science lifted itself out of ages of speculation by this rule, that experiments must be free of self-reference'). Whitehead coined the phrase 'the bifurcation of nature' to critique the way in which subject and object, mind and matter and value and fact are prised apart by this metaphysics such that the latter terms are cast as the real, underlying foundation (Whitehead, 1920, chapter 2). 'Matter' becomes the basic concept of scientific materialism, since ultimate reality is considered to take the form of irreducible materiality. Experiences of colour or scent,

and questions of creativity, feeling, value and purpose were purged from nature and assigned (as so called 'secondary qualities') to the 'mind' side of the bifurcation, leaving the matter of nature to appear as 'a dull affair, soundless, scentless, colourless; merely the hurrying of material, endlessly, meaninglessly.' (Whitehead, 1920, p. 69). Representation and reality are thus cleaved apart.

Like Stephenson, Whitehead was an able mathematician trained in theoretical physics. Indeed, in addition to reaching certain theoretical positions 'before the advent of . . . quantum theory' (Stephenson, 1986, p. 531), Whitehead also published in 1922 an alternative theory of relativity which derived the same mathematical values as Einstein for the deflection of light, perihelion advance and the red shift, but without the assumption of curved space-time required by Einstein (Whitehead, 1922/2007)—a theory that is now attracting great interest (cf. Coleman, 2005, Eastman and Keeton, 2003). As such, he was acutely aware that the metaphysics assumed by the Newtonian doctrine was unsustainable in the context of more recent scientific and mathematical developments (he considered his 1922 book as a first step beyond Newtonian physics in the light of the special relativity theory). More specifically, there was nothing that could play the role of *ultimate material entity*.

In the new view of ultimate nature that began to emerge during this period, notions of activity and process involving the flows and transformations of energy came to supercede the idea of self-sufficient, irreducible material building blocks governed by timeless laws. In this context, Whitehead's philosophical project was no less than to propose a more adequate cosmology to replace the outmoded metaphysics of scientific materialism. Such a cosmology must remain faithful to the new scientific understanding whilst accommodating all kinds of reality, from atomic reaction to conscious experience to socio-cultural exchange. At the core of Whitehead's alternative cosmology one finds the replacement of the idea of a materialist foundation with the concept of an *event*, or as later articulated, an *actual occasion*. In an early work *The Concept of Nature*, for example, he states rather clearly that if 'we are to look for substance anywhere, I should find it in events which are in some sense the ultimate substance of nature.' (Whitehead, 1920, p. 19). In the following decades his terminology would shift somewhat from the notion of event to that of actual occasions/entities, although he would continue to write in terms of events (in fact, an actual occasion is later defined as 'the limiting type of an event with only one member' (Whitehead, 1927-8/1985, p.73). His main work *Process and Reality*, for instance, 'is concerned with the becoming, the being, and the relatedness of 'actual entities.' 'Actual entities' - also termed 'actual occasions' - are the final real things of which the world is made up. There is no going behind actual entities to find anything more real.' (1927-8, p. 18).

In this context, the crucial thing to grasp about the Whiteheadian event or actual occasion is that each and every such occasion necessarily involves a combination of what we might call 'subject' and 'object'. As Stephenson (1988a, p. 20) put it: 'by 1926 [Whitehead] had proceeded to link subjective and objective in becoming'. Rather than 'bifurcating' subject and object into mutually incommensurable conceptual domains, and rather than disqualifying any talk of subjectivity and objectivity whatsoever, Whitehead envisages them as relative terms in the unity of an *actual occasion*. Whether the occasion be what we call a 'physical' occasion (e.g. a chemical reaction), a 'biological' occasion (e.g. the events involved in the beat of a heart), the occasion of a 'thought' (what William James [1891: 278] described as 'a single pulse of subjectivity') or the occasion of an 'utterance' ('Save my dog!'), the occasion can be considered in terms of a 'subject' *concerning itself* with its object[s].

Of course, this cosmology in which the world is neither merely physical (as in materialism) nor merely mental (as in idealism) presupposes a radical extension of the notion of subjectivity and subjective 'experience'. To understand this we must above all not restrict our understanding of subjectivity to what we call *consciousness*. For Descartes, Locke and Hume (and the subsequent tradition of 'empiricism') the notion of subjective experience begins and ends with rather high-grade forms of reflected upon conscious human experience. For Whitehead, our high-level conscious experiences are a rather late arrival on the scene of experience and presuppose more primordial forms of subject / object relation which can equally well be analysed in terms of actual occasions of experience and their expression. Via the notion of actual occasions, Whitehead suggests that experience is an irreducible aspect of the world *in rerum natura*.

Actualizing Potential: The Actual Occasion

The concept of the actual occasion is thus fundamental to Whitehead's philosophy, and it resonates with Stephenson's emphasis on the complexity of 'the event'. Stephenson tends to quote Kantor or Lasswell rather than Whitehead when discussing events, but the notion is no less pivotal to him for this: 'The premise is that only phenomena are real. In physics, such are droplets in a cloud chamber; in psychology, it is a distraught widow who stands before her house aflame and yells 'Save my dog!' (Stephenson, 1988, p. 4). In describing his own position, Stephenson (1987: 538) cites Lasswell's (1964) work *The Future of Political Science* in which he asks: 'how shall we conceive of subjective events, to occupy a central position in the problem of man and his future?' It is worth noting in this respect that in his most significant methodological essay, Lasswell (1948, p. 195) states that his approach 'owes something to the Cambridge Logical School, and especially to A. N.

Whitehead. The debt is evident in the use of such expressions as ‘event’ and ‘event manifold’ (on the philosophical underpinnings of Lasswell’s work, see Eulau, 1969). If, as Stephenson (1987, p. 538) points out, Lasswell’s approach was ‘truly quantum-theoretical’ then this is only because it was first of all *Whiteheadian*.

I wish to suggest that it is the concept of the event / actual occasion that opens Whitehead’s philosophy to a thoroughgoing constructivism according to which all existence can be understood to be constructed and constructing (see Deleuze, 1993). It is important to stress, however, that for Whitehead the event of an actual occasion is something which becomes and then perishes. In other words, it is not something that can endure over time or that has a history, and consequently it is not something that the concept of ‘change’ can be applied to. In this limited sense, Whitehead’s philosophy is in accord with some of Stephenson’s (1988, p. 30) arguments about ‘timelessness’. An actual occasion is a momentary event of experience, and it is in this sense that Whitehead considers it ‘atomic’. One must envisage events not as existing ‘in’ space and time but as unities *from which time and space are abstracts* (Whitehead, 1922/2007, p. 29). Stephenson (1988, p. 20) expresses this sense of the atomicity of events when he stresses that for Whitehead it is not a matter of dividing duration into instants ‘as a ruler into inches, but of instants per se, as realities’. It is these instants as ‘realities’—indeed as ultimate atomic realities—that Whitehead referred to as events or actual occasions. It is through this concept that Whitehead supplants the notion of basic ‘stuff’ (that can be conceived independently of time since it fully realises itself at a given instant) with the notion of atomic events and occasions (from which time and space are subsequent abstracts).

The implication of this ‘atomic’ theory is that the ‘completely real things’ do not endure in time (although they do retain *process*). The enduring things that we routinely encounter, such as mountains, and chairs and trees and animal bodies and conversations, are thus not actual occasions but *groupings* of actual occasions into assemblages that Whitehead calls ‘societies’ and ‘nexūs’. Occasions can be grouped either spatially (as contemporary occasions that form part of a mass) or temporally (in an unfolding series in which one occasion follows another). A rock, a living cell, a ‘stream’ of conscious experience, and the flow of a conversation are thus coordinated groupings of spatially and temporally arranged actual occasions, and it is by virtue of their coordinated grouping that they can endure over time, have a history, and be subject to change. In Whitehead’s (1927–8, p. 309) hands, the theory of *organism* is hence the theory of the connective ordering of actual occasions.

Such a change of thought is the shift from materialism to organism, as the basic idea of physical science... the change from

materialism to 'organic realism'. . . is the displacement of the notion of static stuff by the notion of fluent energy. . . It is also conditioned by 'quantum' requirements... All things are vectors. . . All flow of energy obeys 'quantum' conditions.

This combination of 'atomic' concept (actual occasion) and 'continuity' concept (nexus or society) effects a powerful inversion of the philosophical tradition in which fundamental reality was considered in terms of permanence in contrast to the transience of appearance. For Whitehead, by contrast to tradition, the things that *occur* (events, occasions) are the atomic 'foundation' of the things that *endure* (groupings), and not the other way around. It is in this context that *process* becomes the key concept. Each occasion of actuality occurs in the context of the forms of grouping or assemblage achieved by previous actual occasions and, correspondingly, each participates in giving rise to the forms of its immediate future. Hence although an actual occasion merely becomes and then perishes, it nevertheless derives its character from the process to which it belongs (it is 'constructed'), and, as expression, bestows its character to the future of that process (it is 'constructing'). This quality of Whiteheadian philosophy accommodates the quantum theoretical discovery of unexpected discontinuity beneath the continuities of nature, and it pre-empted what Eddington (1940, cited in Stephenson, 1986, p. 539) describes as a most remarkable achievement of quantum theory: 'it has surmounted the difficulty of giving to the parts of the universe a kind of self-sufficiency, which does not cut them off from interaction with the rest'.

I have stressed that the actual occasion is 'actual' in the sense that it is not an inert 'piece of stuff' but an *activity of realization*. The notion of actuality requires a contrast between the 'actual' and the 'potential' according to which actuality is the realization of potential in a particular concrete form. This crucial contrast has classical origins and was developed in a line of broadly constructivist thought which includes Nietzsche, Bergson and William James, and which continues in the work of current thinkers such as Niklas Luhmann, Rom Harré, Michel Serres and Giles Deleuze (c.f. Brown and Stenner, 2009). Stephenson (e.g. 1988a, p. 21) also attached great importance to the notion of 'emergence from embeddedness – of turning potentiality into actuality', since this contrast was decisive to William James' (and hence Bohr's) concept of complementarity. As James put it:

Actualities... float in a wider sea of possibilities from out of which they were chosen; and somewhere, indeterminism says, such possibilities exist, and form part of the truth (James, cited in Stephenson, 1987, p. 536).

What Whitehead offers, however, is an appropriation of this tradition of constructivist thought into a philosophy thoroughly conversant with post-Newtonian physics. I will now briefly summarise the key aspects of this most abstract of concepts.

Whitehead uses the word 'conrescence' (becoming concrete) to describe the realization of potential in the specific context of an actual occasion. In the process of conrescence multiplicity ('the many') is formed or grouped into unity ('the one'). The notion of 'potential' means that, by definition, the many objects (the 'data') *could* ('potentially') have been unified in many different ways. However, in any given occasion of conrescence that potential is in fact realized only in the way in which it is in fact realized (although this process gives rise to new actualities which might be differently realized in the future). In this sense, the process of conrescence or unification effects a reduction in the complexity of the prior potential, and hence actuality can be considered as a *decision* (in the sense of a 'cutting off') amid potentiality.

The activity of realization that is an actual occasion can be thought of in terms of a subject *concerning* its objects. Through conrescence, the data (the many objects) are grasped or 'prehended' by a 'subject'. A principle of selectivity is thus at play, according to which some data are excluded from becoming positive ingredients in the process of actualization (i.e. they are 'negatively prehended') and some data are included or 'positively prehended'. Data which are positively prehended are *felt*. As was stressed earlier, such feeling need not be conscious, since Whitehead defines feeling technically as the operation of passing from the objectivity of the data to the subjectivity of an actual occasion (consciousness, for Whitehead, depends upon a rich complexity of subjective form involving contrasts and propositions, and features only in rather complex actual occasions). Through feeling, the objects enter into the real internal constitution of a subject. An actual occasion thus involves the selective patterning of the many into the one. Whitehead refers to this passage from disjunctive diversity to conjunctive unity as the process of *conjunctive synthesis*. Conjunctive synthesis is a core principle of constructivism, since something new is added to the universe by the actual occasion (i.e. the *pattern* by which potentiality is actualised is added). The pattern can thus be thought of as the actual occasion's *perspective* on the data. Its specific manner of feeling the data is its 'subjective form'.

It is important to stress that for Whitehead the subject with its perspective does not pre-exist its feelings but comes into being through them. More specifically, an actual occasion is a creature that creates itself. Constructivism thus applies both to subjects and objects. That is to say, this process of self-realization can be considered from the point of view of its own novel internal constitution (the creative process) or from

the point of view of its product (the creature of the process). The former—the actual occasion considered in terms of its internal self-becoming and the immediacy of its self-enjoyment—is the ‘subject’. As subject, then, the occasion is the becoming unity of conjunctive synthesis. The actual occasion is thus a subject ‘presiding over its own immediacy of becoming’ (1927–8, p. 45). The objective product of this process of concrescence, however, is no less a creation. Since we lack a word for it, Whitehead used the word ‘superject’ to distinguish the product of self-realization from its process (or, to use the language of his last work ‘Modes of thought’, to distinguish the ‘experience’ of an occasion from its ‘expression’). The superject, once actualised, takes its place as one more amongst the many data to be prehended in the actual occasions which follow. Each actual occasion is thus a di-polar fusion of subject and object, experience and expression, constructed and constructing, since each occasion of the transformation of potential into actual will include a subjective moment of immediate individual self-enjoyment.

Re-thinking Causality: States-of-energy/States-of-Feeling

Before we turn to view Stephenson’s Q methodology from a Whiteheadian perspective it is important to reiterate that Whitehead offers a philosophical metaphysics and not just a psychology. As a psychologist, Stephenson was interested in what Whitehead would consider to be the very high-grade actual occasions of conscious human experience that are often the exclusive preserve of discourses of subjectivity (such ‘presiding occasions’ are non-spatial and purely temporal, cf. Stenner, 2008). Whitehead’s concept of the actual occasion, by contrast, is designed to be much more general and to be applicable to every kind of experience from the most infinitesimal atomic events through to my experience of a passage from Dostoevsky, and Dostoevsky’s experience in a casino. Having said this, Stephenson’s background in physics led him also to posit some quite general theoretical connections between quantum theory and psychology, including most significantly the analogy between psychological feeling-states (which concept distinguished Q methodology from a psychology of individual differences) and physical states-of-energy:

Thus, my view is simple : I couldn’t go far wrong by following the lead of Niels Bohr in physics, more especially because my early training was in what is now nuclear physics. This led to the one categorization of Q, that of states-of-feeling, analogous with states-of-energy in physics. (Stephenson, 2005, p. 102)

It is instructive to compare this quotation with the following passage from Whitehead’s *Process and Reality*:

The physics theory of the structural flow of energy has to do with the transmission of simple physical feelings from individual actuality to individual actuality. Thus some sort of quantum theory in physics. . . is to be expected (1927-8, p. 254).

Stephenson's 'one categorization of Q' is thus directly compatible with the Whiteheadian position according to which energy is the most basic form of physical feeling ('causal feeling' or 'simple physical feeling'). Appropriately understood, contemporary physics conceives a physical 'actual occasion' as a locus of energy. As Whitehead puts it:

Whatever else that [physical] occasion may be, it is an individual fact harbouring that energy. The words electron, proton, wave-motion, velocity, hard and soft radiation, chemical elements, matter, empty space, temperature, degradation of energy, all point to the fact that physical science recognizes qualitative differences between occasions in respect to the way in which each occasion entertains its energy (1933, p. 238).

A physical actual occasion, for Whitehead, thus entails a basic form of 'subject' entertaining its energy and 'passing it on' (as superject) as data for the next occasion. Physical causation can thus be conceived as the transference of 'throbs of emotional energy' (1927-8, p. 116), each 'pulse' of which would correspond to what quantum physicists describe as energy transferred in the form of the definite discontinuous 'quanta' identified by Max Plank. At a quantum level then, we would be dealing with the passing of energy from occasion to occasion, much as de Broglie associated particles (whether photon, electron, proton) with accompanying 'pilot' waves which yield 'pulse' (particle) after 'pulse' (particle) as they propagate. At the level of the grouping of occasions that gives rise to continuity, we could also draw attention to Clerk-Maxwell's famous observation that energy passes through recognizable spatial and temporal paths which constitute the continuities of nature. Continuity (endurance) is not taken as a given but as a phenomenon to be explained. For the contemporary physicist, the ultimate physical entities are not static entities but always 'vectors indicating transference' (1927-8, p. 238). The association between energy and feeling that was so fundamental to Stephenson is thus also the crux of Whiteheadian process philosophy:

If we substitute the term 'energy' for the concept of a quantitative emotional intensity, and the term 'form of energy' for the concept 'specific form of feeling,' and remember that in physics 'vector' means definite transmission from elsewhere, we see that this metaphysical description of the simplest elements in the constitution of actual entities agrees absolutely with the general principles according to which the notions of modern physics are

framed. The 'datum' in metaphysics is the basis of the vector-theory in physics; the quantitative satisfaction in metaphysics is the basis of the scalar localization of energy in physics; the 'sensa' in metaphysics are the basis of the diversity of specific forms under which energy clothes itself... the general principles of physics are exactly what we should expect as a specific exemplification of the metaphysics required by the philosophy of organism (1927-8, p. 116).

Physical causality thus exemplifies the basic subject/object structure of experience that Whitehead identifies with the notion of the actual occasion/entity. A flux of energy is transferred from event to event and the energy from a previous occasion functions as datum or object to be received into the next occasion. Whitehead thus talks of physical causation in terms of simple physical feelings. 'Feeling' as a metaphysical concept obviously does not refer only to conscious experiences, but to the activity of feeling in which a datum is appropriated or prehended from one occasion that has passed into another that is in process of becoming. Causation is the re-enactment of feeling or the repetitive flow of feeling from event to event, pulse to pulse, or occasion to occasion.

Compared to the more complex forms of experience typical of higher organisms, a simple physical feeling does not add to the datum in question, but merely passes it on, having actualized potential in the same way as its predecessor and its contemporaries. Whitehead thus also talks of physical feelings as conformal feelings. For Whitehead such feelings explain the mass conformity in the physical world that supports the classical laws of physics in any given epoch. Subjectivity is thus at a minimum for simple physical feelings, and the subjective form is negligible. The unification effected via the concrescence is merely one of summation: 'The low-grade organism is merely the summation of the forms of energy which flow in upon it in all their multiplicity of detail. It receives, and it transmits; but it fails to simplify into intelligible system' (1927-8, p. 254). Such physical feelings nevertheless contain the potential to be included in processes that engender more complex and developed subjective forms (and hence 'intelligible systems'), such as those found in early instances of what we call 'life', or those that constitute conscious human experiences. The concept of the actual occasion thus expresses a fundamental continuity between physical, organic and human social existence which refuses the 'bifurcation of nature' and subsequent representationalist ontology. The more complex the subjective form of the occasion, the more indeterminism, novelty and creativity is at play, but such novelty and creativity is as much a part of nature as is the conformist determinism of a falling rock. It is thus a:

false dichotomy to think of Nature and Man. Mankind is that factor in nature which exhibits in its most intense form the plasticity of nature. Plasticity is the introduction of novel law. The doctrine of the Uniformity of Nature is to be ranked with the contrasted doctrine of magic and miracle, as an expression of a partial truth. . . (Whitehead, 1929, p. 99).

It should be clear that although Whitehead's concept of the actual occasion points to this profound continuity of and in nature, it equally permits distinctions to be drawn between different 'grades' of occasion (e.g. physical, organic, personal). That is to say, whilst every actual occasion constitutes a di-polar fusion of object and subject, constructed and constructing, the more complex and creative the occasion at issue, the more significant is the subjective pole in the process of actualization (it will involve contrasts and propositional feelings, for example). The subjective pole is so negligible in the society of occasions that constitute a lump of granite that it is barely worth considering the process from the perspective of its internal self-becoming (purely conformal feeling is at issue). The occasions that constitute a human conversation, by contrast, are maximally subjective and involve a bare minimum of objective structure: it would be reckless to avoid the self-reference of their own novel internal constitution. 'Interiority' and self-reference becomes increasingly salient as we rise up the phylogenetic scale, although it is never the full picture and never entirely irrelevant to the more basic grades of occasion. In this light, one can see that one of Stephenson's mentors, Cyril Burt (1940), was somewhat under the influence of Whitehead when he suggested that 'the ultimate constituents of matter... have, so to speak, no 'insides'. The ultimate constituents of consciousness, however, are 'insides' about which we all know something first hand, and general psychology... has to reckon with such 'insides'" (cited in Stephenson, 1986, p. 532).*

* Burt (1940, p. 237)—whom Stephenson described as a 'sound metaphysician', explicitly acknowledges Russell and Whitehead as the forerunners of his own position that in 'the physical world the nearest approach to a real entity is Action (energy integrated through time)'. This led him also to an event-centred conception of the psychological in which 'the nearest approach to a real entity is not the individual soul, nor yet mental energy or mental powers conceived as residing in an individual brain; it is, so to speak, a man's successive performances of behaviour integrated throughout the duration of his life' (*op cit*, p. 237).

Q-Sorting as a Staging of Actual Occasions

... if quantum theory had to apply to psychology, it must do so on its own grounds, and not with purely analogic ties to physics (Stephenson, 1988, p. 1).

Since much has already been written on the similarities between quantum theory and factor theory at the level of statistical procedure (Burt, 1940, Stephenson, 1983, Brown, 1993, Watts and Stenner, 2003), I intend here to focus instead on the sense in which the practical processes of Q technique can be seen to embody certain features of the Whiteheadian actual occasion, considered as a process of 'realizing an individual unity of experience' (1927-8, p. 129). Since the most evident parallels are found in the procedure of Q-sorting I will mention only briefly that the derivation of the item sample from the concourse should be construed as the actualisation in one particular concrete form of the potentiality of the concourse of communication around a given event. No 'true', 'definitive' or 'final' item set is imaginable, rather what is required is a 'good enough' estimate of the common ingredients of a scene of communication.

We have already paralleled Stephenson's notion of an *event* with Whitehead's concepts of event and occasion. Stephenson (e.g. 1987, p. 525) envisaged the Q-sort as a means of 'measuring' a psychological event 'as such in its totality' *as an event*. As he put it: 'there could be a widow who stands bewildered before her house in flames, and who yells, 'Save my dog!' The cry is hopeless, the dog dead, the house completely destroyed. Regarded as a psychological event, how are we to measure it?' The procedure of Q-sorting involves a participant lending order to a number of items (drawn from the concourse of an event) according to some criterion of feeling. The issue in Q-sorting is less a matter of the measurement of a pre-existent entity (as is assumed in traditional attitude theory or in the psychology of individual differences) than a matter of providing a space for the recording of the novel constructive activity of an event. This resembles Zimmerman's (1982, p. 338) statement about physical particles in the probability distributions of quantum theory where 'a particle's position is now *developed* as a result of a measurement process, but the particle cannot be said to 'have a position' before the measurement'. Seen in this light, Q-sorting is an activity of realization through which process a given Q-sort is actualized. The system being 'measured' is fundamentally inseparable from the measuring apparatus,[†] and any resulting factors are thus 'not fixtures of

[†] 'Instruments were never designed in Q to measure anything categorically... options were left free for the measurement of subjectivity as a state of... not mind... but feeling' (Stephenson, 1982, p. 246).

anything, but are formed in relation to each behaviour segment [event]'. (Stephenson, 1982, p. 238).

To put the matter in the Whiteheadian terms of an actual occasion, the actuality of a completed Q-sort can thus be thought of as an instance of the realization of the potentiality of the item set via the feelings of the Q-sorter. This is not simply a matter of noting the extremely large number of possible ways in which a given item set might be rank ordered in terms of preference. At stake is also the question of the manner in which the meaning of initially polysemous propositions (propositions with the potential to mean many things in many contexts) is implicitly or explicitly fixed during the process of Q-sorting. The statements (and the concourse they in turn actualize) are in this sense 'a hot-bed of what we can describe as quantumstuff. The statements are... free-floating, ready to be attached to this or that factor under the conditions of the new Q-technique probabilistic' (Stephenson, 1988, p. 3).

A given Q-sort can thus be considered as one particular 'conrescence' (or entry into the concrete) of the item set. It could have been patterned in many ways, but, in fact, it was patterned on this occasion in *only this way*. Through conrescence, the potentiality of the Q-set thus 'evaporates' away, leaving at completion the brute fact of a concrete actuality.

The items are thus the objects or data that are the concern of the subject. Through the prehensions of the sorting process the many (items) crystalize into a determinate unity (the complete Q-sort). 'The many become one and are increased by one' (Whitehead, 1927-8, p. 21). In other words, the many items become one Q-sort and hence are increased by the one novel pattern that is the real internal constitution of the sort-event. It is a safe bet to assume that a given set of items has never before been configured in just *that way*.

Since a given Q-sort constitutes one of many possible unifications, it can also be construed as a 'decision' or as the cutting off of all the other possibilities. Other possible meanings and contrasts are thus 'negatively prehended' in the process of actualization.

The *patterning* of the many items into one configuration is effected by way of positive prehensions or evaluative *feelings*. Feeling, as we have implied, was at the core of Stephenson's conception of Q-sorting and factoring. 'By ignoring all extant knowledge in psychology', he proposed, 'a fresh beginning is possible for a new epistemology, entirely in terms of the primary phenomena of *pleasure-unpleasure*.' (Stephenson, 1988, p. 6). He also notably tied this conception directly to quantum theory: Q-sorts are probability distributions determined by feeling-state vectors

(Stephenson, 1983, p. 215).[‡]

In sum, the procedure of Q-sorting can be grasped as a staging or modelling of a Whiteheadian event or actual occasion in which the subject comes into being through 'feeling' their objects.[§] The event of measurement is thus not separable from the 'observer' since in fact the feelings of the observer come into being via their engagement with the items, and the observed subject matter *is* the particular way in which a subject configures its objects. The event of a given Q-sort is thus the subjective process of conjunctive synthesis. It is important to note, however, that from a Whiteheadian perspective the Q-sort process is not in fact a single actual occasion since the process takes place over a sustained period of time (up to an hour). A 'pulse' of human experience, by contrast, takes a fraction of a second, and so the process of Q-sorting combines a large number of such occasions and in this sense cannot strictly be thought of as a unity (a person may well 'change their mind' quite dramatically even during the process of completing a single sort, for instance). It is for this reason that I refer to Q-sorting as a *modelling* or *staging* of an actual occasion: it can be seen as a methodological approximation of an actual occasion.

The correlation and by-person (rather than by-item) factor analysis of a number of Q-sorts adds, when seen in this light, a second phase of conjunctive synthesis to the Q-methodological process. Here the 'data' are the particular actualised Q-sorts and the process of concrecence is effected by purely statistical means (although the feeling is 'recovered' during the phase of interpretation—which must also be seen as the actualization of one of a range of possible readings of the factor array). Once again, the complexity of the correlation matrix is 'reduced' to a more simple concrete actuality (a large number of Q-sorts is reduced to a small number of factors). In principle there are a number of equally acceptable statistical solutions to the same correlation matrix. Stephenson sometimes recommended centroid factor analysis and hand rotation since these explicitly embody this idea of many possible complementary solutions (although he also recommended the

[‡] As Stephenson put it in 1982 (p. 283), 'The Q-sorter projects probability distributions upon an otherwise undifferentiated concourse'.

[§] It is important to insist here that the subject does not pre-exist their feelings but is constituted by way of them. This is how Whitehead (1927–8, p. 222) puts it: 'The subject-superject is the purpose of the process originating in the feelings. The feelings are inseparable from the end at which they aim; and this end is the feeler. The feelings aim at the feeler, as their final cause. The feelings are what they are in order that their subject may be what it is'.

routinization offered by varimax rotation [Stephenson, 1986, p. 539]).

The concrete actuality represented by a given factor analytic 'solution' is to be thought of as an approximation, not of the 'meaning' of particular items or the 'nature' of some aspect of the Q-sorter,** but of the *forms of feeling* 'running through' (Stephenson, 1983, p. 216) and hence *synthesising* each of the factors. It is this underlying feeling that must be sought out in factor interpretation. Just as each individual Q-sort concerns not just feeling towards this or that item but feeling towards the complete item set, so Q-factors concern common feeling-state vectors within a sample of such sorts. Stephenson (1983, p. 537) expresses this as follows:

The state of a system in quantum mechanics is, in mathematical terms, characterized by a vector in a space of many dimensions, implying the statistical behaviour of the system under given conditions of observation. No description of the system is possible in the traditional sense of direct causal relations; and so it is for operant factor structure. It is important to note that the concern is with *states-of-feeling* in Q, not with specific feeling attached normatively to particular statements. Similarly in nuclear physics, the concern is with states-of-energy, not with the movement and position of particular electrons.

One More Time: Q and Constructivism

A given Q sort as staged actual occasion can be considered under two aspects: experience and expression. On the one hand, it can be considered as something expressed: an objective product or construction. In this respect, it is a facticity laid out before us on the table or in numerical form on a response matrix. Once the distribution has been decided, it is finished and can be entered into the computer. On the other hand, it can be considered as the process of *experience* through which the ordering of the items takes shape. When considering the occasion of Q-sorting in this second way—i.e. in terms of its own novel internal constitution—it is clear that the potentiality of the item set is leant its actual structure through a process of more or less conceptual *feeling*: feeling that refers to *itself* (see second footnote above). These two aspects are clearly related. The second is a *creative* process, but once the creative process is completed, we are left with its objective creature: the expression of the experience. When considering the Q-sort

** 'The factors in Q are not fixtures of anything, but are formed in relation to each behaviour segment [event]. The "forced distributions" for which Q is well known is merely a preparation, on theoretical grounds (of the Gaussian law of error), to make nature free to express itself. The outcome is operant factor structure.' (Stephenson, 1982, p. 238).

qua expression in its objective order we can simply examine the differential pattern of item rankings. But we must also recognise that the experience of Q sorting is a matter of the experiencing subject concerning themselves with the objects which are the items (here it is a matter of constructing rather than being constructed).

In a similar fashion, each individual item can be seen as an expression of a prior experience. An expression, strictly speaking, is merely a potential for an experience of actualization. But that experience of actualization, once actualized, is destined to yield one more expression that can function as potential for experience to come. This is the Whiteheadian basis for David Bohm's distinction between an 'explicate' (expressed) and 'implicate' (experienced) order in the physical universe. Each actual occasion is an experience which 'implicates'—from its perspective—the whole of reality within it. The experience of Q-sorting likewise 'implicates' the items into a new form of expression. What we experience are expressions of prior experiences, and our current experience yields an expression which will be the object of a future experience. Here we are not dealing with a representational ontology in which experience 'mirrors' a reality which it can never be a part of, but with a constructivist ontology in which experience is the very *becoming* of reality (Brown and Stenner, 2009). An actual occasion is experience/expression, subject/object. This experience/expression dualism can thus also be construed as an intensified version of William James' contrast between substantive and transitive thought that was so central to Stephenson in his search for an ontology which treats 'nature and self as conjoined' (Stephenson, 1983, p. 213). William James, of course, was a big influence on both Stephenson and Whitehead. In the Preface of *Process and Reality* Whitehead discusses James and Dewey and describes one of his preoccupations as being to 'rescue their type of thought from the charge of anti-intellectualism'.

James' distinction between 'transitive' and 'substantive' thought is something that for Whitehead extends well beyond 'thinking', and into experience and expression more generally. The thought (or actual occasion more generally) considered in terms of the experience of its subjective self-enjoyment is 'transitive' (and *constructing*). The thought considered as actualized expression is 'substantive' (and *constructed*). Hence for James (1891, p. 275–6), if we are to grasp transitive thought we must 'reproduce the thought as it was uttered, with every word fringed and the whole sentence bathed in that original halo of obscure relations which, like an horizon, then spread about its meaning'. The transitive thought is the thought itself entertaining its objects in their manifold potentiality and conjoining them in a new synthesis. As Stephenson put it, the latter 'could mean a thousand different things: The substantive means only *one*, a normative fact' (1986, p. 523). It is

important to resist the tendency to polarize transitive and substantive, as if transitivity did not give rise to substantiality and as if substantiality were not merely potential for more transitivity. The both/and of (James/Bohr) complementarity is at play here rather than the exclusive relation of either/or. The fact that a bird soars in flight (transitivity) does not mean that it cannot also perch on a 'resting place' (substantivity). '*Transitory* was where ideas were created, which, when put into speech or print or photography, became *substantive*.' (Stephenson, 2005, p. 106).

It just so happens that materialist metaphysics had given priority to substance over transitivity and had driven the concept of experience (and hence expression) out of the concept of nature, and into the realm of ethereal and unreal 'representation'. Nature became a dead-matter, void of creativity and its creatures. Whitehead's constructivist move is to reverse that order of priority. For Whitehead, as we saw, the things that *occur* (events, occasions, the transitive) are the atomic 'foundation' of the things that *endure* (groupings, the substantive), and not the other way around. Subjectivity is no longer a matter of 'representing' the material world but of *participating in its ongoing construction*: experience and expression, subject and object concern 'the cumulation of the universe and not a stage-play about it' (Whitehead, 1927–8, p. 237). The discontinuities acquire as much, if not more importance, than the continuities of nature, for they are the hardly noticed motors of creative development. Stephenson (1988, p. 32) certainly noticed this: 'What has to be stressed is that this is where "creativity" occurs. Becoming is the mainspring of creativity'. Niels Bohr was correct to argue that causality must be thoroughly re-thought since it is only via actual occasions that novelty enters into the universe. 'Explicate' nature as expressed 'substance' is mere matter of fact—simply a set of 'ingredients'—but nature considered transitively in terms of the subjective moment of actualization is a different matter. It is nature as creativity-in-process: nature as a ferment of constructive or destructive possibilities. To the extent that Stephenson understood this, he voiced a profound constructivism:

Quantum phenomena will only occur if there is something fermenting (so to say) already. Nature seems to be bursting all over in quantum jumps: Microscopic physics has some such ferment to confront it in sub-atomic physics. So it is in psychology: The concourse for every Q-methodological experiment is a ferment of subjectivity for the [event] at issue. Without this, nothing of quantum phenomena could emerge. In short, the statistical explanation for Schrödinger's cat would certainly apply to the problem as posed by Einstein and Schrödinger; but not if the boxes contained nature in a ferment . . .

Such is the simplicity of it. There is a reality “out there,” in physics as in psychology, and it “jumps”. (Stephenson, 1987, p. 535).

Indeed, Stephenson (1987, p. 529) comes close to my transitive = experience/substantive = expression position when he describes transitory thought as from “within,” whereas substantive is when it is “outside” and when discussing how James’ concept of complementarity takes us further than Bohr’s:

With William James behind us, we take the drama of existence further than Bohr: Every *experience* [emphasis in original] stands as complementary to its strict definition—it may of course be a word (America?). As *experienced* it is transitive, and this Bohr never really understood: as printed, or manipulated as objective science [i.e. as *expressed* P.S.], there are no difficulties in strict definitions. (1986, p. 541)

On subjecting Q-sorts to factor analysis one identifies what Stephenson calls *operant factor structure*. Operant factor structure would thus be the objective *expression* of the main channels of the forms of experience actualized in Q-sort form. As Stephenson (1983, p. 216) noted with respect to the construction of factor arrays via weighted averaging: “The “averaging” of different Q-sorts on a factor provides a “finer and better picture” in which are added, not the effects represented by each particular statement, but something different, something “new”—the feeling running through the factor. Such are operant factors’.

The interpretation of these factors must in turn also rely on the feelings of the researcher. If a factor interpretation is always an interpretation of what is already an interpretation, then this is because it is also the feeling of what is already a feeling. From a constructivist perspective, however, these ‘interpretations’ and ‘feelings’ are not to be separated from ‘reality’ as if they were merely its ‘representation’. As Stengers (2008, p. 91) suggests, ‘Whitehead’s thought calls contemporary theories both to pay attention to detail and to take interpretation seriously...., interpretation is not ‘mere interpretation’ but the very designation of importance and value to a specific moment or mode of existence.’ A factor does not merely embody a ‘point of view’ but also an *intentionality* (‘every factor in Q is indicative of an intention’ [Stephenson, 1993, p. 76–77]). This intentionality, however, is *indeterminate* intentionality (Stephenson, 2005, p. 113). Compared to other animals, human beings are capable of what Whitehead refers to as ‘outrageous novelty’. Indeed, it is arguably more difficult for us to concern ourselves with ‘brute facts’ than to involve ourselves in the ‘daydreams’ of the conceptual entertainment of unrealized possibilities. Compared to more basic forms of existence, we are skewed more towards possibility than actuality, since ‘the life of a human being

receives its worth, its importance, from the way in which unrealized ideals shape its purposes and tinge its actions' (Whitehead, 1938/1966, p. 27). Out of the welter of experiences that confront us, our 'interpretations' concern the designation of *what matters*: of what is *important*. This could not be further from, for example, B.F. Skinner's (1989, p. 14) positivistic dogma that 'behaviour is shaped and maintained by consequences that lie in the past.' This is not to say, of course, that the past is irrelevant, but to stress that Skinner's sole reliance on efficient causality stems from the adoption of an anti-constructivist philosophy devoted to the brute externalities of expressions that are never even grasped as such. From a constructivist perspective, these expressions are inseparable from the realities of our lives, and the key task is not to transcend them but to *design* better experiences and expressions, to get a better sense of what is really *important* in our lives, in order that we can construct better lives. Q factors identify some of the discursively mediated abstractions by which our lives are actually lived, and that constructivist insight, in my opinion, is the basis of the 'importance' of the methodology. In the last sentence of a paper written two months before his death, Stephenson (2005, p. 113) was still looking forward to the 'way ahead':

How far self-reference is linked to behaviour, not as its cause in a determinate sense... but as indeterminate intentionality, is already the way ahead, or so it seems, because it is intrinsically nature, in *rerum natura*.

To conclude, experience, of course, is inherently *self-referential* since it must by definition refer to that which belongs to (and constitutes) the actual occasion in question. Expression, by contrast, is inherently a 'public' matter, available as 'data' for the experiences of others. That which constituted an experience for William Stephenson can only be experienced by the rest of us qua its expression, and who could not be grateful both for his experiences and his expressions?

I couldn't stand another minute in their company; they talk nonsense; talk of ignorance about psychological history; it passes my comprehension; what shortcomings; they are always complaining and being sorry for others; they are so convinced that it's useless to try to talk to them; I suppose I should be more patient; but it was insulting; it goes back 30 years; I resent being ignored; I'm really modestly convinced of my own imperfection and don't need their advice; why am I so upset? (Stephenson, 2005, p. 114).

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