

## Prepared Minds: Reflections on Stephenson's Article *Newton's Fifth Rule*

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In 1981 I read two articles that forever changed my scientific worldview. The first, "Selection by Consequences" was written by B. F. Skinner (1981) and published in *Science*. In his autobiography Skinner (1988) referred to this article as "Life, Mind, and Zeitgeist," echoing what Karl Popper called a three world view. Skinner's thesis was that there is a unifying interdependence between these three worlds; namely, the Darwinian algorithm of variation, selection, and retention. The article was significant for two reasons. First, it boldly affirmed that psychology is a natural science, not an island unto itself as it has long pretended to be. Secondly, it revealed Skinner's cherished belief in the centrality of the individual mind. Skinner has always made clear that the idea of consciousness or a mind as an initiating causal agent is the error of classical mechanics, *ignotium per ignotius* (Stephenson, 1980; Ryle, 1950); however, Skinner, unlike most in mainstream psychology, has always recognized the significance of self observation and verbal behavior with self-reference as operant behavior (Skinner, 1974; Knight, Frederickson, & Martin, 1987). The problem of course is one of measurement. How can introspection be externalized, quantified, and described? Like Skinner and James, I had long recognized the absurdity of psychology without a mind. E. O. Wilson (1998) has noted this point is both subtle and profound in that everything that can be known about reality is created there. How strange, it seemed to me, that a science which began as a search for the human mind instead focused its attention on the behavior of groups, averaging across individual differences (error variance), and storied subjectivity as synonymous with metaphysics.

Within this frame of reference I encountered the second article, "Newton's Fifth Rule and Q Methodology," penned by William Stephenson (1980) and published in the *American Psychologist*. I was, of course, familiar with Newton's famous rules of reasoning for an objective science, specifically, parsimony, uniformity, generalizability, and experimental refutation, but I had never heard of a fifth rule. The idea of a fifth rule was a lighting bolt and consumed my thoughts in the coming weeks as I reread and studied Stephenson's formulation of what Newton's fifth rule might have

looked like had he not suppressed it. As explicated in what follows, the fifth rule is a complement to the first four rules; it states that different hypotheses, none capable of proof or disproof, are subjective hypotheses. The implications here are profound. Contextualized within Q-methodology the fifth rule is inductive rather than deductive and operationalizes feelings and beliefs in term of probabilistic descriptions rather than certainties, in essence providing a solution to the problem of mind, something I came to understand only after a much longer journey.

I mention the journals *Science* and *American Psychologist* because it is significant that both articles were written for a wider audience than the proverbial choir and both attempted to explicate fundamental principles rather than focusing on esoterica, in much the same way a play is unencumbered by all the behind-the-scenes nuances that make the dramatic action possible. Being unfamiliar with Q methodology this perspective made all the difference. What better pedagogy could there be than Stephenson's description of a prototypical study with a 4-year old child (for some reason I always had it in my mind that the little girl was French)?

I collected 18 colored postcards from a nearby art museum, each depicting a girl ranging from 2 to 8 years old. The subject had not seen these postcards, yet was immediately familiar with all of them. I spread out the postcards randomly on the floor before her. She looked them over and chatted about this or that one of them. I then asked her to choose the one most like her (which she did quite quickly) and the one most unlike her (again she chose one). The postcards were then shuffled around, and at my request she chose two most like her and then two most unlike her. Finally, after a reshuffle of the remaining 12 cards, she chose three most like her and then three most unlike her—leaving six behind. In a matter of minutes she had performed a Q sort (p. 883).

Stephenson goes on to explain that over the next two days she performed six additional sorts with "conditions of instruction" for the following: *according to Mummy, brother, teacher, me as grown-up, Dandy (pet dog), and the very best girl*. These self referential behaviors were then correlated and factored with a centroid analysis and a varimax rotation. What emerged was a factor for *self, Dandy, and best girl*; another for *Mummy and teacher*; and a third for *brother and me grown-up*. As I read this description, I was intrigued, and then dumbfounded when I read, "We should marvel at this operant structure because it opens the way to a science for subjectivity. It evolves from the child's mind, operantly. She was not being tested for anything, but was representing her feelings" (p. 883). Stephenson added,

What is exemplified is of supreme importance: It is that *all subjective communicability is transformable into operant factor structure, from concourse, by feeling and belief. All percepts, concepts, reports of events; all dreaming, daydreaming, quarreling; all enjoyment of art, music, literature, and so on can be transformed into operant factors* (p. 883).

In this worldview the problem of the ghost in the machine, consciousness, and the initiating agent, dissolves into a mist of irrelevance. Descartes' Error was unmasked as a tautological illusion and consciousness, a "something," was replaced with communicability, a doing. Communicability is verbal behavior with self reference, and can be measured and described as emergent operant factor structure. The essence of operant subjectivity is that the person is not being measured and assigned a descriptive label but rather through his/her operant choice behavior is describing his/herselves in relation to labels. The first paints an objective picture from the vantage of the painter; the second is a self portrait which is by definition subjective.

I can recall rereading this section of the Fifth Rule several times and thinking about it for weeks. Could it be that the mentalism into which cognitive psychology had degenerated was a consequence of the field trying to model itself after the objectivity of classical mechanics? Relatedly, did communicability provide a methodology for achieving William James ideal of psychology as the science of mental life?

For psychology, the dualism of objectivity/subjectivity rests at the heart of the problem. In the rush to legitimization psychologists donned their white lab coats and modeled their methods after a centuries old scientific worldview, one where the cardinal virtue was to remain objective. In reviewing articles from this period it is almost comical how researchers referred to themselves in the third person while describing their procedures, "The *E* then read the instructions to the *S*." A physicist friend of mine once remarked that it was unfortunate that psychology took as its mentor a scientist from the 17<sup>th</sup> century. Feigning this reverence for objectivity, cognitive psychologists nonetheless measured every conceivable human foible, proliferating labels corresponding to hypothetical mental states, offering a kind of word magic where to name is to explain. In recognizable frustration Stephenson (1987) remarked, "It implies objectivity, as if it matters. . . it is basically categorical only, and will one day disappear, one may hope, into a 'black hole' of grand illusions" (p. 135). Stephenson recognized the classical conceptualization of objectivity/subjectivity as a false dichotomy, a self perpetuating *non ens postulate*, but it would be some years before I, trained as a Newtonian psychologist, would be able to assimilate this knowledge.

If, as Pasteur (1854, as cited in Platt, 1989) said, "Chance favors only the prepared mind," then I was not prepared to fully appreciate the significance of the Fifth Rule. Like psychology in its infancy I was too busy attending to other toys to recognize the scientific utility of a purely inductive methodology for a science of mental life. I was, however, prepared to recognize a good measurement technique, and in the early days of the personal computer my colleagues and I turned our attention to developing a computer program for administering Q-sorts using a concourse of randomly generated self-referential adjectives. In doing so I became more and more

weaned away from classical mechanics into an understanding of the inseparability of measurement from the measurer. Stephenson introduced me to a systemic understanding of Heisenberg's uncertainty principle and Bohr's complementarity (Knight & Rupp, 1999 a, b, c). I had always misconceived the uncertainty principle as saying that the act of measurement disturbs what is being observed but came to realize that because complementarity is systemic, measurement does not disturb the system but more accurately becomes a part of it. A disturbance would require a disturber which is the same old classical mechanics linearity problem of an initiating agent, which necessitates a "cause" to blame. This inferred causal agent, in turn, is the same problem you have when conceptualizing objectivity as distinct from subjectivity. I think this captures the essence of complementarity. Bohr was describing a conceptual framework where the observer is recast as a part of the physical system, a part of the description of phenomena and the subjectivity/objectivity duality, like the wave/particle duality, becomes a matter of specifying the conditions of observation.

Stephenson (1986) is explicit in this regard. "We take our stand with Bohr (1950) that the world is real, and quantum phenomena are its substances." In comparing physics and psychology Stephenson (1989) elaborates on Bohr's position,

Both involve quantum realities. Both use quantum mechanics to fathom these, except that physics does so without self-reference, whereas subjective psychology has self-reference as central to all else. In subjective science the human being is both the observer and origin of quantum phenomena. In physics, measurement alone is essential. What Bohr anticipated as a new epistemology is with us for the making (p. 186).

Newton was concerned with the problem of hypotheses capable neither of proof or disproof. Stephenson's formulation of the fifth rule unmasks our obsession with the either/or nature of reality for what it is; a classical mechanic worldview, where for example light must be either wave or particle. The fifth rule is not about gravity but how Newton, Descartes, or Leibnitz thought about gravity. The gravity at issue with the fifth rule could be said to be narrative gravity, a gravity that functions as communicability with self-reference through feeling and belief. My opinion is by definition, my opinion. It can be aligned or misaligned with the opinions of others but by definition it can not be right or wrong.

For me, as a radical behaviorist understanding that operant behavior is what is of interest and not the mind conceptualized as an initiating agent or consciousness per se, reading Stephenson for the first time was revelatory. Skinner's Holy Grail, the reason he abandoned the study of literature for the study of psychology, was to be able to achieve a science of mental life through the study of behavior (1983). In reading Stephenson for the first time I imagined a meeting of these two great minds. Ego not withstanding Skinner would have recognized that this had been accomplished through a consilience of two sciences. How fortuitous that Stephenson's mind had been

prepared by one science to meet the other.

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