Introduction to Q-Methodology

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ABSTRACT: Q methodology has been influenced in fundamental ways by the works of Freud, Spearman, and Fisher. Freud's pleasure/pain principle is incorporated into the Q sorting operation, and concern with morality can be traced to studies on factor W (character) in Spearman's laboratory. The reality principle, also Freud's, joined with training in physics which led to self reference in explaining consciousness. Self reference, in turn, draws its first principle from Peirce -- that ideas, unlike facts, spread in human communicability and form concourses, all of which can be conceptualized in terms of Fisherian designs. An example is given in which a thousand quotations about women are structured as to feeling (pleasure/unpleasure), morality, and reality. Self reference is not in the structure, however, but is quantified in the Q sorting, which is why variance analysis, with its classical emphasis on causality and prediction, is bypassed in favor of factor analysis, which incorporates operationalism and is compatible with more modern scientific theories of relativity, quantum mechanics, and uncertainty.

> This, too is probable, according to that saying of Agathon: "It is part of probability that many improbable things will happen." (Aristotle, *Poetics*)

Introduction

Our concern is with a methodology for subjective science. It is the only such, and probably the only one possible. It does not deny objectivism, such as modern science. Nor is it mere subjectivism, a

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philosophy of mind. It is a mathematical-statistical key to what everyone calls "mind," paralleling that of Einstein, Heisenberg and Schrödinger for matter. It is not a metaphysic to fit where none has done before, like John Locke's or David Hume's of so long ago: but it fits where nothing has before.

As a young psychologist, I was influenced most by two authorities, Sigmund Freud and Charles Spearman. To learn more about psychoanalysis I had undertaken analysis with a famous psychoanalyst; and I was Spearman's research assistant at the end of his professorship in London. The two influences were of equal significance for me, though at the time, Academia (represented by Spearman) looked askance at Freud. (I recall attending a committee meeting of the psychology section of the British Association for the Advancement of Science when a Freudian contribution was rejected, as intrinsically nonscientific.) Freud had written, in 1911, that his system takes as its starting point *pleasure and pain*, as unconscious mental processes; they were primary, "the residues of a phase of development in which they were the only kind of mental process." They obeyed a "sovereign tendency". . . .

> . . . it is called the pleasure-pain (*Lust-Unlust*) principle, or more shortly the pleasure-principle. (Freud, *Collected Papers*, 1925, p. 14)

His other primary process was the *reality-principle*, new in man's development, by which reality was accepted, notwithstanding the pain attending it (Freud, *Collected Papers,* 1925, p. 14).

These two principles, of *pleasure-pain* and *reality*, were then, and still are, at the core of everything that Q-methodology stands for.

Charles Spearman had as strong an influence upon me, and not merely because of his factor theory. He had taught, and published in *Psychology Down the Ages* (1937), that scholarly efforts down the centuries, indeed millennia, had come to no generally acceptable principles, except one, that states of pleasure and unpleasure were fundamental in the psychic life of normal people (Spearman, 1937, vol. 1, p. 449). This Draconic conclusion led me to suspect all modern efforts by psychologists to be scientific (other than in neurophysiological directions), and my suspicions remain viable now, 50 years later. It also gave sanction to my blind faith in Q-technique, in which states of pleasure and unpleasure are sovereign; and it strengthened my judgment that Freud's primary principles were in a direction to follow.

There was even more to challenge: I was involved in Spearman's

central factor for "orexis," for *character*, factor *w*. Most psychologists are aware of Spearman's cognitive factor *g*, for intelligence; few know anything about its counterpart, *w*, for moral matters. As Spearman's assistant I had taken part in experiments on "perseveration," meant to be the objective counterpart of the subjective *w*, and published papers about the matter. This was pointing to a scientific basis for moral conduct: but it was on very tentative grounds.

Thus, by the early 1930s, what had been firmly implanted in me were three profound principles -- one of *states of pleasure-unpleasure*, encompassing both Freud's and Spearman's primary principles; another of ethical dimensions, a thrust toward a science for *moralities*; and *reality*, a principle of acceptable pain.

In the latter case there was the fact that before going to Spearman to study psychology, I had trained as an experimental physicist, completing a doctorate in physics in 1926. This forced me to think of methodologies, and as the study of matter was undertaken in the rarified atmosphere of objectivity, I had expected psychology to do no less. Yet consciousness was surely intrinsically "inside" and presumably subjective, and one knew, with Ovid, to believe only what is before one's eyes: how, then, to believe what apparently lies behind them? A search for the meaning of consciousness, therefore of subjectivity, therefore of *self* in some manner, was as much part of my nature, by the time World War II began, as my red complexion and apparent Hotspur temper! At the earliest opportunity to publish, after the war, I called a volume about subjectivity, *The Study of Behavior: Q-technique and Its Methodology* (1953), to challenge anyone who believed in separation of mind and matter.

Thus the lines were laid for whatever I have done in psychology to develop it in relation to these early imprintings, principles of pleasure, of morality, of reality, of self-reference. The pages to follow will show how these interests fared. They portend a science for all that is subjective, comparable to that for all that is objective -- for what is behind the eyes, as well as before them.

Beginnings

The first principle in subjective science stems from philosopher Charles S. Peirce, who observed that ideas spread *ad libitum*. For this, a distinction has to be drawn between matters of objective fact (like the time of the day, atomic numbers, my weight) which are singular bits of information which do not spread, and matters of *self-reference*,

which are infinite about anything. Thus, the indicative self-references are limitless about "It is time I . . . "

. . . took things seriously
. . . began to enjoy myself more
. . . stopped being a fool
. . . stopped smoking
. . . recognized the truth
. . . and so on, *ad infinitum*.

An objective fact remains singular, a stick in the mud. Self-reference is like blossom on a cherry tree, spreading on every branch, every brachiate, in boundless profusion.

The best examples of the phenomenon of subjective spread are in dictionaries of quotations. In Mencken's *A New Dictionary of Quotations from Ancient and Modern Sources* (1942) there are hundreds of quotations about such matters as "Old Age" ("Now that I have reached old age, how I hate it!" *Euripides*, c. 421 B.C.); about "Democracy" ("Democracy seems suitable only to a very little country," Voltaire, *Philosophical Dictionary*, 1764); about "Idleness" ("The nurse of sin?" Edmund Spencer, *The Fairie Queen*, c. 1589); about "Lying" ("Tell me a lie, and a blister will come upon your tongue," English proverb, c. 1584); "Prayer" ("Work as if you were to live 100 years; pray as if you were to die tomorrow," Benjamin Franklin, *Poor Richard's Almanac*, 1757); "Speech" ("For God's sake, let us freely hear both sides," Thomas Jefferson, *Letter to M. Dufief*, April 19, 1814) . . . And so it continues, for upwards of 40,000 quotations, described by Mencken as "immemorial tags and scraps of wisdom, real and false," and proverbs "of all peoples," in which "some of the soundest thinking of the human race is embodied, and also some of the most pungent wit." Mencken drew heavily on King James' Bible and Shakespeare's plays, but included poets and playwrights from Addison, Pope, Samuel Johnson, Nietzsche, Oscar Wilde, to George Bernard Shaw and the like in a rich panoply of literary allusion, humanity, wisdom and wit.

What is self-referent is usually hidden in the generalities of proverbs, similes, and allusions. "The word of a woman is like a bundle of water" (a Hindu proverb) translates, in Hindu folk language, to "I am sure you are prevaricating" -- Hindus can be very polite!

Yet all of this is common communicability: there is not a quotation in the voluminous dictionaries that is meaningless to an educated person in our culture. We comprehend them immediately,

even if we have never come upon them before.

Moreover, as Mencken observed, the quotations embody much of the sound thinking, and wit, of the human race.

It is mainly humanistic thinking, not scientific. There is perhaps only one quotation about a scientific fact (true or false) in Mencken's *Dictionary*: it is "element" ("There is one element, of which all things are made up," Giordano Bruno, *De monade numero et figura*, 1501). But there are a hundred about "science" ("Experience is the mother of science," H.G. Bohn, *Handbook of Proverbs*, 1855).

What we are about, in Q-methodology, is to recognize, for the first time in history, the fundamental significance of this self-referent proliferation. Literary quotations, in their tens of thousands, are only the tip of the greater expanse of everyday communicability which quotations enshroud. All of this is the raw material of our theories about subjectivity. If indeed, as Mencken recognized, what is enshrouded in quotations and proverbs is some of the soundest thinking of the human race -- as well as its wit -- why hasn't it been subjected to inquiry, other than grammarians, semanticists, and literary experts have prescribed? Is it not probable that concentration upon King James' Bible, Shakespeare's plays, the plays and poems and writings of the Euripides, Voltaires, Spencers, Franklins and Jeffersons of the world -- in their thousands -- has led scholars away from the hot-bed of all such creations, namely, the common, everyday, sound thinking of the ordinary man? This is our theme. Its development has led us to understand the mystery of consciousness, in which self-reference is omnipresent, explicit or not.

One must notice that the domain does indeed spread astonishingly -- new modes of expression develop every day in American youth cultures. Most broadly, as in quotations from literary sources, the concern is with *feelings*, with wishes, opinions, emotions, and, in a profound sense, with moralities. We recognize underneath the folk-songs of an Elvis Presley, or the Beatles, moral elements at lived levels. So it is in literature.

Concourse Theory

Our beginnings in Q-methodology are with the concept of a *concourse*, a random collection of self-referable statements about something, of statistical dimensions.

There are, for example, at least 1,000 quotations about "woman" in Mencken's *Dictionary*. It is well to savor a few:

If ladies be but young and fair
They have the gift to know it.

Do you know I am a woman? When I think, I must speak.

Frailty, thy name is woman.

Women are as roses, whose fair flower
Being once displayed, doth fall that very hour.

Were there no women, men might live like gods.

Women at best are bad.

Let no man value at a little price
A virtuous woman's counsel; her wing'd spirit
Is feathered oftentimes with heavenly words.

Taken out of context, from Shakespeare's *As You Like It, Hamlet, Twelfth Night*, and Thomas Dekker's *The Honest Whore*, Cervantes' *Don Quixote*, and George Chapman's *The Gentleman Usher*, the original intentions of these quotations -- their imputation, salacity, scepticism, venality, devotion -- might well be lost. But all offer some meaning to anyone who reads. Some, indeed, are in everyday conversation, for who has not heard it said "Frailty, thy name is woman"? Poetry they are. But they are also everyone's words, for whatever meaning and use.

All are stated as indicative generalities -- about women, not *a* woman. Even "Do you know I am a woman?" asserts womenkind. And this is true of the 1,000.

All are in everyday, commonly understood parlance: and the attributions are as extensive as our language permits -- that you can't trust a woman; she is ignorant; quarrelsome; noxious; silence is her only virtue; scheming; untrustworthy; seductive; brawling; without virtue; inferior; unclean; wilder than a beast; wicked -- these came from only one column of Mencken's 23 about "woman." There are pleasanter columns -- she is dignified; lovable; inspiring; eternal; beautiful; long-suffering; the gates of the soul; coy; all-too-human; a whirlpool of depth and danger.

Clearly emotions are very much at issue. And every quotation is expressed in the same form, as if it heralded the truth.

It is true that the self-reference is usually only implied: "Whatever a beautiful woman says is right" (a German proverb) translates into

"She's lovely, I'll believe what she says." Proverbs generalize, generously, on a hundred just such folk-statements. "There are many good women, but they are all dead" (a Spanish proverb), in real life is "I hate you." And so it is for similes, allusions, proverbs, quite generally: All are folk-known, and known ostensibly, without any formal learning. Most important, all are self-referent or self-referable.

What sense, then, are we to make of *concourses*?

The R.A. Fisher Connection

Anyone familiar with Q-methodology knows that its Q-samples are usually constructed as "balanced blocks," following the research method of R.A. Fisher, the English statistician who developed small-sample theory, and whose *Statistical Methods for Research Workers* (1935) is a classic. The procedure of "balanced block" designs is now used mainly to provide a systematic basis for construction of Q-samples; but originally much more was involved.

The designing had to do with the classical search in science for *causes*.

If, as Mencken said, quotations and proverbs enshroud man's wisdom and wit -- and I would add, his folly -- one has to believe, with Newton's First Rule, that nature is nonetheless essentially simple, and that in spite of the astonishing profusion of ideation, a concourse must be governed by simple principles, few in number.

It is therefore always a practice to look at any concourse with this in mind, to find a few simple principles which, on a *prima facie* basis, seem to be involved. Thus, about the concourse on "woman," three principles come to mind -- as they could to anyone: the quotations are all emotional in tone -- pleasure and unpleasure embrace them; morality and immorality are much in evidence; and some of the attributions to womankind are more objective than others, more realistic, or less. *Feeling* (pleasure-unpleasure), *Morality* (positive, negative), and *Reality* (realistic-unrealistic) would seem to be all-encompassing, for every quotation.

But so is *self-reference*: it is omnipresent, and without division because, by postulation, we have excluded all quotations or statements for which self-reference is absent. This was done at the outset, when the distinction was drawn between statements of fact, and statements of self-reference, our concern being exclusively with the latter.

Our abstraction, for such it is, is represented in Q by the "balanced block" design in Table 1. All 1,000 quotations on "women"

can fit into this table leaving none outside it. Thus,

> If ladies be but young and fair
> They have the gift to know it.

fits into *a c e*. The design holds in it the possibility that the three "causes," *under conditions of self-reference*, give quotations their meaning.

Table 1
Exemplary Fisherian Design

Causes	*Effects*	
A. Feeling	pleasure (a)	unpleasure (b)
B. Morality	positive (c)	negative (d)
C. Reality	realistic (e)	unrealistic (f)

It may seem naive to suppose that a simple abstraction could also be the locus of fundamental causes. But there is a puzzle in the design. It is for statements, all of which are *subjective* in meaning, and all of which can take on different values of feeling, morality, and reality, depending on conditions. Indeed there are many who will doubt whether anything systematic in that regard is feasible. Thus, the above quotation seems *pleasurable* (*a*): but it could be an aggressive, disagreeable assertion. It seems moral enough (*c*); but by innuendo it could be suggesting something quite immoral. It seems realistic enough (*e*), but there are plenty of handsome young women who are unself-conscious about their good looks.

If the 1,000 quotations are to be fitted into the design, it must be with an understanding of what is assumed. The quotations themselves usually are self-evident in this respect, especially in context. In any case, for purposes of experiment, it is possible to fit every quotation into the design, on the basis of assumed generality -- that *usually* a quotation fits the combination of causes chosen for it.

This is not to be logical, but experimental. It is worth making the assumption of generality in order to begin the process of examining the quotations for causes enjoined for them. It may seem naive to suppose

that the concepts of *feeling, morality* and *reality* represent causative processes. Science, however, begins with such abstractions: after all, in principle, thousands of quotations and everyday indicative self-referent statements can be fitted into this simple table, a considerable abstraction that would seem to suggest causation. Comparable abstractions are commonplace in experimental science, where theory is assumed, *a priori*, and consequent hypotheses put to test to verify, or falsify the theory -- the hypothetico-deductive methodology. The Fisher design is a generalized form of that methodology, as MacKay (1969) has shown, which provides *structural-information.*

The Fisher design is a first step toward scientific experimentation in the classical sense of assuming *causes*, and seeking to test for their consequences, which are the "effects" in the above table. Three different causes are assumed, A, B, C, and experiments conducted in its terms are for all three acting simultaneously, and interacting with each other. It is not a simple matter, like heating a metal for expansion, but subjecting it to heat (A), pressure (B), and electric charge (C) simultaneously.

Trained in experimental physics, as I was, this multi-causal design was sheer wizardry, especially as it was also represented mathematically by Fisher's variance equation, viz:

$$\Sigma d^2 = \Sigma A^2 + \Sigma B^2 + \Sigma C^2 + \Sigma AB + \Sigma AC + \Sigma BC + \Sigma ABC$$

where Σd^2 is the total "effect" in an experiment, divisible into the main components for A, B, C, and their interactions, AB, AC, BC, and ABC.

In experiments, Q-samples are constructed on the basis of the Fisher table: in the above case there are eight combinations of the "causes" A, B, C, one "effect" at a time from each, i.e.,

a	a	a	a	b	b	b	b
c	c	d	d	c	c	d	d
e	f	e	f	e	f	e	f

Thus, we saw that:

> If ladies be but young and fair
> They have the gift to know it

can be assigned to combination *a c e*: Pleasurable (*a*), positive for morality (*c*), and realistic (*e*). All 1,000 quotations can be assigned to

one or other of these combinations on a normative basis with none left outside. A Q-sample is composed of sets of such eights, to provide a sample which is not only balanced for assumed causes and effects, but comports with the variance equation. If six sets of eight are chosen, the Q-sample is of course size 48 (6x8), and now the variance equation adds another component, for the six replications:

$$\Sigma d^2 = \Sigma A^2 + \Sigma B^2 + \Sigma C^2 + \Sigma AB + \Sigma AC + \Sigma BC + \Sigma ABC + \Sigma R^2$$

where ΣR^2 is the replication variance. The main effects, for A, B, C, and the interactions, have one "degree of freedom" each; the replication 40. Thus, in small-sample methodology the various effects can be appraised relative to 40 degrees of freedom; and greater accuracy can be gained by increasing the size of the Q-sample.

Quantification is achieved by way of Q-technique. Using a Q-sample designed in the above manner, a person performs a Q-sort by distributing the sample on the basis of a quasi-normal frequency distribution for his/her feeling-state about them, under a given condition of instruction. The distribution for a Q-sample size n=48 might have the form as shown in Figure 1. The condition of instruction might be: "What is your candid feeling about women, in general?" A person with a bitter view might give "Frailty thy name is woman" a score +4; and "If ladies be but young and fair etc." -4. Each of the 48 quotations would receive a score, to fit the forced distribution.

	Pleasure					Unpleasure				
Score	+4	+3	+2	+1	0	-1	-2	-3	-4	
Frequency	3	4	6	7	8	7	6	4	3	(n=48)

The scoring is forced for theoretical reasons: it is not a matter of supposing each person might want to sort the statements differently. Rather, it should be compared to a physicist's action when he puts a certain voltage charge through an electric circuit: He decides what the voltage should be, and something of the kind is at issue in forcing a Q-sort distribution of scores. Theory is involved.

The Fisher variance equation applies to the Q-sort. That is, in principle, it is possible to analyze each Q-sort by small-sample doctrine, determining how far the main effects (ΣA^2 , ΣB^2 , ΣC^2) and their interactions (ΣAB, ΣAC, ΣBC, ΣABC) are statistically significant in relation to the replication variance ΣR^2, for 40 degrees of freedom in our example.

One does not expect non-mathematicians to appreciate the beauty of this equation. I may sound trite, but I can be forgiven for feeling like Keats, "On First Looking into Chapman's Homer," when I first saw Fisher's equation. I had travelled for 10 years in realms of factor theory which my mentor Charles Spearman ruled as his demesne, and I had seen him investigating conscious experiences experimentally, using the classical model of one cause at a time, keeping any other causes in limbo. In this Fisherian model there was the possibility of experimenting with conscious phenomena in which several causes could be assumed, acting and interacting simultaneously, the results testable by small-sample doctrine. It was, without doubt, a very exciting development in methodology, making much more sense than the cautious one-cause-at-a-time approach. It made sense, to ask about any concourse, for whatever causal agencies are proposed, to use this approach, the analysis of each Q-sort by variance analysis.

Possibilities

As suggested in the opening pages of this chapter, I was alerted to primary problems -- as if to explain all hues in terms of a few primary colors -- and was in search of an objective basis for everything subjective. On a *prima facie* basis, it did not seem quite as hopeless as most philosophers and psychologists had supposed. Experimental psychology, since the time of Kant and Gustav Fechner, had always investigated beauty with an eye to its reality. Kant saw investigation into the beautiful as a possible wedge into his transcendental aesthetics, but had to say that efforts "to raise criticism of the beautiful to principles of reason, and so of elevating the rules into a science" (Kant, 1900, p. 22n) were doomed to failure, because the science would involve empiricism, whereas laws of any kind were *a priori* -- which for me, at least, meant merely that they were *theoretical*. Matters of aesthetic *taste*, for Kant, were entirely outside empirical rules: and indeed the proverbs attest to as much -- "many men, many tastes," "some love the meat, some love to pick a bone," "every man as he loveth, quoth the good man as he kissed the cow," "every man to his own poison." But there are others, "the cause of a wrong taste is a defect of judgment," "taste is nothing but a delicate good sense."

For my part, I followed the tradition of experimental psychology, investigating *art* by way of an art-form technique (Stephenson, 1953, pp. 128f.). A concourse was composed of artistic designs, some shown as Figure 2 of the aforementioned (Stephenson, 1953, p. 130). The

designs were constructed of small square and rectangular pieces of colored paper -- the colors were randomized, but the shapes were ordered as either upright or slanted, separated or overlapping. The expected "effects," in short, were objectively determined with regard to *form*. The experiments "worked," the variance equation linking taste to form in this situation. I concluded . . .

> there is not a theory in aesthetics that cannot be reduced, as to its main principles, to a Fisherian design. . . . (p. 144)

That is, one could compose, or collect concourses in the art domain with the ease of picking daisies in an English meadow, and conduct experiments by way of Fisherian methodology, directed to determine what is *objective* in our experience of beauty (and ugliness). No one has followed this lead, after more than 40 years: under my direction the poetry-writing of children was studied with students at Oxford; and I have an unpublished manuscript written before World War II, the beginnings of a set of chapters on the objectivity of aesthetics.

Limitations

However, there are fatal weaknesses in the methodology. The causes are *categorical*, matters of definition. And *self-reference* is not quantified.

The assumption of causes was in part to guarantee that one's cards would be on the table, and that there would be no second-guessing in explaining effects. But this results in *facts* only, in terms of categorical causes. Thus, a Q-sort analyzed by variance analysis provides facts about A, B, C . . . and their interactions, and that is all. It could be of some interest if, for example, evidence became clear that only cause A is significant, and B, C, insignificant. But, otherwise, the end result is innumerable facts about presumed causes.

More serious is absence of any accounting for the self-reference by which the Q-sorting was undertaken. The lesson taught by modern science is that measurement must be kept as close as possible to actual *operations* -- there have been decades of argument about operationalism (Bridgman, 1927), and the lesson was clear: the actual operation in Q-sorting is one of self-reference by the Q-sorter, and this we must somehow seek to measure, not merely its apparent remote consequences as "effects." Even though the Q-sorting is in terms of self-reference ("What do you yourself feel about women in general?"), nothing about

the self as such emerges in the variance analysis measurements. It is this that factor-analysis achieves: its measurements are themselves "theoretical" Q-sorts, descriptive of self-reference.

There is therefore an overriding consideration for sweeping variance analysis aside, and to accept, instead, the more profound method of factor analysis. Factor theory, in the Q-form (but not R), maintains self-reference at the center of all else. Its "effects" are self-references. But it is also in line with the theories of relativity in physics, and with quantum mechanics: its concern is with probabilities which are not predictive. No one could be a scientist in the third decade of this century without recognizing a remarkable change in all things scientific -- instead of three or more main causal agencies A, B, C, . . . to be tested however elegantly by small sample doctrine, we had to contemplate an indefinite number of probable causes, none predictable, but all likely to be effective under different conditions. Instead of generalities, whether of "time" or "space," or of any concept in psychology, we now had to face immediate, concrete situations, in which the scientist, as observer, must be counted as part of the observational matrix, and in which determinate causality had to give way to uncertainty.

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