

MEASUREMENT OF SELF PERCEPTION:
SOME REFLECTIONS ON THE ARTICLE
BY KNIGHT, FREDERICKSON AND MARTIN

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ABSTRACT: *Knight, Frederickson, and Martin's Self Perception Inventory can be of practical importance insofar as individuals contemplate themselves explicitly, but self is largely implicit, with feelings projected onto Q samples which are otherwise meaningless (the non-ens protopostulate). What is required is not merely orthogonal factors, but operant factors, i.e., factors which make sense (schematic) and are subject to complementarity (ultimate, with no hidden variables). The principles involved are illustrated theoretically in terms of the selves of the priest in Thomas Hardy's In Church.*

It is highly gratifying that psychologists who are well versed in psychology, factor theory, and computer technology have become involved in Q methodology, who, to gild the lily, also consider quantum theory in their work. Their "computer psychometrics" is a portend for highly significant work ahead. Their recognition of important factor and psychological principles is cogent--such as that in psychome-

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tries "probability description has achieved its ultimate status in factor theory and factor analysis." This is welcome, its implications profound. The significance of communication in Q is also pointedly positioned as "communication of the individual with self reference": this is just as profound. There is perhaps only one significant turn-about to which one demurs: to say that Q methodology "measures subjective meaning, and therefore we are able to statistically describe an individual's self-perception" is loaded with difficulties, putting the cart before the horse!

Which is the reason for the following reflections offered to the authors for their interest in Q. The problem is, what is really involved in measurement of self perception?

In Church With Thomas Hardy

That we come to know ourselves through experience, as our three authors agree, is of course axiomatic in Q. We may wonder, therefore, what the preacher learned of himself by self observation in Thomas Hardy's *In Church*, to which I made reference in *The Study of Behavior*: The preacher glides into the vestry after his service, and thinks he is alone there, but the door swings gently open,

And a pupil of his in the Bible class,
 Who adores him as one without gloss or guile
 Sees her idol stand with a satisfied smile
 And re-enact at the vestry-glass
 Each pulpit gesture in deft dumb-show
 That moved the congregation so.

I added that his self concept might have been his guiding force, but that history provides examples of the utter selflessness of some men and women, "who seem to lose all sense of self in pursuit of fortune, duty, or devotion" (Stephenson, 1953:245). What, indeed, would be the self perception of someone who had lost it?

One has to be cautious, therefore, in theorizing about a concept of self perception, and there is a fundamental basis for the caution. A protopostulate for psychological measurement has long been neg-

lected: it should be called the *non-ens protopostulate*.

The Non-ens Protopostulate

Consider a child "taking" an intelligence test (or any psychological test purporting to measure this or that). The child doesn't know what is in the test until he or she opens it and begins work upon it. The child confronts material that gives meaning to the psychologist only when it solves the questions correctly (or not). This seems obvious.

But it is the same in Bohr's model of the hydrogen atom: the physicist doesn't know what is involved until electrons "jump" from one condition to another in the atom, whereupon he can measure (by spectroscopy or other means) what is involved in the "jump." The beginning is with impenetrable plasma, meaningless, a *non-ens*, subject to principles of indeterminacy and probabilistics. Quantum theory applies, and the principle of complementarity.

Q technique has a similar basis. Its concourses (and Q samples) are *non-ens*, meaningless until a person projects *feelings* upon them. True, the Q sorter may reflect various aspects of such feeling states during Q sorting as "desirability" and much else: but *theoretically*, the concern is with a person's projection of a feeling state (of pleasure-unpleasure) upon a Q sample from a concourse. Upon completion of any Q sort, the sorter should be able to experience a feeling state from one end of the finished Q sort to the other. Q technique is not being properly used unless the sorter can look at his or her Q sort when completed, to experience this feeling state. Theoretically, it is one of two distinct probabilistic conditions of Q: the other is the "interference" or "reduction" effect produced either by different Q sorters for the same Q sample and conditions of instruction, or for different conditions of instruction for *one* person (the single case) with respect to self reflection upon a behavioral segment in which he or she is participant.

The factor analysis gives evidence of operant factor structure in what is ordinarily called "mind," and now we know that this itself (the factor struc-

ture) may be subject to complementarity (Stephenson, 1986a, 1986b).

Note that when Q technique is applied by different Q sorters, the concern is still with Q technique, not with any presumed *individual differences* between people. Also, that we have to suppose the so-called "mind" functions in a quantum manner--by "jumps"--and that we may expect *any* measurement by Q technique to give rise to two or more aspects of the "jumps," in complementarity. Which means factors with no "hidden variables" to account for them (Rae, 1986).

R Methodology

It is quite different in R methodology, where the factors are categorical. It is 50 years since my "The Foundations of Psychometry: Four Factor Systems" (Stephenson, 1936) appeared in the first volume of *Psychometrika*, since when nothing about Q (except once to vilify it) has appeared in its pages. Every article, over the years, has been R methodological: a survey by Mulaik (1986) of this half century of work on factor analysis has broken the ice, to the extent of making reference to my early paper as one of a few "very important" papers appearing in the journal during its first five years.

Moreover, in particular, Mulaik is tolerant of the *indeterminism* of the centroid method, long a bone of contention in factor theory: he agrees that "where domains of tests are defined not in terms of latent factors but manifest characteristics" the indeterminism is useful, adding...

What is unreasonable is to expect common factor analysis to produce from data unambiguous, self-evident insights into the workings of the world. I believe we must abandon the belief that there are any such methods in science. The belief that there are such methods was a delusion of the empiricists...whose views had a very strong influence on the development of exploratory statistics. (Mulaik, 1986:29)

The empiricists, for unambiguous, self-evident insights, were factorists of the Thurstone school of

Chicago, Cyril Burt, and R.B. Cattell from Britain. By "explorations" is meant this blind empiricism.

An example of my resistance to this is in "Methodology of Trait Analysis" (Stephenson, 1956), where a manifest feature of one particular trait ("aesthetic sensibility") was the basis for a solution to the indeterminacy, taking two hours of rotation, whereas Cattell's unambiguous exploration took two years of man-hours to reach a solution. The question arises: which was correct, my solution, or Cattell's? Can there be a valid answer? The answer is yes, and it turns upon quantum theory: in my analysis, the assessment remained those of the participant observers (who made assessments about their fellow students), whereas in Cattell's case these assessments were projected upon *observed* students, in the name of objectivity.

I refer to this, however, because the quotation from Mulaik asks us to explain what is meant by *operant factor structure*. There is more to it than to suppose that operant means "non-categorical." What is at issue is the very possibility that Mulaik denies in the quotation. We do indeed *expect* to produce from Q sorts unambiguous, self-evident insights into the working of the so-called "mind," and indeed of the "world" in subjective respects.

How is this possible? Surely the human "mind" couldn't care less about eigenvalues and eigenvectors? Or factor structures? Or about maximizing this or that?

Without the indeterminacy of the centroid method we could scarcely hope to proceed to solutions that "make sense." Many "tricks of the trade" enter, such as that used above for the study of Cattell's study on traits. A Q sort may have a "manifest characteristic" that helps one to begin a solution of the indeterminacy: in a study of the Cuban crisis, an expert in South American affairs was isolated on a factor, orthogonal to everyone else, and this determined the solution (Stephenson, 1964). There is also the requirement that factors obey Peirce's *law of schemata* (Stephenson, 1974).

From a long experience, with hundreds of factor studies, meaningful solutions are remarkably simple to achieve. They seem to exist in their own right. And now, with full acceptance of a quantum-theor-

etical nexus, we can turn Mulaik's paragraph complete around, and say that...

basically, we have to suppose that common factor analysis, by Q, produces operant factor structure, in simple structure, as naturally as the birth of anything real in nature.

Which is clearly a very daring statement, redolent of the reification of factors in R methodology! What is at issue, however, is the fact that with adequately prepared experiments (as to concourse, Q sample, conditions of instruction for Q sorts), common centroid analysis, for a few factors and varimax rotation to "simple structure," almost always "makes sense." By this, however, we can now also mean "is subject to complementarity." That is, the factors not only have to "make sense" in some psychological sense (of dynamic psychology or the like), but also as subject to the principle of complementarity. A good example is given in my study of "Christopher Columbus discovered America in 1492" (Stephenson, 1986b).

Our three authors may now guess why I raise the spectre of R methodology. The astonishing conclusion just announced calls for wider validation. The computer technique is available as "computer psychometrics": but its problem may now be profound. *Psychometrika* could start another 50 years with something significant in factor theory, ending the long sleep of its past half century!

But we can now return to Q, in relation to Thomas Hardy's priest.

The Case of the Preacher

Faced with the question of what might be the preacher's self perception in Thomas Hardy's *In Church*, a concourse of statements of opinion about the service can be collected from the poem, and with a few deft conditions of instruction, we can imagine the preacher performing Q sorts of self reflection, with some such operant factor structure as in Table 1. The factors are operant, and in "simple structure." We may expect complementarity.

There is a pronounced change between self attribution *before* the service (Q sort 3 on factor C).

Table 1
OPERANT FACTOR STRUCTURE

Q Sort Conditions of Instruction	Factors		
	A	B	C
1. Feeling before the service in church	X		
2. What you feel the worshippers felt		X	
3. Your feeling after the service			X
4. If a pupil had seen you in the vestry afterwards, what would your feeling be?	X		
5. What would his/her feeling be?	X		
6. Your responsibility is to "shepherd the flock": what does this mean to you?		X	
7. What would you like your Bishop to feel about you?			X

X=significant structure

Factor B suggests a *work-a-day* self. Factor A suggests *malfunctioning*, with apprehension (perhaps) for Q sort 1, and *chagrin* for Q sorts 4 and 5. Factor C implies an *idealization* (you wouldn't want your Bishop to feel other than laudatory about you).

If factor B is "me," the others are "mine" (James' law). But factor C suggests idealization. The consequence seems to be (Rogers' law) that all is not well with the preacher, since his *self regard* and *ideal self* are not congruent (factors B and C are so indicative).

Note that this assumes stable forms of self reference by way of James' law and Rogers' law. Factor A, dynamically, could *explain* (be the cause of) the lack of congruency between ideal self (C) and self (B): the preacher appears to suffer from anxiety and self inadequacy (factor A).

One could not, I imagine, draw such conclusions if *anxious*, *chagrined*, and *laudable* had been selected on the Knight, Frederickson, and Martin SPI system. In short, it is extremely important to make use of generalizations, *in lawful form*, to maintain a sense of a developing subjective science.

But there is a difficulty: the above data do not support complementarity, which demands that factors

can be ultimate, with no possibility of "hidden variables." This is admittedly a difficult assumption to accept--Einstein never accepted it. In the present case it suggests that we have so far dealt only superficially with the preacher. There is much more to do.

How to Reach Basics

A theory is not abandoned merely because it is not confirmed by a particular experiment. In the case of the priest the concourse was presumably that of poet Thomas Hardy. To probe into the priest for conditions that really matter to him, would more likely require concern with his beliefs in religion, with his views on religious symbols, myths, and rituals, rather than to depend upon his interaction with his parishioners. Consider, then, a concourse of his views on these matters.

During a work-a-day life he reads, eats, sleeps, visits parishioners, etc., and occasionally says "grace," or prays. But on Sunday he officiates at Holy Communion, eating and drinking the spiritual flesh and blood of his Saviour, and repeating his belief in the Holy Ghost, the Immaculate Conception of the Virgin Mary, the Forgiveness of Sins, Life after Death, etc. This, surely, must *matter* to him especially, as responsible for its governance. These, he will aver, are "creative encounters" with reality of a kind different from work-a-day life. They are part of history--you can't change the significance of the "cross," because it has its own life. Symbols represent the Divine. They blend the natural and the supernatural. They have "surplus meaning," speaking to man of many things. They give meaning to a society *de novo*: it is not the other way around, that society gives meaning to symbols. Symbolization comes first. It concerns the fundamental enigmas of existence--birth, reproduction, death. It reveals a world not evident as immediate, everyday experience. It conveys messages unconsciously. Symbols operate in the mind of the participant subject. In ritual we transcend the natural forms of life. It involves commitment...and so on, a wealth of religious discourse.

A doctorate at the University of Iowa, Robert Wayne Kraay, used Q methodology to examine the role

of communication theories in such religious thought (in a dissertation, *Symbols in Paradox: A Theory of Communication Based on the Writings of Mircea Eliade* (Kraay, 1977)). Kraay used my version of Newton's Fifth Rule to pursue his theory.

Here, however, I would proceed directly to the priest of Thomas Hardy's poem--or to any priest of the Christian faith. Consider, in this respect, Table 1 again, now for a concourse on *Symbols* in religion, for the same conditions of instruction. To judge by Kraay's dissertation, I can hazard a guess that there would be three operant factors, now completely subject to complementarity. They will be for factors D, E, and F, for *objective*, *subjective*, and *supernatural* beliefs *re* nature, D and E for *natural* life, F for *supernatural*. Factor D would be for symbolism's place in behavior objectively regarded (as in R methodology). Factor E would be for behavior, now subjectively regarded (as in Q methodology). Factor F would represent belief in the supernatural, experienced when the believer transcended the symbols, myths, and rituals. These three, one would submit, would be subject to complementarity: it is hard to propose a position about science outside the scope of natural objective, natural subjective, and supernatural.

But now take cognisance of the profound implications: if D and E are natural, formed in the "mind" of the priest, then so is F. *There is proof, at long last, that what appears to be supernatural is formed in quantum "jumps," as natural, like D and E. One need no longer put the supernatural outside the scope of self referentiality.*

Then, to end the saga, we have to replace "mind" by communicability--and all is solved, all in terms of factor (i.e., quantum) theory and communicability.

This, I venture to say, is the way science works. And, as is apparent, Q has a theoretical counterpart to its pragmatics. What I have dealt with above is theoretical Q methodology, comparable to theoretical physics. It suggests what future experiments are needed.

Conclusion

Such are my reflections on the paper by Knight, Frederickson, and Martin. It may seem to have taken us a long way from measurement of self perception. But the implications are many. One may find that adjectives touch upon self, but culture is perhaps a surer guide to the ends we seek in science. Self perception is now linked to complementarity in transitive thought: adjectives are essentially substantive thought. But that is for the future.

As for my own views on self perception--matters are more covert than overt. It is only when one stops to think for a moment about oneself, as Virginia Woolf did in *Orlando* (Stephenson, 1978), that self referentiality is recognized. The broad question then arises, is this self referentiality a *cause* of experience and actions, or merely a consequence of the behavior? Opinion in psychology has been divided. Goffman, in *The Presentation of Self in Everyday Life* (1959) argues that self is merely a product, not a cause of experience. In a study elsewhere I examined myself with this problem in mind and concluded that a certain intentionality governed my academic life, implying an overt self-of-purpose (Stephenson, 1984). So, indeed, it goes, at least by the time one reaches adolescence. Can we reach intentionality, then, by way of adjectives?

Q methodology can have practical purposes to good effect. Doran Levy, of Market Structure Research, uses Q appropriately to segment consumer markets. Perhaps there are people who like to take an interest in themselves by self delineation, and "computer psychometry" could have success with them. But "self" is far more implicit than explicit, and far more subject to a quantum basis than, perhaps, anyone could have guessed. We wish our three psychologists well, however, and hope they will soon be knocking at the doors of *Psychometrika*, to start a second half century, now of common factor theory that really matters.

Meanwhile, psychometry floods the U.S. with pseudo testing of every conceivable kind--to test intelligence, personality, skills, etc., and to assess one another at work and play, as teachers assess pupils and vice versa. Everyone in the U.S. seems

bent on measuring or assessing every manner of human foible and accountability, *ad libitum*. Every strike of a baseball player is counted, and every tackle by a football player. It implies objectivity, as if it matters. R methodology is the basic psychometrical theory at issue. For myself, it is as unacceptable as the scholasticism of the early Christian philosophers: it is basically categorical only, and will one day disappear, one may hope, into a "black hole" of grand illusions.

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