The Issue of the Unity and Specificity of Psychology from the Viewpoint of a Constructivist Epistemology

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ABSTRACT

A certain constructivist psychology converges with a certain epistemology of psychology in rejecting as meaningless the project of the unification of the various psychological schools and theories, as well as the trend to the progressive reduction of psychological phenomena to neurophysiological processes. I shall discuss the subject by referring to the work of the Italian epistemologists E. Agazzi and S. Marhaba, the American psychologist G. A. Kelly, and the Chilean biologist H. Maturana.

1. INTRODUCTION

I imagine that it could be very reassuring to study a discipline like physics, mathematics, biology, chemistry, and move on a ground that considers only the possibility of choosing which field of inquiry to dedicate oneself: mathematical analysis rather than mathematical logic, quantum mechanics rather than astrophysics, biodiversity rather than molecular biology, chemistry of materials rather than organic chemistry, not to mention the possibility of dedicating oneself to fields of inquiry deriving from intersections of the above disciplines: mathematical physics, biochemistry, physical chemistry, and so forth. A graduate in one of these disciplines can easily discuss and confront with graduates of other cognate disciplines (those envisaged not casually in the one faculty of mathematical, physical and natural sciences), due to the possibility of making reference to a well-established body of knowledge and a shared experimental method. Things seem to go in a very different way for someone interested in psychology. Even though, in order to facilitate the course of learning by fragmenting it, the subjects of the graduate program in psychology appear divided into specific topics (general psychology, developmental psychology, social psychology, psychology of personality, clinical psychology, and so on) in the same way as it happens in mathematical, physical and natural sciences, the student in psychology soon finds out that the same subject is taught in a different (sometimes in a very different) manner in other faculties, or even, in the same faculty, by different teachers. The panorama of psychology appears even more variegated if one considers it in its relation either with other "psy-disciplines" – some of them of medical matrix (like psychiatry and psychopharmacology), others deriving from disciplinary intersections (like psychophysiology, or psychosomatics) – or with the increasing number of "neuro-disciplines" (from neuropsychology to neuroeconomy and neurotheology!), which are filiations of the more and more prolific and popular cognitive science[1].

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[1] See the recent *Neuro-mania* by Legrenzi and Umiltà (2009).

All this is well known, and someone tried to explain the reason of such difference. Marhaba, in *Antinomie epistemologiche nella psicologia contemporanea* [Epistemological antinomies in contemporary psychology] (1976) made it in a way I see as particularly effective since over thirty years:

> While the physicist deals with theories antagonist each other, but all within the same system of reference, the psychologist has to choose between *different and opposite* systems of reference. In other words, the epistemological tissue of psychology is covered with *lacerations*, as opposed to the substantially unitary tissue of the traditional natural sciences. (Marhaba 1996, p. 29)[2]

The result is a manifest disunity of psychology or, we could even say, the emergence and development of various psychologies, characterized by numerous and various theoretical assumptions that, in turn, could refer to various epistemological choices (which Marhaba systematizes in terms of nine antinomies, each of them defining two radically different solutions), choices of which the psychologists are more or less aware.

Now, if we accept that the difference between psychology and traditional natural sciences consists in the presence/absence of an unambiguous system of reference, we could ask (a) where does this difference derive from, (b) if it is possible to eliminate it, and how, and (c) if it is to be hoped, and even necessary, to do so, or if, on the contrary, the antinomic articulation of the epistemology of psychology represents a richness rather than a limit of it. Periodically there is someone who struggles to suggest how to eliminate this difference between psychology and the traditional natural sciences, by considering this elimination both possible and necessary for the development of psychology as an actually scientific discipline. In my opinion, the possible success of such a project would be equivalent to a sort of "epistemocide", which anyhow has no chance to materialize. I shall defend my position by starting from a specific approach of contemporary psychology, generically known as constructivism, which, due to its peculiarities (or at least to the peculiarities of some of its expressions, in the absence, as we shall see below, of an unambiguous definition), appears respectful of epistemic and theoretical differences.

2. THE ATTRACTION FOR THE NATURALIZATION OF PSYCHOLOGY

The first question, relative to the difference between psychology and the traditional natural sciences, refers to the attempt to define what the system of reference of these latter consists in, and what its (at least seeming) univocity and success derive from.

At a first analysis - certainly slightly superficial compared to the complexity of the epistemological reflection - one could assert that the system of reference of natural sciences consists in the assumption of the existence of a given reality, independent from the observer, and in the belief that the application of the scientific method allows the accumulation of fragments of knowledge of such a reality. Such an assumption actually appears so widely shared by the community of scientists to be considered beyond dispute. However, the clear discrepancy between the scientific praxis and the philosophical reflections, have for long led contemporary epistemologists to criticize the idea that it can be defined a scientific method (Kuhn, 1962), or that the development of science has been allowed from its actual application (Feyerabend, 1976).

[2] Throughout the article, if not otherwise specified, all the translation of the Italian quotations into English is mine.

In the attempt to establish itself as a science, psychological knowledge – already existing as the "doctrine of the soul" in the sphere of philosophical speculation – has striven to assume the research methods of the sciences par excellence – indeed, a difficult attempt when the object of study is not clearly, and, therefore, unanimously identifiable. For example, when the object of study was represented by the immediate experiences of consciousness, as for the structuralists of the Leipzig's laboratory, the method of choice was "introspection", which allows the empirical observation of the contents of individual consciousness in place of the "inspection" addressed to the contents of the external world (Marhaba, 1980). Moreover, when the object of the psychological investigation was represented by mental functions meant as adaptive behaviors - as in functionalist psychology - the method consisted in the subjectivist observation. Such a method was replaced by the objectivist or behavioral observation with the success of behaviorism, whose object of study is the observable behavior. And one could go on mentioning the objects of study of gestalt psychology, cognitive psychology, psychoanalysis, etc., and the corresponding methods regarded as more suitable to the "scientific" study of such objects.

What may appear peculiar and may contribute to the perception of a difference between psychology and the natural sciences is that all the above "schools", as well as their derivations, survive and carry out their research programs rather than progressively substituting each other according to a logic of development for psychological knowledge. This phenomenon represents itself within the same schools. Therefore, for instance, within what is defined on the whole as "cognitive psychology", the developmental theories of Piaget, Vygotskij and Bowlby live together and thrive without the happening of substitutions deriving from the proven groundlessness or the abandoning of the rival theories. Their success seems to be more tied to questions of socio-cultural (nationalistic, academic, affiliative) or of personal order («I feel this theory closer to my point of view», a criterion that would horrify physicists, or that, whenever held, would certainly not be disclosed by one of them).

Consequently to such a view, it appears both inappropriate to talk of *one* psychology, and unjustifiable to search for a solution to what seems to some psychologists as a hindrance for a discipline which aspires to define itself scientific. Such research can lead to two paths, that is, either (i) the *unification* of the various schools and theories by using a single metatheoretical framework able to incorporate the main theoretical perspectives into a coherent whole, or (ii) the *extinction* of psychology as a consequence of the progressive reduction of psychological phenomena to neurophysiological processes (and the resulting recovery of one frame of reference). The first solution has been recently reproposed by Henriques (2003) in the form of a *Tree of Knowledge System*, giving birth to a debate in two special issues of the *Journal of Clinical Psychology* (Henriques & Cobb, 2004; Henriques, 2005). On the other hand, the reductionist temptation, which has always gone along with the history of psychology, is enjoying a particular revival, due to the development of neurosciences and, in particular, to the use of neuroimaging technology. I shall criticize both projects from the point of view of constructivist psychology, and show how the latter converges with a certain epistemology of psychology.

3. THE CONSTRUCTIVIST EPISTEMOLOGY

The spreading of constructivist perspectives in psychology represents a phenomenon that would deserve to be analyzed by the sociology of psychology. The distinctive features of those epistemological assumptions, nowadays easily identified and grouped under the label of "psychological constructivism", have been recognised *a posteriori* as already present both in

the work of Jean Piaget on cognitive development[3], and in a ponderous two-volumes book on personality and psychotherapy, *The Psychology of Personal Constructs* (1955) by George A. Kelly, which went unnoticed in times dominated by psychoanalysis and behaviorism. It is only at the beginning of the Nineteen Eighties that the adjective "constructivist" progressively begins to be used in psychology, both in Italy and the Anglo-Saxon countries, to incur later such a widespread use of the term leading to its inflation. It appears that the main catalysts of such phenomenon have been Ernst von Glasersfeld, a psychologist with an eclectic training and excellent capacities of popularization, and two Chilean biologists, Humberto Maturana and Francisco Varela. Von Glasersfeld had the merit of providing a convincing interpretation of Piaget's theory in terms of a "radical constructivist epistemology" (1980), distinguishing it from the "trivial constructivism" of so many cognitive psychologists endorsing metaphysical realism (von Glasersfeld, 1984). Maturana (1978), subsequently in collaboration with Varela, proponed a biological theory of knowledge that refers to the "ontology of the observer". Their "theory of autopoiesis" (1980, 1987), though complex and not always adequately understood, has had an unexpected success in psychology, particularly in psychotherapy and family therapy - maybe due to its systemic formulation. The brilliant analyses of a cybernetic, Heinz von Foerster (1981), the "revival" of one of the founders of the pragmatics of human communication, Paul Watzlawick (1984), and of its inspirer, Gregory Bateson (1972, 1979), together with the rediscovery of Kelly's (1955/1991) theory and psychotherapy of personal constructs (Butt, 2008), contributed to the spreading and popularity of constructivist epistemology, as well as the affinities of constructivism with the movement of social constructionism (Gergen, 1985), and the narrative turn both in psychology (Bruner, 1986, 1990) and psychotherapy (Angus & McLeod, 2004).

In turn, the spreading of constructivist epistemology has produced particularly wide effects in the field of psychotherapy, causing the emergence of new perspectives of treatment, and constructivist interpretations and developments of already well-established psychotherapeutic approaches[4]. But how can psychological constructivism be defined?

The task is not easy, given that many psychologists define themselves as constructivists simply for their belief that personal knowledge requires an active participation by the individual (see for instance Mahoney, 1988). However, this definition is clearly too generic to be applied to a great part of the psychological schools. On the contrary, von Glasersfeld regards as discriminatory the giving up of metaphysical realism in favour of a view of knowledge as viability rather than representation (like in cognitivists). That is, one's knowledge of reality is among the possible compatible with the environmental constraints: all of them are legitimate, and none of them allows to know reality as it is.

The distinction between radical and trivial constructivism is not the only proposed in order to try to define more clearly an epistemology which would otherwise risk no longer having a specific meaning[5]. In a previous article, *Psychological constructivisms: A metatheoretical differentiation* (Chiari & Nuzzo, 1996), we suggested that constructivism is essentially an attempt to transcend the realistic and idealistic views of knowledge (which see it, respectively, as a *reflection* or a *representation* of a given reality, or as an *invention* without any foundation), pointing out a "third way" consisting in the metatheoretical assumption that «the structure and organization of the known — the knower-as-known included — is inextricably linked to the structure of the knower» (ibid., p. 78). In terms of the relationship between

[3] One has only to mention, among his numerous writings, *La Construction du Réel chez l'Enfant*, 1937.
[4] As I documented in my recent *Constructivist Psychotherapy: A Narrative Hermeneutic Approach*, 2009.
[5] For a description of the most important distinctions, see Chiari and Nuzzo, 2009, pp. 44-54.

knowledge and reality, this connection can take the shape of an ordering and organization of a world constituted by the person's experience (a stance we defined as *epistemological constructivism*), or the sense of a reciprocal specification between knower and known, resulting in the overcoming of the subject/object dichotomy (*hermeneutic constructivism*).

Psychologists and psychotherapists definable in our terms as epistemological constructivists adhere to an ontological realism since they acknowledge the existence of a real world that nevertheless, from a gnoseological standpoint, they believe possible to know only by means of *personal constructs*, that is, heuristic narratives useful to its understanding. Kelly's personal construct theory can be (and is) more commonly interpreted in such terms, such as Piaget's theory according to von Glasersfeld's interpretation: therefore, both Kelly and von Glasersfeld postulate the existence of two realities, the extra-linguistic and the experiential, thus sharing a subject-object dualism.

The alternative to such opposition/separation between subject and object derives from considering such "entities" as, in turn, the product of a personal construction rooted in a background of biological, social and cultural practices. Persons are enmeshed in a world they cannot observe and describe from the outside: persons are *in* the world, and their knowledge can only be a specification, «an interpretation historically founded rather than timeless, contextually verifiable rather than universally valid, and linguistically generated and socially negotiated rather than cognitively and individually produced» (ibid., p. 174). The different disciplinary approaches springing up in the last twenty years, widely interconnected and to a great extent expressions of the movement of social constructionism, all refer to the adhesion to a hermeneutic constructivist epistemology: narrative psychology (Sarbin, 1986), cultural psychology (Bruner, 1986, 1990), discursive psychology (Edwards & Potter, 1992; Harré & Gillett, 1994), postmodern psychology (Kvale, 1992). Though not directly psychological (but with ample psychological implications), the theory of autopoiesis, with the ontology of the observer that characterizes it (Maturana, 1988), can be duly included in the list.

Even though the constructivist perspective can be regarded as the avant-garde of contemporary psychology, its affinities clearly appear with the numerous *-isms* that philosophical reflection has proposed over the centuries in the attempt to question the possibility to come to absolute truths: among them, skepticism, relativism, nominalism, perspectivism, till the more recent pragmatism. Furthermore, the affinities between the constructivist perspective (at least that one we defined as hermeneutic constructivism) and the ontological premises of phenomenology and hermeneutics have been pointed out[6] – in particular, the overcoming of the objectivist and subjectivist positions through the consideration of the interdependence subject/object – so much that one could state that the constructivist movement represents the present attempt to recover Husserl's (1976) project of a re-foundation of science (in particular psychology) without foundations, that is, on the basis of lived experience of phenomena (Armezzani, 2002; Chiari & Nuzzo, 2000).

In the second section, I mentioned the discrepancy between scientific praxis and the epistemological reflections on it. In the case of psychology and the human sciences in general, this discrepancy has the effect of a polemic confrontation among "schools" as if the truth of their propositions could be verified on the basis of common criteria. Another effect equally unsustainable from an epistemological viewpoint consists in syncretism, that is, the acceptance of propositions deriving from different approaches as if they had a value independent from them and could therefore be added to enrich the body of psychological knowledge. The attempt to give unity to psychology derives from the shareable unsatisfaction for these two opposing attitudes, but goes along with an underestimation of the complex

[6] As we tried to document in Chiari and Nuzzo, 2009, pp. 29-34.

epistemological questions implied. On the contrary, such questions find a "natural" consideration within the approaches that see themselves in a constructivist view of knowledge - or, at least, in those referable to the above definition of hermeneutic constructivism. The consequence is a common rejection of the attempts to make psychology more "scientific" (by naturalizing it), both through the pursuit of unity and the project of a reductionist extinction, because, so to speak, "there is no case to answer": if any, the problem of the scientificity of psychology dwells elsewhere.

To show the substantial agreement about the issues of unity and reductionism between the epistemological reflection and the constructivist trend in psychology, I shall mainly refer to the work of two authors: the Italian epistemologist Evandro Agazzi (in particular *Criteri epistemologici fondamentali delle discipline psicologiche* [Basic epistemological criteria of the psychological disciplines], 1976), and the American psychologist George A. Kelly (1955/1991). Of course the choice is not casual, but brought forth by the particularly striking affinities between *a certain* epistemological reflection and *a certain* constructivist approach in psychology[7]. I shall also refer to some elements of Maturana's theory of autopoiesis and the ontology of the observer peculiar to it, since its level of abstraction is such as to produce considerations about the matters in hand, both of epistemological and psychological order[8].

4. THE CONSTRUCTIVIST PERSPECTIVE WITH REFERENCE TO THE UNITY OF PSYCHOLOGY

Kelly is one of those rare psychologists who regard philosophical reflection as essential for theorization and scientific research, so to make explicit the philosophical assumptions from which he chooses to start before beginning the exposition of his theoretical construction. Among these assumptions, a prominent place is occupied by *constructive alternativism*. Kelly proposes an alternative to that *accumulative fragmentalism*, predominant in science, which consists in believing that knowledge derives from the accumulation of fragments of truths about the world, gathered through the observation of facts and the generation by induction of laws and theories. On the contrary, Kelly writes, «we assume that all of our present interpretations of the universe are subject to revision or replacement» (1955, p. 15).[9]

For Kelly, then, knowledge is a personal interpretation, deriving from the separation into segments of the undifferentiated flux of events, on the basis of the construction of recurrent themes, or regularities. In order to "seize" regularity at least three elements are needed: two of them allow abstracting the aspects of similarity, while the third allow abstracting the aspects of difference. For this reason the *personal constructs* are conceptualized as bipolar, and included in a *construction system*. In this context, what is of interest to us[10] is the

[7] I imagine however, as an outsider, that not all the epistemologists of psychology share Agazzi's theses, and aware, through direct experience, that not all the psychologists defining themselves as constructivists share the assumptions and implications of Kelly's personal construct theory.

[8] On the affinities between personal construct theory and the theory of autopoiesis see Chiari and Nuzzo, 2009, *passim*.

[9] Who is not familiar with psychology, but is maybe acquainted with the epistemological reflections from Popper onwards, could think that this statement is outdated by now (after all, it dates back to over fifty years ago) and that its innovative character has gone lost for long. On the contrary in human sciences (psychology included) the abandonment of an Enlightenment or positivistic view of knowledge is a process still in progress, so that the approaches, indicated as "postmodernist", that criticize the possibility of "ultimate" knowledge of reality by underlining its social and cultural matrix are still placed on the fringe of academic psychology.

[10] For the in depth study of the theory I refer to the texts above quoted.

implication as to the relationship between knowledge and reality: namely, the way by which, through their constructs, persons segment their experience, thus "cutting out" the "objects" that compose their personal experience by giving them properties (meanings), and assigning the relationships with other "objects" (corresponding to the placements of the constructs within the hierarchically ordered system which they are part of). Therefore, personal knowledge is meant as a theoretical system whose hypotheses – i.e., what the single constructs allow to anticipate in the course of events - are continuously verified by means of behavior, with the function of an experiment, thus giving shape to a circular relation between knowledge and reality, similar to that recognizable, not casually, in Piaget. It is the process that Kelly illustrates by recurring to the analogy of the "person-as-scientist": a scientist, whether striving to give structure and meaning to the personal world around him or her, or applying him or herself to the study of particular sets of objects (those traditionally belonging to physics, biology, psychology, or anything you like).

The person-as-scientist described by Kelly clearly refers to the figure of scientist sketched by a certain epistemology, and particularly, as preannounced, by the epistemological reflection of Agazzi (1976). Each science, meant as established heritage of knowledge, presents itself as a *language* talking about a "universe of objects". The "objects" of a science are not to be mistaken for "things": a single thing can become object of different sciences depending on the "point of view" from which one chooses to consider it, «in the sense that it is the assumption of a certain point of view on 'things' rather than another, to place ourselves within this instead of this other science» (p. 11). An example will make clear the concept:

> Consider, for instance, a watch: If we ask ourselves how much it weighs, or what are the laws regulating the motion of its balance, we make it an "object" of physics. If we ask ourselves what is the composition of its case, or the degree of pureness of its rubies, we consider it an "object" of chemistry. If we ask ourselves what is its exchange value compared with other goods, we conceive it as an "object" of economics. If we ask ourselves what is the relation between that particular model of watch and the personality of the purchaser who chose to buy it, we make it in some way "object" of psychology. And the list could go on for long. (Agazzi 1976, p. 11)

A same "thing", therefore, is a "bundle of objects" potentially infinite, since the points of view from which one can choose to consider it are endlessly multipliable.

Kelly shows to have a similar view of science in the very definition of the "Fundamental Postulate" of his theory: «a person's processes are psychologically channelized by the ways in which he anticipates events» (1955, p. 46). In the scientific reasoning, Kelly goes on, the postulate is an assumption, a proposition, which is true as long as it is not questioned; it is as though we would say, «let us suppose, for the sake of the discussion which is to follow, that a person's processes are channelized by the ways in which he anticipates events» (Kelly 1955, p. 47), and let us see what would ensue. But what we are interested in underlining in this phase of the discussion is the use of the adverb «psychologically». Why does not Kelly use the adjective «psychological» when referring to the person's processes? The answer is that, consistently with the philosophical assumption of "constructive alternativism", Kelly does not regard the substance of psychology as psychological, or physiological, or sociological in itself:

> A person's processes are what they are; and psychology, physiology, or what have you, are simply systems concocted for trying to anticipate them. Thus, when we use the term *psychologically*, we mean that we are conceptualizing processes in a psychological manner, not that the processes are psychological rather than something else (Kelly 1955, p. 48)

If his theoretical system is psychological, it is only because he considers it similar to other systems having a similar domain: because, we could say in the epistemological language of Agazzi, its "universe of objects" is similar (even though not exactly alike) to that of other psychologies which regard certain "things" from a certain "point of view". The following quote by Bannister, one of the most important representatives of the psychology of personal constructs, is particularly illustrative of the consistency between Kelly's constructive alternativism and Agazzi's epistemological position:

> If we contemplate a young lady crossing a bridge (a lay construction) then we may equally construe her as a 'series of moments of force about a point' (engineer's construing), as 'a poor credit risk' (banker's construing), as 'a mass of whirling electrons about nuclei' (physicist's construing), as 'a soul in peril of mortal sin' (theological construing) or as 'a likely dish' (young man's construing). We do not have to assume that she is *really* any of these. We can accept that they are all constructions which have some explanatory value and predictive utility, depending on the networks of constructs from which they stem. (Bannister 1968, p. 229)

Maturana's ontology of the observer leads to similar conclusions on scientific disciplines meant as domains of experiences:

> All descriptions constitute configurations of co-ordinations of actions in some dimensions of the domains of experiences of the members of a community of observers […] Physics, biology, mathematics, philosophy, cooking, politics etc., are all different domains of languaging, and as such are all different domains of recursive consensual co-ordinations of consensual actions in the praxis of happening of living of the members of a community of observers. In other words, it is only as different domains of languaging that physics, biology, philosophy, cooking, politics, or any cognitive domain exists. Yet, this does not mean that all cognitive domains are the same, it only means that different cognitive domains exist only as they are brought forth in language, and that languaging constitues them. (Maturana 1987, p. 372)

Let us go back now, on the basis of what above said, to the main issue of this section about the possibility/advisability of a project aimed at giving unity to *the* psychology. If we accept that every scientific discipline cuts out its objects by looking at things from a certain point of view and investigating them according to certain methods, we must accept the existence not of *one*, but *many* psychologies. As a consequence, in the words of Agazzi,

> The behaviorist can no longer blame who uses the instrument of introspection for a defect of methodology […], a supposed incorrectness or lack of scientific criticism: this would be acceptable if the problem were that of confronting *the same* object and of wanting to deal with it by means of methods so diametrically opposite. On the contrary, the question is another: the use of the two different methods actually "cuts out" two different kinds of objects, therefore opting for this rather than that methodological choice simply means choosing to deal with something more or less different, or, if you like, practicing another psychology. (Agazzi 1976, p. 16)

At this point someone might ask if one or more psychologies are better than others (perhaps in the sense of "more true"), or if one has to come to an epistemological Dadaism à la Feyerabend (1976), against *the* method and in favour of inventiveness and creativity. The question on the "absolute" truth of a single proposition or a theory derives from mistaking "things" for "objects". Again, should we admit that every scientific discipline cuts out its objects, a proposition will be true or false "with regard to" those objects; and the various psychologies, dealing with objects at least partly different, could be simultaneously true. «The conflict of methods, therefore, is only apparent when one understands that it expresses itself

in a differentiation of objects and is not a brawl about the better way to take possession of an only and same object» (Agazzi 1976, p. 17, translation mine). It would be important, instead, that each psychology makes explicit its "protocol criteria", that is, that set of propositions acknowledged as "immediately true" on the basis of which to be able to decide about the truth or falsity of the propositions. These protocol criteria have a high level of explicitness in the case of physics, whereas the psychological disciplines operate at a more implicit level, due to the lack of a clear definition of the "praxis" in accordance with certain prearranged "operations"; praxis which, by itself, can establish the ground of intersubjectivity, that is, of objectivity meant as *independence from the subject*, as agreement within a community, not as *pertinence to the object*.

Agazzi uses the term *construct* to denote the object as an abstract entity, a «*bundle of relations* that are extracted from "things" by means of instrumental manipulations» (p. 26, italics in the original, translation mine). The affinities between Agazzi's epistemological reflections and Kelly's philosophical and theoretical position go beyond the use of the same term. Also for Kelly «constructs are not to be confounded with the factual material of which they are personalized versions; they are interpretations of those facts» (1955, p. 136), and nevetheless they are real, as, within a system of hierarchical relationships among constructs, the subordinate constructs represent a form of reality which is construed through the use of the superordinate constructs. It is important not to substantiate these "objects" by treating them as "things" or cognitive entities, as someone who did not understand the assumptions from which Kelly derives his theory might do. The introduction in science of predicates, constructs and theoretical entities (the electron or the atom in physics; the unconscious, the superego, the personality in psychology; the genetic code in biology; the affinity in chemistry, and so on) allows, according to Agazzi, to go beyond the propositions "immediately true" based on operational protocol criteria, and to make use of "theory".

> The importance is not to substantiate these entities, by conceiving them as "things" of common sense; but, to the extent that one realizes that they are constructs, any suspicion towards them has to fall because, after all, we saw that also the so-called "empirical objects" are constructs. (Agazzi 1976, pp. 27-28)

Again, the analogy with what sustained by Kelly is striking:

> One of the hazards of operationalism is its tendency to make researchers think concretistically. It encourages experimenters to see things rather than principles. Yet, it is not things that a scientist accumulates and catalogues; it is the principles or the abstractions that strike through the things with which he is concerned. […] The principle is not the aggregate of all the events; it is rather a property, so abstracted that it can be seen as pertinent to all of them. (Kelly 1955, p. 30)

5. THE CONSTRUCTIVIST PERSPECTIVE WITH REFERENCE TO THE REDUCTIONIST THESIS

The same considerations that make the project of a unification of psychology unfeasible (meaningless) can be used to maintain the unjustifiability of the reductionist thesis, which upholds the translatability of the propositions of a discipline in those of the disciplines more basic in a supposed hierarchical order, with the advantage of a more complete resolution of the problems. On the contrary, the anti-reductionist approach «demands that every scientific problem is discussed and solved exclusively in the terms in which it puts itself from the beginning» (Marhaba 1976, p. 53), in the terms of the interpretive constructs that cut out and give properties to the "objects" of any specific discipline.

The *reductionist belief* rests on what I shall term *psychophysical belief,* which consists in assuming the existence of a relationship between events to whom an intrinsecally different nature is recognized. In such cases a greater value of "reality" or "scientificity" is sometimes attributed to the event that, in the psychophysical relationship, has a more "basic" placement in the hierarchical order of scientific disciplines.

What the assumption of a constructivist perspective denies is not just the fact that such relationships "exist", but the ontological character of such an existence. Whatever exists, in fact, exists as element of a personal construct (Kelly), as a unity brought forth by an act of distinction (Maturana). Mind and body are not exceptions: mind and body are constructs, «matter, energy, ideas, notions, mind, spirit, god, ... are explanatory propositions of the praxis of living of the observer» (Maturana 1987, p. 376). How to explain then the numerous correlations – to which is often attributed a causal value – between certain physical (physiological) and mental (psychological) phenomena? How can we explain the relationship, that many of us have personally experienced, between an immoderate taking of alcohol and a sense of exhilaration? or the relationship, often reported in the psychosomatic literature, between a mother's overprotection and the development of bronchial asthma or peptic ulcer in the child? or the relationship, studied in the pharmacological research and used in psychiatry, between the effect of certain chemical substances on certain neurotransmitters, and the changes in the course of certain mental disorders? or the relationship between the activation of certain cerebral areas and certain mental processes? A detailed list of such relationships could occupy hundreds of pages.

In personal construct theory terms, such possibilities derive from the fact, widely described in the above section, that a "same" event can be construed through different construction systems:

> Are those facts "psychological facts" or are they "physiological facts"? Where do they really belong? Who gets possession of them, the psychologist or the physiologist? […] The answer is, of course, that the events upon which facts are based hold no institutional loyalties. They are in the public domain. The same event may be construed simultaneously and profitably within various disciplinary systems – physics, physiology, political science, or psychology.
> No one has yet proved himself wise enough to propound a universal system of constructs. (Kelly 1955, p. 10)

Therefore, the observation of psychophysical relationships derives, from a constructivist perspective, from the simultaneous use of protocol criteria defining different universes of objects: namely, those of physiology and psychology. As Maturana (1978) remarks from the viewpoint of the ontology of the observer,

> for the observer who beholds simultaneously both phenomenal domains [...] the changes in the relations of the components appear as changes in state in the living system that modify its properties and, hence, its interactions in its environment - all of which he or she describes by saying that the physiology of the organism generates its behavior. Yet, since these two phenomenal domains do not intersect, the relations that an observer may establish between the phenomena of one and the phenomena of the other do not constitute a phenomenal reduction, and the generative operational dependency of behavior on physiology that the observer asserts in this manner does not imply a necessary correspondence between them. Accordingly, in no particular case can the phenomena of one domain be deduced from the phenomena of the other prior to the observation of their actual generative dependency. (Maturana 1978, pp. 37-38)

In the essay quoted above, Bannister (1968) regards physiological psychology a sort of epistemological hybrid since he argues that from the personal construct perspective a question such as «*physiological events* and *psychological events* are related?» appears meaningless. It would rather be adequate to ask if the *constructs* being part of the theoretical systems of physiology and psychology can be usefully related with the object of a better scientific understanding. His answer is that, considering the distance between the semantic networks (the languages) of psychology and physiology, a physiological psychology does not have greater possibilities to develop as a science than there are to constitute a chemical sociology or a biological astronomy.

Nevertheless we must acknowledge that, whereas one does not know attempts to found a chemical sociology or a biological astronomy, there are numerous disciplines that intend to trace back the psychological phenomena to (neuro)physiological processes (firstly, physiological psychology and psychophysiology), medical pathologies to psychological variables (psychosomatic medicine), and even more numerous the studies that intend to disclose the relationship between mind and brain. In all these cases, those processes, which from a constructivist point of view acquire their "psychological" or "physiological" properties by the light of a specific language, are considered as intrinsically (ontologically) psychological or physiological. This view opens the way to the possibility of an interactionist dualism (Popper & Eccles, 1977), or of a monism that in the philosophical debate is declined in the two main views of reductive materialism and emergentist materialism (expounded in Bunge, 1980). The reason of the success of such psychophysical relationship can be traced to the fact that some of the "things" which physiology and psychology are interested in are "objects" of both the universes; universes which – not properly from a constructivist perspective – come to an undue interpenetration.

Consistently with the assumption of constructive alternativism, which implies the possibility to construe the "same" set of events within different scientific systems, Kelly points out the boundary of the range of convenience of his psychological theory (the boundary of its universe of objects) with the notion of *core constructs*, that is, «*those which govern a person's maintenance processes* – that is, *those by which he maintains his identity and existence*» (1955, p. 482, italics in the original). A great many of these maintenance processes (such as digestion) can be more adequately construed in terms of a physiological construction system. Moreover, Kelly rejects as deriving from a dualist view the notion of "emotion" so central in the traditional psychologies, in favour of *constructs relative to transitions* meant as *professional constructs*, i.e., as constructs that the psychologists may profitably use with reference to certain changes relative to the person's core structures[11]. The only correct way, from a constructivist point of view, to give a psychological interpretation to "physiological" processes (or vice versa) should consist in extending the range of convenience of the psychological construction system, that is, in including in the universe of objects of psychology also some of the "things" at present objects of physiology (as we tried to argue in Nuzzo & Chiari, 1992).

6. CONCLUSION

At this point, one might think that the psychologies based on a constructivist epistemology are in a privileged position in comparison to other psychologies, because they share the assumptions of the epistemology of psychology. However, as I have repeatedly underlined, these are the assumptions of *a certain* epistemology of psychology. Indeed, foundationalist

[11] See Kelly's original work, or Chiari and Nuzzo, (1985, 1988, 2009), for an analysis of these aspects of the theory.

(empiricist, rationalist) epistemologies, which are well-represented (not to say dominant) also in psychology, do not share the definition of science as a language which cuts out a universe of objects, to be meant as distinct from "things". The only privilege (if one likes to see it in this way) that one might recognize to the psychologies of constructivist matrix derives from their way to understand both science and the criteria of truth for scientific propositions; this way allows the psychologies of constructivist matrix to confront with psychologies based on different epistemologies, viewed as legitimately interested in different objects. But then, what is the universe of the objects of constructivist psychologies made of?

Considering constructivist psychologies as a whole, their universe of objects might consist in the personal ways to organize human experience; their point of view concerns personal points of views. For instance, Kelly's personal construct theory can be properly viewed as a metatheory: a psychological theory about personal theories. Therefore, constructivist psychologies share a phenomenological and interpretive approach, similar to the one of the variegated humanistic psychologies. On the other hand, to the extent that the scientificity of a discipline derives from clear protocol criteria, the adhesion to a constructivist epistemology is not in itself an element of strength; on the contrary, often the protocol criteria of many "foundationalist" psychologies are more clear and explicit of those of many "interpretive" psychologies, sometimes so vague in the operationalization of their objects as to appear almost "spiritual". Constructivist psychologies can carry also out progressive research programs (Lakatos, 1978) in the same way as the traditional natural sciences, without losing their psychological specificity, once they satisfied their protocol criteria.

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