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# Metaphysics Masquerading as Science

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Despite the fact that empirical methods are widely applied within the modern discipline of psychology, psychology is a highly philosophical discipline in its methods and ways of thinking. So philosophical, in fact, that every significant historical shift from one school of thought to another is a result of philosophical argument rather than new empirical discovery. It is here argued that the philosophical practice of theorizing about the nature of mental phenomena is a cornerstone of the logic of modern psychology. Reincarnated as a measurement methodology called construct validity theory, the method of theorizing about the nature of mental phenomena is responsible for systemic, longstanding confusion about the nature of intelligence, depression, ADHD, consciousnesses and a host of other psychological phenomena. Drawing from Wittgenstein's definitive arguments relating to the role of meaning and language in science, it is argued that it makes no sense at all to theorize about the nature of mental phenomena. It follows that questions about the nature of consciousness and depression, for instance, are not deep mysteries in need of an empirical solution but metaphysical red herrings that only serve to draw psychologists away from their rightful scientific objectives. Once psychologists recognize clearly what aspects of their endeavors are philosophical in nature and desist from their application, it will then be possible for psychology to progress.

*"The fact that an opinion has been widely held is no evidence whatever that it is not utterly absurd…." Bertrand Russell*

It is no secret that many psychologists view philosophy and philosophical forms of analysis with some skepticism. Psychology, the refrain goes, has advanced into a modern science and as such has surpassed it's subjective, metaphysical roots. The spirit of this view is so common that introductory textbooks often imply that philosophy is an antique, un-sophisticated form of inquiry. Consider the following quotation from a leading history text (Schultz & Schultz, 2008):

> Until the last quarter of the nineteenth century, philosophers studied human nature by speculating, intuiting and generalizing based on their own experience. But a major transformation occurred when philosophers began to apply the tools and methods already successful in the biological and physical sciences…. The new discipline of psychology needed precise and objective ways of dealing with its subject matter. Much of the history of psychology, after its separation from philosophy, is the story of a continuing development of tools, techniques and methods to achieve this increased precision and objectivity…refining not only the questions asked but answers obtained (p. 4).

Here, the authors of this text teach the young psychology student that science is more precise, refined and objective than philosophy. While scientists have modern tools of discovery, the philosopher merely speculates, intuits and generalizes.

The idea that psychology is a scientific discipline free from the methods of philosophy is a common one. It is tacitly assumed by most psychologists that the methods of psychology are superior to the non-empirical methods of philosophy. Further, it is often thought that, as a scientific discipline, psychology has abandoned its metaphysical roots. It is argued here that these positions are unjustified. In particular, the thesis of this paper is that philosophical problems and methods of inquiry are central to psychology. So central that philosophical arguments and not empirical discoveries are the reason for the dramatic historical shifts that have taken place throughout the history of the discipline of psychology. It will be argued that the failure to properly address basic philosophical problems to do with the nature of the mind, intelligence, etc., places psychology in a very similar position today to the position it was in at it's outset over one hundred and thirty years ago. The consequence, it is argued, is that we are just as likely today to add massive areas of psychological research to the scrap heap of science as we were during the early days of Wundt's voluntarism and Titchener's structuralism.

The central philosophical problem with which psychology has struggled from its outset relates to the role of meaning and definition in science. The problem of meaning and definition in psychology is the problem of what terms such as consciousness, intelligence, the mind, ADHD, depression, etc., denote. I will call this the "what is it" problem. The "what is it" problem has been phrased in a number of different ways throughout philosophy and psychology. Some of its more common expressions are: What is the essence of it? What is the nature of it? What is it? What does it mean? Is it a validated construct? Is it a valid disorder?

The problem we face as psychologists is our failure to make a clean break from philosophical methods of solving "what is it" problems. It will be argued that the use of metaphysical methods to determine what things like minds, consciousness, intelligence, depression, etc., are, is the very basic error that has been and is currently being made throughout psychology.

Roughly, the philosophical method of solving problems relating to what something is, is to: a) theorize about how it should be defined and b) attempt to discover empirically or argue logically whether or not the theory is correct. This philosophical method was introduced very early on in the history of philosophy. The following quotation from Aristotle's De Anima II. 1-3 shows that as much as twenty five hundred years ago, Aristotle gave no apologies for employing a method in which it made sense to theorize about how the soul should be defined:

> Such are the three ways in which soul has traditionally been **defined**; one group of thinkers declared it to be that which is most originative of movement because it moves itself, another group to be the subtlest and most nearly incorporeal of all kinds of body. We have now sufficiently set forth the difficulties and inconsistencies to which these **theories** are exposed. It remains now to examine the doctrine that soul is composed of the elements.

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Borrowing from this philosophical method, psychologists freely conduct investigations that involve theorizing about how constructs that are already defined should be defined. In fact, from the very early days of psychology, to present day cognitive psychology, it is very common for psychologists to construct elaborate theories about what consciousness, intelligence, depression, etc., really are despite the fact that they are already defined. Typically, attempts are made to test such theories via empirical forms of investigation. Although this method runs throughout psychology, in modern psychology it is most clearly expressed and commonly practiced as a form of construct validation.

Following Wittgenstein and others, I shall argue that it makes no sense to theorize about what something that has already been defined really is – that is, to theorize about what consciousness, for instance, is. This amounts to the claim that the logic of construct validation is flawed. Only when we recognize that this philosophical method is flawed and refrain from its application in psychology, will we begin to progress as a true science. Contrary to the earlier quotation by Schultz and Schultz (2008), it is argued that we have not, in fact, broken free from philosophy in the modern discipline of psychology. It will be shown that what gets in our way is the failure to recognize that we still employ philosophical methods to solve empirical problems. Once we recognize our philosophical tendencies and remove them from our forms of investigation, a new era of psychology can begin. This will be a truly scientific era free from the philosophical muddles and confusions of our past. It will be an era in which clarity of meaning and method will allow for a true progression of discovery. It will be in Kuhn's (1962) language, the birth of the first paradigm in the history of psychology.

## The History of Philosophical Problems In Psychology

The history of psychology is characterized by a series of "schools of thought". Loosely, a school of thought is a particular view about the nature of the subject matter of psychology and an appropriate method of studying that subject matter (Boring, 1950). In structuralism, for instance, the subject matter of psychology was consciousness and the method of study was introspection. Now, the nature of consciousness was, of course, of central concern to structuralists. Consciousness was viewed as enough like an organism that its structure could be viewed of as analogous to the structure of organisms. In particular, it was thought that consciousness was made up of "mental elements", or "elementary structures" just as ordinary organisms were made up of physiological structures. So dependant upon structure was Titchener's conception of consciousness that he spoke often about the morphology of consciousness. In "The Postulates of Structural Psychology" Titchener (1898) wrote:

> We find a parallel to morphology in a very large portion of 'experimental' psychology. The primary aim of the experimental psychologist has been to analyze the structure of mind; to ravel out the elemental processes from the tangle of consciousness, or (if we may change the metaphor) to isolate the constituents in the given conscious formation. His task is a

> vivisection, but a vivisection which shall yield structural, not functional results. He tries to discover, first of all, what is there and in what quantity, not what it is there for.

As any cursory reading of the history of psychology reveals, years of elaborate laboratory experimentation and introspective analyses were founded on the theory that consciousness is enough like a structured entity that it could be viewed of as consisting of elements, compounds and structures. In the end however, the idea that consciousness could be thought of as built-up of elements was rejected as baseless metaphysical speculation. In "The Stream of Consciousness" William James (1892) wrote:

> No doubt it is often convenient to formulate the mental facts in an atomistic sort of way, and to treat the higher states of consciousness as if they were all built out of unchanging simple ideas which 'pass and turn again.' It is convenient often to treat curves as if they were composed of small straight lines, and electricity and nerve-force as if they were fluids. But in the one case as in the other we must never forget that we are talking symbolically, and that there is nothing in nature to answer to our words. A permanently existing 'Idea' which makes its appearance before the footlights of consciousness at periodical intervals is as mythological an entity as the Jack of Spades.

Since the point of much early research in psychology had been to identify the number and specific types of conscious elements, such philosophical arguments about the nature of consciousness rendered forty years of structuralist psychology baseless. As a result, structuralism died entirely.

Interestingly, although James rejected the mythology of conscious structures, he unwittingly replaced it with a mythology of his own (James, 1982):

> We are now prepared to begin the introspective study of the adult consciousness itself. Most books adopt the so-called synthetic method. Starting with 'simple ideas of sensation,' and regarding these as so many atoms, they proceed to build up the higher states of mind out of their 'association,' 'integration,' or 'fusion,' as houses are built by the agglutination of bricks. This has the didactic advantages which the synthetic method usually has. But it commits one beforehand to the very questionable theory that our higher states of consciousness are compounds of units …The first and foremost concrete fact which every one will affirm to belong to his inner experience is the fact that consciousness of some sort goes on. 'States of mind' succeed each other in him…Consciousness, then, does not appear to itself chopped up in bits. It is nothing jointed; it flows. A 'river' or a 'stream' are the metaphors by which it is most naturally described. In talking of it hereafter, let us call it the stream of thought, of consciousness, or of subjective life.

Here, James rejects the theory that consciousness is a kind of entity made-up of elements and replaces it with his own theory (which he calls a fact) that consciousness is not jointed or chopped-up in bits but rather flows like a metaphorical stream. Sadly, although James' intentions to rid

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psychology of metaphysical theory were good, he did little more than replace one metaphor with another.

Of course, the idea that consciousness was structured of elements, which were combined into more complex psychic compounds, was a form of metaphysical speculation about the nature of consciousness. This was not a discovery made in a lab but a mere philosophical theory about what consciousness is – that is, something that is enough like an object or organism that it can be thought of as structured of elements and compounds. The tenuous nature of this idea was made evident as structuralism was rejected in favor of another school of thought that denounced the very relevance of conscious phenomena to science. The behaviorist rejected consciousness as the subject matter of psychology entirely arguing that it had never been and could not be observed. So vehement was the behaviorist that they came perilously close to arguing that there is no such thing as consciousness at all.

In a classic debate about the principles of behaviorism, Watson (Watson & MacDougall, 1929), the father of behaviorism, argued that:

> Consequently, in the analysis of consciousness made by certain of the psychologists you find, as elements, sensations and their ghosts, the images. With others you find not only sensations, but so-called affective elements; in still others you will find such elements as will -- the so-called conative element in consciousness. With some psychologists you will find many hundreds of sensations of a certain type; others will maintain that only a few of that type exist. And so it goes. Literally, millions of printed pages have been published on the minute analysis of this intangible something called "consciousness." And how do we begin work upon it? Not by analyzing it as we would a chemical compound, or the way a plant grows. No, those things are material things. This thing we call consciousness can be analyzed only by self-introspection, turning around, and looking at what goes on inside…. In other words, instead of gazing at woods and trees and brooks and things, we must gaze at this undefined and undefinable something we call consciousness….. One has to agree with Professor Warner Fite that there has never been a discovery in subjective psychology; there has been only medieval speculation.

Here, Watson rejects theoretical speculation about the nature of consciousness. In doing so, he questioned the very philosophical foundation upon which psychology was built during the late eighteen hundreds and early nineteen hundreds. As James had done earlier, however, Watson failed to recognize that his own position rested upon metaphysical speculation about the nature of consciousness. Despite the definitions of consciousness contained in dictionaries, he claims that consciousness is a hypothetical thing that is “undefined” and “undefinable”. Later in the same manuscript, Watson went on to develop his own philosophical theory of thinking:

> The increasing dominance of language habits in the behavior of the developing child leads naturally over into the behaviorist's conception of thinking. The behaviorist makes no mystery of thinking. He holds that thinking is behavior, is motor organization, just like tennis playing or golf or any other form of muscular activity. But what kind of muscular activity? The muscular activity that he uses in talking. Thinking is merely talking, but talking with concealed musculature.

Despite Watson's best efforts to rid psychology of medieval speculation about the nature of mental phenomena, he was ultimately not able to extricate himself from his own philosophical straightjacket.

Today, of course, behaviorism and it's philosophical theories about the nature of mental phenomena have been rejected in favor of a view that re-installs consciousness as a central subject matter of psychology. In the modern view, we do not view consciousness as an object structured of elements but as an information-processing phenomenon. Instead of studying elements and their combination into complex mental compounds, we study information and they way in which information is processed by information processing systems. The chemical, object analogy has been replaced by the information processing, program analogy. But just as Wundt and Titchner did not discover the existence of mental elements, Neisser and other cognitive psychologists did not discover that consciousness is an information processing mechanism. Rather, they theorized, using analogy and logic, that consciousness (which they now called cognition) must, in some sense, be like a computer program. Neisser (1967) writes:

> No one would dispute that human beings store a great deal of information about their past experiences, and it seems obvious that this information must be physically embodied somewhere in the brain. ….But psychology is not just something "to do until the biochemist comes"…. A pair of analogies will show why this is so…. First, let us consider the familiar parallel between man and computer…. The task of a psychologist trying to understand human cognition is analogous to that of a man trying to discover how a computer has been programmed. In particular, if the program seems to store and reuse information, he would like to know by what "routines" or "procedures" this is done.... This way of defining the cognitive problem is not really a new one…. However, the "program analogy" (which may be a better term than "computer analogy") has several advantages over earlier conceptions. Most important is the philosophical reassurance which it provides. Although a program is nothing but a flow of symbols, it has reality enough to control the operation of very tangible machinery that executes very physical operations.

This quotation shows that Neisser merely succeeds here in adding yet another metaphor to prop-up a metaphysical theory about the nature of consciousness. Had he recognized his philosophical tendencies Neisser might have noticed that:

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1) There are people that doubt that humans store information about past experiences (Baker & Hacker, 1982). The rejection of this idea rests at the cornerstone of Wittgenstein's philosophy of psychology.
2) Analogies do not and should not provide any philosophical reassurance at all about the nature of consciousness. The history of psychology is a history of failed analogies about the nature of the mental.
3) A program is not a "flow of symbols".
4) No one has ever shown that anything like a program or symbols can be found in the mind. There is no objective empirical evidence that symbols can be found in the mind, just as there is no empirical evidence that elements can be found in consciousness. The idea that symbols, routines and programs can be found in the mind is just as mythological as the "Jack of Spades".
5) According to Wittgenstein, it is not possible to show that programs, symbols or any other information processing entity or process exists in the mind. As I show later, such statements are not factually misguided but conceptually incoherent. Just as it is incoherent to speak of finding the mind inside yesterday, it is similarly incoherent to speak of finding information processing phenomena in the mind.

The vacillation of schools of thought from one conception of consciousness to another does not represent a progression of empirical discoveries about the nature of consciousness. Rather, the motivation for change from one conception to the other has been based on philosophical arguments about the nature of consciousness. And since our current, cognitive view rests on a philosophical theory about what consciousness is there is every reason to expect that it will be replaced in the same way that all the other philosophical views about the nature of consciousness have been.

In part, this paper is an attempt to offer a conception of the nature of consciousness that is not a metaphysical or philosophical theory. Here, I attempt to break the tradition in which our science of psychology has been founded on analogy and metaphysical methods of analysis. Instead, it is argued that the very problem we have is our failure to recognize these philosophical theories about the nature of conscious phenomena for what they really are. I hope to show that a science of psychology, without philosophical speculation about the nature of mental phenomena is not only possible but a logically sound, scientifically viable new direction for psychology.

## The Fundamental Philosophical Problem of Psychology

The fundamental philosophical problem of psychology is the "what is it" problem. It is the problem of what phenomena like minds, consciousness and intelligence are. A common argument is that psychology suffers from philosophical problems simply because its subject matter (e.g., minds, consciousness and intelligence) is, by its very nature, metaphysical. Since we are dealing with phenomena that, at least on the surface, appear not to be objects like "*woods and trees and brooks and*

*things"*, we tend to think that our problem is one of subject matter not method. Although, as I show below, we do struggle a great deal with the nature of our subject matter, the real problem of psychology is a methodological one. In particular, I shall argue that we have failed to answer the "what is it" problem not because our subject matter is problematic but because we have used an improper method of answering "what is it" questions. We begin with some examples of the difficulties psychologists have faced with "what is it" problems.

Some 'What is it" Problems in Psychology

Evidence that we struggle with the nature of our subject matter is rife throughout the pages of academic journals and introductory texts. Beginning in first year psychology courses, psychologists tacitly teach their students that conceptual confusion about the nature of psychological phenomena is but a way of life for the practicing psychologist. Consider the following textbook attempt to convey the nature of intelligence to first year psychology students. The following quotations about what intelligence is are taken directly from a single chapter in a single introductory psychology text (Myers, 2010):

1) Does each of us have an inborn general mental capacity (intelligence)
2) What is intelligence
3) Psychologists debate, should we consider intelligence one aptitude or many
4) Intelligence experts do agree on this: Intelligence is a concept and not a "thing"
5) [Intelligence is] an abstract, immaterial concept
6) [Intelligence does not] objectively exist in the world
7) Intelligence is a socially constructed concept
8) [Intelligence is] whatever attributes enable success in [a] culture
9) In the Amazon rainforest, intelligence may be a gift for discerning which native herbs effectively treat particular diseases.
10) In each context, intelligence is the ability to learn from experience, solve problems and use knowledge to adapt to new situations
11) In research studies, intelligence is whatever intelligence tests measure, which has tended to be school smarts.
12) Can we locate and measure intelligence within the brain
13) Gardner argues that we do not have an intelligence but instead have multiple intelligences
14) Sternberg [in his] theory distinguishes three, not eight, intelligences
15) Will this new research reduce what we now call the g factor [general intelligence] to simple measures of underlying brain activity
16) The brain is a modular system with multiple intelligences

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These quotations make evident that the student of psychology learns at the outset that there exists a great mystery about the nature of intelligence. In particular, four key ideas about intelligence are conveyed here:

1) Our theories/definitions about what intelligence is are incompatible with each other. In the above, intelligence IS: not objectively-existing, a concept, whatever intelligence tests measure, attributes that enable success and an ability. Despite the definitions of intelligence, the text also theorizes that intelligence MAY BE: a gift, an inborn capacity, one thing, three things, eight things and located in the brain.
2) It follows from "1" that we do not know what intelligence is.
3) There is debate about what intelligence is.
4) We have both theories about what intelligence is and definitions of what intelligence is.

Not only does the young student of psychology learn that conceptual ambiguity is a part of the landscape of psychology, the professional psychologist maintains this stance as well. Pinker (1999), for instance, wonders: "But what is intelligence? Few people today are satisfied with the traditional psychologist's definition, whatever it is that IQ tests measure" (p. 119). Stanovich (2001) agrees and provides his own answer to the mystery of the nature of intelligence:

> It now appears that intelligence is best conceptualized as a higher-order construct defined by several more specific information-processing operations. These hypothesized processes, in turn, have more direct operational definitions stated in terms of measurable performance (p. 43).

In this quotation, Stanovich argues that intelligence is denoted by several hypothesized information processing operations. Roughly, this means that we have a theory that intelligence IS information processing operations. But since these information-processing operations are hypothesized, we are not exactly sure what they are and they have not been directly observed. Later, however, Stanovich (2007) goes on to say that:

> When hearing the phrase "the first principal component of the factor analysis of a large sampling of cognitive tasks" many people will not recognize it as part of the operational definition of the term intelligence (p. 43).

Here, we see that Stanovich advocates operational definitions of hypothesized processes. Even if we put aside for the moment the obvious problem of how operational definitions can define hypothesized processes, this conception of intelligence only adds to the mystery about the nature of intelligence. A principal component is a mathematical entity (called an eigenvector) deriving from the decomposition of a matrix of correlations. But eigenvectors are mathematical constructions; they are not mechanisms, processes or operations. The question is, of course, how intelligence can

be defined by *both* a mathematical construction and a hypothesized cognitive process. The confusion and mystery remain.

It is important to understand that the professional psychologist typically does not struggle with this state of affairs. They see little if anything to be terribly concerned about. In fact, such conceptual vagary is taken as a humdrum, everyday part of the scientific landscape of psychology. Part of the objective of psychology, it is held, is to develop theories about the nature of mental phenomena and use scientific methods to identify theories that best fit the data. Stanovich (2007) argues that:

> Psychology's current explanations are temporary theoretical constructs that account for behavior better than alternative explanations. These constructs will certainly be superseded in the future by superior theoretical conceptualizations that are closer to the truth (p. 49).

We see now that, at least in the case of intelligence research, psychology struggles with the nature of its subject matter. The problem of the nature of intelligence is a difficult one that involves speculation, theory, operational definitions, hypothetical constructs, contradictory definitions and so on. As I argued earlier, psychologists tend to see this state of affairs as a consequence of the very nature of psychological subject matter. That is that the psychologist deals with phenomena that are not objects and are, therefore, conceptually problematic. The thesis of this paper is that the real problem has little to do with the nature of psychological subject matter. Rather, it is argued that the problem of psychology is the philosophical method of theorizing about what things that are already defined really are. As Wittgenstein (1953) put it:

> the confusion and barrenness of psychology is not to be explained by calling it a "young science"; its state is not comparable with that of physics, for instance, in its beginnings. . . . For in psychology…. problem and method pass one another by (p. 232).

## The Method of Psychology – A Hangover from Philosophy

The method predominant in much of psychology was articulated clearly by Cronbach and Meehl (1955) approximately sixty years ago. At the time, Cronbach and Meehl attempted to provide a philosophy of science rationale for the numerous, apparently disparate methods used by psychologists to validate psychological constructs and tests designed to measure those constructs. They called this philosophy of science construct validity (CV) theory. According to CV theory:

> Scientifically speaking, to "make clear what something is" means to set forth the laws in which it occurs. We shall refer to the interlocking system of laws which constitute a theory as a nomological network.

It is clear from this quotation that CV theory entails the idea that what something is, is given by a theory. The theory is called the nomological network. This means that the answer to the "what is it" problem in CV theory is given by the empirical network of results that pertain to the construct that denotes it. That is that what something is, is given by what has been discovered about it. In this vein Cronbach and Meehl go on to say that:

> We will be able to say "what anxiety is" when we know all of the laws involving it; meanwhile, since we are in the process of discovering these laws, we do not yet know precisely what anxiety is.

It follows from the above that empirical discoveries about something tell us what that thing is. Since we will always be able to make another discovery about something, science will always be engaged in an ongoing, unending process of discovering what things are. It also follows that science should allow for competing formulations. That is, competing theories about what something is. The scientific question, it is held, is to determine which theory best fits the data, thereby narrowing down the competitors to a smaller number of eligible candidates. Cronbach and Meehl are clear that at least one implication of this view is that, at an early stage of investigation, definitions in science may be somewhat unclear and/or ambiguous. They note that:

> Psychology works with crude, half-explicit formulations. Nevertheless, the sketch of a network is there; if it were not, we would not be saying anything intelligible about our constructs…. Yet the vague, avowedly incomplete network still gives the constructs whatever meaning they do have. When the network is very incomplete, having many strands missing entirely and some constructs tied in only by tenuous threads, then the "implicit definition" of these constructs is disturbingly loose; one might say that the meaning of the constructs is underdetermined.

This CV theory logic gives psychologists a logical/philosophical rationale for the apparently bizarre, contradictory array of theories/definitions of intelligence found in introductory textbooks and professional journals. Vague definitions are merely a consequence of a lack of empirical knowledge about the construct. According to CV theory, psychologists should welcome alternative theories/definitions about the nature of intelligence as more grist for the scientific mill. The more theories, the more research, the more evidence, the more opportunity to discover which theory best fits the data.

The point of overriding importance here is that CV theory gives the psychologist a ***method*** of defending themselves against the apparent difficulty they face coming to grips with the nature of their subject matter. Worry not, the CV theorist teaches their students; conceptual difficulties are a normal part of the scientific process. The fact that we do not know precisely what anxiety, intelligence, depression, etc., really are is fully explained by the very logic of scientific inquiry itself.

The inability to clearly articulate what things like intelligence really are, however, can cause embarrassment in some less metaphysically minded circles. Schonemann (2010), a self-professed operationist, argues that:

> This means that no-one knows what "intelligence" is after 100 years of feverish "research". This is especially disconcerting if viewed against the historical background of the mental test movement which Jensen and his followers have tried to revive by linking untenable validity claims for IQ to equally specious "heritability" claims.

And (Schonemann, 1987):

> The mental testers have more difficulty with little questions than big questions. Jensen can tell us 'whether our collective intelligence is adequate to meet the growing needs of our increasingly complex industrial society' (Jensen 1969, p. 88)….But he cannot tell us what he means by intelligence (p. 315).

In a critique of Cronbach and Meehl's (1955) formulation of CV theory, Bechtoldt (1959) offers another operationist objection to the logical veracity of CV theory:

> To admit ignorance is one thing. To raise vagueness or lack of definition to the central status of a methodological principle is another. The constructs of construct validity appear to be vague, open, and not explicitly defined as a matter of principle rather than as a matter of ignorance….. However, if the advocates of construct validity are contending that explicit definitions of terms in empirical science are not essential, then the issue is basic, such disagreement [between CV theory and operationism] is one that has both philosophical and scientific overtones (p. 622).

The CV theory style approach to the problem of the nature of mental illness has also attracted critics from "operationally" minded scientists. In particular, Szasz (1960) has argued that it makes no sense at all to theorize that mental phenomena may be illnesses. In "The Myth of Mental Illness", he argues that, by definition, mental phenomena are not physical things. In the same sense that "a left toe cannot plan to go to London tomorrow", minds cannot be ill. People plan, toes cannot; minds are disturbed people are ill. According to this point of view, to theorize that "my left toe may be able to change its mind and got to Paris instead" is not an interesting hypothesis in need of research; it is nothing but a linguistic confusion to do with improper use of the terms "toe" and "mind". When psychologists and psychiatrists call mental disorders illnesses, they engage in a form of linguistic confusion that amounts to breaking the rules for the use of mental and physical concepts.

Of course, this sort of linguistic maneuver has expressions in many areas of philosophy, psychology and cognitive neuroscience. Perhaps one of the most famous cognitive psychologists of

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the modern era notes that (Pinker, 1999) "The human mind is a remarkable organ" (pp. 119). To call the mind an organ is the same form of linguistic maneuver embodied in the phrase "mentally ill". But this linguistic method is ages old. In psychology it began with Wundt who viewed consciousness as an entity made-up of elements and containing synthesizers. Watson viewed consciousness as like the soul, undefined and "undefinable" and Neisser viewed consciousness as a series of information processing mechanisms. Although the metaphor has changed over the years, the method of theorizing about the nature of the mind has remained the same.

It is this form of metaphysical theorizing about the nature of mental phenomena that are already defined to which Szasz objects. Interestingly, Szasz sees this activity as a kind of immoral conspiracy to promote psychotherapeutic and pharmacological "treatment" to unwitting "patients". In the "Myth of Psychotherapy" Szasz (1978) argues that:

> If we now classify certain forms of personal conduct as illnesses, it is because most people believe that the best way to deal with them is by responding to them as if they were medical diseases…. The fact that this claim has been accepted as valid by intellectual, legal and political authorities of most modern societies has had beneficial consequences for the claimants and baneful consequences for nearly everyone else.

The argument is that the use of phrases like "mental illness" is a rhetorical ploy to promote a certain way of thinking that serves the interests of the claimant. What is this way of thinking? Simply that if a mental problem IS a physical problem, it stands to reason that the appropriate response to a mental problem is medical in nature. If the psychological and behavioral problems that form the basis of a diagnosis of ADHD in an individual child, for instance, ARE illness, it makes sense that the sick child be given some form of pharmacological cure. Who benefits? An industry that exists for the sole purpose of peddling drugs to individuals that have only been determined to have psychological and behavioral problems not illnesses.

Although such political and economic forces may well exist, my own view is that most psychologists do not fully recognize that there is anything necessarily problematic about hypothesizing that depression, ADHD, addiction, etc., may be illnesses. They see such claims as a normal, everyday part of the scientific process. And of course they should. From their first course in psychology, they are taught that the CV style logic of constructing elaborate theories about the nature of psychological phenomena is a coherent method. After years of this kind of philosophical indoctrination, it can hardly be surprising that they fail even to recognize the very basic philosophical assumptions upon which their ways of thinking are founded.

In particular, the idea that mental disorders such as depression may be illnesses rests on the following assumptions:

1) We may not know exactly what something like depression really is.

2) If we don't know what depression is, it makes sense to theorize about its true nature. For instance, we may theorize that depression really is a serotonin reuptake problem in the brain.
3) Research may help us to test whether or not the theory is correct.
4) It is possible to refine our understanding of what depression is based upon the results of research designed to test our theories about the true nature of depression.

As described above, the philosophical point of view upon which this method rests is the metaphysical idea that it makes sense to theorize about what things that have already been defined really are and to test theories about what things are via empirical forms of investigation.

## The Method of Psychology – A Bizarre Twist

Although CV theory forms a cornerstone of the logical foundation of modern psychology, psychologists also borrow from other philosophies of science to defend against criticism. The criticism heard most frequently has already been illustrated in many of the quotations given above. That is, the charge that psychology lacks clear definitions of its terms.

In response to the somewhat obvious claim that unclear definition is an undesirable feature of scientific investigation, the psychologist co-opted a part of the logic of operationism as a defense. It is now common practice in psychology to teach undergraduate students that all concepts must be operationally defined before the phenomena they denote can be investigated. Now, when questioned about the nature of intelligence, the psychologist can simply refer to an operational definition to deflect attention. When asked, "what is intelligence", the response is simply, "For the purposes of this research study, intelligence is IQ".

The problem of course is that the logics of CV theory and operationism are incompatible. To the operationist, what some thing is, is given by the definition of it. That definition is laid down, not discovered. Ideally, definitions must be clear, shared and unique. The CV theorist on the other hand argues that what something is, is discovered. Discoveries about it, tell us what it is. Since discovery is an ongoing process, there may always be competing theories about what it is. In this sense, definitions need not be clear, unique or shared. Cronbach and Meehl (1955) knew this. They say:

> Construct validation is involved whenever a test is to be interpreted as a measure of some attribute or quality which is **not** "operationally defined." When an investigator believes that no criterion available to him is fully valid, he perforce becomes interested in construct validity…. Construct validity is ordinarily studied when the tester has no definite criterion measure of the quality with which he is concerned, and must use indirect measures.

The point is that when a definition is shared, that is, we all agree, there is no need for construct validation. Of course, if we agree on what something is, there is no need to theorize about

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what it is and attempt to discover what it is. In fact, Cronbach and Meehl (1955) state explicitly at the end of their paper that operationism and CV theory are incompatible:

> Without in the least advocating construct validity as preferable to the other three kinds (concurrent, predictive, content), we do believe it imperative that psychologists make a place for it in their methodological thinking, so that its rationale, its scientific legitimacy, and its dangers may become explicit and familiar. This would be preferable to the widespread current tendency to engage in what actually amounts to construct validation research and use of constructs in practical testing, while **talking an "operational" methodology** which, if adopted, would force research into a mold it does not fit.

Now, sixty five years later, psychologists continue to force research in to a mould it does not fit. When embarrassed by the numerous contradictory definitions of a construct that are the logical consequence of CV theory, the psychologist is conveniently able to retreat to the operational definition for sanctuary. Worry not that we don't know what intelligence is, we teach our students, because "when we use the word intelligence, we really mean IQ".

In modern textbooks, the conflation of the incommensurate logics of operationism and CV theory is now complete. In a bizarre twist, many psychology students are now taught that an objective of research should be to validate operational definitions of constructs. In a statement that is exactly opposite to the logic of CV theory as described by it's inventors, Cozby (2006) teaches students that:

> Construct validity research examines the relationship between scores on the measure and some criterion – this has been termed criterion-oriented validity (p. 98).

But the inventors of construct validity said (Cronbach and Meehl, 1955):

> The categories into which the Recommendations divide validity studies are: predictive validity, concurrent validity, content validity, and construct validity. **The first two** of these may be considered together as **criterion-oriented validation procedures**.

and that:

> In the field of intelligence tests, it used to be common to define validity as the correlation between a test score and some outside criterion. We have reached a stage of sophistication where the test-criterion correlation is too coarse. It is obsolete…Criterion-oriented validity, as Bechtoldt emphasizes, "involves the acceptance of a set of operations as an adequate definition of whatever is to be measured." When an investigator believes that no criterion available to him is fully valid, he perforce becomes interested in construct validity because this is the only way to avoid the "infinite frustration" of relating every criterion to some more ultimate standard.

Cronbach and Meehl are clear that criterion-oriented validity is an entirely different form of validity to construct validity. They are also clear that construct validity is relevant only when no operational definition exists. But, now, the young psychology student is taught to ignore this obvious distinction between operationism and CV theory. Cozby (2006) teaches:

> Recall from Chapter 4 that construct validity refers to the adequacy of the operational definition of variables (p. 97).

## Why it Makes no Sense To Theorize about What Things That Have Already Been Defined Really Are

In part, what we teach when we teach a language is the correct method for determining what terms denote. When we teach a young child what something is, for instance, we teach, in part, definitions contained in dictionaries and other authoritative sources (e.g., text books). In doing so, we teach the language user not only what correct usage is but a method for determining correct use. That is, to consult authoritative sources. Importantly, the method of determining what things are is the same for all concepts in a language. Whether a concept denotes and object or not, what it denotes is given, in part, by it's definition.

It is important to understand that the definitions of concepts found in dictionaries serve as rules for the use of terms. Language users are bound by these rules and it is these rules we teach when we teach a person how to speak a language. Of course, rule-breaking is a natural, ordinary part of language use. In some instances we are aware that we are breaking a rule, in others we are not. When one mistakenly calls a technological neophyte a troglodyte, as opposed to a luddite, one unwittingly breaks a rule for the use of a term. When one engages in a rhetorical ploy to convince the linguistically unsophisticated that depression is an illness, one knowingly breaks the rules for the use of mental and physical concepts.

In some cases, rule breaking is obvious and in others it is not. When a three-year old calls a duck a rabbit, the misuse is plainly evident to most adult users of the language. When a psychologist claims that consciousness and the soul are essentially the same sorts of concepts, the rule-breaking is slightly less obvious. It is important to understand that when the breaking of a rule is self-evident, we correct immediately. If a dispute arises, it is a matter of ordinary practice to fetch out an authoritative source to settle the debate. In the case of obvious misuses, for instance that ducks are rabbits, there is no question that ducks may be rabbits, or that what a duck is may be different things to different people or that the essential nature of "duckness" may be "rabbitness" or that we do not exactly know what ducks and rabbits are since we do not know everything there is to know about ducks and rabbits. In the obvious case, these sorts of objections would be seen to be absurd, not sophisticated philosophy.

It is important to note that the vast majority of language use is governed by linguistic rules and conventions. We typically do not speculate, intuit or theorize about what things are. In fact, in most cases, if we were to engage in such practices, our behaviour would be seen to be bizarre, silly

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or perhaps even insane. An example may help to make the point. Imagine that a student has learned the construct validity logic of theorizing about the nature of phenomena very well in preparation for their exam on Thursday at two pm. The student arrives at the professors office at one pm on Friday and is, in their own words, "right on time". Of course, the professor objects and begins to explain that the exam has been missed and a penalty will ensue. Knowing the logic of CV theory well, the student counters that our concepts of Thursday and two pm are but temporary hypothetical constructs. We have not learned everything there is to learn about Thursday or two pm and so do not know what Thursday and two pm really are. Unapologetically, the student offers their own theory that Thursday really is Friday and that two pm really is one pm. Given this theory about the nature of Thursday and two pm, the student is of course "right on time" for the exam.

Now, Thursday and two pm are not objects. Thursday is no more an object than are time, a meter or intelligence. However, linguistic rules for the use of the concepts of Thursday and two pm are taught to all language users. We do follow these rules and we are corrected when we do not. It is not permissible to theorize about their true nature and it is expected, even in a philosophy course, that we will apply these concepts according to the linguistic rules for their use.

Not only do we break linguistic rules on a case by case basis, we break the entire system of rules on occasion as well. When a psychologist claims that we don't know what anxiety is and that what anxiety is, is given by a theory about what it is (Cronbach & Meehl, 1955), the entire logical foundation upon which linguistic rules are based is rejected. If anxiety is not what is given in the dictionary, then dictionaries do not tell us what things are. If what anxiety is given by a theory, then the definition of anxiety does not tell us what it is. The very method of theorizing about what things are is a rejection of the role of dictionaries and rules in language use.

When a philosopher theorizes about the nature of consciousness or a psychologist theorizes that consciousness is a set of information processing mechanisms, they engage in a form of linguistic rule-breaking. This is simply because what consciousness is is already given. Dictionaries do contain the definition of consciousness and the concept of consciousness is already used in everyday discourse. This is how the boxing judge rules a contestant unconscious or a medical doctor determines that a patient has regained consciousness after loosing it temporarily during the operation. The definition of consciousness is also what tells me now that if you are reading and understanding the words on this page, you are conscious. And this is not a theory, or hypothesis in need of verification. By definition, consciousness is, in part, a state of self-awareness. So if one can read and understand a passage of writing, it follows that one is conscious. In fact, the definitions of consciousness and soul contained in dictionaries are what tell us that Watson must be wrong that consciousness and soul are similar concepts. While consciousness is a kind of state, the soul is a kind of hypothetical entity that leaves the body when it dies. Since states are not hypothetical entities, consciousness is a fundamentally different phenomenon than the soul.

Of course, the metaphysician and CV theorist contend that, in some cases, linguistic rules can be ignored. Despite the fact that they regularly follow linguistic rules for the use of terms and correct others' incorrect uses, once they enter their own metaphysical domain, they sometimes reject linguistic rules as mere rough guesses, approximations or simple word-play. While teaching their own classes they, on the one hand, expect their students to use the concepts of chair, desk, textbook,

Descartes, time, day of the week, exam, attention, tardiness, concentration, critical thinking, etc., as the rules require; yet on the other ask their students to allow them to break the rules for the use of terms like knowledge, truth, meaning and mind. I ask rhetorically, when the philosopher encourages their class to "think about it", what do they expect them to do? Since, according to their own method, the nature of thinking is unknown, they can hardly expect that their class could know what to do next.

The preceding discussion is based almost entirely on Wittgenstein's philosophy of psychology. Although Wittgenstein's arguments are often misunderstood, a number of sources do contain accurate and accessible accounts of his work (Baker & Hacker, 1982; Ter Hark, 1990). Given the complex, subtle and often obtuse nature of Wittgenstein's remarks, it is not possible to give here a complete account. Instead, a summary of his most important ideas will be given.

Wittgenstein is well know for rejecting entirely his own early work on the problems of philosophy. Although at the time of it's writing, Wittgenstein viewed his Tractatus (Wittgenstein, 1922) to be a final statement on the problems of philosophy, he later rejected it entirely arguing that it was based on a fundamental misunderstanding of the nature of philosophy. But what was his own mistake? In short, he recognized that the very method of philosophy itself was flawed. And what was this flaw? Simply that the discipline of philosophy is based upon a basic misunderstanding of the nature and role of language. He called this misunderstanding the Augustinian picture of language (Wittgenstein, 1953). In the Augustinian picture of language, each word has *a* meaning, words are names for objects and the meaning of a word is given by the nature of the object the word denotes. What is important about this picture of language for our purposes is that it sets up what Wittgenstein called an external relation between words and objects. That is that the meaning of a word is given by the nature of the object it denotes.

The brilliance of Wittgenstein's work is that he recognized that the Augustinian picture of language is a false assumption about the way language functions upon which the entire practice of philosophy is based. It was on these grounds that he called many of the problems of philosophy pseudo-problems. In a dramatic reorientation, he argued that philosophical problems were nothing but mere linguistic confusions arising from an incorrect understanding of the use and nature of language.

In exposing and rejecting the assumptions upon which the Augustinian picture of language is based, Wittgenstein showed that the relationship between language and reality is internal, not external. In this conception of language, word meaning does not come from the nature of objects but from the way in which a word is used within a language. Word use includes: a) the teaching of the meaning of words, b) correcting of incorrect uses, c) the use of authoritative sources to settle disagreements about word meaning and d) the laying down, not discovering of the meanings of words. It follows from this conception of language that:

1) What some thing is is given by the meaning of the word that denotes it. The meaning of the word that denotes it comes from the way in which the word is used. What consciousness is, for instance, comes from the way in which we use the word. Since the boxing judge, for instance, does not require a brain scan to correctly determine whether a

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competitor is conscious, consciousness can not be a brain phenomenon. In fact, correct usage shows us that, since consciousness is, in part, a state of self-awareness the boxing judge is acting coherently when they ask a competitor to recount their name. If a competitor knows their name, what city they are in, etc., it follows that they are self-aware and hence that they are conscious.

2) It follows from "1" above that it is not possible to discover what consciousness, intelligence, etc., really are. What consciousness is, for instance, is given by the way in which the word is used. Since the word is already in use, what consciousness is is already known. But this does not mean that it is not possible to learn things about consciousness. It is certainly possible to discover the physiological pre-conditions for consciousness and the physiological symptoms of consciousness. But a pre-condition for something tells us not what it is. The fact that a brain is required in order for a human to be consciousness does not tell us that consciousness is a brain state. Just as knowing that a powerful engine is required in order for a car to travel quickly uphill does not tell us that a powerful engine is travelling quickly uphill. Similarly, the symptoms of something do not tell us what that thing is. The fact that a symptom of a powerful engine is a high price does not tell us that a powerful engine is a high price.
3) It follows from "1" that it makes no sense to theorize about what something that is already denoted by a word that is already in use really is. It makes no sense to theorize about what Thursday really is because the meaning of Thursday is already given. It follows from this that definitions can not be wrong. Definitions may be circular, ambiguous or useless but not wrong. We can not be wrong, for instance, that consciousness is a state of self-awareness. Discovering that brain activity is always present when a person is conscious does not show us anything at all about the correctness of our definition of consciousness. It merely shows us a correlate of consciousness.
4) Part of the meaning of a word comes from definitions but definitions do not give the entire usage of a word. Word use is complex and so can not be reduced to a one-sentence definition. The dictionary, for instance, does not clarify for us that when one has "half a mind to go to London", it is not half of one's mind that wants to go and the other half that does not.
5) Language use is a rule-guided practice. When one learns a language one learns rules for the use of concepts. Rules are human creations. Rules are laid-down, not discovered. We can not discover that the rule for the use of the word consciousness really is: consciousness is electrochemical activity in the frontal lobes. The rule is not this. The rule is that consciousness is a state of self-awareness.

This means that if we want to know what consciousness is (the nature of consciousness), we do not embark on any form of empirical investigation. We do not look inside the brain, construct elaborate theoretical accounts of the nature of information processing mechanisms, speculate about internal

grammars, mental representations or any other such hypothetical entity. If we want to know what consciousness is, we merely consult the rules for the use of the concept of consciousness.

The rejection of this characterization of language is built-in as it where to the way in which the young social science student is now educated. Without knowing it, budding social scientists are taught, in special cases only, to reject rules for the use of certain terms. While it is tacitly assumed that they will follow the rules in their ordinary use of language, it is, at the same time, expected that they will break linguistic rules as their professors see fit. While we might correct our students for writing the phrase "metaphysics is a question" (it is of course a form of study not a question), we expect our students not to correct us when we claim that "the mind is a remarkable organ" (the mind is of course not an organ).

The indoctrination with ways of thinking founded on the Augustinian picture of language is a powerful one. Beginning in first year and continuing throughout undergraduate and graduate education, students are taught that:

1) It makes sense to theorize about what things are. That is, as long as these things are not class times, exam times or the vast majority of common language terms and physical science concepts they employ in their class discussions and term papers.
2) It makes sense to speculate that mental phenomena may be brain phenomena. That is, as long as they are not using common language mental terms to describe their own state (tired, stressed, anxious, happy, etc) or the state of others with whom they interact (unkind, dominant, submissive, depressed, etc). While in class they entertain electrochemical theories about the nature of depression, emotion, anxiety, stress, etc., in every-day discourse they use these concepts freely and unproblematically without any concern for or knowledge of their own electrochemical state or the electrochemical state of their friends.
3) We should accept that something can mean different things to different people. That is, unless we are talking about the time of the exam or the vast majority of common language terms or physical science concepts we employ in class discussions and term papers.

It is important to understand that this way of thinking is not taught to all post-secondary students. Very many in physics, chemistry, engineering, mathematics, etc., are not taught to take a CV style, metaphysical approach to their subject matter. In these disciplines, students are taught to think much more like an operationist than CV theorist or philosopher. They are typically not taught to theorize about the nature of their subject matter, or accept that a concept can mean different things to different people. Let us consider for the moment the physicist's treatment of the concept of mass. In "The Science of Mechanics: Critical and Historical Account of it's Development", Mach (1960) states that:

> Now that the preceding discussions have made us familiar with isaac Newton's ideas, we are sufficiently prepared to enter on a critical examination of them. We shall restrict ourselves

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> primarily in this, to consideration of the concept of mass and the principle of reaction. The two cannot, in such an examination, be separated; in them is contained the gist of Newton's achievement. In the first place we do not find the expression "quantity of matter" adapted to explain and elucidate the concept of mass, since the expression itself is not possessed of the requisite clearness….If, however, mechanical experiences clearly and indubitably point to the existence in bodies of special and distinct property determinative of accelerations, nothing stands in the way of our arbitrarily establishing the following definition: All those bodies are bodies of equal mass, which, mutually acting upon each other, produce in each other equal and opposite accelerations.….In our concept of mass no theory is involved; 'quantity of matter' is wholly unnecessary in it; all it contains is the exact establishment, designation and denomination of a fact (p. 265).

In the above, Mach is taking a very different approach to the problem of the nature of mass than would a CV theorist or philosopher. In particular, this quotation shows that, to Mach:

1) It is not necessary or even advisable to invoke a theory to establish what mass is. Mach is ***not theorizing*** about what mass is, he is ***defining it***. He is laying down rules for the use of the concept.
2) Clarity is the real problem with Newton's definition. The objection is to ambiguity and unclarity, not accuracy, correctness or the ultimate nature of mass itself.
3) Definition is, in a sense, arbitrary. We lay down the meaning of mass. We define mass as we see fit; we do not discover what mass really is. So, since we control what words mean, we can make them mean anything we want to make them mean. This is the sense in which word meaning is arbitrary.
4) Later in the same work, the definition of mass is given a mathematical, quantitative paraphrase. This mathematical formulation is established, agreed upon and used by the community of physicists. Text books contain this definition and this definition only. Authors of texts do not invite their students to engage in a metaphysical mystery tour of possible alternate meanings, theories, or other speculative activities to determine what mass might really be. It is not admissible for physicists to have their own, private meanings of mass or conjecture about it's true nature.

This approach to the role of meaning in science is a common one in the physical sciences. Concepts such as meter, planet, kilogram, etc., are all defined in ways that are exceptionally clear, agreed to by international organizations and codified in publicly available documents. Textbooks contain these definitions and these definitions only. In the final section of this paper I deal with some common objections to this position.

Some Common (Misguided) Objections

*How does science progress if it is not possible to make new discoveries about what things are?*

What things are is only one aspect of the scientific problem. Properly done, science is a process of conceptualization (the development of concepts that denote well-defined aspects of nature), determination of amounts (distributions, frequencies, prevalence, etc.), identification of relationships between phenomena (correlation, prediction, estimation, identification of lawful relationships, etc.), discovery of causal preconditions for phenomena and so on. Science operates coherently when scientists are engaged in the process of discovering things about phenomena, not discovering how phenomena should be defined. Sometimes this process requires re-conceptualization, as in the case of the decision to change the definition of a planet. But conceptualization of phenomena is not a process of discovery. When we decide to change the definition of planet or measure distance in a different way, we are not discovering what planets are or what a meter is. To make the claim that science can only progress if we adopt a CV style of thinking is to make the case that the clear, shared, unique definitions of physics, chemistry, mathematics, etc., have made impossible progress within these disciplines. Obviously, this is not the case.

*But definitions in science are constantly changing, so why can we not allow definitions to constantly change in psychology?*

Definitions do not constantly change within the physical sciences. There is good reason for this. Take, for instance, the recent change in the definition of a planet. In 2006 the International Astronomical Union (IAU) voted to modify the definition of a planet. The new definition (contained in Resolution 5A of the 26th General Assembly) rendered Pluto a dwarf planet thereby reducing the total number of planets to eight from the previous nine. Rather than being welcomed as a new and important development in the ongoing process of discovering the true nature of planets, the process was a decision-making one plagued with debate, criticism and disagreement (IAU definition of a planet, 2010). Part of the reason for the vigorous and sometimes contentious debate were the "cultural and social implications" of changing the definition. Since text books, encyclopaedia's and astrological practices were all required to change to accommodate the new definition, the social costs of change were of significant concern to the astrological community. But the scientific costs were also high. Given that what constituted a planet changed in 2006, almost every single empirical fact about planets changed as well. The number of planets, the average distance of planets from the sun, the average mass of the planets, etc., all changed when Pluto was relegated to a dwarf. In this way, changes in the definition of something can set-back empirical science by undoing many of the empirical facts that have already been discovered about it. Constant change in definition would make the situation much worse. This is precisely why the astronomical community voted on a new definition, agreed to it, codified it and accepted it as the definition of planet. Although there is disagreement about how the concept of planet should have been defined, there is now a single, unique, shared, clear definition.

*But the situation in psychology is different because we are not dealing with physical things.*

The role of meaning and definition in science is not in any way dependant on whether or not the phenomenon being defined is a physical object. A meter is not an object but it has a single, unique, shared, clear definition codified by the International Committee for Weights and Measures.

IQ is not an object but it has a quantitative definition that is a function of an individual's test score, norm group mean and norm group variance.

*Don't empirical discoveries have at least some bearing on the process of definition though?*

Yes they do. But we must be very careful to distinguish between discoveries that might lead us to change a definition and discovering what something is. These are entirely different ideas. The redefinition of Pluto provides us with a very good example of cases in which empirical discoveries lead to a new definition of planet (IAU definition of a planet, 2010):

> Before the discoveries of the early 21st century, astronomers had no real need for a formal definition for planets. With the discovery of Pluto in 1930, astronomers considered the solar system to have nine planets, along with thousands of smaller bodies such as asteroids and comets. In 1978, the discovery of Pluto's moon Charon radically changed this picture. By measuring Charon's orbital period, astronomers could accurately calculate Pluto's mass for the first time, which they found to be much smaller than expected. In the 1990s, astronomers began finding other objects at least as far away as Pluto…. Many of these shared some of Pluto's key orbital characteristics…. Pluto came to be seen as the largest member of a new class of objects, and some astronomers stopped referring to Pluto as a planet. Starting in 2000, with the discovery of at least three bodies all comparable to Pluto in terms of size and orbit it became clear that either they all had to be called planets or Pluto would have to be reclassified.

We see above that empirical discoveries lead to a realization that the old definition of a planet was ambiguous and too broad. These were not discoveries about what a planet is but discoveries about the mass of Pluto, the orbit of Pluto and the existence of other objects with similar masses and orbits to Pluto. It was these discoveries that lead to a need to redefine the concept of planet. This redefinition was a laying down of new rules for the use of the concept, not a discovery about what planets are.

*But could we not be wrong, for instance, about what schizophrenia really is? Isn't it fair to say that behaviour we once thought to be demon possession is now known to be schizophrenia? Doesn't this mean that we have discovered what schizophrenia really is?*

Let's say that our current definition of Schizophrenia is the one given in DSM-IV. The argument here is that this definition may be wrong. That is, that it may be possible to discover that schizophrenia, for instance, really is a brain illness of some kind. Of course, this argument manifests the typical metaphysical, CV style point of view that we can discover what things really are as opposed to what we think they are. Now, to continue with the example, let us imagine that Dr Clever discovers a virus that destroys brain structures and that this virus is present in every person with schizophrenia (as defined in DSM-IV) but not present in people that do not have schizophrenia. The question here is whether or not Dr Clever has discovered what schizophrenia really is.

Obviously, the cause of something is not the same thing as the thing itself. As long as we maintain this simple distinction, it is clear that what Dr Clever has discovered is a cause of, causal

precondition for, or correlate of schizophrenia, not what schizophrenia is. According to this logic, Dr Clever would name the entity that he has discovered – perhaps schizoviralism – and distinguish it clearly from schizophrenia. Schizophrenia would still be a behavioural and mental phenomenon as defined in DSM-IV and schizoviralism would be a newly discovered physiological illness as identified and defined by Dr Clever.

*It has been argued about depression that: "It is that elementary fact, that the antidepressants do little to normals, and are tremendously effective in the clinically depressed person, that shows us that this is an illness" (Klien, 2010). Does this not show that depression must be an illness?*

A typical argument in favour of the view that depression , for instance, is an illness is that physiological interventions reduce it's severity. The argument is that if a drug affects it, IT must be physiological. Again, in this argument we see a failure to distinguish between the cause of something (or a physical precondition for something) and what that thing is. A sad mood is an emotional condition, not a brain chemistry condition. This is why we are able to converse about sad moods without ever looking in the brain. But it is clear that our moods are caused, in part, by physiological events and/or process. It is not necessary to invoke findings from space-age empirical science or complex philosophical theory to know that drug induced changes in physiological state change mood. Every sixteen year old that has taken an alcoholic drink when they should not have knows this. The fact that drugs change mood does not show that moods are physiological. What it does show is that moods are, in part, caused by physiological phenomena.

*Klien (2010) has argued that: "The concept of disease in medicine really means a cluster of symptoms that people can agree about, and in the case of depression we agree 80% of the time. It is a cluster of symptoms that predicts something." Doesn't this mean that symptoms can define illnesses?*

Within psychology and psychiatry it is common practice to conflate symptoms and criteria. As described above, this practice is a consequence of adhering to the logic of CV theory, which does not distinguish between criteria and symptoms (Jackson & Maruan , 1996). A symptom of something is not the same thing as what that thing is. Symptoms are mere empirical correlates of an illness while criteria are the defining characteristics of it. A symptom of lung cancer, for instance, is not the same thing as a criterion for lung cancer - shortness of breath is not a malignant lump of cells in the lung. This is why it makes no sense at all to say that an illness is defined by its symptoms. An illness is defined by criteria, not symptoms.

*You say that concepts are defined in the dictionary, and the dictionary contains public, single, shared definitions of concepts. But we do not all have the same definition of some concepts. For instance, when we say "beauty is in the eye of the beholder" we are saying that what beauty is to me is different than what it is to someone else.*

The definition of beauty is contained in the dictionary and it is the definition that all of us must adhere to when we employ the concept. If we do not adhere to this definition we are speaking meaninglessly, not using our own definition. The criticism above represents a typical misunderstanding about the difference between meaning and preference. When we say that "beauty is in the eye of the beholder" what we mean is that the particular things one person finds beautiful may be different than the things that someone else finds beautiful. But this is not at all the same as saying that what beauty is, is different to one person than to the other. The particular things we find

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beautiful, ugly, or make us happy and sad are individual idiosyncrasies and preferences, not definitions of words.

## A New Direction for Psychology

At the outset, it was suggested that psychology can only progress as a true science if it refrains from the practice of theorizing about the nature of mental phenomena. Conceptual problems must be tackled by laying down rules for the use of concepts not theorizing about what the rules really are. In the case of commoner-garden psychological concepts, the rules already exist. So if psychology wishes to study phenomena denoted by existing common-language concepts, it must employ these concepts as they are denoted by existing linguistic rules. This means that a significant part of the effort in psychology must be directed towards revealing, describing and/or clarifying rules for the use of existing psychological concepts. Consciousness, for instance, must not be treated as some hypothetical process or entity but a state of self-awareness. Memory must not be treated as a mental process, brain function or any other such hypothetical entity/process. Memory must be seen, in part, as an ability to recall. People with good memories can recall many things easily, people with poor memories can not. Special cases, such as humans drugged with Curare, must be seen as cases not encompassed by the rules, not evidence that consciousness is not fully explained by our concept of consciousness. In such cases, new concepts must be developed rather than old ones destroyed.

If phenomena denoted by existing psychological constructs are not of primary interest, then new concepts must be developed. In such cases, respect should be given to uniqueness, clarity of meaning, consistency of use and public, shared definition. For instance, if IQ, not intelligence, is the phenomena of interest, the definition of IQ must be given in a way that is unique, clear, shared and public. Although the current definition of IQ is clear, public and shared, lack of clear specification of appropriate norms and a multitude of different eligible IQ tests mitigate against uniqueness.

To illustrate this new direction, it is helpful to revisit the concept of consciousness. In doing so, we can illuminate the methods here advocated for the new psychology and expose errors in method committed by psychologists of the past. According to existing linguistic rules for the use of the concept of consciousness, consciousness is a state, not an entity, phenomena, object or process. When one is aware of who one is, where they are, etc., they are in a state of self-awareness. Third-person criteria for consciousness are simply that when asked, a person, barring some unusual limiting circumstance, can say who they are and knows enough about their surroundings that they can be said to be aware of them.

As a state, consciousness does not have location. It makes no sense to speak of consciousness being located in a place or moving from one place to another. Consciousness is no more located inside the body than a meter is located inside a meter stick. This is why it makes no sense to speak of discovering where consciousness takes place inside the brain or body. It is also important to recognize that consciousness is a sate of a person, not a state of the body or brain. It makes no sense to speak of one's left toe or frontal lobes being conscious.

The concept of consciousness also has some important temporal features. While it makes sense to speak of conscious sates as enduring, it is also correct to speak of a person vacillating

between conscious and unconscious states. It is admissible to speak of abrupt transitions in and out of conscious states as when one receives a blow to the head or wakes quickly from a deep sleep.

This admittedly superficial analysis of the concept of consciousness shows that contra Wundt and Titchner, consciousness can not be made-up of elements or compounds. It makes no sense to speak of states being comprised of building blocks simply because states are not entities with structure. It also shows that James was partially correct that consciousness "flows" like a metaphorical "stream". Had James recognized that states do have temporal continuity (like a stream) and discontinuity (unlike streams), he would have made a much more accurate characterization of the nature of consciousness. This analysis also shows that Watson was deeply misguided about the nature of consciousness. We do not claim that consciousness exists and we are not hypothesizing about the existence of an entity or phenomenon when we employ the concept of consciousness. We are merely employing a concept that denotes a state of a person. Consciousness is no more a hypothetical entity than is being awake.

Finally, we have the modern cognitive characterization of consciousness. That is, that consciousness is an information processing phenomenon that takes place within the mind/brain. In this view, the brain manipulates symbolic representations of external stimuli to form maps, construct hypotheses, employ programs, process information, and so on. At one level, it is obvious that this characterization of the brain is a weak analogy drawing from the language of computer programming. At a deeper level it has been clearly shown that it makes no sense at all to speak of the brain constructing maps, using maps or manipulating symbols (Hacker, 1987; Hacker, 1988). The important point here though is not what the brain does but whether or not goings on in the brain could possibly denote consciousness. That is, whether the analogy could have anything to say at all about the nature of consciousness. And of course, as has been shown above, since consciousness is a state of a person, not a part of a person, nothing going on in the brain could denote consciousness. Brain phenomena almost certainly are causal preconditions or causes of consciousness, but, given the meaning of the word, they can not be consciousness itself.

The new direction for psychology rests heavily upon the idea that conceptual clarity and correct use of concepts is a precondition to real progress in science. To be successful, psychologists must learn to identify and distinguish clearly between empirical and conceptual forms of investigation. As well, respect must be given to existing rules for the use of psychological constructs. If we can eliminate from our methods any tendency to speculate, theorize or attempt to discover the nature of psychological phenomena, there is every chance that psychology can progress.

## Conclusion

As the quotation at the outset of this paper shows, young psychology students are taught that psychology is a science with superior methods to those of the speculative, metaphysical disciplines. The enduring irony of psychology is that while from the very beginning the methods of philosophy have been denounced in favour of empiricism, the single greatest problem psychology faces is its failure to recognize and eliminate philosophical ways of thinking. It has been here argued that once these philosophical tendencies are identified and removed from the practice of psychology, it will then be possible for psychology to set itself on the true path of science. That is, an empirical

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endeavour free from metaphysical muddles induced by theorizing about the nature of mental phenomena.

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