

Introduction

The issue of the unity of science has its roots in the birth of Western philosophy, from the Ancient Greece to the advent of the Christian monotheism (Agazzi, 2000; Stanford Encyclopedia of Philosophy, 2007). Since from the origins, philosophers and thinkers have dealt with the object of knowledge, the phenomena of reality, whose features and interrelations are investigated with different kinds of procedures. In very general terms, at the core of the issue there are questions like: in which sense the world, and thereby the knowledge of it, is one? Is there a unity at the bottom of all phenomena, based on an original substance or force, or the unity of nature can still be affirmed, but on the basis of a set of (many) original substances or forces? Does this unity/plurality reflect in the nature of procedures used to obtain knowledge about the world? These, and related, problems initiated the debate between the two opposing theoretical positions of monism and pluralism¹. These two positions introduce the problem of the method (or methods) science should use to investigate the different phenomena of reality. Therefore, objects and methods are central concepts in the debate on the unity of science: the first deals with metaphysical aspects, the latter with epistemological ones.

It is plausible that the appeal of the notion of unity (of nature as well as of science) comes from the assumption that truth or usefulness are equivalent to simplicity, and unity is the quintessence of simplicity. In a traditional outlook, unity is considered as simple and plurality is not; simplicity is seen as a virtue in the scientific enterprise. In other words, simplicity refers to the assumption that there is only one conceptual system of science (Oppenheim & Putnam, 1956, p. 13) that constitutes a frame for the study of the phenomena of reality. This is a methodological perspective, in which simplicity is a sort of prescribing, regulating principle: scientists should not postulate “new entities or new attributes unrelated to those needed for the study of inanimate phenomena” (*ibidem*). The famous principle that state not to multiply theoretical entities is called Ockham’s Razor. Why should we accept this principle? In line with Oppenheim & Putnam (1956), one possibility is to maintain that the property of simplicity is advisable because a simple theory is more useful than a complex one. In this case, simplicity is an indication of another theoretical virtue, practical utility. This can be accounted as a case of epistemic simplicity: among theories with the same empirical content, scientists prefer theories that are easier to calculate, that is to use (Kukla, 2001). Though, the decision to use a theory doesn’t mean to believe it is true (*ibidem*). Another possibility to answer the previous question is to commit to a metaphysical view based on the simplicity of the universe. In this case, the property of simplicity in a theory is advisable because it would bring us near the

¹ The terms ‘monism’ and ‘pluralism’ here refer to very broad metaphysical positions about the nature of reality.

essence of reality, that is indeed simple. In this case, simplicity is an indication of another virtue of a theory, its possession of a truth value. This can be accounted as a case of metaphysical simplicity: it is a characteristic of entities and processes of the universe (*ibidem*). It is worth noting that simplicity in itself is not an intrinsic virtue, that is a property that can be valued for its own sake, but a derivative virtue, that is a property that we are justified to look for on the basis that it leads to another valued theoretical virtue (e.g., utility or truth). In other words, simplicity can be considered as an index of something else.

This brief illustration of the link between the notion of unity and simplicity shows how concepts as utility, truth, language, methodology, metaphysics are linked to the main issue and how many conceptual layers the problem of the unity of science has. The very expression ‘unity of science’ offers different perspectives (Hacking, 1996). For example, the ‘unity’ side of the expression deals with singleness, which means uniqueness, alterity and diversity in comparison with something else. Unity is a feature that discriminates something valued. The concept can be also interpreted as integration, an ideal status where different parts are arranged and organized in a whole. Moreover, unity conveys the notion of harmony (Wilson, 1998), strictly linked to the latter, which deals with the concept of functional interconnection: every single part has a specific and reciprocal role in the whole (Kauffman, 1995). Looking at the “science” side of the expression, we can find the singular as well as the plural form. “Unity of science” conveys that there is one, and only one, reliable way to investigate the world. The singular form suggests the notion of diversity and superiority of science, conceived as a compact whole, in comparison with other methods of knowledge. Instead, “unity of sciences” conveys that there are many kinds of science, possibly with different objects and methods. There are many ways to investigate the world, which nevertheless can be somehow unified, perhaps on methodological grounds.

Many aspects of scientific unity or disunity will be discussed along this work. In particular, Part 1 deals with general issues regarding science and unification. This can be considered as a sort of introduction that serve to provide a useful framework for the issue debated later. Part 2 regards psychology and its status of fragmented discipline: different aspects of fragmentation are specified and their relationships are explored. Part 3 deals with some of the main theoretical attempts to solve the problem of fragmentation, as it is interpreted by the authors whose models are presented. For every proposal, a descriptive part is followed by a brief analysis of the main problems raised by the conceptual aspects of the model presented. Part 4 specifically deals with the state of fragmentation of clinical psychology through the analysis of its definition, mission and scope, as they are specified by the American and Italian psychological community. Part 5 present an empirical research whose

aim is to explore the way a sample of Italian psychologists emotionally represents the discipline, considered as a science and as a profession. In the conclusive part, the outcomes of the research will be compared with the reflections emerged in the course of the work, outlining the need for a new way to connect theory and practice in psychology.

Part 1

1. Unity of method

Scientific methodology is a branch between science and philosophy dealing with the criteria the scientific community uses to evaluate the reliability of methods used in science. In very general terms, method is a whole of interconnected and formalized procedures oriented to obtain results. As the psychology methodologist Alan E. Kazdin clearly states, “methodology encompasses the many ways in which these (empirical) observations are made, the arrangements of situations to obtain the observations, and the means of evaluating the findings and drawing inferences” (2003, p. 5). Thus, method deals with the justification process, where phenomena are observed and hypotheses are evaluated. The concept of scientific method has been important in philosophy of science on two sides: not only it allows to demarcate scientific from unscientific knowledge, but, consequently, it allows to explain the historical success of the scientific enterprise, comparing to the fate of many non-scientific disciplines (e.g., creationism, astrology, haruspicy) (Bird, 1998).

Regarding the issue of the unity of method, it is worth noting that the debate between the supporters of the existence of a single and reliable scientific method and the supporters of the plurality of methods has its roots in the history of knowledge. Focusing on the Twentieth century’s development, I will briefly outline the debate, trying to give an idea of the more prominent positions within it.

In general terms, the former position is called methodological monism, and is a core feature of the Positivist and Neo-positivist movements. It maintains that every discipline, in order to obtain the privilege to be called scientific, has to adopt the methodological standards of natural science, that is the use of empirical procedures and of the hypothetical deductive method (Hempel, 1942). Science is intrinsically nomothetic, that is concerned to postulate general and universal laws. In this sense, every science is based on positive (empirical) data and explains phenomena through general laws and the specification of the particular circumstances in which they take place. On the other side, supporters of pluralism asserted that the diversity of the objects of inquiry imposes to adopt different methods: human beings are motivated by reasons and motives and are defined by the historical dimension, that differentiates them from metaphysical entities as well as from physical events. The core of the debate can be easily traced in the well known dichotomies that supply the

background of Twentieth century and current disputes: nomothetic vs. idiographic approach, explanation vs. comprehension, natural vs. human sciences² (Castiglioni & Corradini, 2003).

The issue of the unity of method doesn't involve unity of the content of science, but unity of its boundaries, that are the ways we reason and how we should accordingly operate. In this sense, two different meanings can be attributed to the concept of the unity of method:

1. A narrow meaning: method is a general standard of reason (Hacking, 1996, p. 51) that involves the use of logical tools and formal rigor in inferential procedures (Brunswick, 1952, p. 1). This meaning deals with the theoretical side of the process of evaluating hypotheses and imposes to reason according to certain reliable standards. There is one best way to reason, logic.
2. A broader meaning: method constitutes a summary of the best ways to find out about the world (Hacking, 1996) and involves the use of specific conceptual devices and procedural protocols. This meaning (also) deals with the practical side of the process of evaluating hypotheses. There is one best way to investigate the world, the scientific method.

Although the first, narrow meaning is quite trivial³, the second is not. In the narrow meaning, however, science can be comfortably defined united, and not only natural science, but also those disciplines called 'humanities', such as philosophy, jurisprudence, literature studies, arts, etc. We expect every human intellectual activity has to follow some basic logical and inferential criteria in order to be accepted as reliable: in this case, unity is a normative precept. These requirements are content-free, that is they are independent from the different objects of the scientific inquiry, and constitute the general basic foundations of the scientific enterprise. In this perspective, there are two scientific requirements to be considered:

- a. *Rigor*. There must be reasons to accept (or reject) a proposition and the connection between propositions (Agazzi, 2000). For example, a proposition can be accepted on the basis of its

² These dichotomies are the modern roots of two different directions of development in psychology: the 'mind route', which traced psychology mainly through the reference to mental entities or processes, and the 'body route', which traced psychology mainly through the reference to material (i.e., biological) structures (Leahey, 1992; Lundin, 1996).

³ It is worth noting that the 'descriptive' turn of post-Popperian philosophy tends to underestimate the systematic and reason-driven aspects of science (i.e., logic) (Kuhn, 1962; Feyerabend, 1975): it gives priority to the incommensurability of different traditions or paradigms of research, their alleged equality in value and the predominance, in the scientific enterprise, of historical, psychological and sociological factors on logical and methodological ones. Following this perspective, no scientific unity or progress can be postulated. Though, we think these aspects cannot be ignored in the debate on the unity of science, where the conceptual framework of inquiry is above all normative (what science/s should or can be) rather than descriptive (how science/s present/s).

analytic status – its truth is based on logical laws and on the meaning of the terms (Alai, 1998, p. 21) – or on the basis of a comparison with empirical facts. The connection between propositions can be evaluated on the basis of the nature of this connection (causal relation, correlation, mutual exclusion relation, etc.). Rigor deals with the use of explicitly stated logical criteria.

- b. *Objectivity*. Objectivity deals with the intersubjective agreement about knowledge and the ways to obtain it. A fact is objective if different individuals can reach an agreement on the features of the phenomenon they are dealing with in specified circumstances (McBurney & White, 2008, p. 19). Although the concept of objectivity is strictly linked to the observational procedures (e.g., the repeatability of observations made by different observers), it also deals with the agreement of the inquirers on the formal criteria of significance used in science: what is considered to be a correct deduction, a successful prediction, a counterexample, etc. (Agazzi, 2000, p. 13).

The second, broader meaning refers to procedures and policies used in order to obtain reliable knowledge and deals with methodology in its most traditional meaning. For this reason, the broader meaning shows all the complexity of the issue of methodological unity/disunity: this is the battle field where supporters of monism and dualism have been fought for many years, and still fight.

Thus, considering the broader meaning, we will now illustrate some of the most respectable attempts to provide methodological criteria for scientific inquiry in the history of contemporary philosophy of science. We will consider monist as well as dualist proposals, in order to give an account of this complex methodological debate.

On the monist side, one prominent attempt to provide a methodological criterion has been put forward by the Neo-positivistic movement. As is well known, one of its main theses was the project of the unification of science, so the issue of method was undoubtedly central. A discipline can be counted as a science only if it embraces the criteria which constitute the basis of the scientific conception of the world. Two major aspects of the methodological unity of sciences have to be mentioned, because of their importance in the Neo-positivistic project of unification. The first states that, notwithstanding the technical differences in the investigation methods, every empirical science supports its statements in the same way: deriving from them empirical implications that can be checked intersubjectively. The second states that for every private (that is, reachable through introspection) fact or event there are some “publicly observable symptoms” which constitutes the basis for the intersubjectivity of knowledge (Hempel, 1969/2001, p. 269). Therefore, the project of unification solidly rests on the grounds of a syntactic view of scientific methodology, which

privileges an intersubjective agreement on “the logical structure and the rationale of scientific inquiry” (Hempel, 1979/2001, p. 357). More precisely, according to such a syntactic perspective, theories’ structures are represented in terms of logico-linguistic expressions consisting of an abstract formalism (the language), a set of theoretical postulates (T) and a set of correspondences rules (C) which bridge from data to theory. Thus, a scientific theory consists in the conjunction of T and C (French, 2008, pp. 269-70). We will deal with this issue again later, when considering the philosopher Carl Hempel’s thought in detail.

There are two mainstays of Neo-positivistic methodology, the basis of which is empiricism, the view which states that reality can be known only by means of mediate or immediate experience:

1. *Logical analysis*. The original formulation maintains that every scientific proposition is logically equivalent to a proposition formulated in a perfect logical language, whose atomic statements refer to aspects of reality (Hahn, Neurath, & Carnap, 1929; Di Francesco, 1994). This can be considered as a goal, rather than a matter of fact. The target of logical analysis is to bring a term or a proposition to its empirical value, assessing its scientific (or non-scientific) status. Only those terms or propositions referable to an empirical basis (that is, their meaning) are to be considered scientific (Carnap, 1932).
2. *The Covering Law Model*. It is the general explanation device that can be used in every scientific discipline: an event can be explained when it is subsumed under a general law of nature, in conjunction with information about particular facts (Hempel, .../2001, p. 87; Blackburn, 2005, p. 175). The first part is called *explanans* and is comprised of initial conditions (that specifies the contingent situation where the explanation takes place) and uniformities expressed in general (universal or statistical) laws. The second part is called *explanandum* and represents the phenomenon that has to be explained, thanks to the *explanans* (Hempel, 1962/2001, pp. 276-81). A deductive or inductive logical nexus connects the two parts specifying the kind of relation between them: deductive-nomological (*explanans* logically implies *explanandum*) or probabilistic-statistical (*explanans* increases the probability of *explanandum*). The covering law model is the methodological milestone of logical positivism.

I will now focus on the philosopher Carl Hempel’s proposal, which is as dense as exhaustive on the issue of Neo-positivistic methodology. We will firstly consider his remarks on the Covering Law Model. As above mentioned, the deductive-nomological (DN) explanation specifies the cause (or causes) of a specified event, that is to say, for every state of circumstances of the kind in question,

an event comes about (same cause, same effect). On the other side, the probabilistic-statistical (PS) form specifies the conditions under which an event occurs with a *certain degree of probability*. In this case, the occurrence of the event is ‘practically’ certain (as Hempel himself states), even if not in a nomological sense. In the DN explanation the focus is on non-pragmatic aspects (Hempel, 1961-62/2001, p. 82) of the scientific enterprise, the ones we mentioned above as syntactic aspects: DN explanation is objective in the sense that it describes the logical form of scientific procedures. Hempel maintains that also PS is a non-pragmatic explanation, even if its inductive nature brings it close to a pragmatic conception of explanation, where ‘practical’ aspects are important. However, as the author points out, as non-pragmatic aspects are abstraction from pragmatic aspects, the pragmatic character of PS can be only considered as a matter of degrees, in comparison with DN. Thus, the two models of explanation, DN and PS, share the feature to provide good grounds for the explanation of the occurrence of an event in its logic (that is, non-pragmatic and syntactic) form (Hempel, 1970/2001, p. 299): this is the best guarantee for the possibility of an intersubjective knowledge (Hempel, 1983/2001, p. 376). To sum up, these are the main features of the Neo-positivistic methodology as illustrated by Hempel:

- *Normativity*: ‘the rules and criteria provided by logical theory can be employed prescriptively or normatively, i.e., as standards for a critical appraisal of particular inferences [...]’ (Hempel, 1979/2001, p. 358).
- *Syntactic character*: ‘The methodology of science [...] is concerned solely with certain logical and systematic aspects of science which form the basis of its soundness and rationality [...]’ (*ibidem*, p. 357).
- *Non-pragmatic character*: ‘[...] we clearly need a concept of proof which is not subjective in the sense of being relative to, and variable with, individuals [...]. Scientific research seeks to give an account [...] of empirical phenomena which is objective in the sense that its implications and its evidential support do not depend essentially on the individuals [...]’ (Hempel, 1961-62/2001, p. 82).

The syntactic and non-pragmatic characters just mentioned raise a question about the explanation of human behavior: since in everyday language this kind of explanation is pragmatic and semantic in character, how does Hempel face the issue? The Austrian philosopher formulate an answer on two different grounds. Firstly, as noticed above, the author argues that non-pragmatic aspects are abstraction *from* pragmatic aspects, so the problem is inconsistent in these terms; explanations of human behavior might be correctly addressed by Hempel’s method. Secondly, and consequently,

for Hempel most of historic explanations are nomological in character, although other authors consider them as pragmatic⁴. The point here is that, in Hempel's view, the formulation of these nomological links is often left implicit⁵, but can be in principle made explicit (1962/2001, p. 286). Thus, historic (that is, human) explanations share the same normative model of natural events, even if some terms of the explanation are often left implicit, due to their intrinsic 'pragmatic flavor'. This flavor derives from a sort of 'individuality' people attribute to historical facts: they are usually considered as individual facts in the sense that their occurrence is unique. Hempel objects that every event (explanandum) is individual in this sense: the falling of a leaf from a branch is a unique event because it refers to a single and specific occurrence, different from every other events of the same kind. Historical facts, to which usually an individual aspect is attributed, as the October Revolution, the Second World War, the September 11th attacks, are called by the Author 'concrete events' (Hempel, 1961-62/2001, p. 302), in order to distinguish them from ordinary individual events (i.e., the fall of a leaf). In Hempel's opinion, concrete events are constituted by individual facts, as particular aspects of them; thus, as we saw above, even historical (that is, concrete) events can be in principle subsumed under general laws (because they are 'made of' individual events, in the sense specified). In the end, historical events behaves as natural events. Nevertheless, the deductive-nomological reconstruction of a human event often takes the form of a so called explanation sketch (1962/2001, p. 281), that is an incomplete form of explanation. Hempel suggests two kinds of sketches, that are descriptive examples of what historians often do in their practice⁶:

- *Elliptical explanations*: they 'omit to mention certain laws or particular facts which [...] they tacitly take for granted, and whose explicit citation would yield a complete deductive-nomological argument' (*ibidem*, p. 282). It is often the case of the explanation of a concrete event (say, the Second World War): many individual events, and the laws governing them, are mentioned, many are left implicit.
- *Partial explanations*: they provide an incomplete account of the explanandum, since not all relevant laws or theoretical principles are specified. Thus, the conclusion is loose⁷.

⁴ See Collingwood (1946), Dray (1957), Taylor (1964), Von Wright (1971/1977).

⁵ It is the case of the genetic explanation, a typical historic kind of explanation. It consists in specifying different stages in a sequence of events which lead up to a given phenomenon. Hempel considers it as a nomological explanation because the sequence, by which each stage is linked to the other, is ruled by some general principle (p. 288).

⁶ Hempel maintains that also natural scientists are often guilty of these 'sins of imprecision'.

⁷ Hempel considers the Freudian explanation of a slip of the pen as an example of partial explanation: the slip made would express Freud's subconscious wish, but such expression and fulfillment might have been achieved by many other

In conclusion, Hempel tells us that the explanations of events, natural or human, follow the same rules: this constitutes the methodological unity proposed by the Neo-positivistic movement, based on the fact that the nature of understanding is basically the same in all areas of scientific inquiry (Hempel, 1962/2001, p. 295). Consequently, the ideal of the unity of science is carried out through the accumulation of scientific knowledge by means of the proper methodology. Method assures the task of scientific knowledge.

The monistic approach has been strongly criticized by those who support a dualistic perspective of knowledge and propose different methods in order to investigate human phenomena. These opponents attribute peculiar features to the human world and state that those features can be investigated only through distinctive methods. The object (human facts) is considered as different in principle from natural facts. So, different object means different method. Let's analyze in more details these positions, through an overview of three of their major proponents' thoughts. Here, I will only deal with central methodological aspects of their proposals.

The first author I'll consider is the philosopher William Dray. In his book *Laws and explanation in History* (1957), discussing the peculiarities of historic method, he maintains that the Covering Law Model (CLM) has to be abandoned in order to give a proper account of human facts. The author highlights two main problems of CLM (Dray, 1957), one of the mainstays of Neo-positivism:

- *The issue of the generality of laws in history*: the alleged general laws that are formulated for historic explanations by CML theorists are too general to be interesting. Thus, their contribution to the comprehension of the explanandum is trivial and their adoption is methodologically pointless. General laws are too general to provide sound explanation of the details and, on the other hand, they turn to be simply false when they are applied to particular facts. Thus, they comprehensibly end up losing their heuristic power (*ibidem*, pp. 28-9, 33), failing to be reliable generalizations and useful explanations.
- *The issue of connections*: CML theorists maintains that the laws concerned by the model are universal and their connections can be either nomological or probabilistic (see above, Hempel, 1962/2001). Since historians are interested in explaining the occurrence of *that individual* event, Dray doubts that probabilistic links (which CML theorists usually attribute to historic explanations) would guarantee the fact that *in this specific case*, e.g., A followed

kinds of slip of the pen than the one actually committed (Hempel, 1962/2001, p. 283): not all relevant laws are specified in order to explain why *that very slip* is emitted.

B. Rather, the same law can even explain the *non-occurrence* of that event (i.e., that A didn't follow B) (Dray, 1957, pp. 30-1), so CML has to be rejected.

For these reasons, in Dray's opinion CML is methodologically inadequate for the explanation of human events. Moreover, there is a non-methodological motivation to refuse CML: it concerns the alleged uniqueness of historic facts⁸. The author maintains that natural science deals with abstractions, ideal constructions of the world. On the contrary, history deals with what actually happened in concrete details. Consequently, "it therefore follows *a priori* that since laws govern classes or types of things, and historical events are unique, it is not possible for the historian to explain his subject-matter by means of covering laws" (*ibidem*, p. 45). The author tries to deepen the meaning of uniqueness asserting that this notion deals with the fact that every historical event is different from others with which would be natural to group under a classification term: e.g., when a historian sets out to explain the French Revolution, he is certainly not interested in explaining it *as a* revolution, but as a unique event⁹. In Dray's opinion, since historical events can be classified, it doesn't mean that their (proper historical) explanation depends on this classification, which represents them as instances falling under general laws (*ibidem*, p. 49). Again, what is interesting is the uniqueness of historical facts. Coming to the *pars construens* of his proposal, Dray states that proper historical explanations are mainly constituted by three peculiar ingredients:

1. *Internal explanation*¹⁰: the historian have to "penetrate behind appearances, achieve *insight* into the situation, *identify* sympathetically with the protagonist, *project* himself imaginatively into his situation" (*ibidem*, p. 119). These empathic aspects have a heuristic value, that has to be integrated by a logical analysis (point 3).
2. *Purposiveness*: this feature is preliminary to point 3. It holds that every action has a purpose, in the sense that one can reconstruct the rational path (conscious or not) which lead to the action at stake.

⁸ Dray's notion of uniqueness is close to the notion of concreteness proposed by Hempel (see above, Hempel, 1962/2001, p. 302)

⁹ In other words, the historian is more interested in the aspects which distinguish the event from the others (belonging to the same category), rather than in the aspects it shares with other category's members. Dray's approach to history is evidently idiographic.

¹⁰ The philosopher Robin G. Collingwood (1946, p. 213) distinguishes between the outside of an historic event (that is, everything that can be described in terms of bodies and movements) and the inside (that is, thoughts, desires, opinions, intentions, etc.).

3. *Rational explanation*: the historian has to gather all relevant elements in order to understand what considerations (reasons) convinced the subject to act as she did. The goal is to grasp the rationale of what was done. The difference between internal explanation and rational explanation is that the latter has an empirical, inductive side that the former doesn't have. The historian asks himself not only (though usefully) 'What would I have done in that situation?' (internal explanation), but 'What would (say) Napoleon have done, considering the way he saw the situation, his opinions, his desires, his purposes, etc.?'. The attempt to reconstruct the agent's reasons constitutes the peculiar aspect of rational explanation, which is supported by the heuristic value of the internal explanation.

The features briefly described deals with a special kind of explanation, the teleological explanation. The philosopher Charles Taylor, in the first part of his famous book *The Explanation of Behaviour* (1964), discusses its main characteristics. Teleological explanations are based on the notion of purpose and their object is the goal for the sake of which the explicandum (or explanandum) occurs (Taylor, 1964, p. 6; Rosenbleuth et al., 1943). They answer to the question "which is the goal the subject wanted to reach by behaving that way?": clearly, it is an approach devoted to the study of human events. Contrarily to most of his behavioristic contemporaries, Taylor thinks that the adoption of a teleological approach stands on empirical, rather than on speculative grounds. Behavioristic opponents maintain that the notion of purpose, which would lead behavior towards an end, is not open to empirical confirmation, because the only empirical evidence for the operation of the purpose is the same behavior which the purpose would explain. Thus, for behaviorists, 'purpose' (P) is not an empirical descriptive term and is considered as an unobservable entity¹¹. Nevertheless, Taylor refuses to look at the behavior (B) as a function of an unobservable entity (P). He rather maintains that the condition for B to occur is that the state of the system (S)¹² and the environment (E) be such the B is required to reach the goal (G), by which the system's purpose is defined. In this sense, the states of the system and its environment can perfectly undergo empirical control, independently of the evidence provided by the occurrence of the behavior itself (*ibidem*, pp. 7-10). To use the effective words of the author:

¹¹ In Taylor's opinion, this idea comes from an implicit behavioristic loyalty to atomistic assumptions, according to which all laws hold between discrete entities. Then, to invoke a purpose means to postulate a new discrete entity as a causal antecedent. But this postulation would violate another requirement, that all entities has to be observable. In this sense, teleological explanations are considered like causal explanation (in that they provide links between separate events), but they would be flawed because of unacceptable features: they postulate unobservable entities (purposes) and the time order is reversed (first the effect – the goal – then the cause – the action).

¹² The system (S) refers to the whole of states of an organism.

“the element of ‘purposiveness’ in a given system, the inherent tendency towards a certain end, which is conveyed by saying that the events happen ‘for the sake of’ the end, cannot be identified as a special entity which directs the behavior from within, but consists rather in the fact that in beings with a purpose an event’s being required for a given end is a sufficient condition of its occurrence” (*ibidem*, p. 10).

Taylor’s thesis is firmly based on the irreducible distinction between action and mere movement. Actions are behaviors defined by two requisites: they have a goal¹³ and they are intentionally emitted in order to reach that goal (independently from the success of the action itself). The distinction between action and non-action is not only based on the presence of a goal and a purpose, but also on the decisive role of the purpose in the emission of that behavior. This statement expresses the strong link between the agent’s intentions and the behavior emitted: the reaching of the goal has to be intrinsically linked with the respective intention (*ibidem*, pp. 27-9, 33-9), in order to provide a proper action. To sum up, Taylor’s theory of action consists of three elements:

1. The agent has an intention to reach a goal.
2. The agent’s behavior is directed to the goal.
3. There is a link between intention (1) and behavior (2): the goal is reached by the emission of a behavior disposed by agent’s intention.

As is evident, the notion of action seems to be central for the teleological perspective just outlined. The philosopher Georg H. Von Wright (1971/1977), the last Author I’ll deal with. He distinguishes between results and consequences of an action: for example, if I want to open a window, and I open it, the result is that the window is open. The consequence is, say, that the room is airing. The teleological explanation deals with the results of a behavior, while the consequences are effects of the results (they are causally linked). In other words, Von Wright wants to emphasize the intrinsic link between the result of an action and the action itself (*ibidem*, p. 112): going back to the window example, if the window didn’t open, it would be *logically wrong* describing that act as ‘opening the window’. It is not possible to call ‘action’ a behavior that doesn’t aim at a goal. He coherently states that the unity of the external aspects of an action is not constituted by the causal nexus between the parts of the action, rather by the subsumption of the parts under the same intention. Thus, to teleologically explain a behavior is to identify an object of the agent’s intention (*ibidem*, p. 114). In the window example, if the subject finds an obstacle while performing the movements to open it,

¹³ There are cases, such as dancing, running, walking, where the aim is simply the emission of the behavior.

we can still call those movements ‘action’, because of their intrinsic reference to a goal (i.e., to open the window).

We’ve been analyzing some of the fundamentals of the debate between monists and dualists. The proponents of those two different methodological approaches do certainly share a narrow meaning of unity of science: knowledge advances by the proper use of logical tools.

Nevertheless, we can say that for the proponents of a monistic perspective theories can be characterized by what their linguistic formulations refer to while for the dualists theories are interpreted semantically. In other words, they give priority to the nature and features of those entity a theory refers to, namely, human beings and facts. In this perspective, that we can define semantic, the laws of a theory serve to delineate the class of models they refer to (French, 2008, p. 272)¹⁴, where these models are interpreted semantically. This means that there is a one-to-one isomorphism between the data and the sub-structure of the theory, so theory and data (object) are more strongly embedded than in syntactic approaches.

Then, the incompatibility between the monistic and dualistic perspectives just outlined regards the way they approach human beings and their facts: the alleged peculiarity of the object of inquiry casts doubts on the methodological uniformity supported by many. We can say that the issue of human explanation is the ‘cause of the scandal’ of the debate on methodology, for the fact that the difference between monistic (syntactic) and dualistic (semantic) approaches lies, grossly speaking, in the level of abstraction of a theory: the more it is distant from its object, the more it can ignore some of its (alleged peculiar) features, the more it is close to it, the more it has to deal with them.

In particular, I single out some central general methodological differences between the two approaches, each one referring to a general perspective from which the scientist looks at her object of inquiry:

- *First vs. third person perspective*: dualists see human beings as subjects with intentions, goals, desires, opinions, and consider these peculiarities fundamental in order to explain human behavior. Monists consider them as every other object of inquiry, that is subject to causes and general laws.
- *Internal vs. external approach*: human behavior is analyzed in terms of internal states by dualists, whereas monists provides an explanation in terms of observable and quantifiable parameters.

¹³ A model for a set of sentences is an interpretation under which they are all true (Balckburn, 1994, p. 236).

- *General vs. particular aspects*: monists consider science as an abstraction of the world, so they are interested in a general (syntactic) account of it. On the contrary, dualists are interested in the individuality of an event, not in the properties stating its membership to a class of events.

It is my opinion that the irreconcilability of these positions, in many scientific branches dealing with human beings, is still current nowadays, notwithstanding a frequent commitment to - more or less - implicit forms of naturalism¹⁵. The progressive decreasing of interest towards issues of general scientific methodology and its replacement by philosophical concerns to local areas of science¹⁶ (Sankey, 2008, p. 255) can be read as a proof that the monist-dualist question is still open, even if not always in an explicit form. In other words, it seems to me that the dialectic between these positions substantiate the issue of scientific methodology and are especially evident when dealing with human facts in a scientific way. The present growing interest in the technical aspects of scientific disciplines and their progressive specialization will not darken this dialectic. Rather, I think that the cogency of its terms, even if it is generally left implicit on the theoretical side, will overbearingly emerge *from* the scientific practice, in a sort of bottom-up way. As stated before, this will be more and more evident in the field of human sciences.

¹⁵ In his book *A History of Psychology*, 3rd Edition (1992), the psychologist Thomas H. Lehay, past president of the APA Division of Theoretical and Philosophical Psychology, strongly states that “psychology as a science is committed to naturalism and thus must reject dualism”, since “science (...) is committed to naturalism as its central dogma” (p. 31). It is still open the issue of the meaning the author attributes to ‘naturalism’: does the term refer to an alleged methodological unity or to a program of ontological reduction of the object?

¹⁶ This is, again, suitable with the so-called post-Popperian turn: the focus shifts from the priority of the normative side of science to the descriptive/sociological side, through the special consideration granted to the discovery context. In other terms, historical, psychological, sociological factors (what scientists *really* do in their practice) are more important than prescriptive and logical factors (what scientists *should* do). Coherently, historians of science are progressively more interested in the details of experiments and in scientific practice rather than in general theoretical aspects (Duprè, 1993, p. 229).

2. Unity of language

The issue of unity of science concerns that of language in many ways. Firstly, language has a complex relationship with the objects it refers to. Every kind of language, from natural languages to technical ones, has its own vocabulary and its own structure, which have the purpose to compose specific meanings: the relationship between concepts and objects is dynamic, and this could be a crucial issue for the unity of science. Secondly, language conveys knowledge, it is the medium that permits to communicate what is going on in the world and what an individual, or a group of individuals, thinks. Language, by this perspective, is the primary tool of every human enterprise, including the scientific one. In fact, and this is the third point, every scientific discipline has its own specific language (technical terms, peculiar expressions, typical signs), nonetheless every discipline shares huge linguistic areas with other disciplines and/or with natural languages.

While the plurality of languages is a matter of fact, its local (in this case, in the field of science) unity it's not. The features just above outlined show why the issue of the unity of the scientific language is so fundamental for science and its unification. If science is, somehow, one, there must be a language that makes science different from any other human task. The unity of scientific language, in other words, would reflect, and guarantee, the alleged unity of science, beside the apparent linguistic diversity that marks out every discipline. In order to critically explore this issue, I will consider the positions of two philosophers: on one side, Jerry Fodor, dealing with an alleged mental language ("mentalese") supporting the development of our natural languages; on the other side, Rudolph Carnap, whose proposal is about the general structure of the scientific language. Despite the undoubted distance of these proposals, I think that they can shed some light on the issue of the unity of language in science. I will start with the illustration of some peculiar points of Fodor's theory on the language of thought, then I will focus on Carnap's proposal, specifically concerned with the issue we are dealing with.

2.1 Jerry Fodor's language of thought

The philosopher Jerry Fodor faced the issue of mental processes, using the concept of mental representation. In fact, contrarily to many opponents, he was persuaded that such a kind of processes really exists and can be explored by means of empirical research as well as by means of speculation. But assuming the existence of mental representations put many philosophical problems; among them, the issue of an alleged internal language that permit us to think and to learn our natural languages. In Fodor's view, an individual cannot learn a language without knowing the meaning of its predicates, that involves learning the extension (that is, the rules under which the

predicates fall) of its predicates. But, and this is the crucial point, one cannot learn that the predicates (P) falls under specific rules (R) unless one has a language in which P and R can be represented (Fodor, 1975, p. 64). In other words, Fodor supposes the existence of an internal, private language (internal code or representational system) in order to give an account of our ability to think and to learn and use languages. This internal code would permit to carry out the computations that underlie every human behaviors (from mental representations to actions). Two main features can be individuated regarding the internal language:

1. *Richness*: the width of the functions of this internal code makes Fodor suppose that this internal language must be rich enough to express the extension of any natural language predicate that can be learned. Natural languages' extension, in other words, is contained within the internal language domain. What is denied is that an individual can learn a language that has more expressive power than the original (internal) one. In other words, the extension of every natural language predicate must be in principle expressible in the previously available internal language. This involves that the process of learning is to 'discover' the predicates' extensions, already contained in the representational system. Simple natural predicates are coded in elaborate formulae, in terms of internal code, and that can explain why learning one part of a natural language is a precondition of learning the rest: the first-learned parts works as abbreviations of complicated formulae that reduce the individual's cognitive engagement, increasing his thought skills. This gives an account of the increase of complexity of thought usually associated with the increase in language mastery.

2. *Compositionality*: complex expressions are derivable from simple expressions properly combined. Compositionality accounts for creativity, while what just outlined above risks to convey the idea that all is already written within us, encoded in the representational system. Instead, propositions and their components can be arranged in different ways, creating a virtually infinite number of possible structures. Learning concepts, in this view, can be reconstructed as a process in which novel complex concepts are composed out of their previously given elements (Fodor, 1975, p. 96).

Clearly, the machine analogy and the referral to nativism are central points in Fodor's theory. As a machine, individuals are provided with an internal language (software) which permits the computation of information in order to fulfill ordinary tasks of everyday life. Moreover, people are naturally wired with this inner language from birth.

To sum up, individuals have an internal language that permits to compute information and constitutes a representational system, in the sense that it elaborates, composes and connects concepts that lead the individuals' behavior. The outputs of the system are propositional attitudes, language, complex behaviors. But how is the structure of this internal language? How does it work? To answer this question, we have to take a brief look to the folk psychology issue.

In Fodor's view, folk psychology involves the existence of mental causation, that is the belief that mental states, such as thoughts, desires, etc., have a causal role on behavior. If one asks a man waiting in line at the grocery why he is acting that way, he would probably answer something similar to this: 'I am here because I know that here I can find what I need and the quality of the products is quite high.' He would answer referring to mental states that he considers (causally) relevant in order to explain his behavior. In other words, people usually explain their behaviors in terms of propositional attitudes, which are relational states connecting an individual and a proposition (Fodor, 1985, p. 84). Folk psychological explanations strongly involves the existence of propositional attitudes and their causal role in our mental functioning: we behave as we do because we have certain thoughts, beliefs, desires, etc. In other words, we are minded and engage in behavior that is influenced by our mental states (Cain, 2002, p. 2). In this way, Fodor welcomes and promotes the relevance of mental life (in a representational form), which characterizes the common sense psychological explanations of everyday life.

Within a folk psychological frame, the author supports a functionalistic point of view; from this perspective, every mental state can be identifiable with its own causal role, within a virtual network whose knots are mental states themselves. The essential feature of each state is the causal and relational position it holds with others states in the network. In other words, every mental state (or predicate) can be localized in the network *exclusively specifying its potential or effective causal relations with other mental states* (or predicates). Therefore, we have a causal network, where the semantic content of each state doesn't matter; the only aspect that matters is its potential causal effect on the other knots. Beside this, Fodor maintains that there is another network, that he calls inferential (Fodor, 1985, pp. 85-86), generated by the semantic aspects of the states: every knot of this network contains the semantic content of each state. Thus, we have two independent network: a *causal* network, that qualifies each state with its potential or effective causal relations, and an *inferential* network, that qualifies each state with its semantic content. What is immediately clear is that the semantic content of a statement is manifest and explicit: the man waiting in line at the grocery straightforwardly understands the meaning of the explanation he provides when someone asks why he is there. On the other side, the causal network (that is, the causal relations between

mental states) is not directly self-evident to us (at least, it requires introspection, but this is a very controversial issue). Fodor's crucial point is that there is a form of partial isomorphism between the two networks: "*the causal role of a propositional attitude mirrors the semantic role of the proposition that is its object*" (Fodor, 1985, p. 86, author's Italic). This isomorphism guarantees that the assignment of semantic contents to a proposition is connected to and constrained by the belonging of the proposition to the casual network of those propositions that exhibit proper patterns of causal relation. In other words, it is possible to "*deduce the causal consequences of being in a mental state from the semantic relations of its propositional object*" (Fodor, 1985, p. 87, author's Italic). To sum up, Fodor distinguishes between causal and semantic properties, maintaining that their connection is guaranteed by the alleged isomorphism between the two networks.

Let's now go back to our original question. The structure of the internal code, which is our mental language, is made by a sort causal network paired to a semantic one, as noticed above. The semantic network is explicit, as earlier specified, but what about the causal one? Fodor considers causal properties and syntactic properties in the same way: the syntactic structure embodies and conveys the shape of a symbol (e.g., in geometrical or acoustical terms), and thus the potential or actual relations with other symbols. If this is true, the semantic relations among symbols can be entirely captured by the symbols' syntactic properties and the relations among them (Murat, 2010). Since syntax conveys the functional role of symbols, it is clear why the causal role equalizes to the syntactic role. On this basis, Fodor, following the machine analogy, supports the priority of syntax on semantic and gives a naturalistic account of thinking: we handle symbols in a syntactic (formal) way, as a computer device, but we are able to preserve the semantic relations, in virtue of the mirroring just above outlined. The author's position seems to subscribe to a sort of unification of any kind of natural language in terms of formal logic, which would also provide solid ground for the unification of the scientific language, in accordance with the supporters of the Neo-positivistic movement (see previous Chapter).

2.2 Rudolph Carnap's outlook

The philosopher Rudolph Carnap believed that human knowledge begins with the inquiry of what we experience with our senses. In other words, the basis of knowledge has its roots in subjective data, which each individual can detect and explore. One of the major problem is that these data are private, that is, are only accessible by me and only me: every experience is my experience and no one, but me, can test it. This would lead to a sort of paradox:

- a. If the source of the meaning of knowledge comes from the experience,
- b. And, if this experience is mine and only mine (is not accessible by others),
- c. Then, the source of every knowledge is private and intersubjective (scientific) knowledge is impossible.

In other words, the problem of private experience as the basis of every knowledge deals with the issue of intersubjectivity, that is, the eventuality that the opinion on a fact, event, or property of different subjects (whose experiences, as noticed above, are private) can coincide (Blackburn, 2008). In Carnap's view, the possibility of an intersubjective agreement lays on the fact that individuals, in similar circumstances, behave in a similar way (Severino, 1966, p. 6). In this perspective, the possibility of an intersubjective knowledge deals with the fact that, in similar circumstances, individuals *use their language* in similar way. This is the reason why Carnap believed that the issue of the structure of scientific language was a fundamental problem to be faced.

As I said above, Carnap held that direct experience is strictly individual, diverse in many way from that of everyone else. In this sense, the content of experience is evidently not expressible and its meaning is available only for the individual who is directly experiencing it. The use of a proper language is the only feasible way to translate those subjective data into objective (that is, communicable) data. In order to fulfill this task, Carnap relies on the study of language: the reason is that language is made of symbols and only symbols can permit an intersubjective communication. In fact, language is able to condense those aspects of experience that, as seen above, are by definition not expressible. In this perspective, language is a sort of common area that links and intersects the plurality of subjective experiences (Severino, 1966, p. 14). By means of language, the philosopher's goal is to eliminate possible ambiguities in the communication between different individuals and, thus, to open up the possibility of an intersubjective science.

Carnap maintains that science only deals with the structure of objects, not with their properties. What does this mean? Let analyze what the author here means for property. The properties of an object refer to its appearance, to the peculiar features of it (Carnap, 1961, p. 93). More precisely, properties refer to the subjective experience of the object, to what the individual directly knows about it. Since properties are not intersubjectively expressible, the scientific description of an object cannot be a description of properties. It has to be a description of formal properties, that is a description of relations. This kind of description illustrates features that can be specified without mentioning the content and the peculiarities of the object, but, indeed, its relation within a field of

objects (*ibidem*, p. 95). An example of *description of properties* is approximately like this: the objects *a*, *b*, *c* belong to the same field. Each one is a man. *A* is twenty years old and is tall, *b* is twenty one, is short and thin, *c* is corpulent. On the other side, an example of description of relation is approximately like this: the objects *a*, *b*, *c* belong to the same field. *A* is the father of *b*, *b* is the mother of *c*, *c* is the son of *b*, *a* has sixty years more than *c* (Carnap, 1961, p.93). As noticed, the properties specified in the second description sets aside superficial, contingent features of the objects, while considers the formal relations within that field of object. The totality of the formal (relational) features is included in the so called *structure*. The study of the structure regards the highest level of formalization because it provides the exploration of the totality of an object's relational properties within the considered field.

The structural description unequivocally permits to single an object out from other objects in the same field. In fact, the combination of formal relations that marks an object within a field refers *only* to that object. In other terms, two objects with the same structure are *objectively* the same object, though *subjectively* they can be different. As an example, let's consider *a* and *a'*. They are objectively (in terms of structure) the same, in fact they both are fathers. Even so, they are different persons, so they are subjectively (in term of properties) different, e.g., *a* is thirty, tall and thin, *a'* is sixty, short and fat. In principle, every object can be described in terms of structural features and, in Carnap's view, only this kind of description is scientifically valid (*ibidem*, p. 350): scientific propositions exclusively deal with logic relations, without specifying objects' peculiarities. This is true also for language's structure. In *The Logical Structure of Language* (1934), Carnap maintains that language is a form of calculus, because it deals with symbols assumed to be distributed in different classes (Carnap, 1934, p. 27). In particular, syntax has to do with that part of language that displays the form of a calculus: indeed, the object of syntax is the formal aspect of words (symbols) combination. Syntax deals with the structure of language, while it ignores the exterior form of symbols. In other words, what is important from a syntactic point of view is the relations between symbols, not their exterior features; in Carnap's terms, syntax provides a structural description of language, leaving aside other properties of symbols.

To sum up, it seems that, in the author's view, the goal of science is to use language as a tool, a form of calculus whose aim is to discover and describe the relations between objects, that is to discover their structure (which is detectable objectively), while ignoring objects' superficial features (which can be experienced subjectively) (Carnap, 1961, p. 103). Carnap's proposal has a clear methodological impact: in order to reach an intersubjective form of science, his method prescribes to trace phenomena's experience back to expressible propositions, in terms of formal logic. This

does not mean that the exterior properties *are* the structure, but only that they can be, precisely, *traced back* to the structure, in order to minimize possible communicative ambiguity and permit intersubjective communication. Using the author's words, "every scientific statement can be in principle converted into nothing else but a structural statement" (*ibidem*, p. 103, my translation). This is the basis for the unification of science for Carnap: the aim to find out structural statements permits to unitarily organize the scientific enterprise, no matter the differences between the variety of scientific branches (and their objects). Thus, formal logic is the language of science and turns to be its methodological backbone.

Starting from the perspectives just briefly outlined, we will try to highlight some important aspects dealing with the unity of science regarding the issue of language. Firstly, both Fodor and Carnap seem to consider the importance of a sort of primitive language that would provide the possibility of an intersubjective knowledge. Without that basic tool, the fact that two subjects can reach an agreement on what they are dealing with would be impossible. An intersubjective science has to plunge its roots into the observation statements, that are statements referring to how things appear to people, beyond the differences connected to the use of different natural languages. The private knowledge, in this way, can be translated into public knowledge, as pointed out by Fodor (i.e., the syntactic level provides a general and common framework by which to organize knowledge) and by Carnap (i.e., the structural level permits to go beyond an account of the object in terms of properties). Scientific language, in general terms, exceeds the barriers of natural languages, in order to avoid multivocalness (Neurath, 1944, p. 6), the risk to indicate the same object by means of different expressions.

Consequently, translatability can be considered to be the process at the basis of a methodological united science, as Neurath explicitly maintains (1944, pp. 6-10). This point can be explained in terms of different levels of inquiry: at a superficial level, we find what Carnap calls properties. They are the object's features, its appearance as the subjective experience portrays it. In Fodor's terms, the superficial level refers to the semantic content of experience. This level is a very rich mess of information, which is not really useful for scientific purposes: on the one hand, because it is abounding in information, on the other hand, because its analysis strongly depends upon each observer's subjective perspective. The issue of translatability deals with the need to translate this level to another one, more suitable for scientific goals. This is the syntactic (or structural) level, where only the reciprocal relations between items count. This level of inquiry permits and provides intersubjective reliability, a smaller quantity of information to manage and applies to virtually every

object, no matter its particular features: these seems to be good reasons to prefer a syntactic approach to science.

In summary, it can be useful to highlight some features that a descriptive language has to fulfill in order to be scientifically reliable. This language has to be: public, that is not private, expressible to others, intersubjective: it has to provide the possibility of an agreement when observing the same object. Moreover, it has to be syntactic in character: it focuses on structural and relational aspects of the object. At last, as a consequences of the latter features, it turns out that this language is simple, in the sense that it permits to manage a relatively small quantity of information, leaving apart information that are considered peripheral for scientific purposes.

3. Unity of Laws: the Issue of the Reduction between Theories

Reflection on the possibility of a unification of science is closely connected to the relation between different theories, belonging to the same or to other disciplines. To take a certain number of theories back to a more comprehensive one, or to trace back the study of a specific bunch of objects to the conceptual and theoretical devices of a more basic theory are fundamental epistemic aims for those who support the program of the unity of science. One of the main reasons seems to be that unity is considered as an indication of rigor, reliability and truth. Thus, to look for unity means to increase the authority of science, in terms of explanation and predictive power. In other words, reduction is viewed by its supporters as an epistemological virtue to be pursued, intrinsically linked to the progress of science.

In this chapter, I will try to highlight some primary features of the issue of reduction. Its epistemological version will be treated, while the ontological issues connected to this debate will be the object of Chapter 4. I will deal with this topic referring to some of the most influential authors which faced the subject, such as Ernest Nagel and Carl Hempel. In the second part of the chapter, some remarks on the issue will be useful in order to deal with the problem of the non formal aspects of reduction.

3.1 Formal Aspects of Reduction

In his most influential work, *The Structure of Science*, Ernest Nagel (1961) tries to give a deep account of the problem of reduction. In very general terms, reduction is defined as the explanation of a theory or a set of laws established in one specific area of inquiry (the so called “secondary science”) by means of a theory, or a set of laws, formulated in some other domain (the “primary science”) (Nagel, 1961, p. 338). The author individuates two kinds of reduction. The first one, which is unproblematic and called homogeneous, deals with the broadening of the scope of a theory: once formulated for a type of phenomenon exhibited by a restricted class of objects, now the theory is extended to cover that phenomenon when manifested by a broader class of objects. This kind of reduction turns out to be unproblematic because there are strong similarities between the objects it refers to and the descriptive terms of the primary and secondary sciences are the same. Such form of reduction, in Nagel’s view, is commonly accepted as display of scientific development.

The second case of reduction, that the author names heterogeneous, shows the opposite characteristics: the objects explained by the secondary science are qualitatively different from those explained by the primary science, initially formulated with the aim of dealing with another class of

objects. The class of objects of the secondary science is somewhat assimilated to the class of objects of the primary one. Consequently, the primary science doesn't contain characteristic secondary science's descriptive terms, which are not included in its theoretical arsenal (*ibidem*, pp. 339-40). This kind of reduction is quite problematic because, at least *prima facie*, a certain class of objects is treated as if it were similar (or identical) to another qualitatively dissimilar class of objects, for which the primary science was originally devised. This is the type of reduction for which Nagel formulates the formal conditions for reduction, which are conditions that have to be satisfied in order to make a reduction possible. Three categories of formal conditions can be individuated, following Nagel's proposal (1961, pp. 345-358):

1. The first condition asserts that the theories, or sciences, involved in the process of reduction have to fulfill the requirement to be explicitly formulated in all their parts, considering axioms, special hypotheses, laws and other components. As the author clearly points out, this is an ideal demand, rather than a description of the actual state of the theory under consideration. Despite that, this condition of explicitness requires that the content of scientific formulations be carefully classified into definite categories, in order to allow a formal, i.e. logical, analysis of it. Although Nagel is not explicit on the rationale at the basis of this condition, the classification of the theory constituents into theoretical postulates, experimental laws, observation statements and "borrowed laws" would evidently make the formal analysis of that theories possible and clearer (Hempel, 1969, p. 190).
2. The second condition regards the consideration of a particular group of terms, called primitives. Since the aim of a formal examination of reduction requires the analysis of the linguistic structure of a theory, it is fundamental to individuate the elementary expressions which give meaning to the whole constituents of the theory. The meaning of these expressions are fixed by their practical use or by explicit norms and can be locutions of formal logic (or mathematical formulae), expressions taken from specialized technical jargon or even taken from the ordinary language. These primitives expressions have the specific goal to cover, with the help of purely logical locutions, the meaning of all other descriptive expressions in that scientific discipline. In other words, they serve as a linguistic frame whose aim is to shed light on the whole of linguistic expressions within a theory, i.e., to explain all the meanings of its locutions. Those expressions constitute the logical core of a theory and can be, in short, divided into observations primitives and theoretical primitives, on the basis of their relying on empirical data or theoretical formulation (Nagel, 1961, pp. 349-51).

3. The third condition relies on the fact that the relations between two theories (or sciences) is characterized by the existence of a number of expressions whose meaning they share (e.g., statements of formal logic, mathematical formulae, and also other expressions, even if only used as experimental laws or borrowed laws) and a, usually large, number of expressions which they don't share (i.e., that are formulated in the secondary theory but are not in the primary). Hence, in order to reduce one theory to another, whose relation is similar to that presented, it must be to established a linkage between the theories. In fact, if the secondary theory doesn't contain terms that do appear in the assumptions made by the primary one, it is *prima facie* impossible to reduce the former to the latter. At the basis of the possibility to reduce a theory that contains some term that doesn't appear in the reducing theory, two conditions are necessary: *the condition of connectability* and the *condition of derivability* (Nagel, 1961, pp. 353-54). The former prescribes to introduce assumptions which permit to establish relations between the two theories involved in reduction. This involves a definition of the concepts of the secondary theory in terms of the primary theory vocabulary, specifying the necessary and sufficient condition for their use within the reducing theory (Hempel, 1969, p. 198). Examples of this principle are bridge laws, which peculiar feature is that they contain predicates both of the reduced and the reducing theory (Fodor, 1974, p. 98). This involves a sort of translation of the principles of the secondary theory into principles of the primary theory (Hempel, 1969, p. 197). The latter condition, the derivability condition, points out that, with the help of the condition outlined above, the laws of the secondary theory must be logically derivable from the theoretical assumptions of the primary theory.

The formal aspects just outlined apply to virtually every theory and/or scientific discipline, because no empirical content has been considered in their formulation. Depending on the perspective assumed, this can be seen both as a virtue or as a limit. Whether this is accountable as a virtue or not will be treated after discussing the relevance of the non formal issues of reduction, namely the conditions which have empirical or factual character.

3.2 Non Formal Aspects of Reduction

The fact that all, or some, of the conditions just outlined have been met doesn't assure the noteworthiness of the reduction under inquiry. Many other considerations must be deemed in order to evaluate its appropriateness. These considerations deal with pragmatic issues of reduction; in other words, they deal with the assessment of the real instances in which reduction takes place.

Now, I will try to give an account of the most interesting aspects that has to be considered when evaluating a reduction from a non formal point of view:

1. Firstly, the primary theory, the reducing one, has to prove its probative force. In other words, its theoretical assumptions have to be strongly confirmed by empirical evidence (Nagel, 1961, p. 358). This issue deals with the degree of justification of the reducing theory *within* its original field of formulation.
2. The reduction must prove to be fertile. In other words, the reduction has to facilitate the aim to develop the secondary theory, suggesting interesting way to explore or correct the knowledge so far accepted. Another mark of fertility can be assessed: that the evidence of the secondary theory's laws serve as indirect evidence able to support the theoretical postulates of the primary theory (*ibidem*, pp. 360-1). Thus, the convergence of evidence belonging to different parts of the secondary science, reciprocally providing probatory material for each other (i.e., toward the justification of the primary science as a whole), can be considered as an empirical important index of the fecundity of the reduction.
3. The appropriateness of the reduction is contingent, that is depends on the particular stage of development of the disciplines involved. On one side, the reducing theory must contain specific parts (theoretical postulates or descriptive terms) that have a primary role in the reduction process. A certain (primary) theory may obtain to possess these characteristics at a specific stage of its development; not all its stages have been marked out in that way¹⁷. On the other side, the reduced theory may be in a stage of active development, whose primary goal is to explore and classify the objects of its domain. In a situation like this, attempts to reduce this theory, even if formally successful, can turn out to be self-defeating, because precious energies are diverted from what are crucial questions or problems, at that stage of development. In cases like these, the reduction to a primary theory is ineffective and doesn't provide useful guidance in order to improve knowledge regarding the secondary theory's object of inquiry. Therefore, the issue of reducibility (or irreducibility) of a theory has to be temporally qualified.
4. The suitability of a reductive explanation depends on the explanatory power of the theory to be (possibly) reduced. When a theory is able to explain a (macro) regularity with few

¹⁷ Ernest Nagel is particularly clear about this point and provides a lucid example: 'In particular, though contemporary thermodynamics is undoubtedly reducible to a statistical mechanics postdating 1866 (the year in which Boltzmann succeeded in giving a statistical interpretation for the second law of thermodynamics with the help of certain statistical hypotheses), that secondary science is not reducible to the mechanics of 1700. Similarly, certain parts of nineteenth-century chemistry (and perhaps the whole of this science) is reducible to post-1925 physics, but not to the physics of a hundred years ago' (1961, p. 362).

exceptions, redescribing that phenomenon in terms of micro regularities provides no (or negligible) further explanation. The situation is different when the explanation at the macro level shows exceptions or irregularities. These deviant phenomena push the scientists to look for micro explanations of such irregularities (Wimsatt, 1976, p. 679).

5. Even in cases of formally successful reduction (i.e., the classical example of the reduction of the laws of thermodynamics to the kinetic theory of matter), the disappearance of the secondary theory is not granted. The secondary theory can survive as an independent discipline/theory for practical reasons, that is, because its use is particularly useful or heuristically reliable in contexts where the theory is applied¹⁸. This leads to the consideration that a theory can persist because of its adequateness within the context of use. In fact, its reduction to a reducing theory can result in “irrelevant complexities of descriptions” (Sarkar, 2008, p. 431).
6. The reflection on the non formal aspects of reduction calls for the consideration of two different meanings of “rational” (Wimsatt, 1976, p. 672). On the one hand, rationality can be seen as the propensity to accomplish the optimal way to achieve the aim of science (i.e., in very general terms, explaining phenomena); on the other hand, rationality can be seen as the propensity to improve the formal rigor in scientific formulations. Within a formal frame, these two meanings have been often considered as overlapping: it is rational to improve the degree of formal rigor of a theory in order to improve its explanatory power. But, on the basis of empirical and practical considerations, the relation between these two functions has to be examined in depth¹⁹.

Supporters of the unification of sciences have always attributed more importance to the formal aspects of reduction (Hempel, 1969, p. 190), though their awareness of the importance of the non formal ones cannot be forgotten (*ibidem*, p. 206). The issue of formal/non formal aspects of reduction deals, on one side, with the necessity to hold an epistemological outlook on the topic and, on the other side, with the opportunity to support ontological claims about the subject matter of inquiry.

¹⁸ “[...] The molecular characterization of cell components neither prevents nor is always fully integrated with the continued traditional functional characterization of those components. (...) The older reduced theories and laws persist because they are adequate in their context” (Sarkar, 2008, p. 431).

¹⁹ This issue will be treated in the next section.

3.3 Reasons for the Linguistic Turn and its Relevance for the Issue of the Unity of Science

As Carl Hempel clearly points out (1969, p. 189), the debate on the problem of reduction have been taking for many years a linguistic turn, not only, but especially, between those who supported the concept of the unity of science in the Nineteenth century. In general terms, the linguistic turn consists in the priority examination of the relations between the terms and the laws of the theories (or sciences) involved in the reduction process. Ontological issues are left apart, in order to highlight the epistemic side of the scientific enterprise. But what are the reasons why a linguistic (that is, epistemic) approach is preferable? I will try to bring to light to some of the major aspects that justify a linguistic turn.

An ontological account of reductionism would states that some properties of one subject or event is derivable from (or is identical to) the properties of another subject or event (Nagel, 1961, p. 264; Fodor, 1974, p. 102), usually physical. But how can the scientist conceptually distinguish between physical and, say, chemical, biological, or psychological events or occurrences? For Hempel (1969), “objects, states, and events cannot unambiguously divided into mutually exclusive classes of ‘physical entities’, ‘chemical entities’, ‘biological entities’” (p. 190), because any individual event can become an object of inquiry for many different discipline, depending on the point of view that the observer decides to assume (Agazzi, 2000, p. 11). In other words, every theory (or scientific discipline) deals with particular aspects of the object, characterizing them as the focus of its investigation. In this sense, no specific physical, chemical or whatsoever objects exist: these adjectives express different point of view adopted in the scientific inquiry of different aspect of (not seldom) the same object. In other words, the distinction between different kinds of objects is theory-laden: in Hempel’s words, ‘the distinction will concern states-under-a-theoretical-characterization’ (1969, p. 195). Thus, a conception based on the allegedly intrinsic diversity between different kinds of object would suggest that the possibility to reduce one theory to another depends on the inspection of the properties of the objects or their “nature”, instead of investigating the relations between the theories, that is of points of view. The crucial point, here, is that such properties or “natures” are not considered as pre-theoretical entities²⁰, but as components of the theory (or scientific discipline) under scrutiny, as Nagel points out (1961):

“[...] whether a given set of ‘properties’ or ‘behavioral traits’ of macroscopic objects can be explained by, or reduce to, the ‘properties’ or ‘behavioral traits’ of atoms and molecules is a

²⁰ That is, entities whose existence doesn’t depend upon a theoretical point of view.

function of whatever theory is adopted for specifying the ‘natures’ of these elements” (pp. 364-65).

In other words, for these authors the possibility of reduction is a matter of relations between theories and their components, that is a matter of syntactic analysis, oriented to the purely formal aspects of theoretical terms’ combination. Refusing this approach would mean to espouse a theory-laden approach before and/or notwithstanding the confrontation with the empirical data, that is improperly holding unjustified metaphysical assumptions.

In conclusion, in which way does this epistemic, formal, syntactic approach to reduction matter for the issue of the unification of science? At a first glance, if unification is understood as the erection of an intricate building (i.e., science) made of different bricks (i.e., the different scientific disciplines or theories) that turn out to be mutually compatible, it is clear that this approach is functional to the construction of the building, because it deals with the possibility of the linkages between bricks. In this sense, a strong ontological commitment about the objects which constitute the topic of the diverse sciences or theories would mean to get into two critical problems. On the one hand, as seen above, the threat to fall into obscure, unjustified metaphysical assumptions about the world. On the other hand, the focus on the supposed ontological diversity of things would not provide a fertile and strong ground for the unification of sciences: on the contrary, it would be a crucial obstacle on this path. A formal approach, as those briefly outlined above, permits to clearly analyze the relations between theories and to answer to questions like this: how does science develop? Do theories (or scientific disciplines) cumulate or turn out to be included in broader theories? And how about the meaning of theoretical terms? Can they be compared? Do the reduced theory’s terms change their meaning after the reduction? How and in which cases? A linguistic analysis permits to shed some light on these important topics. For Hempel (1969, pp. 199-206) theories are seldom (if not ever) linked by deductive relations, rather the reduced ones can be conceived as special applications of the reducing ones, that include the former. Thus, theories (or scientific disciplines) are considered as commensurable entities. In fact, they can be compared on the basis of the common subject matter that they try to explain, even if they don’t share a single theoretical term or principle. On the ground of commensurability, theories can be linked to each other: as seen above, some of them (the reduced ones) will become applicable in limited domains as particular applications of a more general theory (the reducing one), thanks to the conditions above mentioned. In this perspective, the path to scientific unification is not cumulative: a new theory doesn’t simply add to an old one, in the sense of preserving the content of the old theory and adding on to it. Rather, the new reducing theory includes the old one, constituting a comprehensive and

coherent tool by means of which the scientists can read the world from a structural (i.e., formal, syntactic) point of view. According to this approach, non formal aspects are seen as factors to be considered when evaluating the possibility to carry out a reduction of a theory by means of another one. In other words, they deals with the practical (that is, local) application of reduction.

4. Unity of Object

So far, I have been dealing with those issues about the unity of science that consider some major aspects pertaining the features of theories, leaving aside the topic regarding how the world is conceived by scientists and philosophers. Since the project of unification of science is an endeavor directed toward the progressive discovery of the details of nature, a major issue regards the conception of it and its structure. What here is called “unity of object” refers to the controversial thesis that the object of science is, ultimately, one and only one, or, at least, displays a sort of internal coherence that has to be discovered. Different theoretical conceptions of the structure of reality suggest different way to pursue the project of the unification of science or, on the contrary, make it unavailable.

In this chapter I will first focus on the proposal of Rudolf Carnap, one of the traditional supporters of the project of the unity of science. His suggestions will shed some light on the conception of reality that gives ground to the original proposal of formal unification. Afterwards, I will sketch the proposal of Brian Ellis about scientific essentialism, a position that seems to be in line with a unification project based on metaphysical assumptions. In conclusion, I will briefly present some aspects of John Dupré’s promiscuous realism, an original and interesting position suggesting a fundamental disunity of human knowledge on the basis of ontological assumptions.

4.1 Rudolf Carnap’s Nominalism

Within the empiricist tradition, abstract entities like properties, classes, etc. have been considered with suspicion. The concept of reality itself falls under the same suspicious attitude. Many empiricists, on the basis of their mistrust towards ontological commitment (Kosso, 1992, p. 102), tend to avoid the use of terms such as reality, although often is hardly impossible not to use them, as Carnap maintains (1950, p. 20). An empirical account of science implies the possibility of a unified science; as we saw in the previous Chapter, the unification of science is based upon a formal account of it, but still the various scientific disciplines are in the uncomfortable position to use terms referring to reality, including words referring to abstract entities. Thus, the problem is: how is possible to talk about nature without running into metaphysical (i.e., not empirical justified)

obscurities? Rudolf Carnap tries to show that it is possible to use a language referring to abstract entities without embracing a strong ontological commitment (Carnap, 1950, p. 20), in line with the empiricist tradition.

For Carnap, if someone wants to speak about a new kind of entity, he has to introduce a linguistic framework (*ibidem*, p. 21) for the entity in question. This framework permits to understand the meaning of the linguistic expressions referring to the entity, within a context (the framework itself) that talks about the world (Maxwell, 1962, p. 22). In other words, this framework is a device that provides meaning for the new entity within a system of things that already have a meaning. On the basis of the introduction of the linguistic framework, two kinds of question about the existence of something can be stated, internal questions and external questions. The first kind pertains to the admissibility of the entity within the framework, the second one concerns the real existence of the entity (Carnap, 1950, p. 21). Internal questions can be answered by means of formal logic or empirical investigation, so they apparently don't concern metaphysical assumptions. From this internal perspective, in Carnap's term,

“to recognize something as a real thing or event means to succeed in incorporating it into the system of things at a particular space-time position so that it fits together with the other things as real, according to the rules of the framework” (1950, p. 21).

Therefore, the linguistic framework is the guarantee of the (temporary) existence of the entity under scrutiny. Since we assume a linguistic framework (for example, the “thing language”, as Carnap calls it, the one that talks about everyday objects) questions about the (internal) existence of this and that can be raised and answered. But the acceptance of a linguistic framework for a certain kind of entity only means to accept the admissibility of the entity as a possible designatum. Moreover, the admissibility of the entity is not fixed independently from the categories of space and time, rather is contingent, in a sort of agnostic-like ontological position, leaving open and unanswered the question about its real existence. Thus, according to a position that gives priority to the formal and syntactic aspects of the scientific inquiry, accepting the “thing world”, that is the world as described by the terms and statements of the linguistic framework, means no more than accepting a form of language, i.e., the rules for forming statements and for testing, accepting or rejecting them (*ibidem*, p. 22).

On the basis of these considerations, internal questions are not problematic, while external ones are, in Carnap's opinion. In fact, the thesis of the reality of the world, to which external questions refer,

cannot be formulated in the “thing language”, or any other language. The “thing language” is used for practical reasons, that is it is useful and efficient in order to achieve everyday purposes, and the decision to adopt it is based on our everyday experience. The acceptance and the consistency of the “thing language”, in other words, doesn’t give evidence in favor of the reality of things. Rather, its reliability “makes it advisable to accept this language” (*ibidem*, p. 22). Thus, the problematic nature of external questions lays in the fact that they cannot receive proper answers on the basis of the appropriateness of the internal language: in other words, the existence or reality of a thing cannot be inferred on the basis of the expedience and usefulness of the linguistic term that refers to it.

In Carnap’s view, the acceptance of a linguistic framework is a practical (that is, based on considerations of usefulness and appropriateness), rather than a theoretical question (*ibidem*, p. 27). Nevertheless, embracing a linguistic framework involves de facto the adoption of theoretical assumptions: such and such rules, procedures, confirmation rules, lawlike sentences, etc. In other words, the author seems to underestimate the theoretical significance of the adoption of a linguistic framework, that is a (theoretical) device assumed by the speaker/inquirer in order to achieve certain goals (e.g., to speak about abstract entities).

Clearly, the practical nature that leads to the adoption of a linguistic framework entails the taking up of a certain point of view, and that necessarily entails some theoretical considerations. According to Grover Maxwell (1962, p. 11), what is observable, and consequently what it is possible to speak about, is determined by science itself, therefore it is determined by specific theoretical assumptions. From this follows that there are no a priori or philosophical criteria for separating the observable from the unobservable (*ibidem*, p.11): what is observable, or what is possible to speak about, is established by precise theoretical choices, that can be espoused on the basis of practical considerations (as Carnap highlighted) or considerations of other kinds. The main point, here, is that Maxwell explicitly maintains that everything we observe or speak about is a function of some theoretical assumptions, linked to our physiological structure, our current state of knowledge and the instruments (logical as well as practical) that we happen to have available (*ibidem*, p. 14-5). Therefore, this leads to a position of ontological abstentionism, because the line that divides what is observational and what is theoretical is not sharply drawn (depending on the factors just above outlined) and has ‘no ontological significance’ (*ibidem*, p. 15).

The proposals put forward by Carnap and Maxwell are consistent with a formal account of the scientific enterprise (see previous Chapters): science sets those rules that permit to speak about the world without an ontological commitment. In this way, science can pronounce on the features of nature, but tells nothing about their reality.

4.2 Brian Ellis' Essentialism

Since science deals with the progressive knowledge of reality, some thinkers retain that is a central issue to discover the nature of its essential characteristics. Here, I will focus mainly on the proposal of Brian Ellis, which can be considered a fine example of essentialism. Contrarily to a nominalistic position, essentialists believe that there are objective, mind-independent kinds of things in nature (Ellis, 2001, p. 17; 2008, p. 139) and, therefore, that one can distinguish those properties of a thing that are essential to it and those that are accidental (Blackburn, 1994). The things that share the same essential properties form kinds, whole of things whose existence would be impossible without those essential properties that characterize them. Natural kind essentialism claims that natural kinds have essential properties: to say that the possession of property P is part of the essence of the kind K implies that, necessarily, every member or sample of the kind K possesses P (Bird, 2009, p. 497). Thus, these essential properties characterize a particular kind and distinguish it from others: they constitute its essence, or identity, or nature. Essential properties are fixed in nature, that is they are not bound by spatio-temporal constraints. In fact, it is supposed that substances that forms natural kinds, e.g. chemical substances, have always shown their structure as we can observe them now. In other words, they are immutable: for example, “[...] there is no species of chlorine existing now or at any other time that could possibly be a species of any other element than chlorine” (Ellis, 2008, p. 140). This is clearly not the case for, as an example, biological species, for which evolutionary considerations would clearly violate the criterion of immutability, whose violation is considered as a symptom that the existence of the entity at stake is not rooted in the structure of nature, but is mind-dependent.

From this perspective, the world turns out to be made of things included in natural kinds, whose components share essential properties that constitute their peculiarity and differentiate them from other kinds of things²¹. These essential differences are not conventions, or pragmatically chosen in order to disentangle the intrinsic disorder of nature: rather, as we saw above, their existence is independent by the inquirer/observer: all he has to do is to discover this predetermined order. In other words, nature is not a continuous spectrum of substances that has to be categorized, rather it is constituted by discrete entities, precisely called natural kinds (*ibidem*, p. 140).

More in details, according to Ellis' theory, the world is constituted by things belonging to three natural kinds, whose relations are strictly hierarchical (2008, p. 142):

²¹ Most authors, as Ellis (2008, p. 140) maintains, would accept essentialism regarding physics or chemistry, but would be skeptical of essentialistic claims about the existence of natural kinds at higher (for example, biological or psychological) levels of complexity, mainly, but not only, for the violation of the criterion of immutability.

1. *Substantive* natural kinds include all of the natural kinds of substances.
2. *Dynamic* natural kinds include all of the natural kinds of events and processes.
3. *Tropic* natural kinds include all of the natural properties and relations.

The hierarchical relations between those kinds is developed by Ellis' basic structural hypothesis (*ibidem*). It assumes that at the summit of each category there is a global kind, which includes all of other natural kinds in its category. It is ontologically more fundamental than any other of its species and involves, indeed, the existence of sub-species. For example, the global substantive kind would be the class of all physical systems, which evidently contains sub-species, such as electrons, for example. At the base of each hierarchy are the infimic species of the global kinds, whose main feature is that they don't have natural sub-species; in other words, they are primary constituents of their including global kind. In the middle, there are all of the generic kinds of greater or lesser generality (for example, chemical substances). According to this hypothesis, physical nature turns out to be highly structured and characterized by distinctive real essences for every natural kinds, at every level of generality. This means that every natural kind is provided with "[...] intrinsic properties or structures in virtue of which things are of the kinds they are" (*ibidem*, p. 142-3).

To sum up, these are the main features Ellis enumerates concerning the natural kinds in an essentialist frame (2001, pp. 19-21):

1. Their existence does not depend on human interests, psychologies, perceptual apparatus, languages, practices or choices. The distinction between natural kinds is based on facts about their essential nature.
2. They must be categorically distinct. They form discrete entities whose borders are sharp.
3. Distinction between them are based on intrinsic differences. In other words, natural kinds' members cannot differ only extrinsically, that is depending on how things in the world happen to be arranged or happen to be related to one another.
4. If two members of a given natural kind differ intrinsically from each other, and these intrinsic differences are not ones that can be either acquired or lost by members of the kind, then they must be members of different species of the kind.
5. Natural kinds are characterized by essential properties and real essences.

In particular, the substantive kinds are essentially defined by causal powers, rather than by structural aspects, since at the most elementary level there is no structure (understood as relations between parts) at all. However, causal powers are defined in terms of dispositions, the full description of which will tell us what we should expect things having this property be disposed to do in various circumstances. For this reason, an essentialistic metaphysic like Ellis' one seems to postulate two fundamental properties in nature: dispositional properties (causal powers, capacities, propensities, which tell us what things of that kinds are supposed to do) and categorical properties (spatio-temporal and numerical relations, which provide for a proper descriptions of the diverse circumstances in which dispositional powers may exert).

The centrality of dispositional properties in Ellis' proposal is supported by his thesis of *dispositionalism*, which involves that the laws of nature describe the essences of natural kinds. At every level of the hierarchy, laws of different hierarchical position describe the behaviors of things which corresponds to their essences. This claim, in Ellis' opinion, has two important theoretical consequences (*ibidem*, p. 143): on one side, it is claimed that the hierarchy of laws of nature are intrinsically correlated with the hierarchy of the natural kinds. Laws are solidly grounded in the world's natural kind structure (Bird, 2011). On the other side, the laws of nature turn out to express metaphysical necessities: for example, electrons are necessarily negatively charged, physical processes are necessarily intrinsically conservative of energy, and so on.

In conclusion, scientific essentialism, as Ellis calls his own proposal, entails a well structured world, whose properties and laws intrinsically define reality. Therefore, its proper description involves the discovery of properties and laws of nature that really exist in the present and always will exist. Theoretical assumptions such as the reduction of the complexity and multiplicity of reality to a simpler conception of it, the real existence of natural components, their stability in time, the hierarchical structure of nature, seem to provide a good ground for a project of scientific unification from a metaphysical point of view. As Ellis clearly states, "ontologies typically try to explain the overall structure of the world [...] The test of an ontology is how well it achieves its aim of global unification" (Ellis, 2001, p. 62).

4.3 John Dupré's Promiscuous Realism

Contrarily to the two proposals just briefly outlined, Dupré's perspective is based on what he calls ontology of common sense, that is strongly pluralistic: common sense tends to classify things not by unifying them under a simple and unitary structure of concepts, but by the individuation of fragmentary and diverse categories (Dupré, 1993, p. 19). In the author's opinion, one should not

ignore this spontaneous pluralistic view when dealing with metaphysical issues about the scientific enterprise. Such an outlook may turn out to be very important when considering the ontological status of reality. Reflecting on the biological classification, Dupré notes how scientific and common sense terms referring to natural kinds²² are intrinsically different and maintains that “such divergence [...] often occurs for good reasons that preclude any reasonable expectation of eventual convergence between the two” (*ibidem*, p. 27). In other words, the ordinary way of classifying things can be very different, and incompatible, from the scientific categorization. Examples come from the vegetable as well as from the animal kingdom, as this quotation shows:

“A particularly interesting example is provided by the moths. The order Lepidoptera includes the suborders Jugatae and Frenatae. It appears that all the Jugatae are moths. The Frenatae, on the other hand, are further subdivided into the Macrolepidoptera and the Microlepidoptera. The latter seem again to be all moths. But the former include not only some moths but (all) skippers and butterflies. The trouble here is not that we cannot give a reasonably plausible account of the extension of the English term moth, but rather that the grouping so derived is, from a biological point of view, quite meaningless” (*ibidem*, pp. 28-9).

Is there any possibility for the convergence of the two languages? The case for cladism seems to be a fine example of the intrinsically improbability that this will happen. Cladism is a biological theory affirming that the taxonomic distinctions should reflect evolutionary events of lineage bifurcation, ignoring any other available criterion (for example, morphological or reproductive criteria). If there may be the case for such a revision in the professional biological context, for which cladism can represent a sound theoretical assumption, it is very unlikely that the ordinary language would ever espouse such a quirk of evolutionary theory, adopting this way of classifying living things. But what is at the basis of such big differences between the ordinary and the scientific way to organize the world? Dupré is convinced that the key point is in the different functions they serve. Ordinary language has many aims in distinguishing kinds of organism. Organisms may acquire recognition for a variety of reason: they are economically or sociologically important, are intellectually intriguing, are furry and appealing, etc. This is true also for scientific language, where organisms may acquire recognition, and consequently classified, on the basis of morphological similarities, reproductive similarities, evolutionary considerations, etc. Moreover, such reflections show the

²² Here the term is used in a very broad and liberal way, referring to classes of objects defined by the common possession of some important theoretical properties.

likelihood that there may be other plausible specialized ways of classifying things, neither coincident with scientific nor ordinary language: the vocabularies of the timber merchant, the furrier, the herbalist, just to borrow some Dupré's examples. From this argument follows that there are many grounds for classification, in ordinary language as well as in science. This pluralistic attitude refers to the promiscuity supported by the author, who maintains that nothing in his proposal suggests that the kinds so recognized are in any sense illusory or unreal: this is the reason why he considers himself a realist. In other words, different ways of classifying things can be conceived and each one really exists, on the ground of the adoption of specific, and diverse, theoretical positions (*ibidem*, p.43).

Dupré affirms that there is not a general criteria for individuating kinds (within the animal world as well as within the inanimate world), but questions about the breadth and borders of kinds should be considered locally, taking into account the specific features of the object and the particular problems or questions that the classifier has in mind. Consequently, classifications made on the basis of the first kind of considerations can really differ from classifications made on the basis of the latter kind and this reflects, for the author, distinct ontological statuses (*ibidem*, pp. 50-1). Dupré insists that this does not reflect a methodological point of view, but rather an ontological one: only a pluralistic vision of reality can take into account its incredible complexity and it is likely to prove adequate for its investigation. The existence of many overlapping and intersecting kinds is not an evidence for their unreality (Dupré, 1996, p. 105), in biology as well as in any other district of reality:

“There is no God-given, unique way to classify the innumerable and diverse products of evolutionary process. There are many plausible and defensible ways of doing so, and the best way of doing so will depend on both the purposes of the classification and the peculiarities of the organism in question, whether those purposes belong to what is traditionally considered part of science or ordinary life [...] Realism about biological kinds has nothing to do with insisting that there should be some unitary cause of biological distinctions” (Dupré, 1993, p. 57)

In other words, there cannot be natural kinds from an essentialist point of view. As we just noticed above, essentialism states that natural kinds are immutable, have always existed, that their members don't change in time, that they are timeless. On the contrary, promiscuous realism affirms that natural kinds are strongly bounded to space and time. But, from this point of view, how can we

define a kind natural, if the existence of its essence is denied? The naturalness of kinds is such because they represent differences in nature that, though overlapping and intersecting, really exist. To quote a previous example, there are no reason to deny that a particular sub-class of Lepidoptera are recognized ordinarily as moths and that this class might exist even independently from our recognition. Discovering kinds doesn't involve discovering essences; rather, it is to identify interesting (from different points of view) real discontinuities in the world (*ibidem*, p. 64-67; Cartwright, 1994).

Dupré's argument against essentialism is based on empiricist grounds, for which the evaluation of the explanatory potential and the existence of specific kinds have to be achieved by means of empirical research. In other words, the existence and usefulness of kinds is assessed a posteriori: the commitment to real essences (in an essentialistic frame) either is vacuous or violate this demand (*ibidem*, p. 80). In his view, what makes a kind explanatory useful is that its instances share some properties or dispositions and are susceptible to the same forces. The discovery of these properties or dispositions, however, does not provide a justification for attributing the status of essentiality to some of them. For Dupré, the naturalness of kinds only consists in the singling out of discontinuities in nature, which instances share common properties and dispositions, and that are susceptible to same forces. Naturalness doesn't entail the attribution of essentiality to some of the kind's properties, since it would be an highly arbitrary and non-empirical assumption. This view is called by its author *categorical empiricism* (*ibidem*, p. 80-3).

Presuming the availability of different ways to categorize objects and the legitimacy of diverse classifications of natural kinds, Dupré support the idea that there is room for various properly grounded scientific projects, each one describing only one of the many ways things are. In particular, there is no reason to expect a convergence of these projects onto one grand theoretical system (Dupré, 1996, pp. 105-6). There are as many appropriate scientific projects as many empirical grounded ways to categorize the world, therefore the flourishing of new (or not "traditional") scientific disciplines is welcomed. Rather, the main question about the scientific enterprise is: on which ground we justify the pursue of a particular project of inquiry rather than any of the many possible alternatives? Dupré maintains that we should select those projects that best serves the goals that motivate our inquiry (*ibidem*) by means of a proper account of the features of the inquired object (Dupré, 1993, pp. 34-57). According to such an approach, the birth and development of the special sciences are not only theoretically justified, but also hoped in order to best achieve the goal to give proper and sound answers to the questions they legitimately raise.

In conclusion, the way to conceptualize the variety of the entities in the world strongly influences the practicability of a unification project. If the world is, at some level, composed by the same kinds of properties, dispositions and forces, the convergence of the branches of science dealing with apparently different objects would be possible and desirable. On the contrary, if the existence of real essence is denied, a unification of science under metaphysical claims would be unjustified. Further candidates, other than metaphysics, should come forward in order to make this enterprise feasible.

Part 2

5. Evidences of Fragmentation in Psychology

The assumption that psychology as a science is somehow fragmented is well-known among professionals and researchers since the early years of the discipline. Karl Bühler's *Die Krise der Psychologie* appeared in 1927, the same year Lev Vygotsky's *Historical Meaning of the Crisis in Psychology* was published. Therefore, the desire to explore psychology's boundaries, limits and structure has been long cultivated by some psychologists sensitive to these kinds of philosophical problems. Slightly from the beginning of the success of psychology as a science and as a socially useful discipline, a (often considered as) sinister awareness of psychology's disunity took the hearts and minds of a large part of those who devoted their lives to it. But what does *disunity* mean, in this case? Does it refer to the plurality of methods used by psychologists? Does it refer to the plethora of diverse theories that fall under the big umbrella of psychology? Or does it refer to the enormous gap that differentiates, for example, the practice of the experimentalist from that of the psychoanalyst? Does the fragmentation deal with the huge amount of specialized areas within psychology, whose manifestation is the existence of 53 APA's (American Psychological Association) divisions? These and other questions are still object of debate between psychologists and philosophers. A large literature about fragmentation has been produced in the last thirty years, but it seems that its vastness somehow tends to ironically mirror the very nature of the issue under investigation, showing fragmentation and disunity in contents and methodological approaches. In other words, many authors have been writing about fragmentation, disunity and the crisis of psychology, but the problem is faced from different perspectives, ranging from a political viewpoint (Sternberg, 2005) to a rhetorical one (Katzko, 2002), passing by theoretical-methodological (Henriques, 2004; Staats, 1996), historical (Richards, 2002), educational (McGorvern & Brewer, 2005), meta-theoretical (Fenici, 2009; Richlak, 1993) levels of inquiry. Taken as whole, the literature on fragmentation in psychology is a Babel that strives to describe the discipline's disunity, leaving the reader with the strange impression that there is not a prior level of inquiry and that commensurability, if possible, is a hard task even to be imagined. In accordance with de Groot (1990) and Goertzen (2008), a necessary precondition for properly facing the issue of fragmentation is to make some order putting the different levels of discourse in a taxonomy that individuates the basic causes as well as the effects of the assumptive fragmentation of psychology. In other words, we need to ascertain which levels of inquiry are prior in the analysis of the fragmentation of our discipline. In the following analysis, I will try to focus on the main topics of fragmentation from institutional and philosophical standpoints: in fact, the two often intertwine.

5.1 The Development of Psychology and the Grounds of Fragmentation

In order to explore the issue of fragmentation, it is fundamental to look at psychology as a human enterprise, hence as a socio-cultural phenomenon. In particular, I will deal with the process that brought to life the professional role of the psychologist in Western society, trying to discover the assumptions that constituted the basis for his existence as a social actor. The profession of psychologist has been a sort of crossroad where diverse professional roles converged and condensed in this new kind of profession. Since from the origin of the discipline (end of Nineteenth, beginning of Twentieth Century), psychologists have been firstly identified with the role of the scientist (Richards, 2002, p. 11), whose main aim is to explore passive, 'third person' objects with objective (that is, reproducible and intersubjectively assessable) methods. The identification with the scientist is well understandable, since psychology was a new discipline just born out from philosophy and most efforts of those who practiced it were directed to provide scientific credentials to their discipline (Reisman, 1991/1999, p. 27); in other words, the role of the scientist embodied the hopes for a real scientific status for psychology. A second source in the development of the role of the psychologist was the medical profession. Many psychology practitioners originally were physicians with philosophical interest (*ibidem*, p. 21) about behavior and mind. Interrogating people about their mental conditions might be readily managed within physician roles, where the expert and the client are bound by a power relationship (Carli et al., 1988, pp. 67-8; Richards, 2002, p. 12) based on the gap between the mastery of specific (medical) knowledge and the lack of it. Related to these are the roles of the philosopher and the teacher, which incarnate the concern for issues relating to mind, relationships, therapy, rehabilitation, education. These roles, and maybe others, fulfilled two different and complementary functions:

1. They served as role models for 'giving psychology a shape'. At the beginning, psychologists didn't have a specific role, with precise boundaries and a definite field of action, at least from a social point of view. They needed 'anchorages' to well-known professions and social roles in order to get a proper social legitimacy and try to establish a professional identity.
2. They provided people with a social representation of what psychologists are and do. The interests, field of action, objects of inquiry and methodologies of those who practiced psychology were understood by analogy with other well-known professions.

In a sense that will be soon made explicit, these role models are still active and somehow helpful in the present time of psychological practice. This plurality of references, though useful, inevitably

poses some problems relating to the identity and practice of psychologists: who are psychologists? What they usually do? What are their goals? What are their methods? The analogy with other professions might well provides some clues, but the core of the questions still remains open. An interesting interpretation of this peculiarity of the psychological profession is suggested by the Italian psychologist Renzo Carli and his colleagues (1988). The authors maintain that those who benefit from a psychological service (for example, counseling, psychotherapy, education, assessment and others) are not competent regarding the nature and the modes of that psychological intervention. In other words, they don't know how the psychologist will operate in the intervention that constitutes her professional offer; this is evidently not the case of other kinds of professions. An example may clarify this issue. The potential client of a lawyer has a relatively clear idea of what will happen in the professional relation with her, even though it is the first time she needs a lawyer. The aim of the intervention is to support the client that has been involved in a lawsuit. In order to be effective, the lawyer needs to know all the information the client is able to provide about the issue of the inquiry. Moreover, the lawyer is required to use all her knowledge and technical devices in order to fulfill the client's expectations, that is, to get the targets on which they have agreed. This kind of professional relation is based on three assumptions:

1. The professional intervention is constituted by the requirement of a specific pattern of actions that both the client and the practitioner know and agree on.
2. The relation is motivated by the achievement of an explicit goal.
3. The practitioner is required to accept the goal proposed by the client. If not, the relation has no longer reason to exist.

This clearness about the goal and the actions required doesn't characterize the intervention of a psychologist (Gaj, 2009, pp. 84-5). As in the case seen above, the client asks for a psychological intervention with specific expectations, but those expectations are based on the various professional functions that are socially attributed to the psychologist (for example, counselor, psychotherapist, trainer, diagnostician). Between those functions, as perceived by the client, and the professional offer there is a gap that the psychologist is called upon to fill. In other words, what people think about psychological practice is often strongly different from what psychologists really do: the diverse cultural models that describe the psychological practice represent opportunities through which the methodology of intervention gets explicit, gaining visibility to the psychological work within the social context (Carli et al., 1988, p. 29; Salvatore & Pamplomatas, 1993, p. 95-6). In the relation with the psychologist, the client adopts specific representations, choosing by those at

disposal (as we saw above) and consistent with the problem she is presenting to the psychological practitioner. Bypassing those distorted representations of the psychological intervention (based, by analogy, on other professions), the psychologist uses them as informative material on which she sets her intervention up, using proper psychological tools. In this sense, the plurality of the social representations concerning the psychological profession permits the deployment of its technical tools, through the analysis of the representations of the problem by which the client asked for a psychological intervention. However, the question about which theory, technique or methodology constitutes the core of the intervention remains open, since “the unclear professional boundaries are not only apparent between professional psychology and other health care disciplines but also are seen within the field itself” (Henriques & Sternberg, 2004, p. 1053).

In order to describe the frame in which psychology developed and still expands, expressions like social representation, social role, cultural model and similar have been used. The importance of such terms, referring to abstract concepts, in the definition of the psychological practice is connected to the fact that those who practice psychology deliver a particular kind of service. In this sense, what psychologists do is delivering psychological services. Now, what a service is? It can be firstly defined as an immaterial process that is achieved within a relational and communicative process between a producer and a consumer (Olivetti Manoukian, 1998, p. 52). Delivering a service means dealing with and managing peculiar features that characterize many aspects of the process of the delivery itself (Normann, 1984/1985, pp. 35-6). In the case of a service, the product (the service itself) cannot be previously displayed and it doesn't exist before its delivery. In other words, the service is a sort of “tip of an iceberg”: the client may appreciate the whole nature of the service only after its delivery, while before it what she has are only some partial clues about it (this is particularly true of psychological services, as seen above). Thus, the difference between production and sale is vague and tends to disappear, in the field of services: producing a service is to sell it, and selling it means to produce it. Moreover, the client takes active part in the process of delivery of a service. In other words, she is more than a consumer because every kind of service (from education to a haircut or a psychotherapy) cannot take form without a certain degree of participation, depending on the kind of service. In fact, those who deliver a service not only interact with the consumers: they also must be able to manage them as an important part of the productive process, because, as argued, the service consumption is not completely separable from the production and it involves a direct connection and cooperation between the deliverer and the consumer. Another point to take into account is that the delivery of a service is strongly influenced by the social and cultural features of the context where it takes place and its modes heavily depend upon the local features of the place where the service is delivered. In other words, the provision of a service is an expression

of the socio-cultural referents in which it takes place: for example, we cannot imagine a professional haircut that is independent from the fashion of the time and society where it is performed. Moreover, beyond the socio-cultural referents, the specific circumstances where the service takes place are particularly salient: there won't be a haircut without proper tools, specific places devoted to it and competent knowledge of the hairdresser. All these features are time and place dependent and are responsible for different kinds of haircuts across places and times.

The interplay between the socio-cultural dimensions and the modes of the provision of a specific kind of service is a basilar topic in the understanding of psychology's fragmentation. As Valsiner (2006, pp. 601-8) claims, the main accepted themes and discourses within society have been strongly influencing, and defined, some important features of our discipline. Historical and social factors temporarily opened or closed different kinds and modes of psychological inquiry: for example, the focus on private vs. public life or the focus on pragmatism and social utility selectively directs and guides psychologists toward different modes of interpreting their discipline, creating, de facto, different kinds of disciplines. This strong dependence on social, cultural and time factors somehow limited the scope of psychology, fragmenting it in many different expressions, bound to specific aspects of their social frames of reference. As a result, 'science becomes swallowed by society', in Jaan Valsiner's words (2006, p. 609). The psychologist Graham Richards shares the same basic ideas on the issue of the fragmentation in psychology. He maintains that psychology serves as an arena within which different groups of power negotiate different ways of "doing" psychology, each one including specific concerns about the nature and the resolution of psychological problems (Richards, 2002, p. 28). Here the focus is on the weakness of psychology as a science: rather than a science, in fact, it is described as a sort of coercion tool in service of society, without any coherence or common concern about objects of inquiry and methodologies. Even though this position is clearly questionable in its entirety, it is as much evident that within the discipline "the diversity directly relates to just such issues as what psychologists consider its [of psychology] aims to be, the methods appropriate to pursuing them, and even how they conceptualize its subject matter [...]" (2002, p. 28). In accordance with these authors, Cahan and White (1992) claim that the fragmentation of psychology has been a consequence of its application. When societies, American as well as European, repeatedly brought psychologists into consultation on questions of social interest, a heterogeneous set of enterprises tried to give an answer. This set of psychological interventions was the cradle of applied psychology, whose aim was to answer to social relevant questions. But the work of those psychologists was scattered, fragmented, often speculative. As the questions were understandably ill-formed – this often happens when dealing with questions coming from psychology's consumers (as seen above) – the answers were sketchy

and superficial. This scenario lead to an enlarging and fragmented body of research and practice that did not comfortably fit with experimental methodology and, in one way or another, constantly challenged it (Cahan & White, 1992, p. 231). Thus, psychologists were working in different contexts and trying to answer social questions with different models and approaches, often extemporary. The psychologist Sergio Salvatore (2006, p. 123) provides an interesting outlook by which to analyze psychologists' attempts to hook their knowledge to the real problems they were, and are, asked to solve in different social contexts. The Italian author maintains that the discipline tends to get its objects of interest directly from reality or, complementarily, tends to reify psychological constructs (see also Katzko, 2002, pp. 264-5). In other words, on one side, many branches of psychology are defined on the basis of the real object on which they ground their inquiry: Northern American social psychology, just to pick an example from Salvatore, deals with social objects as they are defined in everyday language. However, the psychological models used to describe and explain these objects refer to general psychological theories, as, for example, cognitivism. In this case, the object is "taken literally", it is not a psychological construct, that is an abstract and theoretically informed concept used to indicate aspects of the real object (as, on the contrary, in the case of Moscovici's social representation construct, just to remain in the field of social psychology). Another example can be provided with reference to the subdivision of psychology in different branches, which deals with the general tendency of the discipline to ground itself on specific real contexts of intervention and with its consequent progressive sectorialization. Here the term sectorialization does not refer to a conventional agreement about the features of a group of professionals that share a specific field of intervention. Rather, the sectorialization I am writing about, still following Salvatore (*ibidem*), understands the different psychological fields (school psychology, organization psychology, sport psychology, etc.) as autonomous area of psychology based on the adoption of peculiar objects and methods of inquiry (see also Sternberg & Grigorenko, 2003). Again, psychological branches so understood are based on real objects as intended by the common sense, not on psychological constructs, that are aspects of the object defined in theoretical terms. In other words, organizations, schools or sports fields are not areas constituted by phenomena characterized by psychological specificity (Salvatore, 2006, p. 124); the author says that what happens in those contexts is obviously of psychological interest, but it does not get psychological meaning for the fact that it happens in one specific context. To make an example pertaining school psychology, learning processes observed in schools are not different from the same kind of processes observed elsewhere, though some peculiarities can be detected. Or, the organization of a school does not follow peculiar rules for the fact that it pertains to school, but can be understood as a special case of a wider category of phenomena, e.g., organization processes.

These are examples of reification based on the object of inquiry, where an allegedly different area of psychology is merely justified by the reference to a real context; the psychological interest of this context, however, is not grounded in the context itself, but in certain psychological processes relevant to that context, whose study often crosses the boundaries of real contexts (is not context-specific).

Salvatore denotes another case, the tendency to reify psychological constructs. This tendency can be noticed in the case of developmental psychology. In the international literature, the concept of developmental psychology refers to the branch of psychology that deals with the construction of models that describe and explain psychological dimensions as processes. In Italy, for example, it is not used in the same way and its object is commonly considered to be a real phenomenon: the following of the different phases of life. In this case, development is not considered as a construct that specifies a point of view through which to analyze some aspects of the real object, but is considered as a real object, as intended by common sense.

From the point of view of fragmentation, the definition of psychology on the grounds of real objects as they are commonly understood, and not of theoretical constructs, is problematic for two reasons. One is theoretical: psychology and its concepts tend to be very similar to everyday language and this can be a hindrance to the construction of an autonomous and fertile discipline. Psychology may turn out to appear theoretically empty, grounding its knowledge on common sense. The second is pragmatic: the dependence on the contexts where psychology operates constrains the psychological interventions to the ways the common sense conceptualizes, or would conceptualize, those aspects of reality. No divergent thinking or competent behavior is possible if the conceptual tools that are used by psychologists are isomorphic with common sense concepts. As a consequence, the fruitfulness and appropriateness of the interventions turn to be poor and with small value.

In conclusion, the direct encounter of psychology with social, real problems had a crucial role in initiating the fragmentation process of the discipline, and still has, moving psychology away from the safe place of experimental methods. At the beginning of applied psychology, new and unknown phenomena called for psychological intervention. The trust in the psychological science progressively grew, producing social expectations that needed to be satisfied, in order to create and strengthen the credibility of psychology as a science. Though, the demands for psychological consultations were often vague and ill-formed and needed to be reformulated. The need for reformulation left room for a growing set of different theoretical and methodological ways of facing the problems to be solved. One of the most important tendencies within psychology has been to

conceptualize its objects as commonly understood objects, as real objects, in absence of strong theoretical perspectives. This approach progressively impoverished the social and scientific status of the discipline and hindered the development of strong cross-contexts theoretical outlooks . Another tendency, as seen above (Richards, 2002), has been to export, directly or indirectly, to the new fields of intervention techniques based on psychologists' identifications borrowed from other stronger professions. However, the blind transfer of techniques or theories sharpened in different settings or based on different competencies to the various social contexts revealed, once again, the theoretical and methodological poorness of psychology, when facing social relevant problems.

In other words, two different routes were followed to answer to the growing demand for a pragmatic and socially relevant psychology: facing new problems with old theories or facing new problems with no theories. Anyway, the outcome has been the same: fragmentation.

5.2 Psychology's Two Cultures

The scenario briefly sketched was just one of the most evident expression of the long-standing schism between an objective approach and an interpretative, humanistic approach to psychology. Driver-Linn maintains (2003, p. 270) that the two ways to study human beings have been developed for the reason that humans, on one side, are inherently social beings, and thus need to be considered in their subjectivity and, on the other side, humans are still part of nature, and consequently their study may profitably gain from an objective approach. In other words, the situation highlighted by Driver-Linn is but a reflection of the old dispute between those supporting a monistic methodology, claiming the legitimacy of an objective outlook on human beings, and those supporting a dualistic methodology, claiming the peculiarity of humans among the other natural objects. Thus, psychology has been going through these two different traditions, each one carrying different assumptions on what constitutes advance and progress: this can be identified as the first macro-level where fragmentation takes place. From this perspective, this internal disjunction, understood as the first step to fragmentation, constituted the cradle of psychological science. Such an original schism perpetuated when psychological demand progressively arouse (see previous paragraph). Gradually, two clusters of activity hardened: experimental psychology, usually developed and performed in academic settings, on one side, and problem-centered psychology, usually developed for social interventions, on the other (Bagnara et al., 1975, pp. 52-3; Cahan & White, 1992, p. 229). These two kinds of psychology seem to be divided at least by two large issues about the relevant data to be considered in psychological inquiries and the way to treat them: subjectivism versus objectivism and quantification versus qualification (Lundin, 1996, pp. 10-12). The objective and quantificational approach, strongly favored by experimentalists and academics, prioritizes data that

can be seen or measured directly, precisely and intersubjectively, that is in a way that can be shared by different subjects. The subjective and qualificational approach, favored by those working in problem-centered settings, prioritizes the inner, private experience of people, which can be only detected and studied through verbal reports. The two banks of the psychological river are so far, still today, that the psychologist Gregory Kimble refers to them as “psychology’s two cultures”, expression that gave the title to his famous 1984 article on *American Psychologist*. The author assumes that these conflicting cultures, understood as different ways to conceptualize the disciplines, its values and its methods, even exist among scholars of a single field, not only between those that deal with distinct areas of the discipline. The relevance of Kimble’s contribution is the empirical attitude of his position: after having assessed what previous writers have suggested to be the dimensions at the core of the conflicting ideas concerning psychology, the author identified 12 clusters of bipolar dimensions, each one expressing two opposing ends of continua. In general terms, the dimensions considered dealt with the debate between a monistic versus a pluralistic account of psychological events. Going into details, the scales were about (*ibidem*, p. 834):

1. Most important values (scientific vs. human). Related opposing ideas: increasing knowledge vs. improving human condition; methodological strength vs. relevance; obligation to apply vs. no such obligation.
2. Degree of lawfulness of behavior (determinism vs. indeterminism). Related opposing ideas: lawful vs. no lawful; understandable vs. incomprehensible; predictable vs. unpredictable; controllable vs. uncontrollable.
3. Source of basic knowledge (objectivism vs. intuitionism). Related opposing ideas: sense data vs. empathy; observation vs. self-report; operational definition vs. linguistic analysis; investigation vs. common sense.
4. Methodological strategy (data vs. theory). Related opposing ideas: investigation vs. interpretation; induction vs. deduction; evidence vs. argument.
5. Setting for discovery (laboratory vs. field). Related opposing ideas: experimentation vs. survey/case study; manipulation vs. naturalistic observation; hypothesis testing vs. correlation; control vs. realism; precision vs. ecological validity.
6. Temporal aspects of lawfulness (historical vs. ahistorical). Relating opposing ideas: developmental vs. descriptive approach; longitudinal vs. cross-sectional study.
7. Position on nature/nurture issue (heredity vs. environment). Relating opposing ideas: physiology vs. situation; biological vs. social science.

8. Generality of laws (nomothetic vs. idiographic). Relating opposing ideas: species general vs. species specificity; 'standard man' vs. individual uniqueness; universalism vs. contextualism.
9. Concreteness of concepts (hypothetical constructs vs. intervening variables). Relating opposing ideas: biological reality vs. abstract conception.
10. Level of analysis (elementism vs. holism). Relating opposing ideas: molecular vs. molar; part vs. whole.
11. Factor leading to action (cognition vs. affect). Relating opposing ideas: reason vs. emotion; thinking vs. motivation; intellect vs. impulse; rational vs. irrational.
12. Conception of organisms (reactivity vs. creativity). Relating opposing g ideas: automaticity vs. voluntary control; associationism vs. constructivism.

For each dimension, Kimble made a ten points differential scale. Each item consists of two parts: a pair of opposed statements followed by a summary of the conflicting ideas contained in the statements (see the 12 dimensions above). Subjects made their response on a ten points Likert scale indicating their personal degrees of endorsement of the position at stake. Three groups of subjects were considered by the author: undergraduate students (n=100) without previous training in psychology (no clues of psychology's two cultures were found), officers of APA (American Psychological Association) divisions (n=81), which are psychologists with important roles in the American psychological community, and general members of APA (n=164) who belonged to one of the considered divisions (3, Experimental; 9, Society for Psychological Study of Social Issues; 29, Psychotherapy; 32, Humanistic). The purpose of the author was to obtain data that would give a description of the two ways of understanding the discipline from the perspective of those who practice different kinds of psychology. The results of Kimble's study are very interesting: psychologists have significantly dissimilar opinions about the considered dimensions, differently from psychologically naïve people. In particular, as was expected, people with different opinions about central issue in psychology find their way into organizations where those values are dominant: experimentalists prioritize the objective side of the continuum, while psychotherapists the subjective side, for example. Though, if on the dimension of determinism/indeterminism all psychologists agree on determinism (the differences are in terms of extremeness of the position), on other issues the opinions greatly differs among the various scales. Psychology seems to be even more fragmented than expected:

“In the case of objectivism versus intuitionism, members of Division 9 [Social Issues, my note], who usually side with the humanists, are on the scientist end of the scale. In still another, data versus theory, the psychotherapists (Division 29) join the psychologists interested in social issues (Division 9) and take a stand opposed to that of experimentalists (Division 3), who are now in the same camp of the humanistic psychologists (Division 32)” (Kimble, 1984, p. 838).

The picture outlined displays an image of contemporary psychology as composed by different communities which work under different, often conflicting, conceptions of science (Yanchar & Slife, 1997, p. 236; Yanchar, 1997, pp. 151-2). The dimensions proposed, even though can be considered simplification of important issues in general philosophy of science, can effectively catch the opinions about the foundations and the features of psychology as it is envisaged by practitioners. As seen above, it is clear that those dimensions can be considered as expressions of long-standing, but central and still unsolved, issues at the basis of the conception of psychology as a science. Therefore, these are topics that have existed throughout the development of psychological theorizing and are still current today (Lundin, 1996, p. 9). But the origin of the schism don't deal only with the beginning and development of psychology: as was hinted in Chapter 1, it has deep roots in the controversial debate about the monist vs. pluralist view of social sciences. The crucial point, also for the case of psychology, is represented by those fundamental conceptual concerns that generated the schism and still feeds the fragmentation of psychology (Goertzen, 2008, p. 833-842).

5.3 Different Kinds of Fragmentation

The existence of psychology's two cultures can be considered as a disciplinary maneuver as well as an epistemological act (Stam, 2004, pp. 1259-60). While the latter option is quite clear, for the former option, the schism is an expression of different groups of power (see also Richards, 2002) and the strive for unification is basically oriented to the preservation of the institutional health of psychology. In fact, many authors are worried that the fragmentation detectable in the discipline would cause the loss of its status as an independent discipline (Yanchar & Slife, 1997, p. 237; Sternberg, 2005, p. 3) and the consequent institutional dissolution (Yanchar, 1997, pp. 152-3). This concern is effectively illustrated by the psychologist Stephen C. Yanchar (*ibidem*, p. 153):

“Psychology is in a unique position [...] because it not only consists of many competing theoretical perspectives and research programs, but also because it possesses no common definition or purpose that all psychologists may rally around. Rather, research programs and

discourse communities have become increasingly insular and parochial; they have become to drift away from psychology proper to affiliate more closely to sciences or scholarly enterprises that seem more similar to themselves than do other communities of psychologists.”

Such a perspective, which can be called institutional, highlights some interesting aspects of the fragmentation of psychology, that can also turn to be useful when considering the phenomenon from a proper epistemological standpoint. Here I will try to draw attention to those disciplinary/institutional aspects that I believe have some epistemological significance.

I will now mainly consider the proposal of the psychologist Robert J. Sternberg, whose role as past-president of the American Psychological Association (APA) pushed him to face the problem of fragmentation from a professional and institutional angle. For Sternberg and Grigorenko (2003, pp. 23-4) there are four bad habits among psychologists, which are responsible for the institutional fragmentation of psychology. The first one is the exclusive or almost exclusive reliance on a single methodology: psychologists are trained largely in the use of one or two methods. The training in a specific method involves a lot of time and researchers or professionals may seek to maximize the return of their investment (*ibidem*, p. 29), even when they come to see the flaws of their preferred methodology, or inadequacy in respect to the object of inquiry. This attitude may discourage the learning and the use of other methodologies and the selection of the objects of interest may be based on the method that is known, rather than on the specificity of the object itself. Consequently, psychologists can come to consider a single methodology as the best way to study a certain set of problems or phenomena. Though, this obviously involves methodological problems: every method have its disadvantages and permits to grasp some features of the objects from a specific, but limited, perspective. In fact, every method provides a sort of biased knowledge, whose biases are determined by the use of the method itself. From an institutional point of view, this habit creates and feeds fragmentation and incommunicability among psychologists using different methods: in other words, the use of a method becomes a norm that seems perfectly reasonable and beyond question to those who share it, but the norm may be considered otherwise by other psychologists working in other areas.

The second bad habit concerns the way the discipline and its scholars are identified: more in terms of psychological sub-disciplines (e.g., social, clinical, experimental psychology) rather than in terms of psychological phenomena studied. The point, here, is that dividing the discipline into traditional fields does not permit to unify it under the common interest on specific objects of inquiry.

Sternberg, in other words, thinks that psychology would be better organized around interesting phenomena to study (with different methodological devices), rather than on arbitrary fields of psychology (see also Robinson, 2007, p. 196). The implicit aim of such a situation, in Sternberg and Grigorenko's opinion (*ibidem*, p. 32), is to preserve the academic or professional traditional organization, a sort of status quo bounded to economic and didactic matters. The preservation of a disciplinary organization based on methods (e.g., experimental psychology) or broad and vague fields (e.g., clinical, development, evolutionary psychology) leads to the fragmentation of psychology and to a progressive isolation of its internal communities (Yanchar & Slife, 1997, p. 238), with the risk of leaving aside the study of important subject matters, around which Sternberg hopes a new psychology will arise.

The third and last psychologists' bad habit proposed by the authors is the adherence to a single paradigm, or frame theory, when investigating psychological phenomena (e.g., behaviorism, cognitivism, psychoanalysis) (*ibidem*, p. 24). These theories are considered as basic frame assumptions that impose the feasible objects of inquiry, the legitimate methods that must be used and a general account of the parts of the world that are interesting for the discipline of psychology, as is understood through the lens of that specific theory. Again, the existence of those incommensurable frame theories produces fragmentation within the psychologists' community. Sternberg evokes another source of disciplinary fragmentation: the science-practice split (2005, p. 5) or bifurcation (Yanchar & Slife, 1997, pp. 239-40). As we saw above, the scopes and the aims of the two components have often been conflicting, since from the origin of psychology, when those who were interested in experimental questions about mental functioning and those who were interested in clinical questions concerning psychopathology and therapeutic interventions (*ibidem*, p. 240) or social issues found themselves on different sides of the same river. Thus, as science (understood as academic psychology) and practice (understood as applied psychology) should naturally be linked, they also exhibit ideological and methodological differences that risk to undermine the unity of the discipline with respect to its scientific status and social utility. As Bertini et al. (1992) and Grasso, Conese, and Fucilli (1997) highlighted in two interesting researches carried out on the cultural representations of clinical psychologists in Italy, the practitioners points of view significantly differs from their academic colleagues in three main areas. First, practitioners usually define their practice around and from the context where they operate or from their typical users (see also Salvatore's proposal above for a critical remark). The reference to the theories or methods they use is subordinate, unlike those who devote themselves to science, for which the specification of the theoretical references and the methodological procedures have priority. Second, the practitioners see themselves as professionals whose aim is to operate in accordance with the

more or less explicit targets provided by the contexts where they work. Doing so, they seem to attribute priority on the dimension of 'action', often released from a specific theory that leads and guides a competent behavior. Hence, their work may undertake a general and nonspecific flavor, unlike academic settings, where every scientific enterprise should make its theoretical and methodological framework as clear as possible, with the aim of intersubjectivity and reproducibility. Third, practitioners do not have a strong attitude to the testing of their professional interventions: there is little agreement on the features and relevance of the verification of psychological interventions' outcomes (use of structured tests? Client satisfaction? Symptoms remission?) , unlike scientific settings, where the test of the hypotheses is a crucial moment. Roughly, the split between science and practice reflects those two cultures identified by Gregory Kimble (1984): on the scientific side, the main attitude involves the emphasis on objectivity, quantitative methods and on the priority attributed to the research activity over its possible application; on the practice side, the main attitude involves the emphasis on subjectivity, qualitative methods and on the priority attributed on application over research (i.e., research is justified by its possible or potential applications). In order to sum up Sternberg's proposal, there are four main disciplinary sources of fragmentation, which have not only institutional, but also epistemological relevance for the issue of the unity in psychology:

- The exclusive or almost exclusive reliance on a single methodology.
- The identification of the discipline and its scholars more in terms of psychological sub-disciplines rather than in terms of psychological phenomena of interest.
- The adherence to a single paradigm, or frame theory, when investigating psychological phenomena.
- The science-practice split.

Such an investigation picks the broader aspects of fragmentation in psychology, those that account for the disciplinary disunity of psychologists' professional community. But this has of course epistemological consequences: psychology's two cultures is also an epistemological act.

Going deeper in an attempt to analyze and to make sense of the diverse forms of psychology, the psychologist Joseph Rychlak evokes a principle of complementarity, in analogy with the famous Niels Bohr's double explanation of light's phenomena. Rychlak maintains that in physics the principle of complementarity provides for two coexisting explanations of findings that are valid, i.e. predictably reproducible in experimental settings (1993, p. 934). In other words, the principle is

conjured up and operates after the experimental evidences have been found and is useful in order to provide a complementary account of those paradoxical facts (*ibidem*). The case for psychology is not the same, though similar in some respects. In our discipline we do not have valid experimental findings (or data) that are so inexplicable as to require a complementary account, that is the presence of more coexisting and non reducible explanations of the same phenomenon. Rather, if psychology is to have a principle of complementarity, it operates before the proven fact occurs, as an aspect of the theorizing to be put to test in the first place. In other words, in Rychlak's view (1993, p. 935), the complementarity in psychology would refer to the existence of different theoretical frames that are not (apparently) reducible to each other but do indeed complement each other. These frames are sort of theoretical assumptions or backgrounds that lead and set the modes of empirical testing: in fact, "[...] when psychologists conduct an experiment, they are necessarily making a preliminary selection as to which grounding they will be using to conceptualize their findings" (*ibidem*). Anyhow, the theoretical grounds that are rejected are nor invalid or illegitimate, but, indeed, somehow complementary, even if irreducible to each other in principle. Grounding his proposal on a historical analysis, the author advances four kinds of broad theoretical assumptions on which to base psychological explanations. They are not to be rank ordered, as they are not reconcilable and capable of solitary application:

1. *Physikos*. The explanation grounds on material processes and doesn't recognize a difference between animate or inanimate objects.
2. *Bios*. The explanation grounds on processes like genetics and organic systems. As the author himself maintains, it is difficult to distinguish this level from the previous.
3. *Socius*. The explanation grounds on the analysis of subjects in terms of group relations and cultural influences.
4. *Logos*. The explanation grounds on concepts like mental acts or cognitive organization.

However, the distinction between those different theoretical assumptions doesn't seem to have definite boundaries and the content of each is vague. Consequently, it is not clear if each assumption deals with one or more specific theory/ies, if it has a specific methodological outlook or a definite anthropological view of the human beings and their functioning. More conceptual work has to be done in order to adequately define those assumptions, even though this approach seems to be useful because it prioritizes a theoretical evaluation in any kind of psychological research context. In fact, at an intuitive level, the analysis of the fragmentation suggested by Richlak can be useful in order to grasp the different souls animating the multi-sided body of psychology, beyond the two cultures considered above. The relevancy of this proposal consists in the emphasis put on

the need for a mutual consistency between theory and research: it suggests to critically evaluate the coherence of the theoretical ground at stake with the hypotheses to test and the ways the constructs proposed are operationalized (*ibidem*, p. 938). Every aspects must be coherent with the theoretical frame assumption that has been adopted. This would compel scholars and professionals to stay within one theoretical assumption and to make it explicit, making their discoveries more intersubjectively available.

Another interesting analysis of a source of psychology's disunity comes from the Dutch psychologist Michael W. Katzko, who attributes a central role to the way most psychological researches are conducted and interpreted (2002, p. 262). More specifically, the analysis of how scientific discoveries are illustrated by psychologists' papers may show something interesting for the issue at stake, as it is creating a critical proliferation of theoretical terms, which is, in the author's opinion, one of the main causes of fragmentation in psychology. In particular, he considers the rhetoric way to communicate results in scientific records as a reflection of "a social order embodying a [...] set of values" (*ibidem*, p. 263). In other words, finding regularities in the way researches are expounded entails patterns of implicit beliefs, goals and values that may contribute to the superficial fragmentation of psychology. Thus, for Katzko the problem has to be carefully faced, but it does not constitute a serious and substantial crisis for the discipline, as it deals with a non rigorous way to illustrate the process of hypotheses testing. Nevertheless, we will see that this problem seems to hide a more substantial topic of vast epistemic relevance. Such a problem, in Katzko's terminology, is called the uniqueness assumption (p. 263). Such an implicit assumption can be detected in many psychological researches, as Katzko illustrates with many examples, and involves an interpretation of the values of the dependent variables as they "are caused by one and only one psychological factor" (p. 263). In other words, the uniqueness assumption establishes a terminological equivalence between the experimental design language and the theoretical language (p. 264). Thus, the theory turns out not to be conceived as a possible interpretation of the gathered data, but as the evidence of the correctness of the theory itself: "the actual data – the relations between dependent and independent variables – were transformed into a terminology specific to the variables in question and then rhetorically presented as a theory that explained the data" (p. 264). The empirical regularity, ascertained through observation, is thus reified into an independent theoretical language (see also Robinson, 2007, p. 191): the distinction between observational language and theoretical language rhetorically disappear and they turn out to be considered as equivalent. The problem, as Salvatore already noticed, deals with the distinction between data, which can be considered as measures of specific aspects of the reality, and theoretical constructs, which are non observable abstract concepts indicating organized psychological units (Pedon &

Gnisci, 2004, p. 139) in theoretical terms. In other words, for Katzko researchers tend to reify observations into theoretical entities or relations (Katzko, 1993, p. 265; Robinson, 2007, p. 191): in other words, for every observation a new theory is needed. But, it is worth noting to remember that the distinction between data and theory has to be rigorously respected, otherwise every data gathering, by means of experimental procedures as well as by means of other research devices, may push the scientist to incorrectly introduce a new theory, which is clearly not always the case (Goertzen, 2008, p. 836): “another experimenter, manipulating a different set of variables and using the uniqueness assumption to explain the data, will by definition create a theory different from the first. The seed is now sown for a proliferation of mutually exclusive theoretical terminologies” (Katzko, 1993, p. 265; see also Henriques & Sternberg, 2004, p. 1052). The problematic nature of the uniqueness assumption stems from the fact that the empirical data are considered as part of the theory to be tested, i.e., data are not considered as independent evidence, but, precisely, part of the theory itself. As the philosopher Peter Kosso (1992) asserts, the relationship between data and theory need not to be circular (as those who implicitly use the uniqueness assumption suggest) as the data should not be examined by the same theory that has to be tested:

“this circle-blocking independence is a measure of objectivity of the evidence and of the process of justification. Independence evidence is outside of the influence of the particular theory it serves, though it is still within the theoretical system of science. It is internal, as it must be, in the latter sense, though external of the particular claims it tests” (*ibidem*, p. 158).

In other words, the circularity between the data (gathered with the aim to test the theory at stake) and the theory to be tested is only apparent. In fact, the solution is that the theory to be tested be different from the theory used to examine and ascertain the empirical data:

“The benefits of independence can be further appreciated by considering our own human perceptual system. We consider our senses to be independent to some degree when we use one of them to check another. If I am uncertain whether what I see is a hallucination or real fire, it is a less convincing test simply to look again than it is to hold out my hand and feel the heat. The independent account is the more reliable because it is less likely that a systematic error will infect both systems than that one system will be flawed” (p. 156).

Therefore, the uniqueness assumption seems to express a substantial epistemic flaw to which psychologists are often subject to, not only a rhetoric flaw. The fact that the data and the

corresponding theory are considered as equivalent has obviously consequences: first, whenever a theory is rejected for some reason, the data are dismissed along with the associated theory or method. But if the data are dismissed, so are important links between variables which may need alternative theoretical interpretations. Second, and consequently, in this way psychological research risks to progressively loose segments of reality which might be properly explained. Third, incommensurable theoretical claims proliferate as many as different research designs one may imagine, and this phenomenon does nothing but feed the process of fragmentation.

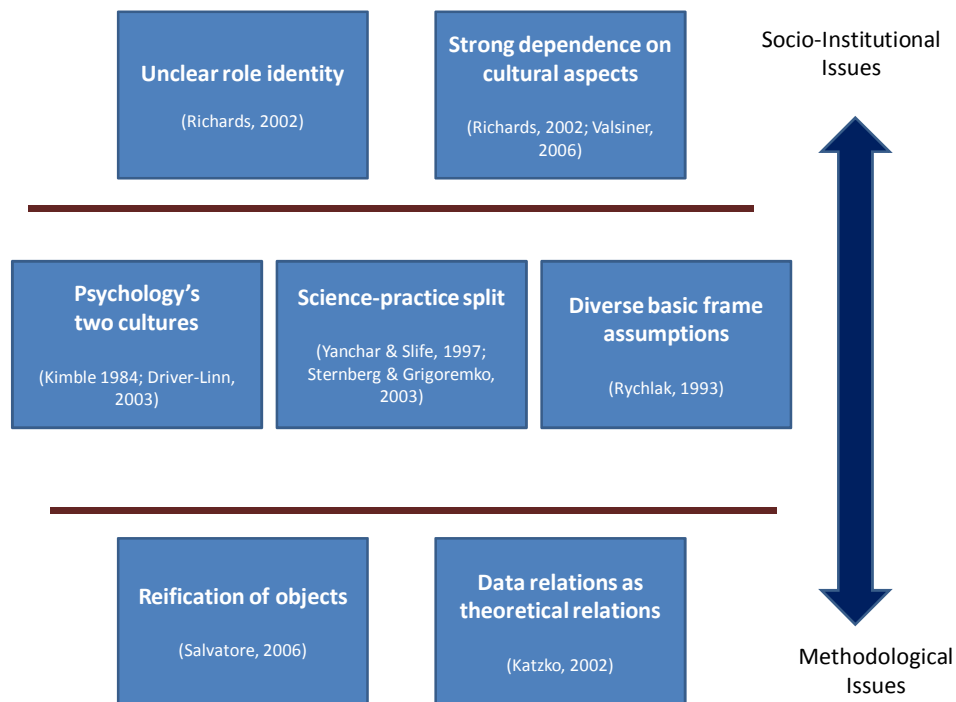


Fig. 5.1

In conclusion, there seem to be several aspects of disunity in psychology, depending on the perspective one looks at the discipline. The model presented in fig. 1 summarizes the topics that showed up in the previous analysis, setting them at different levels of psychology as a discipline. We can find a certain amount of fragmentation at every level, from socio-institutional issues – related to the shape and the functions of psychology in the society – to methodological issues – related to the way the discipline develops its knowledge in a scientifically sound way. All these aspects contribute to a fragmented view of psychology, both on a social-institutional level – psychology as a discipline with social aims – and on a scientific level – psychology as a science.

Part 3

6. Five Proposals of Unification for Psychology

In front of a situation as the one that has been described in Chapter 5, the need for a unified frame in psychology has been felt among some philosophically-oriented psychologists. Besides the issues already considered, the reasons given for the necessity to give psychology a more coherent shape are many and of different nature. Some of the authors whose proposals will be considered here maintains that fragmentation involves the impossibility to communicate between scientists (Kimble, 1996; Staats, 1996), creating confusion and disagreement about fundamental issues (Enriques, 2011). Moreover, the current content of psychological science is considered to be not organized in a way that turns out to be functional to the development of new knowledge (Staats, 1996), creating problems among those practicing the professional as well as the scientific side of the discipline (Sternberg, 2005). These and others reasons, that will be analyzed later in more detail, brought some psychologists to measure themselves with the task of proposing a unified approach to psychology. In this section, I will take into account five attempts to develop a unified outlook for psychology, whose roots and approaches are very different, as will be evident. Gregory Kimble's *Functional Behaviorism* (1996) and Arthur Staats' *Psychological Behaviorism* (1996) both ground their proposals on the behavioristic tradition. Norman Anderson's *Information Integration Theory* (IIT) (2008) is derived from the cognitive psychology tradition and the information processing theory. Gregg Henriques' *Tree of Knowledge* (ToK) System (2011) is a sort of meta-theory that eclectically frames concepts from different theories and research programs. Finally, Robert Sternberg and colleagues' proposal of *Unified Psychology* (2003), starting from methodological and theoretical issue, deals with practical and institutional problems of organization in psychology, considered both as a science and as a profession.

Each proposal will be first discussed in its descriptive characters, then some critical remarks will be added at the end of each.

7. Gregory Kimble's Functional Behaviorism

In his 1996 book, *Psychology: The Hope of a Science*, Gregory Kimble intends to reach the goal of the unification of psychology from a radical behavioristic perspective. On the trail of Newton's laws of motion (Kimble, 1996, p. ix), the author tries to portrait psychology's contour on the basis of relatively few theoretical principles. These principles have the aim to hold the field together (*ibidem*, p. 39) and to face the fragmentation that plagues psychology and divides it in different areas. These very general principles, which have the virtue to be able to be applied across the

boundaries of psychology's traditional narrow specialties, share some crucial assumptions (*ibidem*, p. x). First of all, the behavior of organism is the product of evolution. This hypothesis involves that psychology's laws must apply across a range of animal species, considering psychology a scientific discipline whose aim is to explain different animal and human phenomena which share very general features. Second, the evolution of behavior is considered part of the organic evolution; consequently, the laws of psychology must be compatible with those of biology. Third, behavior evolves in a consistent manner with biological facts, so it has to aim at adaptation to the surrounding environment, as biological evolution do. The approach holding these assumptions is called functional behaviorism (*ibidem*, p. 39). The term behaviorism is necessary because it recognizes the criteria that psychology must meet in order to be considered an empirical science²³; the functionalist perspective acknowledges that behavior is the product of evolution through the interaction with the environment. As those general features suggest, the object of psychology is animal and human behavior and its goal is to maximize the orderliness of the knowledge concerning the object. Scientific laws are primary means to get this order, describing the connection between the independent and the dependents variables (*ibidem*, p. 10, 11). The first kind of psychological law Kimble takes into account is Type-1 law, which has the following general form:

Independent variable → L1 → Dependent variable

L1 refers to Type-1 laws, which take two different forms. The first kind of laws, Type-S²⁴ laws, relates responses (dependent variables) to the stimulus or stimuli (independent variable) that triggered them:

Stimulus/i → Type-S law (L1) → Response

The second kind of Type-1 laws are Type-P²⁵ laws, which relate behavior (response, dependent variable) with properties, characteristics or attributes of organisms:

Property of an organism → Type-P law (L1) → Response

²³ More about this issue will be said in the next paragraph.

²⁴ S stands for "stimulus".

²⁵ P stands for "properties".

If Type-S laws are described as stimulus-response laws, Type-P laws can be qualified as response-response laws, because they describe the connection between two measures of behavior. For example, looking at the diagram above, we can consider as an independent variable the performance to an intelligence test (say, the WAIS-IV), which is a form of behavior²⁶. On the dependent variable side, we can consider the performance of the subject at school, which is also a behavior. In this sense, this kind of laws connects behaviors to other behaviors.

These two Type-1 laws displays different outlooks on the subject's behavior. Type-S laws deals with the experimental manipulation of variables in order to explore the relationships of behavior to conditions which can be changed by the experimenter's will. This approach seeks for commonalities in behavior, searching for those aspects that are universally shared. On the other side, by connecting behaviors with other kinds of behavior and establishing a correlation between them, Type-P laws concentrates on individual differences (*ibidem*, p. 12).

The other two kinds of laws postulated by the author are Type-2 and Type-3 laws, which concern intervening variables, that are variables positioned in between the independent and the dependent variable. In particular, Type-2 laws (L2) connects intervening variables to independent variables, while Type-3 laws (L3) connects intervening variables to dependent variables, according to the diagram below:

Independent variable → L2 → Intervening variable → L3 → Dependent variable

As stated before, the independent variable in the diagram can be an environmental stimulus (as in Type-S laws) or a measure of the subject's behavior (as in Type-P laws). Through a William James' quotation, Kimble seems to identify intervening variables with mental life and mentalistic concepts (*ibidem*, p. 21). Intervening variables, in his view, are mentalistic concept as intelligence, style of parenting, stress, or imagery, just to quote some of the author's examples (*ibidem*, p. 20). In fact, he maintains that these kinds of concepts can be considered acceptable only if they are somehow linked to observable events. In other terms, in order to be considered worthy of scientific consideration, these concepts need operational definitions which give them a meaning that is based on public observation (*ibidem*, p. 23). This is clear from the following diagram, which is a variation of the former:

²⁶ In a broad sense, behavior can be defined as an organism's activities in response to external or internal stimuli (APA, 2007).

Environmental conditions/

Property of an organism → L2 → Concept → L3 → Behavior

In this perspective, concepts assumes scientific acceptability according to a “bottom-line criterion” (*ibidem*, p. 25), which means that they acquire their scientific meaning in virtue of their traceability to “thing-level operations” (*ibidem*).

Within the frame provided by the Type-1, 2 and 3 laws, the core of Kimble’s proposal is represented by the five hypotheses that he presents as “psychology’s equivalent of Newton’s laws of motion” (*ibidem*, p. 42). In the author’s view, these hypotheses are “common and time-honored Western ways of thinking – the salient landmarks of the intellectual environment in which the sciences have been evolving for millennia” (*ibidem*, p. 43).

Now, let’s consider the main features of Kimble’s proposal. Hypothesis 1 states that behavior is the joint product of potentials and instigations. Potentials are characteristics of individuals that may or may not gain expression, depending on the situation. Instigations are internal or external factors that trigger or suppress potentials. In other words, there are potentials that can be activated or suppressed on the basis of environmental contingent circumstances. This is a very general principle that can be applied “from action potential of the single neuron to pathological reactions brought on by stress” (*ibidem*, p. 54).

Hypothesis 2 describes the two ways of dealing with different kinds of environmental events. Behavior is a blend of adaptation and coping. Adaptation happens when the organism faces events that cannot be controlled or modified. In this sort of situations, individuals try to change themselves to meet the demands of the environment. Conversely, when environmental control is possible, individuals try to change the world in order to satisfy their own needs; this form of adjustment is called coping. As in the case of hypothesis 1, examples of these two adjustment strategies can be picked out from a variety of topics in psychology²⁷ (*ibidem*, p. 70).

Hypothesis 3 asserts that behavior happens when instigation raise a potential (see hypothesis 1) to a specific threshold. The concept of threshold expresses the non linear character of biological organisms’ behavior: lesser instigations may have effects in order to produce the behavior, but they stay latent until the “fatal” instigation brings them to a threshold. This would explain why most of

²⁷ Is it interesting to note that Kimble maintains that experiments on classical and operant conditioning are laboratory realizations of this principle. In fact, in classical conditioning, the organism learn to adapt (adaptation). In operant conditioning, conversely, the organism acquire strategies that favor the positive and lessen the negative (coping) (Kimble, 1996, p. 57).

the times a potential is apparently triggered by a certain instigation in an on/off mode. This hypothesis accounts for those behaviors that happens as a result of the gradual accumulation of smaller factors (*ibidem*, p. 104), which are very common in the psychological literature.

Hypothesis 4 maintains that behavior is under the control of two opposing processes, excitation and inhibition. These processes are bound in a mutual relationship, because excitation elicits inhibition, while inhibition involves excitation. Moreover, their interaction is adjusted by a subtractive way: inhibition lessens excitation, and vice versa. In the author's view, excitation and inhibition occur in contexts that cover the entire spectrum of psychological adjustment, from attentional processes, reflexes, sensory processes and perception to conditioning, affects and the functioning of civilized societies (*ibidem*, pp. 43, 74, 75).

In conclusion, hypothesis 5 assumes that behavior is operated through a hierarchical organization. This means that the majority of psychological events, from neural processes to verbal or social phenomena, are organized in elementary chunks methodically included in an arranged structure. As mentioned before, Kimble's hypotheses have a general scope of application through the variety of psychological fields, covering the domains of cognition, affects and reaction tendencies (*ibidem*, p. x), from which he provided many examples throughout the book. As Newton's laws of motion, the author hypothesizes, in the outline of Type 1, 2 and 3 laws, should provide a general frame for psychology considered as a scientific endeavor.

7.1 Which Kind of Psychology for Gregory Kimble's Functional Behaviorism?

Gregory Kimble's hope, as expressed in the title of his book, is that the principles he proposes may offer the basis on which psychology may finally be unified and considered a science. From his perspective, psychology is a natural science, and, as every natural science, it "must obey to rules of science: it must be deterministic, empirical, and analytic" (*ibidem*, p. ix). It must also be a behavioral psychology, because sciences "are about observable reality" (*ibidem*). From this point of view, psychology has to espouse the hallmarks of the scientific inquiry: first, it must be empirical, in the sense that it advances through observations rather than through intuition or authority. This leads Kimble to exclude from the psychological inquiry the analysis of subjective data, which are considered to be misleading as they "mistakes private truth for public truth" (*ibidem*, p. 2). In other words, in order to consider psychological knowledge as scientific – and Kimble admits that there are other available methods, with different criteria of truth, to understand behavior – it must be traced back to public observable facts. This approach is evidently rooted in the monistic tradition, which states that every discipline must support its statements in the same way: deriving from them

empirical implications that can be checked intersubjectively, and tracing back private facts to public observable facts (see Chapter 1; Hempel, 1969/2001, p. 269). This methodological option is explicitly aimed at earning scientific credentials for psychology, as the author thinks that the consideration of private, or subjective, phenomena necessarily brings psychology to drift due to the confusion of psychology with common sense (*ibidem*, p. 3). Considering what Hempel said, this is a quite puzzling position, because the methodological core of monism asserts that the nature of understanding is basically the same in all areas of science (Hempel, 1962/2011, p. 295), therefore private phenomena can be in principle objects of psychological inquiry, providing that knowledge be intersubjective and traceable to empirical facts. Here, Kimble seems to connect the use of the empirical method to the solely analysis of public facts, excluding the possibility to study private facts by means of operationalism, which is the individuation of empirically reliable (observable and measurable) data that can be intersubjectively checked and that empirically define the private fact at stake²⁸. This can be seen as a limit of the author's approach, which involves the exclusion of interesting psychological issues, which are not in principle out of the methodological realm in which functional behaviorism developed²⁹.

Another requirement that permits to consider psychology as a science is elementism, the principle by which phenomena are to be reduced to components, instead of accepting them at face value as wholes. This position is coherent with the previous assertion that psychology is different from common sense and supports an analytical approach to the world. This is consistent with the syntactic perspective adopted by the Neo-positivistic tradition and Hempel (1962/2001), who maintains that in principle the contents of experience, which he called "pragmatic aspects", are non-pragmatic in character, because they are considered to be solely concerned with the logical and systematic aspects of experience (see Chapter 1, p. 8). In other words, reality can be resolved into its elements, whose analytic consideration is a fundamental aspect of the scientific method. The level of psychological explanation is highly abstract: for Kimble, psychology is distant from the content of experience (i.e., the content of behavior), which it ignores, and is interested in the

²⁸ Private facts can't be ignored, at least because they are observable (verbal) reports. The problem, as indicated by the Italian philosopher Umberto Curi (1973) in his comment on Bridgman's operationalism, is the choice of the method by which to reliably analyze those facts.

²⁹ It must be said that often the behavioristic tradition, just because is rightly considered to be derived from the Positivistic tradition, supported the idea that psychology must exclude subjective facts because they are not observable and measurable. Psychology, as an empirical science, must deal with observable behaviors. Though, in the light of a deeper look into the Neo-positivistic position (see Hempel in Chapter 1), this assumption is not completely justified: human and natural events can be treated as they are basically the same. The study of the former is less problematic because the inquirer can directly observe the phenomena; the study of the latter imposes to detect observable data which provide information about private (i.e., non directly observable) phenomena. Thus, the method doesn't impose a specific kind of objects, it prescribe to solely consider the empirical and operational aspects of the object at stake.

general, systematic aspects of human conduct. This is consistent with the position of Rudolf Carnap (1961, p. 95), who maintains that science must deal with the description of the structure of an event, which is the whole of formal relations that constitute the event itself. Accordingly, the language Kimble uses is focused on the relation between the constituents of the considered psychological field, while ignoring those properties of the field that can be considered superficial or contingent (see Chapter 3).

But how those elements, considered in their syntactic, formal features, turn out to be mutually linked? The answer is in the principle of determinism supported by Kimble, which “requires a treatment of behavior and experience as events with natural causes, instead of manifestations of God’s purposes or individual free will” (Kimble, 1996, p. 1). Also this principle is consistent with a monistic view of science, which depicts a world governed by general laws, to which both humans and material objects obey. Accordingly to the general outlook of functional behaviorism, there is no room for purposiveness or concepts such as intentions, goals, desires or opinions. Despite his rather formal adherence to a monistic, i.e., deterministic, perspective, Kimble’s proposal explicitly tries to bridge the rift between the so called nomothetic and idiographic traditions. As already considered, he maintains that individuals’ behavior obey a set of common general laws, whose existence permits to treat human behavior in a scientific way. On the other side, the author attributes great importance to the role of the environment (as is clear from his five hypotheses) in modeling individual behaviors, in line with the behavioristic tradition. In particular, he affirms that the inevitable uniqueness of behaviors is due to the variety of contexts in which the general laws operate: this variety is responsible of the observable diversity of individual behaviors, in spite of the limitedness of the set of laws which govern them³⁰.

The picture that emerges from Kimble’s proposal offers an image of psychology as a way to study human and animal behavior – between which there is continuity – via the methodological devices of traditional sciences, in particular physics³¹. As we saw above, the reason of this is to obtain scientific credentials for psychology, through its methodological identification with more “mature” and solid sciences. This leads to the focus on methodological issues, while neglecting issues about

³⁰ This position seems to be not so articulated as Hempel’s one, who sustains that, despite appearances, every event can be in principle reconstructed on the basis of general laws and that uniqueness is only apparent (1962/2001, p. 281; see Chapter 1, p. 8-9).

³¹ This seems to be quite evident at the very beginning of the author’s work, where he declares that he modeled his scientific psychology on Newton’s laws of motion. Further, he noticed that “one of the ambitions of the science of psychology is to express its (...) laws numerically” (Kimble, 1996, p. 22), without providing any explicit argument that justifies this kind of ambition.

the problem of the object of psychology. In fact, in the author's view, psychology generically deals with behavior, both human and animal. But there is another scientific discipline that deals with human and animal behavior, namely biology, wherewith psychology must be compatible, in Kimble's opinion. The author says that this would not lead to reductionism, the claim that the laws of psychology must be translatabe into those of biology. Yet, the two kinds of laws must not mutually conflict (*ibidem*, p. 40). In the light of these claims, however, it is not clear why "the most comfortable concepts for psychology are grounded in biology" (*ibidem*, p. 31), referring to colors vision processes, chromosomal processes and language disorders caused by brain injuries. Doesn't this sort of assertions prelude to the possibility of reducing psychological concepts into "most comfortable" biological concepts and mechanisms? The search for scientific methodological credentials seems to obscure the problem of the existence of a proper and autonomous psychological level of explanation. Moreover, Kimble is not explicit in affirming whether the relation between psychology and biology is understood on linguistic grounds (a matter of relations between components of different theoretical perspectives, connected by syntactic and formal aspects) or on ontological grounds (a matter of existence of qualitatively different or identical kinds of entities). However, it can be inferred that the relation between the two scientific disciplines is understood to be grounded on linguistic, rather than on ontological, elements, accordingly to the theoretical and methodological background of functional behaviorism (see Chapter 4 for more details).

In conclusion, it is worth noting that the author, in line with other interpretations of it, sees the state of fragmentation of psychology as a consequence of its rough and sketchy application in different and narrow contexts (see Chapter 5; Cahan & White, 1992). This kind of application historically hindered serious theoretical remarks about the relationships between theory and practice, i.e., the ways psychological knowledge can be applied to practical, real problems. Even though he denotes this to be the primary cause of psychological fragmentation, Kimble excludes from his proposal the professional, applied side of the discipline. In this way, a picture of psychology as a scientific, academic discipline emerges, whose only aim is to properly describe human and animal behavior in its general features. The modes of application of psychological knowledge are left to the professional, as a direct and unproblematic derivation of this knowledge itself. In other terms, Kimble recognizes the importance of the connection between theoretical knowledge and professional practice for the issue of the fragmentation in psychology, but his proposal seems to forget the problematic character of the issue, confining it to the common sense of professional psychologists.

8. Arthur Staats' Psychological Behaviorism

The aim of psychological behaviorism is to behaviorize psychology, on one side, and to psychologize behaviorism (Staats, 1996, p. 13), on the other, in order to unify psychology under the methodological approach of a modified behaviorism. In other terms, the methodological landmark of this proposal consists in making behavior analyses of phenomena whose main features are already been studied by traditional psychology³². Psychological behaviorism (PB), whose features are systematically illustrated Staats' book *Behavior and Personality. Psychological Behaviorism* (1996), attributes great importance to the process of learning in human behavior explanation. In order to do that, PB prescribes to analyze behaviors in a detailed manner and to focus not only on the principles of learning, but also on the conditions under which learning takes place. PB considers the principles of learning as basic in the acquisition of complex human behaviors (*ibidem*, p. 37); though, for a comprehensive understanding of it, we need to move from the study of elementary principles in artificial simple situations, to the study of more elaborate behaviors carried out in naturalistic situations (*ibidem*, p. 75). The core of PB is the three-function learning theory, which is centered on the nature of the different functions a stimulus can have; the basic conception is that stimuli can have multiple functions. In this frame, PB mainly defines what are traditionally called "reinforcer stimuli" as those stimuli that are able to elicit an emotional response, contrarily to traditional behaviorism³³. Emotional responses are elicited, through classical conditioning, by stimuli that are biologically important to the organism, namely functional for its survival: this is "the essential behavioral reason why emotions are important" (*ibidem*, p. 41). As we will soon see, the reason why we feel emotions is that they permits us to learn adaptive behaviors in different circumstances. In fact, if a stimulus is able to elicit an emotional response, positive or negative, that will also strengthen or weaken the following behavior, serving as a reinforcer: the stronger the emotional response elicited by a stimulus, the stronger the reinforcing function of that very stimulus. Thus, the emotional value of a stimulus is logically different from its reinforcing value, though the two are deeply related. The third function of a stimulus, beside the emotional function and the reinforcing function, is the incentive function of a stimulus. This function entails that when a positive emotional stimulus is presented, the organism will approach the stimulus; when a negative emotional stimulus is presented, it will avoid the stimulus. The incentive function indicates

³² More on this issue will be discussed in the next paragraph.

³³ In operant conditioning, the reinforcement is the process in which the frequency or the probability of a response is increased by a dependent relationship, or contingency, with a stimulus or circumstance (the reinforcer) (APA, 2007).

which kind of basic behavior, approach or avoidance³⁴, will be elicited by the nature of the stimulus. Using the author's words (*ibidem*, p. 42):

“It is important that incentive (...) power be distinguished from reinforcing power. In reinforcement, the stimulus is presented following any motor behavior, and has a strengthening effect on the behavior for future occasion. The incentive function, in contrast, occurs when the stimulus is presented first and then elicits or brings on a particular behavior in that situation.”

To sum up, every stimulus which has an emotional aspect have three functions:

1. It elicit an emotional response, positive or negative (*emotional function*).
2. Can act as a reinforcer for future behavior, when presented contingent on a behavior (*reinforcing function*).
3. It is able to direct the organism's conduct, producing approach (positive emotional stimulus) or avoidance behaviors (negative emotional stimulus) (*incentive function*).

Therefore, the emotional dimension of the stimulus is basic in Staats' proposal: the connection between this function and the reinforcing function is determined by biological needs. But the third function – stimuli elicit approach or avoidance behavior – is learned. To illustrate this point (*ibidem*, p. 48),

“suppose that the sight of an apple on a table elicits a positive emotional response in a hungry child. It is also the case that approaching, grasping, and biting the apple will yield reinforcement to the child. [...] When the child is reinforced for approaching the apple, the child has also been reinforced for approaching a stimulus that elicit a positive emotional response. Through this experience the child will learn an association between the stimulus of the positive emotional response and an approach behavior [...].”

Once generalized, this mechanism will be applied to any stimulus that elicit a positive, or negative, emotional response. But what may happen if the stimulus doesn't possess biological relevance, that is it doesn't originally elicit an emotional response? Indeed, just few stimuli have biological relevance (for example, those relating to food, danger, sex). Biologically (and hence emotionally)

³⁴ These two basic behaviors are considered to be the main modes of human behavior.

neutral stimuli acquire an emotional relevance through high-order classical conditioning. High-order classical conditioning is when a conditioned stimulus – which is a stimulus that previously acquired an emotional value – is used as the unconditioned stimulus in order to produce conditioning to a new stimulus³⁵ (*ibidem*, pp. 76-7). This can be defined as a kind of vicarious learning, not dependent upon the occurrence of biologically significant stimuli. This is the procedure through which any environmental stimulus can acquire an emotional relevance and consequently can be considered through the lens of the three-function learning theory. In this perspective, the theory can be considered as a general frame where classical and operant conditioning are linked together and account for different aspects of learning processes. In particular, classical conditioning accounts for the emotional function (a stimulus elicit a response), while operant conditioning for the reinforcing function (a stimulus presented after a specific behavior will strengthen or weaken that behavior). Together they account for the generalization of the emotional value to neutral stimuli and the learning of the incentive values of the stimuli. Moreover, the three-function learning theory operates consistently with a set of secondary principles – as extinction, generalization, discrimination, intermitting conditioning, motivation – that are consistent with the traditional research on behavioral and learning processes (see *ibidem*, p. 54-7). Thus, this frame is presented as being able to explain all basic learning processes that occur in human behavior.

In the author's view, the three-function learning theory is also the basis to understand the primary level of cognitive processes, through the notion of image (*ibidem*, p. 65). In a nutshell, sensations – what individuals experience – are considered as responses that produce other sensory processes in the organism. Considering sensations as responses means that they can be learned and that an organism can be conditioned to have a sensory response, even in the absence of a sensory stimulus. This sort of sensory responses, which are elicited, through conditioning, in the absence of a sensory stimulus, can be called images. Images are the basic level of human cognition and can be explained through classical and operant conditioning, within the frame of the three-function learning theory.

Through the processes of classical and operant conditioning, human beings learn complex combinations of stimuli and response, and not rarely a stimulus is able to elicit multiple responses. If they are mutually compatible, they all can occur, but if they don't, it will occur the one that is more strongly learned in that specific situation. This consideration leads to the principle of cumulative hierarchical learning, the notion according to which the available responses to

³⁵ High-order conditioning is essentially human and is a central differentiation of the species from lower animal (Staats, 1996, p. 77).

environmental situations are hierarchically organized through continuous learning³⁶. The author maintains that humans acquire multiple basic response repertoires, which are the bricks that constitute human cognition. In other words, the proper development of each repertoire permit to acquire other repertoires, whose learning can be properly achieved only on the basis of the development of the former. This general architecture of human cognition is based on the notion of basic behavioral repertoire (BBR); it was conceived through the detailed study of three BBRs, those regarding language, emotion and sensory-motor skills (*ibidem*, pp. 81-94), which are considered to be central in the adequate development of individuals. A BBR is a complex system of stimuli that are able to elicit emotional responses, and will also serve as reinforcing and directive stimuli (consistently with the three-function learning theory). Not every behavioral repertoire is basic; to be a BBR, a repertoire must have some features, as being the foundation for learning other repertoires, widely affecting the individual's experience or providing her with elements that are useful in a variety of life situation³⁷ (*ibidem*, p. 156). At first, child's BBRs are simple and composed of relatively few elements; then development consists in learning additional elements in previous acquired BBRs, in order to develop higher order BBRs. In this perspective, BBRs can be considered as the universe of potential behaviors an individual has learned and they provide continuity and consistency in the individual's experience. In fact, the behavior displayed in a specific situation is a function of those potential behaviors at disposal and the characteristics of the present situation. More precisely, the distal environment accounts for the learning, occurred in the past, of the potential behaviors at disposal (BBRs), while the proximal environment, the one that causes a specific behavior, constitutes the present eliciting factor for the behavior that is displayed (*ibidem*, p. 187-8). From this point of view, individual differences – under the form of BBRs – are preserved, as well as is preserved the importance of the environment in eliciting behaviors, accordingly to the behavioristic tradition.

As we have already seen, one central point in Staats theory is that individual's behavior has its determinants in emotional reactions that has been learned. In this sense, people represent an important class of stimuli in everyday social interaction; their physical and behavioral characteristics have emotional value for us and can be properly understood through the three-function learning theory (*ibidem*, p. 119). This leads to the unification of social phenomena explanation under the aegis of the same methodological umbrella. According to the author, the

³⁶ In the author's view, this process account for individual differences between subjects (*ibidem*, pp. 78, 158).

³⁷ The child's world changes as a function of age, and whether the child will be adjusted or not will depend on whether the child has the relevant BBRs (Staats, 1996, p. 157).

general principle is that individuals ordinarily learn repertoires of responses with respect to the classes of social stimuli. This is important to understand both social interaction and children development, which occurs within a specific social situation where parents and child interact, and thus can be considered a special form of social interaction. In this context, children usually learn a strong positive emotional response to their parents, so they become strong sources of reinforcement in the training of their children and in the acquisition of BBRs. The repetition of positive conditioning trials produces a very strong positive emotional response to each other, attracting approaching behavior and developing what we ordinarily call love bond (*ibidem*, p. 163). This is an example of how human beings can be considered as emotional stimuli within social interactions and thus have reinforcing and incentive values. This is the landmark of the author's unification approach to children development and social phenomena.

In its task to behaviorize psychology, PB doesn't refuse to analyze the notion of personality – as behaviorism did –, for it is one of the most important construct in traditional psychology. In the PB frame, personality features are constituted by the individual BBRs, that is by the learned individual ways to address different kinds of environment (*ibidem*, p. 176). In other words, the subject's environment up to the present results in the learning of individual BBRs and present behavior turns out to be a function of the specific circumstance (life situation) and the individual BBRs. Therefore, there are two sources of individual variability: personality (acquired BBRs) and environment. In this perspective, personality is evidently composed of specifiable BBRs. Thus, personality is formed by stimulus-responses constellations (*ibidem*, p. 193) that cannot be conceived as intervening variables. Rather, they can be considered as dependent as well as independent variables: they are the result of learning, so they are dependent variables, but they also are independent variables, as they act as causes of human behavior. In Staats' perspective, this double soul of personality (as a system of BBRs) is able to resolve, in a unified manner, the schism between those refusing the concept of personality – considering it only as behavior, thus as a dependent variable – and those supporting a view of personality as a cause of behavior, hence as an independent variable. Within this frame, which is the role of biology? For Staats, the mechanisms responsible for sensing, learning and performing behavior are biologically determined, but they doesn't play a role in explaining particular behaviors or traits of behaviors (*ibidem*, p. 181). Rather, biological factor mediates in many ways the learning and the production of present behavior. More in details, the biological state of the individual can affect BBRs' development, fostering or hindering it. Then, the biological state of the individual can also affect after the BBRs are acquired, fostering or hindering their use in the specific situation. Finally, the biological system may affect the way the individual interacts with the specific situation under review, affecting the present behavior. In few words,

organic conditions affect behavior only through the above mentioned ways, not being responsible for the mechanisms that account for behavioral production: thus, biology is an instrument by which behavior are learned or produced, not a “creator” of behavior (*ibidem*, p. 184).

The issue of personality involves also the consideration of what we subjectively feel, what we experience from our first person perspective. About this issue, Staats believes that what we experience as our self, or our being, are the operations of our BBRs (*ibidem*, p. 197). Our thinking, planning, wanting and the way we purposively behave is the subjective side of the BBRs operating. This is the reason why we believe we have power on our actions and will. And we are right, in the author’s opinion, even if “it is not necessary to go outside scientific causality to provide an explanatory account” (*ibidem*, p. 198). The cumulative processes of hierarchical learning are too complex to be recognized as the causes of behavior. Also the BBRs share the same properties, and this is the reason why the individuals will not recognizes the causes of their behavior. To this classical behavioristic account of free will, Staats adds that, in addition to the action of the environment on the individual, also the individual acts on the environment. More in detail,

“[...] The individual learns BBRs which determine how the individual will act in the situation met. But that behavior will affect others, importantly acting upon the world. Moreover, those effects on the world will, in return, act back upon the person. In this way the individual determines the environment she meets, and she determines her own behavior, because that environment will affect her” (*ibidem*).

Again, the author tries to unify two traditionally separated outlooks – the behavioristic perspective and the folk psychological perspective – on free will, within the frame of the PB’s personality theory.

As it should be now clear, the appropriate development of BBRs leads to the structuring of a normal, that is functional, personality. However, something can go wrong in the process and this can entail the emergence of abnormal, that is non functional, behaviors. The simplest version of the PB model of abnormal behavior and its causes is the following. Individual’s past environment, which is responsible for the development of the BBRs, may be either deficit or inappropriate. This leads to the development of deficit or inappropriate BBRs, which means that the repertoires contains potential necessary behaviors that are not completely functional or behaviors whose occurrence is inappropriate. Both of which are abnormal. In addition, the PB model indicates the individual’s current environment as a possible source of abnormal behavior: if it is deficit or

inappropriate, other things being equal, the present behavior can be abnormal, not functional. To sum up, there are three possible causal sites of dysfunctional behavior: past environment, BBRs, current environment. Also abnormal biological conditions can contribute to produce abnormal behavior, accordingly to the principles considered above for personality development. Abnormal biological conditions can occur during the learning process of BBRs (resulting in deficit or inappropriate BBRs; e.g., a case of microcephaly or Down's syndrome), after proper BBRs have been learned (causing a deficit or inappropriate expression of the BBRs; e.g., a brain injury occurred in adulthood), or during the process of sensing and responding to the present environment (e.g., an episode of alcohol abuse) (*ibidem*, pp. 258-9). From this perspective, each abnormal behavior or pathological disorder can be profitably analyzed in a unified and related manner, through the lens of PB. Therefore, PB provides a general frame for the explanation of dysfunctional behaviors, which is strongly based on the concepts and principles of the theory of personality above mentioned.

In conclusion, by means of PB, the processes giving rise to basic learning, cognition, human development, social interaction, personality and abnormal behavior turn out to be unified under the same theoretical frame, based on the essential notions of stimulus' functions and of basic behavioral repertoires (BBRs).

8.1 Which Kind of Psychology for Arthur Staats' Psychological Behaviorism?

Staats' psychological behaviorism is grounded on a philosophical approach called by the author *unified positivism* (Staats, 1996, p. 2). This philosophical stance is monistic in character, as it asserts that traditional scientific methods have to be applied to psychology's phenomena (*ibidem*, p. 373). In particular, unified positivism is based on observation (i.e., experimentation, naturalistic, clinical observation) and systematic construction of theory, which involve concern with consistency, empirical definition, generality, parsimony. Though, observation is recognized as a procedure where objective and subjective aspects intersect: it is objective because it permits an intersubjective agreement; on the other side, it is subjective because every scientific endeavor has to be considered as a social construction, that is, a relative (i.e., not absolute) undertaking (*ibidem*, p. 2). So, unified positivism seems to acknowledge the validity of a traditional conception of science, while admitting the contingent nature of it. The reference to positivism seems to justify the use of behavioristic procedures in order to study those phenomena that belongs to different fields of psychology: "Behavior principles are part of a unified set. Whatever is analyzed in terms of those principles is placed into a unified framework" (*ibidem*, p. 14). Thus, behavioral analysis provides a strong methodological reference for psychology, on the ground of a basically traditional conception

of science. Moreover, unified positivism, in its essentially monistic aspects, also justifies Staats' interest in unification. The project of unification, for those who supported the Neo-positivistic movement, was based mainly on two features (see Chapter 1, p. 6-7): the common way by which each scientific discipline justifies its statements (deriving from them empirical implications that can be intersubjectively acknowledged), and the individuation of public facts which can be considered as "observable symptoms" of private facts (Hempel, 1969/2001, p. 269). On this basis, which Staats seems to share, the author asserts that unified positivism has the aim to produce reliable psychological knowledge and to make "the search for relationships a primary endeavor" (*ibidem*, p. 373), making psychological unification as its main goal. In fact, "It has not been generally recognized that a central task of the science is to organize, relate, unify, and simplify its diversity, and that unrelatedness of its many phenomena provides an inexhaustible set of problems" (*ibidem*, p. 5). Unified positivism is no doubt directed toward unification, even though it is not clear *why* unification is so important, and whether the problem of unification is an absolute desideratum or something that is contingently desirable, on the ground of the present features of science, in general, and of psychology, in particular; this would be in line with the constructionist aspects of Staats proposal. Assertions like "[...] the prolific nature of the modern disunified science itself becomes an handicap" or "[...] the content of psychology is disorganized in a way that is not scientific" (*ibidem*, p. 4) don't help to solve the doubt.

With such a position, in my opinion, the author only considers basic aspects of the monistic approach in order to integrate them with a surface constructionist view of science. This integration doesn't seem to be properly justified, since methodological monism and social constructionism are incompatible in many respects. In fact, monism is grounded on a syntactic, logical view of scientific methodology (see Chapter 1), while considering science as a social construction means to prioritize those semantic aspects which contingently direct science toward its ever changing goals. Moreover, the monistic approach supports the concept of scientific progress through the progressive validation of reliable theories, on the ground of their methodological credentials. The constructionist view sees all scientific endeavors as contingent and immeasurable; scientific progress is not possible in principle, since science is mostly moved by extra scientific (i.e., social) aspects. Lastly, as noticed above, the issue of unification is understandable and desirable from the viewpoint of the monistic stance; it is hardly justifiable from a constructionistic outlook, but as a contingent requirement of the present state of psychology. In this case, though, the extent of Staats' proposal would be smaller and less revolutionary than promised in his intentions. Moreover, while the monistic aspects of PB permeates most features of the author's proposal, the constructionist aspects doesn't seem to be clearly noticeable or justifiable in the general framework.

PB's refusal of mentalistic concepts is a feature that strongly connects Staats' philosophical background to the Neo-positivistic tradition. This means that psychological (i.e., mentalistic) concepts have to be "translated" into empirical justifiable concepts, which permits an intersubjective, therefore scientific, knowledge of them. In other words, concepts like thinking, purpose, reasoning and so on are conceptualized in behavioral terms (Staats, 1996, p. 71), acknowledging behavior analysis as the common methodological stance through which psychology can get its scientific credentials, as we already saw above. PB recognizes that there are internal behavioral processes which cannot be directly observable, but nevertheless cause behavior. Their analysis can be accomplished by making observable what originally is not, finding out those "publicly observable symptoms" (Hempel, 1969/2911, p. 269) that make mentalistic concepts acceptable, on the basis of their empirical translation. This means to identify those aspects of mentalistic concepts that can be behaviorally explained through the application of the three-function learning theory, as in the case of what is commonly called "intention":

"Most people discard behavioristic explanations of human behavior because they make people into automatons. Present the stimulus and the person responds. That seems to belie our common experience, which is that we do things because of our intentions, which are experienced before we do something. That experience suggest our feelings determine our behavior. The PB analysis provides an explanation of 'intentions'. That is, if the individual has a strong positive emotional response to the words 'Super Bowl ticket', then she has the experience of 'wanting' the ticket. And that emotional response will mediate the behaviors to get the ticket. In a sense the subject determines her behavior by how she feels, but that feeling itself depends upon past learning. This account behaviorizes the mentalistic concept of intention and also makes the approach cognitive" (*ibidem*, p. 95).

In other words, traditional psychological concepts, which are mentalistic, are taken into account for their heuristic value; though, for a proper scientific consideration, they are traced back to their empirical (i.e., behavioral) counterparts. In the case above illustrated, intentions are considered as feelings ("the experience of wanting") due to a learned positive emotional response to a bunch of words (Super Bowl ticket). Those feelings are not considered as intervening variables nor as epiphenomena³⁸, but as internal behavioral processes that causes other behaviors. In this case, an

³⁸ They are neither intervening variables because they aren't hypothetical entities influenced by the independent variable and that in turn influence the dependent variable, nor epiphenomena because they aren't incidental products of some higher-level process.

internal, not directly observable behavior (the experience of wanting) is the stimulus that elicits the emission of directly observable behaviors (the actions needed to buy the ticket). As a matter of fact, internal behavioral events – as well as all kinds of behavior – has stimulus properties that can contribute determining the individual's behavior (*ibidem*, p. 367). Human behavior is thus considered a train of internal and external events which hold stimulus as well as response properties. The connections between those events seem to be causal, that is, regulated by deterministic links; the processes underlying those connections can be properly explained by the behavioristic principles, as they are described in the PB approach.

Accordingly to a monistic position, PB holds a syntactic view of the psychological knowledge. All statements about human behavior can be traced back to the basic principles of Staats' theory. The core processes through which behavior learning occurs are those described in the three-function learning theory: PB provides for a language where a set of theoretical postulates (the laws of learning) meets a set of correspondences rules (based on observation), through which data (the observed behaviors) are bridged to the theory (see Chapter 1). From this perspective, the explanation of human behaviors is traced back to those principles regarding learning processes, which provide a sort of syntax through which the development of scientific psychological knowledge occurs. Staats asserts that traditional learning principles – those that are applied and studied in animal learning settings – are the basis of human learning process (*ibidem*, p. 103), but human learning processes cannot be completely traced back to those working in the animal kingdom. Accordingly, PB claims as follows:

“Humans learn via the basic principles, as do species lower in the phylogenetic scale. But human learning involves much more than the basic principles. Human learning involves principles and concepts that do not apply to lower animals.” (*ibidem*, p. 34)

Hence, PB's syntactic approach does not directly rest upon the principles of general (i.e., animal) learning, rather it rests upon those principles that constitute the *proprium* of human learning. In turn, these principles, illustrated in PB, rest upon animal learning principles, even if they are qualitatively different compared to them. Hence, while recognizing the autonomy of the explanation of human behavior, PB main core is the centrality of the learning principles, which are acknowledge as common aspects both of the animal kingdom as well as of the human world³⁹. The connection

³⁹ In line with the behavioristic tradition, Staats seems to acknowledge the existence of an essential continuity between the animal and the human world, although the connection is quite problematic.

between animal and human learning is controversial: claiming that animal behavior is the basis of human learning and at the same time claiming that human learning is qualitatively different from animal learning leaves open many questions about the nature of this connection, which Staats doesn't answer.

However, PB provides a sort of primitive language through which the large mess of information coming from the world can be properly analyzed for scientific purposes (see Chapter 2). The language proposed by PB allows to translate those large mess of information into statements that are able to specify those features of the data which are relevant for scientific purposes. These features can be called *structural*, as Carnap did (1961, p. 95): they account for a process (in this case, learning) only by referring to the relations between the parts involved in the process (the behaviors of the learner and the contingencies in her environment), without mentioning its semantic contents (for example, cycling).

The issue about the connection between animal and human learning principles above discussed is connected to the issue relating to reduction and to the existence of different levels of psychological inquiry. In this regards, PB claims that all traditional psychological fields represent different levels of study, arranged on a dimension that is defined by simplicity-complexity or basic-advanced:

“[...] there is a generally advancing progression, from the more basic fields to the more advanced; the basic principles and concepts at one level serve as the starting point for analyses at the next level of advancing complexity” (*ibidem*, p. 18-9).

At the basis there is the biological level, which seems to provide for the general architecture of human beings (i.e., their propensity to interact with the environment and to learn from the experience). Then, basic animal learning, human learning, social interaction, child development, personality, psychological measurement, abnormal psychology and behavior therapy come one after the other (*ibidem*, p. 19). Each level has its own methods, problems, objects of investigation and has the task to relate these materials to the level below it and to the level above it (*ibidem*, p. 20). Such a position suggests an interdependence between the levels, none of which is dominant on the others. Though, each level seems to keep its own autonomy, at least on the basis of their methods, problems and objects of investigation. It is not easy to say if the existence of those levels reflects an ontological commitment or an epistemic (i.e., linguistic, see Chapter 3) necessity: the alleged peculiarity of each level seems to witness an ontological diversity, while the assumption that each level provides principles and concepts to be used in the following level – starting from the basic

animal learning level – seems to witness an epistemic hierarchy, whose aim is to better explain phenomena of the same ontological kind which turn out to be different only on the surface. As we saw above, the controversy regarding the centrality of the animal learning or the autonomy of human learning still remains: the question is whether PB is a reductionistic model based on the animal level – and this would mean the attribution of an epistemic value to the levels – or whether PB claims a real autonomy of the human levels from the animal level. Though, the following quotations seem to suggest an epistemic interpretation of the existence of the levels:

“A level theory begins with the principles and concepts of the overarching theory and elaborates them by applying them to the phenomena, concepts and principles of the field.”
(*ibidem*, p. 372)

“Psychological behaviorism takes the position that animal behavior principles are basic and that these principles must be elaborated in additional levels of study [...]” (*ibidem*, p. 103)

Here, what seems to be the core are the principles and concepts of the overarching theory, which can be applied contingently on different objects and contexts. In this case, the levels are only fields of application of a general set of laws which was established in one specific area of inquiry (Nagel, 1961, p. 338), i.e. animal or human behavior learning research. From this perspective, PB is reductionistic in character, even if the above mentioned problem remains open: it is not clear what the “principles and concepts of the overarching theory” are. Do they refer to animal learning, as the second quotation above suggests, or do they refer to human learning, as the previous quotation seems to suggest? Is there an autonomy of the latter from the former, or human learning is just a version of animal learning? If PB is a reductionist model, does this reduction rest upon animal learning principles or upon human learning principles? In other words, while Staats’ proposal appears to be reductionistic – in the sense that unification is accomplished via common principles underlying different areas of inquiry – it doesn’t take a definite ontological commitment about the object, or objects, psychology deals with.

Lastly, with regards to the relationship between theory and practice, Staats claims that PB permits to strongly connect those two often split aspects of psychology (see Chapter 5 for more details). In fact, the account of human behaviors within the PB framework, mainly through the use of the concept of BBRs and the three-function learning theory, provides an explanatory continuity between the processes involved in basic psychology, child development, social life, personality development, abnormal personality development and psychological treatment. In other words, the

consideration of human life as the result of complex learning processes also suggests those intervention methods which can be used in case something gets wrong in the normal human development. Those intervention methods are based on a diagnosis in terms of BBRs, that involve questions such as: which BBR(s) is/are damaged? Which is – or has been – the role of the distal and/or proximal environment, regarding those BBR deficits? Is it possible to correct those deficits? In which way? More precisely, a diagnosis in terms of PB will suggest or specify the etiology and treatment of the disorder (*ibidem*, p. 346), identifying what is – or has been – the problem regarding the observable dysfunctional behavior at stake. Once the behavior has been analyzed in this way, the PB treatment so devised aims at create, or restore, the conditions when learning of proper (i.e., adaptive) behavior may be accomplished. Therefore, within the PB framework, the psychologist is able to identify the behavioral problem and to intervene on it, with the use of the same theoretical tools.

Finally, PB strongly connects the theoretical aspects to the practical aspects; the common element is that the two share the same conceptual framework, based on the essential principle that human behavior is learned and consequently can be modified, if it turns out not to be functional to the achievement of desired goals.

9. Gregg Henriques' Unified Theory of Psychology

The intent of Henriques is to propose a model of unified psychology that is compatible with both scientific psychology and with folk psychology. This means that the picture of psychology that emerges from the lines of his recent book, *A New Unified Theory of Psychology* (2011), meshes reasonably well with common sense notions about mind and behavior, though it is deeply grounded in science, as displayed by the great amount of examples that the author draws from scientific research. The model provided is a sort of meta theoretical system that organizes in a systematic manner the empirical findings of the different isolated branches or theories of psychology. The main purposes of this frame are to individuate psychology's subject matter, to show psychology's relationship with other sciences and to integrate key insights from different psychological traditions or lines of research (Henriques, 2011, pp. 5, 8). The frame provided – which, as will be evident, is different from existing psychological paradigms (for example, psychodynamic theories or cognitive sciences) – will permit to integrate all this theoretical needs. There are four main components that trace psychology's boundaries and contents: the Behavioral Investment Theory, the Influence Matrix, the Justification Hypothesis and the Tree of Knowledge System. Now, I will try to analyze each component more in detail.

The Behavioral Investment Theory (BIT) considers human and animal behavior in terms of invested work effort, specifically in terms of relationship between costs and benefits (*ibidem*, p. 45). BIT creates bridges between extant theoretical perspectives on behavioral functioning, outlining an integrated and coherent approach to animal and human behavior. There are six principles that compose BIT (*ibidem*, pp. 48-55):

1. *Principle of energy economics*: the organism must acquire, on the whole, more energy than the amount of energy its behavioral investment cost. In other terms, the behavior is organized so that the energy obtained is more than the energy that has been spent, given the organism's knowledge and capacities.
2. *Evolutionary principle*: this principle states that the process that regulates behavior investment are built across generations. In virtue of evolutionary forces, the organism is predisposed to respond to certain stimuli in a certain way (for example, visceral responses or reflexes).
3. *Principle of genetics*: this is the ontogenetic variation of the former principle (which refers to phylogenetic aspects). This principle says that the individual's genetic combination influence its behavior.
4. *Computational control principle*: this principle regards the way the organ that is supposed to control behavior, the nervous system, functions as an information processing system. This means that it translates "physical and chemical changes in both environment and in the body into neuronal patterns of information that represent the animal-environment relationship" (*ibidem*, p. 53), on which behavior is organized.
5. *Learning principle*: it describes how the organism manage its behavior during its lifetime. Behavioral investments are allocated depending on the contingencies to which the organism responds. Here Henriques quotes the three-function learning theory (Staats, 1996) as the theoretical device that more usefully describes in details these processes (see previous paragraphs).
6. *Developmental principle*: this principle supports the idea that each developmental stage requires different behavioral investment strategies, depending on the specific needs (genetically, hormonally or culturally determined) of that particular stage.

This principles describe the general structure of an organism's behavioral investment system, comprising the way it works, the factors by which it is influenced, the forces that drives it. The BIT has the scope to describe very general and basic aspects of behavior and regards animal as well as

human functioning. When considering the applications of the BIT to human behavior, Henriques provides a general frame composed of four levels which describe how humans behave in their specie-specific way. The basic level of behavior is called sensory-motor and involves automatic, reactive stimulus-response connections. This level includes every elementary form of learning, from instinctual reflexes to habitual motor patterns, like walking.

The second level is called operant-experiential and refers to voluntary, dynamic, seek-and-approach behavior. The general formulation which organizes the behavior state that the perception (P)⁴⁰ of a motivated state (M)⁴¹ leads to an emotion (E), which work as an organizing principle that selects the proper behavior, which can be broadly divided into approach behavior and avoidant behavior (see also Staats, 1996).

The third level regards the imaginative thought, which consists in the human ability to manipulate mental representations and to treat them as simulations of behavioral investment patterns, whose outcomes can be anticipated and evaluated. This is a very important function because, assuming that mental simulations have at least some predictive validity and require a small amount of resources, they are very useful in order to experiment and evaluate different behavioral patterns without the costs associated to their actual production (Henriques, 2011, p. 77).

The fourth level regards the linguistic justification and the human capacity to symbolically label perceived objects (*ibidem*). More about this level will be said when dealing with the Justification Hypothesis. All these level refers to aspects of human behavior that can be understood through the principles outlined by the BIT, in a broad and systematic general frame.

Let's now turn to the Influence Matrix (IM), the second component of Henriques' theory, which is an extension of the BIT to the domain of human social motivation and emotion (*ibidem*, p. 84). The theoretical basis of the IM is that the social dimension is primary for humans; in fact, the ability to influence the actions of others in accordance with one's interest, which can be called social influence, is considered as a resource that humans are motivated to acquire as a primary need. The IM can be understood as a representation of the "self-other" dialectic, where individuals reciprocally negotiate the acquisition of social influence; the balance between independency, which is the capacity to self-assert and to be a differentiated individuals, and dependency, as the ability to

⁴⁰ Perception is defined as a process that integrates sensory inputs that result in a meaningful representation of an object or event (Henriques, 2011, p. 74).

⁴¹ Motivation is defined as a valued goal state that the organism is working toward (*ibidem*, p. 75).

be interpersonally involved and interconnected, is associated with higher social influence and better psychosocial adjustment (*ibidem*, pp. 91, 94, 104).

The interpersonal processes involved in the acquisition of social influence for IM can be grouped into three broad categories. The first category concern care elicitation, which is the first way to elicit positive social responses from the caretaker by means of the expression of dependency needs; this is the basis of the ability to gain social influence. The second category concerns competition. Direct competition is when two or more individuals overtly oppose for the achievement of a limited resource, and thus is a more primitive way to obtain social influence. In direct competition there are clear winners and losers. Instead, indirect competition doesn't involve clear winners and losers, but social ranking and comparison; thus, it's an evolved way to obtain social influence. Finally, the third IM category concerns altruism. Henriques conceives altruism in behavioristic terms: "by being giving and deferential an individual can become a rewarding stimulus and that, in turn, can translate into social influence for the altruist" (*ibidem*, p. 88).

In the IM framework, emotions are associated to the process of gaining (positive emotions) or losing (negative emotions) social influence. In this way, emotions give feedbacks about this process, orienting the individual toward corrective actions, if needed.

The third component is the Justification Hypothesis (JH). While the BIT represents the foundation for the understanding of animal as well as human behavior on a common ground, JH provides the framework to understand what is unique about human beings. The problem it addresses is that of social justification, which is the human tendency to explain the legitimacy of one's thought or actions to others. For their entire life, indeed, individuals try to build justification narratives that provide sound reasons for their behavioral and thought patterns, specifying what is happening, why it is happening, and why one is doing what in that context (*ibidem*, p. 115). The existence of this species-specific device supports a two domain view of human mind, which includes two kinds of information processing system (*ibidem*, p. 122). The first system is a non-verbal, perceptual-motivational-emotional, parallel information processing guidance system that analyzes resource availability and organizes action, according to Behavioral Investment Theory (BIT). This system can be called sentience and it refers to nonverbal conscious experiences, such as feeling pain, seeing colours, being hungry, remembering an event. The second, framed by the Justification Hypothesis (JH), is uniquely human and is a verbal, reflective, sequential information processing system. In the author's opinion, this is a relatively new evolutionarily product that can be called self-consciousness system, which is the language-based portion of our mind that provide narratives of the kind above specified. This system, contrarily to the former that involves experiencing, involves self-awareness

and verbal-making meaning about the experiencing: thus, the role of language is central for self-consciousness. The hypothesis is that as language sophistication advanced beyond simple descriptions and commands, it became a useful tool to more directly access and assess the thoughts and intentions of other human beings (*ibidem*, p. 119). The clashing interests between individuals made self-consciousness key in human interactions, putting pressure on them to create socially justifiable explanations in order to support their own interests and goals⁴².

The self-consciousness system split in turn into two broad domains: the Private Self and the Public Self. On the one hand, the Private Self is the center of self-reflective awareness, where self dialogues take form and produce a private narrative of what is happening and why. The Public Self, on the other hand, is the interface with the external social environment and involves the explicit articulation to others of the portion of our thinking that we want to share with them⁴³.

The JH is important for the emergence of another species-specific feature of human beings: culture. In fact, in Henriques' hypothesis, the result of language evolution, which allowed access to others' thoughts by means of the capacity to ask questions, was the emergence of justification systems at the individual and small group level. Progressively, these systems got networked together to coordinate populations of people, giving rise to cultural phenomena. In fact, culture provides the borders to the acceptability of one's conduct in a specific cultural context: to perform in concert with others is to perform in a justified fashion, while the contrary is associated with an experience of discomfort and is considered unjustifiable (*ibidem*, p. 146-8).

To sum up, the JH provides a frame to understand the evolutionary problem faced by a unique human feature, self-consciousness, which is a language-based device whose aim is to socially justify our conducts or thoughts. The sharing of such a capacity gave rise to complex and networked justification systems that constitute culture.

Finally, the fourth and final piece of Henriques' unified theory is the Tree of Knowledge (ToK) System, which provides a macro-level frame where psychology is interrelated with other branches

⁴² According to this hypothesis, individuals build narratives following common rules and biases. For example, people tend to explain bad outcomes in terms of external, temporal and local causes and good outcomes in terms of internal, stable and general causes. Consequently, individuals tend to think and feel about themselves positively, try to provide thorough, consistent and accurate reasons founding their narratives (Henriques, 2011, pp. 135-8).

⁴³ Henriques puts the so called *Freudian filter* between the sentience (which is also called Experiential Self) and the Private Self. It provides protection against unjustifiable or painful images and impulses - coming from the sentience - which are reinterpreted to be consistent with the individual's social justification system. Instead, between the Private and the Public Self stands the *Rogerian filter*, which deals with the building of a proper image that proves to be socially satisfactory (Henriques, 2011, pp. 127-30).

of science and where its subject matter is specified. This frame entails the correspondence between the existence of different natural domains and the sciences. There are four broad, hierarchically arranged natural domains, whose origin is in the notion of Energy: Matter, Life, Mind, Culture. More precisely, nature is viewed as a nested hierarchy, where wholes at one level are parts of wholes at another, superior level (*ibidem*, p. 158). To each level corresponds an equivalent scientific discipline, namely physics (whose object is Matter), biology (whose object is Life), psychology (whose object is Mind) and the social sciences (whose object is Culture) (*ibidem*, p. 154). Henriques identifies some joint points, which are theories that link the domains and specify their reciprocal connections. Quantum gravity theory is the first joint point between Energy and Matter, representing a merger between the two pillars in physics: quantum mechanics and Einstein's general theory of relativity. The modern evolutionary synthesis is the joint point between Matter and Life, because it represents a general framework explaining how complex, self-replicating molecules evolved into organisms. Behavioral Investment Theory turns out to be the joint point between Life and Mind, through the understanding of basic behavioral principles, while the Justification Hypothesis is the joint point between Mind and Culture, connecting human capacity to be self-conscious to language skills and cultural development (*ibidem*, p. 153). From this perspective, the ToK System is able to descriptively fill the gap between different natural domains and areas of knowledge⁴⁴. The ToK System is a valuable frame which permits to consider human behavior as a complex phenomenon with multiple and different aspects: the argument here is that "human behavior is made up of processes that operate on different behavioral frequencies that can be separated according to the dimensions of informational complexity represented by the ToK System" (*ibidem*, p. 156). To make this principle clear, the author illustrates the case for self-consciousness, which is a phenomenon that involves all four of the dimensions of complexity in the ToK System. Indeed, every self-reflective action entails physical, biological, psychological and socio-cultural aspects, which can be understood through the lens of the scientific disciplines pertaining each of the four dimensions. This means that every complex human phenomenon must be studied from different, but integrated, perspectives, each one providing information that turn out to be necessary, but not sufficient, to completely understand the next level, according to the notion of nested hierarchy seen above. For example, information about Matter, provided by physics, are key to understand Life (the following level in the ToK System hierarchy) phenomena, but this information is not enough to grasp the specificity of biological systems, for whom we need biology and its principles. In conclusion, the ToK System specifies the relationship between different levels

⁴⁴ More about this issue will be said in the next section.

of knowledge and their reciprocal connections, in order to give psychology its place among sciences.

Within the discipline of psychology and its formal organization, Henriques proposes to divide it into three great branches, at the institutional level. Psychological formalism, which is the first branch, is the basic science of psychology, whose object is mental behavior (Mind in the ToK System). Here, the term *mental* refers to “the distinctive manner in which animals behave relative to material objects like rocks or organic objects like plants or cells” (*ibidem*, p. 186). Psychological formalism is a “purely natural science discipline” (*ibidem*, p. 192) and represents the foundation of the other two psychological branches.

Human psychology, the second branch, focuses on human mind and behavior. While psychological formalism – through the BIT – shows how animal behavior is continuous with human behavior, human psychology – through the JH – deals with the qualitative shift that characterizes humans and that justifies the separation of human psychology from the basic science of psychology (psychological formalism). In fact, human behavior has unique features as being mediated by symbolic language, being self-reflective, and being embedded in cultural contexts. These are the landmarks that make human psychology qualitatively distinct from psychological formalism. It is worth noting that human psychology doesn't deal with the Mind dimension in the ToK System (which pertains to psychological formalism), rather it deals with human behavior, which is considered the smallest unit of analysis in the social sciences, thus in the Culture dimension. In other words, human psychology must be considered as the basis of social sciences⁴⁵ and as a subset of psychology in general, because humans are a subset of animal (*ibidem*, p. 196).

The third branch is professional psychology, which is considered distinct from the previous ones. Professional psychology uses knowledge produced by the other two branches in order to improve human condition. Thus, it has the aim to prescriptively reach professional goals and turns out to be more value-laden than the other branches, whose main target is to describe animal as well as human conduct with the ultimate aim to expand knowledge. From these perspective, professional

⁴⁵ This is justified by the assumption that the human mind is deeply embedded in the cultural dimension (according to the JH) and thus human psychology can be considered as an hybrid between psychological formalism and the social sciences.

psychology responds to different needs and operate with different aims, comparing to psychological formalism or human psychology⁴⁶.

9.1 Which Kind of Psychology for Gregg Henriques' Unified Theory of Psychology?

The complexity of Gregg Henriques' multifaceted proposal makes the detection of its philosophical stances a hard task. First of all, it is not easy to say whether this Unified Theory has its roots into the monistic or into the dualistic vision of science. On one side, the ToK system, which deals with the general architecture of the world, is defined as monistic in the sense that everything has a common source, that is Energy (*ibidem*, p. 15), which provide an ontological base for science. Though, each level – Matter, Life, Mind, Culture – is described as autonomous and corresponds to a different scientific discipline which seems to require different kinds of method, in order to grasp the specificity of the objects, which are “fundamentally different dimensions of complexity” (*ibidem*, p. 15). Then, from a methodological perspective, Henriques' Unified Theory seems to suggest a dualistic stance, because it considers human facts as different in principle from natural (material or biological) facts (see Chapter 1, p. 10 and following), and this would lead to the adoption of different methods, even if this is not explicitly claimed: “an integrated pluralism is where there are different emphasis that stem from separate needs, goals, and other idiographic factors” (*ibidem*, p. 26). Hence, the theory seems to be rather dualistic when it claims that science is made by broad, separable domains (*ibidem*, p. 154) and that psychology, as all the other sciences, cannot be reduced to physics (*ibidem*, p. 15) and can be “crisply defined” (*ibidem*, p. 155) as an autonomous discipline.

On the other side, other features may be noticed which can be traced back to a monistic background: first, objectivity and coherence are considered as important desiderata of the scientific enterprise (*ibidem*, p. 27); second, the model is foundationalist to the core and proclaims universal truths about the universe and the human condition (*ibidem*, p. 4), third, the need for unity in psychology expresses the need for an extensive theoretical system that suggests an underlying common methodology (*ibidem*, p. 5). In other words, Henriques seems to feel close to what he calls a modernist conception (*ibidem*, p. 253), a basically monistic stance, which provides a foundationalist vision of science, where science is considered as a particular kind of justification system whose features are shared by all its branches: systematic observation and measurement,

⁴⁶ This view is consistent with Peterson (1991), who advocates different kinds of training for professional psychologists, on one side, and psychologists who will deal with academic research, on the other.

theoretical explanation, prediction and testing leading back to measurement (*ibidem*, p. 154). However, this monistic position seems to be rather weak and refers to a narrow meaning (Hacking, 1996, p. 51) of the unity of science (see Chapter 1, p. 5): the unity of method seems to be guaranteed by the general standards of reason that involve the use of logical tools in order to obtain accuracy and rigor in inferential procedures. No specificity seems to be attributed to the scientific enterprise, compared to other human methods of knowledge. Thus, from a methodological point of view, Henriques' Unified Theory seems to oscillate between a weak monism and a proper dualism, while it seems to espouse an apparent dualistic perspective from an ontological point of view. Later, I hope his position will be clearer.

The methodological issue gets even harder to unravel considering that Henriques seems to aim at the reconciliation of two traditionally conflicting outlooks (*ibidem*, p. 253), monism and dualism, by means of a stance that is explicitly close to the Emergentism proposed by the British Emergentists⁴⁷. The Emergentist position claims that the world is made by different levels (as in the ToK system) hierarchically organized from the simplest to the most complex one. Each level emerges from the one that is hierarchically beneath and it is characterized by the feature of *novelty*: the new level is something qualitatively different from the one it emerges from. In other words, the elements of the level beneath add together and originate something new that is *not* the simple sum of those elements: it is more than that. This is the *non-additivity* principle (Morgan, 1923). As in the purpose of Emergentism, Henriques aims at gaining an authentic autonomy for the explanation of human events, without abandoning the solid grounds of the monistic perspective, in order to keep a traditional account which honors those requirements illustrated in Chapter 1.

More in details, the Unified Theory seems to support, as Morgan does (1923, p. 282), a deterministic view of the world that also affects human events: every event has its causes and it is integrated in a causal chain. However, this perspective turns out to be not compatible with the statement that each emergent level is more than the sum of the elements of the level beneath. In fact, this assumption would infringe the deducibility requirement⁴⁸, which is logically connected to determinism. In other words, if the level above cannot be determined by the one beneath, determinism turns out to be false as the level above is not deducible from the level beneath. Hence, the adoption of a deterministic stance rules out the non deducibility principle and vice versa. This problem, shared by the supporters of a certain kind of Emergentism, would lead to an epistemic, not

⁴⁷ In fact, Henriques particularly refers to C. Lloyd Morgan's Emergent Evolutionism.

⁴⁸ The assumption that one level can be naturally explained by the effects of the level below.

ontological, interpretation of the ToK system, although Henriques elsewhere claims the opposite, explicitly postulating the autonomy of different dimensions of complexity (Henriques, 2011, p. 15). From this perspective, the philosophical position of Henriques can be reasonably compared to Morgan's one, which can be defined as property dualism (Corradini, Gaj, & Lo Dico, 2005, pp. 272-7). Such a position claims the existence of a unique primary substance (in the ToK system vocabulary, Energy) without refusing the attribution of autonomous causal powers to the other levels of the hierarchy (Matter, Life, Mind, Culture), whose features are the results of evolutionary processes. Thus, the proposal outlined constitutes a sort of discontinuity in the monism-dualism debate, placing Henriques' Unified Theory in an unusual position compared to other proposals of unification.

Such a position, which takes shape from Morgan's Emergentism, weaves tightly methodological aspects with ontological aspects. Henriques' system explicitly rejects reductionism and "grants genuine ontological status to mental behaviors" (Henriques, 2011, p. 173). But what is mental behavior? The author claims that everything can be defined as behavior, so psychology cannot be the science of behavior; the problem is to define which kind of particular behavior falls into the psychological domain. Psychology deals with mental behaviors, which are "behaviors of the animal as-a-whole mediated by the nervous system that produces a functional effect on the animal-environment relationship" (*ibidem*, p. 72). The adjective "mental" refers to the information instantiated in and processed by the nervous system; so, the term "mind" refers to something that can be "conceptually separated from the biophysical material that makes up the brain in the same way a story can be separated from a physical book" (*ibidem*, p. 186). Accordingly to this definition, the author seems to describe the mind in a rather functionalistic fashion: mental events are caused by other mental or environmental events and they can cause in turn other mental or behavioral events. In other words, mental events are described as events to which belong typical causes and which produce typical effects. These processes, which are generically called "information", can be instantiated (or realized) into different means: the brain is just a candidate, as well as a computer is. Actually, the functionalistic tradition is used to describe mental processes as a software, while remaining silent about the hardware, the material that permits the software to operate (Crane, 2001; Blackburn, 2005). Henriques supports a functionalistic position about mental events, but, as we saw above, he doesn't declare himself a reductionist, so he cannot support an identity theory, a position which claims that mental events are identical to physical events. In fact, the ToK system entails a certain degree of autonomy for mental events. If mental events are not identical to physical events, then mental properties are different from physical ones (Crane, 2001, p. 57). Therefore, there are two kinds of things or, in the case of the ToK system, four kinds of things (Matter, Life, Mind,

Culture), whose origin is one, Energy. In fact, this position is compatible with Emergentism and with property dualism, the claim that there is a unique primary substance which turns out to have different kinds of autonomous properties.

Emergentism and property dualism are also compatible with a position called *non reductive physicalism*, which can shed some light on the relationship between the primary substance (Energy) and its properties (in the Unified Theory, Matter, Life, Culture, and, particularly, Mind). Non reductive physicalism is non reductive because it refuses the identity theory and the ontological reduction of the properties (levels). As already illustrated, the properties are autonomous at the ontological level, that is, each level is independent, even if is connected to the others. Now, it is clear why this position is non reductive, but why it is called physicalism? Non reductive physicalism supports the idea that mental (or biological, etc.) properties depend on physical properties, in the sense that every change in A (e.g., a physical event) entails a change also in B (e.g., a mental event): this relationship is called supervenience. Though, beyond that, for those who support a non reductive physicalistic stance the connection between the levels must be further specified by means of two requirements, which Henriques seems to espouse. First, non reductive physicalism claims the causal efficacy of the mental (*ibidem*, p. 58): the Unified Theory argues that the ToK levels have causal powers on the levels below (Henriques, 2011, p. 173), and hence argues that mental events are not epiphenomena, i.e., incidental products caused by lower processes. Second, non reductive physicalism entails a stronger relationship than the dependence relationship between the levels. This relationship can be called constitution, and it is illustrated by the relationship existing between a statue and the material it is made of (say, marble). This relationship is not symmetrical, as the identity relationship is, and respects the requirement above illustrated: there cannot be a change in A (e.g., the statue) without a change in B (e.g., the marble it is made of). The relationship between the statue and the marble is not only a correlation between two distinct existences, it is tighter: if you took away the marble, you would take away the statue (Crane, 2001, p. 58), and vice versa. Such a stance perfectly fits with the Unified Theory's outlook about the relationship between mind and brain, which is clearly described as the relationship existing between a story and the material of which is made the book (Henriques, 2011, p. 186).

In this general theoretical frame, is there room for intentionality? The relative autonomy of the psychological domain would suggest a positive answer, even if Henriques doesn't explicitly deals with this issue and his position doesn't appear in line with the general frame so far illustrated. With respect to purposiveness, humans are described as individuals provided with "a decision-making system that calculates the value of the resources obtained and the losses avoided, relative to the

costs of spending the actions in the first place, the risk involved, and the value of other avenues of investment” (*ibidem*, p. 46). In other words, according to the Behavioral Investment Theory, the consequences of human actions have progressively shaped the direction for future allocations of mental resources. Besides those primary needs that humans share with animals, humans fundamentally strive for the achievement of social influence in order to influence others’ actions, accordingly to the individual’s interests and aims; this is consistent with the Influence Matrix.

That being specified, human beings are considered as processing systems whose operations are described in a third person perspective and whose goals are established by evolutionary processes (*ibidem*, pp. 51, 85). From this perspective, humans are described similarly to machines which, on the basis of the features of their environment, produce actions directed towards aims in line with hard-wired, evolution-based goals. The statement that individuals produce actions which aim at goals is compatible with the assumption of those who assert that human behavior is oriented to intentional targets and that hold the irreducible diversity of human beings (see Chapter 1, pp. 12-13).

Though, the Unified Theory doesn’t appear to support the notion of intentionality, understood as the directedness of conscious mental states or, in other words, as the existence of states of mind directed towards bringing about some state of affairs (Crane, 2001; Blackburn, 2005). Indeed, individuals process information in order to produce outputs which are consistent with their goals, but they don’t have intentions. The narratives they produce don’t refer to the reasons that moved the individual’s actions towards a specific goal. According to the Justification Hypothesis, these narratives have the only aim to build socially acceptable justifications that legitimize the individual’s actions and claims (Henriques, 2011, p. 115). In other words, the content of those narratives doesn’t refer to *really existent* reasons, understood as mental triggers of behaviors, but can be considered as a collection of “post hoc” justifications of one’s behavior. From such a perspective, behavior is first emitted, then justifications about which reasons produced that behavior are created.

In my opinion, this position implicitly claims that what is real are the evolutionary motivations and goals illustrated by BIT and IM, while the reasons provided by individuals in order to explain their behaviors are just means to get, or to increase, social influence and legitimation. If this interpretation of the Unified Theory is sound, then this theory refuses the traditional notion of intentionality, bringing back the issue to naturalistic stances connected to evolutionary processes.

To sum up, as a whole, the general philosophical structure underlying Henriques’ theory seems to be rather mutually coherent, beyond some incoherent and obscure aspects. Llooyd Morgan’s

Emergent Evolutionism provides the structure for the ToK system and sketches the relationships between the levels. Accordingly, the details about the relationship between the levels are provided by the adoption of a non reductive physicalistic stance, which seems to fit neatly with the Unified Theory's perspective on reality. Then, the notions of mind and mental events are described in a functionalistic frame, as well as the relationship between the mind and the material from which it rises, the brain.

Having these premises as a background, it is worth noting that the Unified Theory considers the human world as continuous with the animal world, in line with the other proposals so far reviewed. In fact, as above illustrated, the first piece of the proposal is the Behavioral Investment Theory (BIT), whose six principles can be applied to humans as well to animals. Indeed, as the author explains, those principles constitute a sort of brief but exhaustive summary of animal behavioral literature (*ibidem*, p. 48). Posing BIT as the first piece of the Unified Theory, Henriques definitely suggests a continuity between the two worlds, which are connected. Though, in line with the above mentioned philosophical positions, the two worlds also exhibit a certain degree of discontinuity, as Henriques attributes to the human world peculiar features (illustrated by the Influence Matrix and the Justification Hypothesis) that are not reducible to the animal principles pointed up in the BIT:

“Whereas Behavioral Investment Theory provides a framework that allows for the understanding of how human behavior is continuous with other animals, the Justification Hypothesis provides the framework for understanding what makes people such unique animals.” (*ibidem*, p. 113)

This two-faced position, oscillating between continuity and discontinuity with the animal world, is reflected in the institutional division of psychology that the author proposes at the end of his book. It is precisely the assumptions that human facts are continuous with animal facts in a way, but discontinuous in another, that pushed Henriques to separate what he called psychological formalism (or basic psychology), from human psychology. Psychological formalism is defined as the basic science of psychology and deals with phenomena relating to the Mind level. It is worth noting that psychological formalism, even if has mental behavior as a subject matter, doesn't focus on human behavior only, but on those principles which are shared by humans and animals. Ironically, this would lead to the assumption that what humans and animals share is Mind, as mental behaviors are “behaviors of the animal as-a-whole mediated by the nervous system that produces a functional effect on the animal-environment relationship” (*ibidem*, p. 72). Actually, in Henriques' opinion, what makes us human is not our Mind, which is something that can be studied by a “purely natural

science discipline” (*ibidem*, p. 192); what makes us properly human is an additional dimension of complexity that is called Culture (*ibidem*, p. 184), in the ToK system. Indeed, human psychology, the second part of psychology, is part of the social sciences and cannot be a purely natural discipline, dealing with values and cultural relativism (*ibidem*, p. 194). From this perspective, human psychology, having the human individual as object, deals with the smallest unit of analysis in the social sciences. The details about this position are clearly illustrated by this quotation:

“[...] Human psychology should be thought of as existing at the base of the social sciences and should be thought of as a hybrid between psychological formalism and the social sciences. Moreover, it is human psychology that is a subset of psychology more generally. Humans are, after all, a subset of animals, rather than the reverse.” (*ibidem*, p. 196)

In other words, human psychology has its feet in the natural sciences and its head at the very beginning of the social sciences.

In Henriques’ intentions, psychological formalism and human psychology would constitute the whole body of psychological knowledge, on which is based another separate component: professional psychology. The task of professional psychology is not to increase psychological knowledge, but to generally improve the human condition (*ibidem*, p. 198): the connection with the needs of those who benefit from psychological interventions makes professional psychology something different from the other two parts. In line with the psychologist Donald Peterson (1991), Henriques claims that the goals of the scientists are completely different from those of the practitioner. The latter has the task to use the available psychological knowledge in order to better meet the needs and the conditions of the client, while the former has virtually no limits to the development of knowledge. In this perspective, professional practice is an applied social science, grounded on scientific psychological knowledge. This knowledge is a means to the end – improving human condition – not the end itself, as in the case of the scientists.

Accordingly to their contents, those three parts composing psychology are supposed to cooperate in order to increase psychological knowledge (particularly, psychological formalism and human psychology) and to better contribute to human development (professional practice).

In conclusion, it is arguable that Henriques’ proposal is a kind of grand theory, which has the main aim to provide psychology (and, ambitiously, science in general) with a broad theoretical framework. This framework constitutes a sort of meta-perspective – encompassing animal as well as human events – that is able to attribute univocal meanings to terms like mind, brain, behavior, cognition, and so on, specifying their reciprocal definitions and the mutual relationships (*ibidem*, p.

13). In this sense, the Unified Theory has the ambitious goal to provide a general syntax where traditional psychological concepts may acquire univocal meanings and may lay the foundations for a unified approach that comprises both theoretical and professional aspects.

However, this syntax is evidently not theoretically neutral; as it's been illustrated above, it rests on definite philosophical grounds, whose acceptance is required in order to espouse the whole theory. This rather explicit reference to the philosophical stances that constitute its background is no doubt praiseworthy, in particular considering that the other proposals here accounted are not so philosophically explicit. Though, these references are not always coherently presented and this makes the thorough reconstruction of the whole philosophical outlook a hard task.

10. Norman Anderson's Information Integration Theory

In the author's intention, the book *Unified Social Cognition* (2008) condenses years of work on the Information Integration Theory (IIT), which provides "a simple, effective framework for unifying human psychology" (Anderson, 2008, p. ix). The book presents a collection of research works elaborated through time across different areas of psychology, particularly learning and memory, judgment and decision, perception and psychophysics, language. From this perspective, IIT can be defined as an experimental-based unifying proposal. Here, I will only illustrate the main aspects of IIT, without going into the details of the rich mess of research works presented in the book. I will try to extrapolate the theoretical principles which guides those experimental works there illustrated.

IIT is a cognitive theory based on the idea that information, and its modes of processing, are the unifying principles of psychology. Within a traditional cognitivist view, stimuli are considered as informers, which are elaborated in order to reach specific goals⁴⁹ (*ibidem*, p. 11). This notion is central, as for Anderson all psychological enquiry can be viewed as attempts to come to grip with the issue of intentionality and the achievement of goals, as will be clearer later.

Psychological science, from the IIT perspective, rests on two axioms, the Axiom of Integration and the Axiom of Purposiveness. These are axioms in the sense that their existence is "biologically based" (*ibidem*, p. 1) and that they can be found in every domains dealing with cognitive phenomena. On one side, the Axiom of Purposiveness deals with affect and motivation, which are the forces that guide behavior to goals related to individual's survival. Purposiveness refers to goal-

⁴⁹ This process can be integrated with prior information relevant to the issue at stake. Here, prior information is considered as a knowledge system (Anderson, 2008, p. 44). Affect, as well as motivation, are considered to be information too (*ibidem*, pp. 9-10), in the broad sense that they play a role in the process of inputs elaboration.

directed actions, in terms of approach/avoidance behavior. Parenthetically, every human action has a purpose in every different circumstance: the interaction between the individual and the environment makes her purposes continuously change. The Axiom of Purposiveness accounts for the organization of the great amount of available information towards a simplification that permits to produce goal-directed behavior in every circumstance (*ibidem*, p. 29). On the other side, we have the Axiom of Integration, which accounts for the “general integrational propensity to take account of multiple elements in a stimulus field” (*ibidem*, p. 1). The function of integration refers to how multiple informers (stimuli) are integrated and influence behavior and thought. This axiom claims that every human behavior is the product of multiple determinants which are integrated by the individual (*ibidem*, p. 30). Together, the two axioms describe human actions as it is understood within the IIT framework: the upshot of complex integration processes of multiple inputs – coming from the internal or external environment – is behavior, whose specific characteristic is that it is directed toward goals. In Anderson’s view, this is the general conceptual frame of IIT.

The Integration Diagram – Anderson’s main theoretical device – shows how the two axioms are implemented in human information processing and represents a schematic description of how information is processed in order to give rise to goal-directed behavior. Looking at the diagram below (adapted from Anderson, 2008, p. 3), at the left side we find multiple inputs (A, B)⁵⁰, e.g., physical stimuli, coming from the environment. They are transmuted into psychological representations (a, b) by means of the valuation operator (V). Then, the integrator operator (I) integrates those psychological representations to produce an internal response (r), which is transformed by the action operator (A) into an observable behavior (R), at the right side of the diagram.

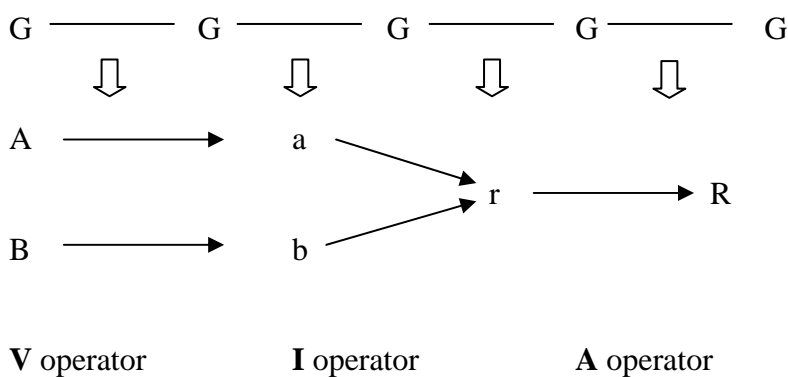


Fig. 10.1

⁵⁰ For simplicity’s sake, only two inputs are shown, but more are allowed.

The valuation process (V) is an organizing process that involves the interaction between the informers, the individual's knowledge system and the goal that the individual wants to achieve. Here, informers are transmuted into goal-relevant representations (*ibidem*, p. 20), through a "largely nonconscious" operation (*ibidem*, p. 276). In other words, inputs are unconsciously elaborated on the basis of the goal that the individual consciously wants to achieve. The second operation is Integration (I), which involves the integration of the functional⁵¹ (that is, relative to the selected goal) values of multiple stimuli into a unitary internal response, which will produce an observable, conscious goal-directed action by means of the A operator. The overall process is adjusted and directed toward the achievement of a specific goal (G).

Beside the axioms, that form the conceptual basis of IIT, Anderson proposes the existence of three psychological laws – averaging, adding and multiplying (*ibidem*, p. 4) – which represent the natural applications of the two axioms. These laws shows that the integration of informers exhibits simple algebraic forms and this is applicable to almost every area of human psychology and thus can provide a solid basis for psychological unification (*ibidem*, p. 402). Every kind of law has two conditions of application, one of which is shared by all of them. This condition is response linearity, which states that the observable response (R) is a linear function of the implicit response (r). For Anderson, this condition entails that "the observed response R is a true measure of the unobservable response r" (*ibidem*, p. 36). The other peculiar condition deals with the specific mode of integration of the psychological representations (in the diagram above: a, b); psychological representations can be integrated through adding, averaging or multiplying. In other words, once the subject attributed values to constructs of different kinds (such as in the many experiments reported in the text), the interaction between these constructs can be described through the use of those laws⁵². To take an example with hypothetical data reported by the author, two persons have to judge blame for story children who threw a rock that harmed another child. Each subject has to attribute subjective values to Intent (degree of intentionality) and Harm (seriousness of the harm), accordingly to their personal views. The data shows that both persons follow the addition schema, Blame = Intent + Harm (*ibidem*, pp. 6-8), accordingly to the addition law, even if the values subjectively attributed by the two persons are different. Hence, what still remains the same is the formal character of the law, while subjective values evidently vary.

⁵¹ Anderson calls functional measurement the method that measures the values attributed in the integration operation.

⁵² The specific shape of the data graph will reveal the law that better describe the data. Regarding this point, Anderson reports a lot of research works where he and his colleagues illustrate in details the methodology they used in many areas of psychological enquiry. I refer to the book for those that are interested in these issues.

Psychological laws, like the addition law illustrated in the example above, embody the structure of the internal world (*ibidem*, p. 269) and thus can be considered as the key elements underlying human psychology.

From a general point of view, Anderson defines his model as constructionistic and contextualistic. The constructionistic aspect lays in the fact that valuation involves construction. In fact, the same stimulus may take different values, depending on operative goals, and thus values have to be constructed on the basis of operative goals (*ibidem*, p. 8). Also integration involves construction, because the unified response (r) is constructed on the basis of the integration of multiple stimuli. In general, the conscious experience is constructed because it is considered as an integration of multiple unconscious determinants (*ibidem*, pp. 15, 275). Moreover, IIT is considered to be grounded in contextualism, because “perception, thought, and action always occur within some particular context or situation, which may be considered a complex field of information, internal as well as external” (*ibidem*, p. 9). The fact that valuation and integration processes are strongly influenced by operative goals shows the importance of environmental contexts in IIT.

To sum up, Anderson’s proposal of unified psychology rests on the specification of two axioms, which account for the general features of human cognition, and of three laws, which describe different ways to integrate psychological representations within a traditional input-elaboration-output frame of reference.

10.1 Which Kind of Psychology for Norman Anderson’s Information Integration Theory?

From the methodological point of view, one of the IIT’s main purposes is to unify two traditionally opposing ways to scientifically address phenomena: the nomothetic approach, which seeks universal laws that go beyond individuality, and the idiographic approach, which conversely emphasizes the uniqueness of each individuals. These two opposing approaches turn out to be unified by means of the three psychological laws: on one side, the fact that all experimental data gatherings follow the laws of information integration accounts for a nomothetic explanation of psychological data. On the other side, the fact that each individual attributes her own personal values to the considered construct accounts for an idiographic explanation of the same data. So, this approach “[...] allows, or rather, insists on individual differences in value while seeking general integration laws” (*ibidem*, p. 15).

This unifying perspective, in Anderson’s opinion, comes from an inductive mode of theory development, in the sense that absolute priority is given to the features of the phenomena at stake

(*ibidem*, pp. 12, 14). It can be said that theory has the only function to ratify, without further elaboration, the behavior of the data; the weight of theorization is minimum, because the “adherence to a theory often constricts attention to favorable conditions, short-changing the phenomena” (*ibidem*, p. 406) and “the neatness and pleasure of assumptions and deductions can so readily slight empirical substance” (*ibidem*). This so tight connection to empirical phenomena has a price, of which the author is aware of: IIT cannot predict values of stimulus informers nor when a particular law will apply. This entails that IIT is a descriptive theory, which “seeks to reveal psychological process directly in the data” (*ibidem*, p. 72). In more details, the individual values, as well as the specific kind of law that turns out to be applied to a particular psychological phenomenon, are not predictable aspects and can be assessed only *after* the observation of the phenomenon itself. Once the data are observed, those theoretical aspects can be ascertained.

This open refusal of deductive procedures seems to be based on the failure to distinguish between the context of discovery and the context of justification. When Anderson claims that “everyday life is [...] a primary concern; hypothesis testing is secondary” (*ibidem*, p. 406) and that deductive philosophy sees scientific inquiry as hypothesis testing, “especially tests of competing hypotheses” (*ibidem*), the above mentioned distinction is missing. It is well known that the testing of competing hypotheses is usually something that occurs during the process of discovery, when competing ways to view a phenomenon are mutually competing, while the deductive use of the (resulting) better hypothesis is routine in the ordinary context of justification (what the philosopher Thomas Kuhn would call “normal science”). Anderson doesn’t consider the different use of deductive methods in science and this makes his refusal of the deductive methods not solidly justified, especially considering that the absence of predictive power is a high price to pay for IIT. Moreover, Anderson seems to be aware also of the fact that each inductive operation is guided by our “conceptual framework” (*ibidem*, pp. 14-5), which “embodies our view about what phenomena are important as well as their interpretation in our symbolic world” (*ibidem*). This leads to the fact that every empirical investigation is deductive in character, even if that conceptual framework “should evolve in an inductive mode that respects the phenomena” (*ibidem*).

Although those stances might witness a methodologically equidistant position between the monistic and the dualistic approaches, Anderson’s proposal seems to be closer to a monistic account, which sees psychology as methodologically continuous with other scientific disciplines, whose main method should be empirical investigation and whose priority is the study of some observable behavior of the phenomenon at stake (*ibidem*, pp. 14-5).

Though, the emphasis on the empirical observation of behavior and its relevance to the exploration of the psychological world raise an interesting issue regarding the relationship between stimuli, responses and their measurement. One of the characteristics of the Integration Diagram, the linearity of the response measure (*ibidem*, pp. 31, 36), claims that responses R, those referring to observable behaviors, are true measures of the unobservable, internal response r. In other words, the observable behavioral events are considered nothing less than faithful images of what occurs in the internal, unobservable world. The analysis of what is observable makes the unobservable directly accessible. These assumptions make it clear why for IIT what is interesting and worth studying is whatever is observable and measurable: there is not an impassable border between internal and external worlds, since the latter perfectly mirrors (i.e., is) the former. From such assumptions follow that measurement theory is not considered as a prerequisite of scientific investigation, as usually is, but it becomes an organic part of the investigation, closely interwoven therewith (*ibidem*, p. 36). The measurement of psychological constructs *is* those constructs and hence it is defined as true measurement (*ibidem*, pp. 257, 401); this stance derives from the assumption that metric measurements of individual responses – often refused by other psychological approaches to measurement – are useful and legitimate, since they permit to establish a linear connection between the values of the stimulus and the values of the response and provide crucial information about the individual psychological functioning: “A theoretically adequate scale of the dependent variable opens up the possibility of scaling the underlying [stimulus] variables” (*ibidem*, p. 257).

Now, measurement can be rather unanimously defined as follows:

“[It] is the assignment of numbers to events or object according to rules that permit important properties of the objects or events to be represented by properties of the number system. The key to this definition is that properties of the events are represented by properties of the number system.” (McBurney, White, 2009, p. 124)

This definition supposes that measurement is a way to increase our knowledge about something using numbers and their properties. The quality (appropriateness, soundness, relevance) of this knowledge depends on which properties of the objects are considered and on the rules by which numbers and their properties are attributed to the properties of the object or the event at stake. In other words, measurement procedures involves and requires important methodological choices to be done. *Per se*, measurement *cannot* provide comprehensive truth about an event and it is not the event it describes. From this perspective, Anderson’s position seems to run the risk of reifying the process of measurement and those properties of the event that are under scrutiny: the targets of the

measurement procedures seem to be real objects or events of the real world (attitudes, thoughts, memories), while those targets should be considered as constructs, i.e. abstract and theoretically informed concepts used to indicate aspects of the real object (see Chapter 5). In other words, psychological constructs are no more rightly considered as theoretical entities, but becomes real objects whose features emerge from measurement. As illustrated above, what a measurement theory can do is to provide some theoretically biased, though useful, information about the object, while in IIT measurement *is* the functioning of the object at stake, since the three psychological laws are “true foundation for the theory of psychological measurement” (Anderson, 2008, p. 259). This problem has obvious reverberations on the ontological issue, as will be clear below.

Turning back to the previous issue, though Anderson supports a monistic vision of science, the concept of intentionality – which is usually refused from those who defend such a stance – seems to have a strategic role. Here, I refer to the Axiom of Purposiveness, whose universality and centrality is often remembered during the book (*ibidem*, pp. 1, 2, 399). But is it possible to draw Anderson’s notion of purposiveness near the notion of intentionality? As we saw above, the Axiom of Purposiveness shortly claims that all human psychological activity is motivated towards goals. In general terms, intentionality can be defined as the fact that states of mind have, or are directed on, an object. Each object is present to the mind in a certain way and is considered by a certain perspective, under which it is given to the mind (Crane, 2001, pp. 7, 18-9). From these definitions, it seems clear that IIT’s position about purposiveness may be properly called intentional: the subject tends to a state or object (the mind is directed on an object) whose achievement is considered desirable (goal). IIT can be defined as intentionalistic in character, since the pervasiveness of purposiveness, in the Integration Diagram, is well noticeable by the fact that the G factor (Goal) is present in all the operations pointed in the Diagram.

Though, intentionality is not defined in terms of teleological explanations, nor in terms of reason giving (see Chapter 1), but in a kind of “behavioral” mode: intentions are simply understood in terms of “goal approach/avoidance” (Anderson, 2008, p. 2). In particular, two measurable indexes seems to account for the notion of intention and to define it: on one side, intentions can be defined as approach or avoidance behaviors and, on the other side, intentions are also defined by the variability of values attribution to stimuli⁵³. Therefore, in general terms, the notion of intention accounts for the fact that individuals tend to approach objects or events and to avoid other objects or

⁵³ Here Anderson refers to those experimental works by which IIT developed, where subjects are supposed to attribute subjective values to stimuli (see also above).

events; moreover, individuals tend to attribute different subjective values to these objects or events, accordingly to their behavioral tendencies.

Another related problem refers to the fact that the operations described in the Integration Diagram are carried out at an unconscious level, while only the outputs are experienced consciously (Anderson, 2008, p. 276). If those operations, as now is clear, are goal-directed and, on the other side, are “largely nonconscious” (*ibidem*), the question is: how can the individual’s intentional conscious experience affect those unconscious processes that permit to elaborate information in order to achieve that goal? What is the connection between the intentional experience of, say, wanting A, and the unconscious processes, which are organized to reach that specific goal A? In IIT, such questions remains unanswered. So, the assumption that every human action is oriented toward goals doesn’t seem to entails that these goals are consciously available: the theory is not explicit about which kind of relationship the conscious experiences hold with the goals (G) in the Integration Diagram.

Hence, Anderson’s notion of intention is “behavioralized”, that is, defined in terms of observable and measurable behavior, and thus doesn’t refer to the literature which consider intentionality as the factor that makes human beings unique (see Chapter 1). In fact, the individual is described as a sort of automaton whose behavior is directed towards goals and aims of which she is not aware of, in the sense that they are not consciously available. In this sense, IIT keeps a monistic vision – considering human beings in the same way as natural events –, despite the reference to the notion of purposiveness.

In the IIT, it is detectable another methodological issue that seems to be quite problematic: the issue is about the level of abstraction of the theory or, in other words, about the weight attributed by the theory to the specific features of the entities at stake. As we saw in Chapter 1, the more a theory is distant from its object, the more it can ignore some of its (alleged peculiar) features, the more it is close to it, the more it will deal with them; the former approach can be defined syntactic, the latter semantic. From this perspective, Anderson’s proposal – attempting to fill the gap between the nomothetic and the idiographic outlooks – seems to take a middle position in the traditional debate. Though, a deeper analysis of the theory seems to uncover a view that is closer to a syntactic position. In fact, Anderson’s contextualism entails that every psychological event can be considered as a complex field of information where elements (stimuli) are elaborated relative to the operative goal (Anderson, 2008, pp. 8, 9). Despite the fact that “the same physical stimulus may take on different values, depending on operative goals” (*ibidem*), IIT methodological structure is syntactic in character because it is focused on the logical and systematic aspects of psychology (see Hempel,

1979/2001, p. 357) and on a concept of evidence which is not relative to, and variable with, individuals (Hempel, 1961-62/2001, p. 82). In other words, what is peculiar to IIT is a view on the object that permit to grasp those general aspects of human cognition, which are independent of elements pertaining to the individuality of the subject. These latter, individual elements are included in the larger, syntactic frame as values attributed by the individuals in that specific situation.

Such a perspective also reflects in the language of IIT. Following Carnap's proposal (1961), stimuli are considered in their relational aspects, that is, they are described in terms of the relations they hold with each other within the same informational field (see Chapter 3). The consideration of those relational aspects is functional to avoid the inaccuracies of the common language, which don't befit to science: indeed, IIT has the goal to "purify concepts from common language and develop them into true scientific concepts" (Anderson, 2008, p. 8). Such an outlook provides an account of phenomena from a high level of formalization, which fosters a unified approach to psychology and consequently provides a complete account of the internal world (Anderson, 2008, p. 269).

Hence, it is reasonably arguable that Anderson's IIT holds a syntactic view of the scientific enterprise, in line with the monistic perspective of the whole theoretical framework.

Coming to issues connected to the object of psychological inquiry, it can be said that what Anderson proposes is a reductivistic theory, in the general sense illustrated by Nagel (see Chapter 4, p. 24 and following). More in details, Anderson's aim is to explain a theory or a set of laws established in other areas of inquiry by means of his own theory, initially formulated in another domain⁵⁴ (Nagel, 1961, p. 338). What Anderson proposes is not the explanation of qualitatively different objects – compared to those for which the theory has been initially developed – by means of his own theory; rather, IIT seem to be a case of homogeneous reduction, that is the broadening of the scope of a theory, once formulated for a certain kind of phenomena and now extended to cover more similar phenomena.

Though, it must be argued that such a similarity can be ascertained only on the basis of a very high level of abstraction, as the one provided by IIT. This means that the similarity of the phenomena explained by the IIT can be assessed only on the basis of their high level syntactic aspects. These aspects, in turn, assure that the generality of the psychological laws, originally formulated in some areas of social psychology, can be applied to all psychological phenomena, which are so considered similar. In this way, the adoption of IIT and the psychological laws can provide a new way of thinking for the entire psychology and a base on which to unify the psychological field (Anderson,

⁵⁴ Person cognition, as stated by Anderson (2008, p. 51).

2008, p. 25). In other words, in Anderson's intentions the generality of such an approach regarding the objects of psychology makes IIT applicable to virtually every aspect of psychology, at the expense of ignoring many peculiar features of the objects which, inevitably, may get out the scope of the theory. So, the psychological laws seems to apply only to very general aspects of the objects, at a high level of abstraction where objects' peculiarities are likely to fade away into similarities.

Going into more details about the nature of the object of psychology, Anderson assumes that psychology deals with the processing of information in order to produce actions directed towards goals. Although he is not explicit about that, it is arguable that from this perspective psychology is an attempt to scientifically account for how humans behave in their environment. In IIT, many concepts that constitutes the core of the psychological discipline are described in common sense terms, accordingly to the assumptions that the theory "puts phenomena before theory" (*ibidem*, p. 72) and that "everyday life is [...] a primary concern" (*ibidem*, p. 406). To give some examples, person cognition is defined as "our cognition of any person – parent, spouse, ex-spouse, friend, self [...]" (*ibidem*, p. 51), group dynamics are generically defined as "interpersonal interaction" (*ibidem*, pp. 222-3), moral phenomena, such as deserving and obligation, are defined respectively, the former, as fitting entitlement to some outcome (reward or punishment), and, the latter, as the degree of motivation to perform some action, which may be felt or attributed as fitting the circumstances (*ibidem*, p. 199). From this follows that Anderson is not interested in taking a definite ontological position about the existence of psychological entities: psychology as a discipline must deal with the way people normally refer to mental phenomena, but it doesn't say anything about their real existence. In IIT, mental phenomena, as they are described in common sense terms, are not interesting *per se* for science and doesn't seem to provide relevant information about the real world. On the contrary, what seems to constitute the ontological core of the psychological reality are the three psychological laws, which represent the internal structure of the psychological world (*ibidem*, pp. ix, 18, 269). In other words, what *really* exists are the mechanisms underlying the functioning of common sense entities; those mechanisms, the psychological laws, constitutes the ontological horizon of IIT.

Such an ontological claim appears to be strongly connected to the issue of reification above illustrated. In fact, the laws discovered through experimental designs acquire the status of ontological entities, while they just represent empirical regularities. More in details, it seems that the interpretation of the experimental results entails a terminological equivalence between the experimental design language and the theoretical language, so that the theory is not conceived as a possible interpretation of the data (Katzko, 2002, pp. 264-5; see paragraph 5.3, p. 46): the data

regularities *become* the theory. Thus, the data *are* the theory, which *is* reality, as this quotation shows very well: “Success of the algebraic law support the hypothesis that the stimulus and response terms represent cognitive entities; otherwise they would be unlikely to obey an exact law” (*ibidem*, p. 36).

As a concluding remark, it is worth noting that although IIT is presented as effective in nearly every field of human psychology, its possible professional applications are not even mentioned. Though, the fact that IIT has no predictive power (*ibidem*, p. 72) makes it ill-suited for profession application. Moreover, IIT is not even interested in the relationships between human and animal cognition, since the aim of psychology is assumed to be human cognition.

In conclusion, IIT presents as a cognitive theory of human cognition with strong unifying aims, based on an ontological stance regarding the existence of psychological laws, underlying most human phenomena. Its main problem seems to lay in the relationship between the experimental outcomes and the theory, whose interplay is highly questionable and results in an unclear philosophical position.

11. Robert Sternberg and colleagues’ Unified Psychology

It is worth noting that Robert Sternberg and colleagues’ proposal of unified psychology is grounded on a fairly deep analysis of the sources and the modes of fragmentation in psychology (for details, see Chapter 5). The authors detected many areas of psychology – relating to professional practice as well as to research, education and department organization – displaying various aspects of fragmentation, which turns out to pose a threat to both scientific credibility and institutional organization. Thus, this proposal can be considered as a way to resolve “psychology’s potential loss of identity as a field” (Sternberg, 2005, p. 3), from a perspective which starts from a methodological and theoretical analysis in the attempt to better organize the institutional aspects of psychology as a scientific discipline. In fact, differently from the other proposals so far discussed, Sternberg and colleagues proposal don’t deal with the content of the psychological inquiry, rather it specifically deals with the strategies aimed at integrating psychological knowledge. Here, I will consider two works that in my opinion cover Sternberg and colleagues’ view on unified psychology: the 2003⁵⁵ work with Elena Grigorenko, *Unified Psychology*, and the 2001 work with Elena Grigorenko and David Kalmar, *The Role of Theory in Unified Psychology*.

⁵⁵ Reprinted from the original paper published in 2001 on *American Psychologist*, 56, pp. 1069-1079.

In the first paper, the authors seem to consider their proposal as a sort of *interlevel theory*, that is a theory whose aim is to bridge different levels of analysis about phenomena. Regarding the issue of unification, interlevel theories opposes to traditional grand theories. Grand theories' (such as psychoanalysis, cognitivism, behaviorism) aim is to export those principles and concepts that are formulated on the basis of the research in one area of psychology in order to provide a general explanation of human behavior. In this sense, grand theories entails a two-level strategy of theory construction, which involves the formulation of a theory in a restricted area of the discipline and then the generalization of that theory to other fields of psychology, or even to the whole discipline (Staats, 1996, p. 9). On the contrary, an interlevel theory tries to bridge different and distant approaches of analysis on the same phenomenon, on the basis of the idea that the disciplinary target is to have different scholars studying the same problem with different methods and different perspectives (Sternberg & Grigorenko, 2003, p. 25). This is exactly the central claim of the *converging operations* principle. This principle refers to the use of multiple methodologies for studying a single psychological phenomenon or problem (*ibidem*, p. 27). The basic idea is that any one methodology (operation, in the authors' language) is, in all likelihood, inadequate for the appropriate and comprehensive study of any psychological phenomenon. The main reason is that each methodology has its own biases and involves the adoption of a peculiar perspective on the object of interest. In other words, the use of a single methodology yields to the belief that what has been found *is* the object of analysis, while it is only an *aspect* of it, the aspect that that particular methodology is able to detect and analyze. The use of a single methodology is misleading, as the parable of the blind men and the elephant illustrates:

“Consider the well-worn parable of the blind men each touching a different part of the elephant and each being convinced that he is touching a different animal. In psychology, the situation is like always studying the same part of the phenomenon and thinking that this part tells you all you need to know to understand the whole phenomenon.” (Sternberg & Grigorenko, 2003, p. 34)

The use of converging operations is able to strengthen psychology's grip on the features of the phenomena psychologists are interested in, expanding their view through the integration of different aspects – detected with different methodologies – of the same object.

So far some crucial methodological issues of the proposal of Sternberg and colleagues have been presented. But every discipline must also deal with the issue of theory development, one of the core of the scientific enterprise. How is the process of theory development addressed by the authors?

This topic is illustrated in the 2001 work by Sternberg, Grigorenko and Kalmar, to whom I will refer here. In this paper, the authors claim that theory development as currently practiced in psychology involves the juxtaposition of different theories which compete in terms of predictive power (Sternberg, Grigorenko, & Kalmar, 2001, p. 106). This turns out to be a so called “segregative” approach which has some crucial disadvantages. On the one hand, such an approach can make psychologists focus on different aspects of the same phenomenon, while they believe they are studying the same phenomenon. In fact, theories are developed and refined on independent tracks, being their comparison based on empirical control. On the other hand, this approach fosters the adoption of a single perspective on the phenomenon, ignoring other way to study it (*ibidem*). In other words, the use of this segregative approach, emphasizing the predictive power of theories, tends to isolate different theories, which hardly will integrate their strengths, and narrows the view on the problem at stake, rather than increasing the knowledge of all its different aspects.

In opposition to this approach, the authors’ proposal to theory development is integrative and it is called “theory knitting”. This view prioritizes explanation, rather than prediction, in the sense that it is argued that science – psychology – most profitably progresses in the direction of increasing explanation (instead of increasing prediction), since it especially needs the contribution of conceptual, rather than empirical, insights. Further, the integrative approach insists that psychology needs to develop conceptually superior theories, rather than to refine many different theories which are unlikely to be wholly correct in and of themselves (*ibidem*, p. 107). This leads to the aim to formulate broad theoretical frameworks, rather than separately developing and refining narrow and specific theories.

More in details, theory knitting involves the integration of the best aspects of existing theories with one’s own ideas about the phenomenon under investigation (*ibidem*, p. 108). This leads to the integration of previous theories within a higher order theory, which function as higher order theoretical framework. But how those theories’ strengths can be assessed? The authors pragmatically claim that this integration entails the introduction of new elements that knit the theories together and “that account for aspects of the phenomenon for which neither of the previous theories accounted” (*ibidem*, p. 109). In other words:

“Typically, one may find that both theory A and theory B are correct in some respects and incorrect in others. One thus seeks a higher order theory that integrates those aspects of the two theories that are empirically supportable, and that discards those aspects of the two theories that are not supportable. In essence, one unifies the theories.” (*ibidem*)

Accordingly to the authors' methodological position, theory knitting permits to better stay on course in the scientific inquiry. In fact, this approach is less likely to mislead the direction of research on a certain phenomenon, in that the emphasis on conceptual integration, rather than on predictive power, makes the definition of the construct at stake a crucial point (*ibidem*, p. 110).

Beyond the already mentioned advantages in using theory knitting, the authors warn that it is not advisable to use this approach in the initial stages of research, when "that there is not enough 'yarn' with which to knit" (*ibidem*). Indeed, theory knitting is more appropriate when a certain number of theories exists that are interested in approximately the same phenomenon.

In sum, as now is clear, the methodological and the theoretical aspects so far stated turn to be mutually compatible: in fact, converging operations provide methodological integration while theory knitting provides theoretical integration (*ibidem*, p. 111). The common ground of these two aspects of Sternberg and colleagues' unified psychology is the concern for important institutional issues related to the organization of psychology as a discipline. In this sense, converging operations and theory knitting suggest prolific directions for the scientific development and the disciplinary organization of psychology.

Indeed, according to the foregoing positions, the authors believe that psychology should be better organized on the basis of psychological phenomena, rather than on the basis of current traditional fields of psychology. The reason is that those fields and their contents (i.e., the objects or phenomena they deal with) are largely arbitrary and don't fit well with the methodological requisites psychology should achieve. In other words, this is a phenomenon-based approach, where problems, rather than sub discipline, become the key basis for the study of psychology (Sternberg, Grigorenko, & Kalmar, 2001, p. 104; Sternberg & Grigorenko, 2003, pp. 35-6). In the authors' opinion, such a view is supported by the fact that the current academic organization has many problems, of which the main are the following:

1. The current organization hinders the study of the same phenomenon under different theoretical or methodological perspectives, whose scientific benefits have been already mentioned.
2. The current organization creates conflict between those studying the same phenomenon with different perspectives, hindering the integration of different methodological perspectives around the same phenomenon.

3. The current organization doesn't give value and scientific credibility to those researchers dealing with phenomena that are at the interface of different fields, and that are, in all likelihood, the most interesting and worth studying.

Such an organization perpetuates a state of disintegration within psychology and provides inappropriate grounds to establish and develop a sound and reliable psychology, both on the scientific and on the academic sides.

In conclusion, converging operations and theory knitting embody methodological and theoretical directions whose aim is to create general, higher order disciplinary frames, which are considered as means to ease the scientific advance of psychology. The proposal also has the ambition to allow a better organization for the discipline, according to its scientific requirements and goals.

11.1 Which Kind of Psychology for Sternberg and colleagues' Unified Psychology?

As illustrated in paragraph 5.3 (pp. 52-3), one of the three bad habits Sternberg and Grigorenko (2003) attribute to the psychological community is the exclusive or almost exclusive reliance on a single methodology. The use of converging operations would help to giving up this hindrance to a proper development of psychology. From this perspective, this proposal of unified psychology seems to be pluralistic in character. Since the knowledge about psychological phenomena is hard both to accrue and to apply (Henriques & Sternberg, 2004, p. 1058), it requires the use of different kinds of methods in order to grasp meaningful aspects of those phenomena. The background of such an approach is evidently methodologically dualistic, because it supports the view that the various phenomena of reality can be only investigated through the use of different methods, which respect their differences. The point is that the complexity of the object of psychology requires the utilization of multiple methodologies, since "any one operation is, in all likelihood, inadequate for the comprehensive study of any psychological phenomenon" (Sternberg & Grigorenko, 2003, p. 27). Comparing to the positions of the authors discussed in Chapter 1, though, Sternberg and colleagues don't explicitly refer to those issues that originally justified the appeal to the use of methods other than those used in the natural sciences, namely the alleged uniqueness of human facts, the notions of intention and purposiveness, the importance of goals in the explanation of human behaviors. In other words, the need for plurality is oriented towards the achievement of a comprehensive, detailed and sound knowledge of the phenomena at stake: "multiple [methodological] paradigms can contribute to our understanding of a single psychological phenomenon, locking oneself into any single paradigm reduces one's ability fully to grasp the phenomenon of interest" (Sternberg, Grigorenko, & Kalmar, 2001, p. 106).

The use of multiple methodologies, besides the above illustrated advantages, can also help to face the problem of reification, whose impact on psychological fragmentation is evident (see paragraph 5.3). In fact, the use of multiple methodologies unhinges the frequent belief that one is studying the whole phenomenon when, in fact, one is studying just a small part of it. For example, let's assume that a psychologist studies intelligence on the basis of school performances. The analysis of the students' marks, their frequencies, the mean and the observation of whatever regards school performances will lead our non-philosophically-oriented psychologist to the belief that intelligence *is* school performances and that it is appropriately and solely measurable through this methodology. Using converging operations provides an epistemologically more correct and reliable way to address psychological problems, because it helps to keep in mind that what one is touching is nothing more than a part of the elephant, not the elephant itself.

So far, the authors support the analysis of psychological phenomena understood as complex wholes, whose features and their relationships are the epistemic aim of psychology. From this perspective, this position seems to tend towards a semantic view of the psychological inquiry, which turns out to be committed to the properties of the objects at stake, that is to those peculiar features which make them interesting and worth studying among others. In other words, it is advisable that the combined reference to the methodological pluralism – provided by the use of converging operations – and to the approach offered by theory knitting tends to uncover those aspects of the phenomena whose understanding requires an approach that favors and is oriented to their specific peculiarities. In other words, the relationship between the phenomenon and the relative theory seems to be strongly embedded, and this eventually turns out to entails a one-to-one isomorphism (see Chapter 1) between the data and the higher order framework theory at stake.

The prescription to use different kinds of methods and to integrate theories opens up the issue of language, which mainly concerns theory knitting procedures. In particular, the issue at stake is that of the connection among the theories and the connection between the theories and the higher order theoretical framework. The authors (Sternberg, Grigorenko & Kalmar, 2001) don't discuss the ways this connection can be achieved, claiming nothing more than that, after evaluating the empirical validity of two or more theories to be knitted, "one thus seeks a higher order theory that integrates those aspects of the two [or more] theories that are empirically supportable, and that discards those aspects of the two theories that are not supportable" (*ibidem*, p. 109). Hence, the problem of the connection – or translatability (see Chapter 3) in terms of the new higher order framework theory – remains open and needs further attention.

The issue of the linguistic relationship between theories leads straight to the issue of the reduction of theories. Sternberg and colleagues' proposal seems to offer an integrative vision of psychology, rather than a proper reductionist outlook, which would entail the reduction of minor theories to one, grand theory. Indeed, in theory knitting "one attempts to integrate previous theories into a single higher order theory, rather than to segregate a new theory from previous ones" (*ibidem*, p. 108). This kind of relationship between the theories seems to entail the fulfillment of Nagel's condition of connectability (1961, pp. 353-4; see Chapter 4), which prescribes the introduction or the specification of terms which establish connections between the entities outlined by the theories at stake. In fact, in the process of theory knitting, those selected theories' aspects must find common grounds by which to establish a certain kind of connection, "identifying the mutual overlapping and non-overlapping scope of the theories with regard to the phenomenon of interest" (Sternberg, Grigorenko, & Kalmar, 2001, p. 109). On the contrary, it seems that theory knitting doesn't require the fulfillment of the other condition illustrated by Nagel, the condition of derivability (1961, p. 354), which prescribes the derivability of the laws of the reduced theories to the laws of the reducing theory. Theory knitting may dispense with this condition because the higher order theory provides for a new theoretical structure where previous theories' laws or principles seem to somehow change their original configuration and nature, by virtue of the new framework itself. From such a perspective, the relationship between the theories involved in the knitting is symmetrical – rather than asymmetrical, as in the case of reduction – and this is due to the fact that the higher order theory constitutes a framework whose aim is the coordination of those aspects of the theories-to-be-knitted by means of "the introduction of new elements that knit the theories together" (Sternberg, Grigorenko, & Kalmar, 2001, p. 109). This puts the theories to be knitted somehow on the same level.

From what has been so far held, it is clear that this proposal of unified psychology is grounded on the need to better understand psychological phenomena, which can be seen as the starting point of the psychological inquiry⁵⁶. The extreme importance of the object of psychology is evident because the use of converging operations and theory knitting is just aimed at the exploration of the different aspects of psychological phenomena. But how those phenomena are defined? It must be said that the methodological and theoretical position here held has the explicit aim to uncover different aspects – through different methods and theories – which all turn out to belong to the same phenomenon: the single parts (objects of the theories-to-be-knitted) touched by each blind man (the

⁵⁶ "We believe that a more sensible and psychologically justifiable way of organizing psychology as a discipline and in departments and graduate study is in terms of psychological phenomena [...] rather than so-called fields of psychology [...]" (Sternberg & Grigorenko, 2003, p. 35).

theories-to-be-knitted) end up to belong to the same elephant (the phenomenon at stake). Therefore, the consequence of such an approach is that phenomena are better understood through the adoption of different perspectives, each of which sheds some light on the object at stake (*ibidem*, p. 110). Each perspective – both methodological or theoretical – offers the possibility to recognize those aspects of the phenomenon to which each perspective refers to (*ibidem*). For the authors, “There is no one correct perspective. Each perspective presents a different way of understanding the problem [...]” (Sternberg & Grigorenko, 2003, p. 37; Sternberg, Grigorenko, & Kalmar, 2001, p. 106) and this, on the one hand, fosters a pluralistic and integrated knowledge of the phenomenon and, on the other hand, helps the scientist to make explicit statements about the construct at stake⁵⁷.

Such a view is defined as constructionistic by the authors, since it “holds that each person has idiosyncratic ways of looking at the world” (Sternberg, Grigorenko, & Kalmar, 2001, p. 107). Though, in my opinion, the features so far illustrated don’t necessarily justify such a philosophical stance. Conversely, Sternberg and colleagues’ proposal seems to be consonant with the position of the philosopher John Duprè (see Chapter 4). Indeed, Duprè claims that each theoretical (and hence methodological) perspective about reality is justified by the purposes of the investigation and the peculiarities of the object at stake (Duprè, 1993, p. 57): in other words, there are many possible points of view from which looking at the world and each one sheds some light on the world itself. The position of the philosopher is based on the consideration that common sense – as well as science – tends to classify things by the individuation of fragmentary and diverse categories, which turn out to have the aim to grasp peculiar aspects of the object, according to the purposes of the observer and the features of what is observed. This approach seems to be in line with Sternberg and colleagues’ proposal: in theory knitting, indeed, one of the major target is to uncover those guiding implicit assumptions that guide the scientific research, “by forcing the theorist to grapple with the problem of recognizing the aspects of the phenomenon to which each theory refers” (Sternberg, Grigorenko, & Kalmar, 2001, p. 110). The authors recognize – as Duprè does – the availability of different, legitimate ways to investigate psychological phenomena, and – contrarily to the philosopher – maintain that this is solely justified by the fact that people have different, idiosyncratic perspectives on the world. In fact, the already mentioned reference to constructionism leads to a weak ontological position: the objects of the scientific inquiry don’t exist independently from the observers, they are mind-dependent. On the contrary, Duprè’s outlook claims that what is highlighted by each theoretical perspective is not in any sense illusory or unreal: the unearthed aspects *really* exists, on the ground of the adoption of that specific theoretical position which

⁵⁷ As already noticed above, this aspect is very important with regard to the issue of reification.

unearthed them. Thus, one doesn't need to be a constructionist to account for a pluralistic vision of the scientific enterprise: conversely, in my opinion, the proposal of Sternberg and colleagues fits better with a realistic position about the world – as Duprè's one – since it aims at progressively identifying more and more aspects of the construct at stake, striving for an account of it as exhaustive as possible. In other words, the higher order theoretical framework held by theory knitting seems to postulate the possibility to progressively approach *what really exists* (the phenomenon), by means of the integration of different theoretical points of view.

Accordingly, the phenomena investigated by psychology can be understood as real phenomena, preserving anyway a pluralistic outlook on reality.

Coming to the issue of the relationship between theory and practice, it must be noted that Robert Sternberg and Gregg Henriques wrote a paper in 2004 specifically dedicated to the professional aspects of their proposals and to the relationship between theory and practice. Hence, what follows reasonably refers to the position of Sternberg and colleagues and serves as a integration of Henriques' proposal, discussed in Chapter 9.

The perspective endorsed in the paper basically considers the professional practice as intrinsically different from, although connected to, scientific psychology, according to the position of the distinguished psychologist Donald Peterson (1991), one of the most prominent leaders of the movement that advocated a specific training for professional psychologists. From such a perspective, the crucial difference between science and practice deals with the fact that scientific psychology is descriptive in character, i.e., its aim is to describe and explain psychological phenomena, while professional practice is prescriptive in character, i.e., it is oriented towards the goal of change in order to increase psychological health and thus “begins and ends in the condition of the client” (Peterson, 1991, p. 426). This would justify the independence of psychological professional practice from scientific psychology in terms of targets and procedures. Though, science and practice are sure enough connected and intertwined: indeed, psychological knowledge, which is the end of scientific psychology, is but a means to the end for those who practice. Hence, the authors' position is that science and practice have different but complementary roles and “are seen as both necessary and good” (Henriques & Sternberg, 2004, p. 1059).

On this basis, Unified Professional Psychology (UPP, as it is called this perspective) claims the need for a new professional model that is capable of addressing the problems which plague the applied dimension of psychology (see Chapter 5), and whose competencies “cut across the practice

areas⁵⁸ and thus provide a clear foundational training base for an integrative and generalist practitioner model” (*ibidem*, p. 1057)⁵⁹. In general, the UPP model highlights the critical aspects of the science-practice connection, in order to better define the features of professional practice as an autonomous field. Going into more details, the UPP practitioner supports evidence-based practice that is ecologically valid and relevant to the problems to be addressed. Science, to this regards, provides for scientific tools which have to meet some additional criteria, other than those of empirical and conceptual validity: these are the criteria which account for the professional relevance of those tools in the real world (*ibidem*, p. 1059; Sternberg, 2005, pp. 6, 7). According to this position, it is arguable that the aim of science is to increase psychological knowledge that is empirically sound and conceptually reliable, while the aim of professional practice is to assess this knowledge, evaluating their practical relevance and the conditions of application in the real world.

Within such a frame, professional practice is defined as the applied part of scientific psychology (or human psychology, in Henriques’ vocabulary), even if the two – professional practice and scientific psychology – are both commonly connoted as “psychology”. In fact, the use of different names may help, as in the case of biology and physics, whose application are connoted by different names, respectively medicine and engineering. Following such a parallelism, according to the UPP perspective, “professional psychology is to medicine and engineering what the basic science of psychology is to biology and physics” (Henriques & Sternberg, 2004, p. 1060). As physicians and engineers, professional psychologists can be properly considered as scientific practitioners: on the one hand, they are “scientific” because their conducts are scientifically informed and grounded in empirical knowledge; on the other hand, they are “practitioners” because their actions are oriented to practical goals and must respect ecological criteria.

Finally, it is worth noting that Sternberg and colleagues’ unified psychology doesn’t explicitly refer to the continuity between the human world and the animal world, as other proposals so far discussed do. In a sense, this is because this proposal don’t directly deal with the content of psychology, but provides a general outline for the integration of the discipline. Though, by virtue of the pluralistic approach so far outlined, such a continuity cannot be in principle ruled out.

In conclusion, Sternberg and colleagues’ perspective shows the merit to illustrate general methodological and theoretical strategies, whose aim is to better organize the existent, and future,

⁵⁸ The recognized practice areas in the USA are clinical, counseling and school psychology.

⁵⁹ It is worth noting that this is consistent with Henriques’ tripartite model, where professional psychology is understood as different both from psychological formalism and human psychology.

psychological knowledge. Such an outlook is not another “psychology”, but it can be understood as a framework, thanks to which the development of psychology and the connections between theories can be managed, in order to enhance the effectiveness of both scientific and professional psychology, while respecting their intrinsic differences.

Part 4

12. A Fragmented Clinical Psychology

It is customary to say that clinical psychology, as a peculiar ambit of psychology, was born in 1896, when Lightner Witmer, a pupil of Wilhelm Wundt in Leipzig, founded the first Psychological Clinic at the University of Pennsylvania. In Witmer's intentions, clinical psychology – while borrowing a typically medical term – is an autonomous psychological, not medical, discipline. The term clinical indicates whatsoever method whose object is the study of the mental state of individuals by means of observation and experimental research. Witmer's clinical psychology not only deals with maladjusted children, but it doesn't exclude from its scope also normal subjects: the aim remains the same, namely to foster one's development and well-being. The birth of a new kind of psychology was based on the need to exceed the limits, one the one hand, of those psychologies that obtained psychological principles from philosophical and pedagogical speculations and, on the other hand, of those psychologies that directly implemented experimental outcomes to real life contexts (Witmer, 1907). Indeed, its founder deemed inadequate those two alternatives.

Clinical psychology is at present the largest sub discipline of psychology and perhaps the most prominent applied field of psychology. It is worth noting that, despite its influential weight on psychology as a whole and its social appeal on the civil world, its birth, development and professionalization underwent many hardships in the course of time, both on methodological and theoretical levels, thus complicating the stabilization of its institutional organization and scientific legitimacy. Clinical psychology developed as a profession in a time and a in a society where the need for flexible mental health providers, aware of the new social needs, became urgent, or simply favoured⁶⁰. This social demand for clinical psychology was combined with the fact that the training in psychology (included clinical psychology) had always been – and continued for many years to be – conducted within research-based programs in academic contexts. Therefore, on one side, the new challenges of the society, more and more inclined to accept psychologists as credible professionals, required new and creative ways to address ever growing problems, allegedly pertaining to psychology. On the other side, the people and the institutions responsible for the education of young psychologists were new to the application of psychology, and often skeptical in this respect⁶¹. These two coexisting sides – the connection with the world “out there” and its research-based grounds –

⁶⁰ This is approximately true in the United States as well as in Europe and in Italy, although with substantial differences. Though, it is not my intention to historically reconstruct the development of clinical psychology as a profession, but to highlight some crucial aspects of it in order to address the issue from a theoretical and methodological point of view.

⁶¹ This can be argued for Italy (Bagnara et al., 1975) as well as for the United States (Cahan & White, 1992).

make clinical psychology an interesting crossroad between different traditions and methodological approaches.

Even though Witmer's early proposal had a fairly influential scientific legacy, clinical psychology underwent a huge growth only after the World War II (Reisman, 1991/1999, p. 9), when it became a profession in all respect (Bootzin, 2007, p. 11). It can be argued that clinical psychology had been considered by many as one of the most promising candidate to be the "second psychology", the discipline which would address aspects of human mind and behavior within the real world, in ecological contexts, in response and complementary to the laboratory-based tradition of academic psychology (Cahan & White, 1992, p. 224), which was historically and methodologically prior. As already discussed in Chapter 5, when a professional psychology began to be established, the discipline was not provided with a proper methodological tool bag to adequately respond to the issues posed to psychology: this was specifically true for clinical psychology. The success and the social visibility of clinical psychology – as well as the urgency to efficaciously and rapidly respond to growing social needs, in order to strengthen its credibility as a new profession – left little room for a careful scientific reflection on the discipline and its methods. Many psychologists began to be worried about the large amount of theories, methods and practice that characterized the development of clinical psychology after the World War II, sensing signs of disciplinary weakness in it (Reisman, 1991/1999, pp. 414-5). Even today, psychology appears to many simply "too large and diverse to be unified" (Leahey, 1992, p. 479): the same can be easily said about clinical psychology.

Anyway, in the United States, such a fragmentation can be recognized well before the period when clinical psychology developed as a profession (as already said, after the World War II). Indeed, psychology's successful role during the World War I provided a stimulus for a stronger focus on applied psychology, but the APA displeased many of its members in the first attempt to develop standards for clinical practice in 1917 (Reisman, 1991/1999, p. 132; Bootzin, 2007, p. 9). From this moment on, clinical psychologists' efforts to organize themselves and their growing discipline in a consensual way have been many, often in a reciprocal conflicting attitude with the APA, for political as well as for methodological reasons: many associations have been formed, disbanded or rejoined the APA, such as the American Association of Clinical Psychologists (AACCP) (1917-1919), the American Association of Applied Psychology (AAAP) (1937-1945 rejoined the APA), the American Psychological Society (1988-2006, now renamed Association for Psychological Science), the American Association of Applied and Preventive Psychology (AAAPP, 1991-2004), the Society for a Science of Clinical Psychology (1966, still existing) (Bootzin, 2007, pp. 9-20).

Such divisions evidently reflect strong disagreements among those who practice clinical psychology in its variety of expressions, not only concerning organizational issues, but also concerning more substantial issues about the scientific outlook of clinical psychology (see Benjamin, 2005, p. 23). Perhaps one of the most controversial point, still currently present, concerns the connection of science and practice in the training of clinical psychologists. Two different models and philosophies concerning the education in clinical psychology have historically fought with each other in the United States, identifying two different ways to understand the professional and scientific role of the clinical psychologist. On one side, the so called Boulder Model⁶² endorses a scientist-practitioner model: science constitutes the basis from which clinical practice must be performed and developed. In this model, the academic departments are supposed to be in charge for the education in clinical psychology, whose roots are indeed in scientific research. Clinical psychologists' practice is considered to be directly grounded in psychological science: the professional has to be trained both in research *and* practice. On the other side, the Vail Model⁶³ endorses a scholar-practitioner model, where the practitioner would be taught to understand and apply research, but not to be a researcher. The rationale of this model concerns the recognition that professional practice, while needs to be grounded in research, has different problems and aims, thus practitioners must be "local scientists" (Trierweiler & Stricker, 1998), oriented to the specific features and constraints of contexts, clients and organization, that are the environment where the psychological work takes place (Peterson, 1991). In general terms, the core of the controversy is about the role of psychological knowledge obtained through research-based procedures in the design and development of clinical psychological interventions: is scientific research crucial for clinical practice or is it non influential, as it is carried out today in academic settings? In fact, the coin of science-based professions has two faces, since "practice can be restricted to fit the science, or the science can be developed to fit the practice" (Peterson, 1991, p. 429). Beyond the existence of these two rather structured kinds of training model, clinical psychology education and practice still has enormous variability in the extent to which educational programs emphasize science or practice (Bootzin, 2007, p. 17), as well as professional psychologists do in their everyday practice. Therefore, the issue of the connection between science and practice is especially relevant for clinical psychology, as well as is relevant for psychology in general, as discussed in Chapter 5. This is not a topic which only characterizes American clinical psychology, but also Italian clinical psychology. As already noticed, when (clinical) psychology met the "real world out there" – after

⁶² In August 1949 a conference on graduate education in clinical psychology was held at the University of Colorado at Boulder, sponsored by the NIMH (National Institute of Mental Health).

⁶³ Another conference was held in Vail, Colorado, in 1973, where the award of PsyDs was set forth, which is commonly awarded by freestanding professional schools of psychology, rather than by university-based programs.

the World War II – all its inadequacies as a credible profession showed up, also in Italy, where psychologists began to be included in the National Health System and were asked to design and coordinate interventions of social interest. In particular, in Italy the only specificity clinical psychology could boast about was the practice of psychotherapy, even though this was not exactly a *real* specificity, because it was (and it is) shared with physicians. In other words, clinical psychologists overlooked the real world with the implicit idea that psychology – as it was practiced and taught in academic settings – was not useful nor adequate to answer socially relevant requests of psychological intervention⁶⁴. Psychotherapy has been for long considered – and in a sense still is, as will be discussed later – as the only transformative (i.e., applied) area clinical psychologists could count on. Only psychotherapy, not psychology, could provide tools aimed at affecting the problems and issues put under psychologists' consideration (Carli & Grasso, 1991, p. 177). Though, psychotherapeutic techniques were originally designed mostly for individual interventions in private settings: the multiplicity of needs clinical psychologists found in the wide range of settings where they were asked to work brought out all the limitations of the traditional psychotherapeutic approaches. But those psychotherapeutic traditions – despite their many differences – were strong anchorages in order to define clinical psychologists' own practice and identity as credible professionals (Berdini et al., 1992). Given this situation, it can be argued that the development of clinical psychology in Italy as a profession has been characterized by two relevant sources of fragmentation.

On one side, the fact that psychology was considered incapable to provide sound tools for psychological interventions – and psychological education struggled to train future psychologists as clinical psychologists – laid the foundations for the identification of many clinical psychologists with other kinds of professions, that were deemed more socially credible. In other words, many psychologists ceased to consider themselves as psychologists and began to generically define themselves as (health) *operators*. This is now considered to be as an ideological attempt to remove the professional differences and specificities between people working together, in order to legitimate and justify the presence of clinical psychologists in the health settings where physicians, nurses and social workers served. In this way, many clinical psychologists turn out to give up their own professional specificity, camouflaging themselves within the comforting boundaries of more socially acknowledged professions (Carli, 1989). This evidently hindered the development of clinical psychology as an autonomous discipline and brought to a sort of fragmentation of the

⁶⁴ This was somehow endorsed and confirmed by those that deal with psychological education within the academic departments. On one side, psychology was considered by many as a scientifically immature discipline, thus not capable to constitute the basis for a proper profession. On the other side, the academic psychologists mainly disagreed about the possibility of the development of a professional scientific psychology (Lombardo, 1993, p. 125-7).

profession, whereas clinical psychologists renounced not only to their theoretical and methodological specificity, but also to their social role as psychologists.

On the other side, the reference to psychotherapy as the only viable practice for clinical psychologists has been another crucial source of fragmentation. Indeed, in Italy, as elsewhere, the psychotherapy traditions have been diverse and self-referential for long: as Robyn Dawes (2005, pp. 1245-6) asserted about a common attitude in clinical psychology, everyone tended to fish on his own side of the lake and no one was really interested in fishing in the middle. The connections between practitioners of different approaches were generally kept under a suspicious or, at best, cautious attitude and the contacts were rare or occasional. Isolation has been the rule for long. Moreover, the strong professional identity provided by the reference to the different psychotherapy's orientations brought to the hardening of such a reciprocal isolation: often, if not always, the only scientific, methodological and social references for many Italian clinical psychologists have been provided by the affiliation to a psychotherapeutic tradition (Berdini et al., 1992; Malato et al., 1993). This evidently fed fragmentation and hindered the development of a clinical psychology that would be capable of overcoming the hodgepodge of psychotherapeutic traditions.

In the course of time, the reference to psychotherapy as the main and most legitimate professional practice for clinical psychologists has begun to slowly collapse, as clinical psychology progressively found its place as a profession in Western societies and was asked to respond to new social challenges and to account for its scientific validity. Since the early 1990s, it can be generally argued that clinical psychologists began to be dissatisfied with single-school approaches and the usual prudent isolation between different traditions started to break up, at least in the United States (Norcross, 2005, pp. 3-4). The progressive opening of the borders has been caused by many factors, related both to the professional practice and to the scientific research in the psychotherapy area. Again, the relevance of psychotherapy for clinical psychology can be well ascertained.

On the professional practice side, psychologists found that some problems could be better addressed by other methodological or theoretical tools, which might complement their own primary orientation's weaknesses. The awareness was growing that "no one approach is clinically adequate for all patients and situations" (*ibidem*, p. 5). Differences began to be deemed as resources, not only as insurmountable barriers: experimentation and heterodoxy in psychotherapy flowered, as the intellectual and sociopolitical climate fostered it (*ibidem*, p.6). Moreover, the increased availability of manuals and videotapes permitted to appreciate differences and commonalities of various

treatment approaches, spreading more efficaciously the knowledge about psychotherapies. On the scientific research side, a plethora of theories and techniques are now proliferating, making the traditional psychotherapeutic scenario more and more complex and rich: new approaches integrates, substitute or modify traditional approaches, or simply stand beside them. Furthermore, the recognition that different treatments contribute in different ways to specific psychological problems – and the rise of evidence-based and manualized treatments – together with the recognition that the so-called common factors – properties of the patient and therapy relationship – heavily contribute to the therapy effectiveness are factors that are somehow progressively loosening the grounds for the exclusive reliance on a single psychotherapeutic technique.

Such a situation has two main consequences for the issue at stake. On one side, this cultural turmoil are disbanding the traditional boundaries among the various approaches. In this way, psychotherapeutic traditions may be no longer considered as strong methodological and professional references for clinical psychologists: somehow, clinical psychologists are compelled to give up their psychotherapeutic clothes with a view to put on new clothes. For example, it is worth noting that a recent research shows that in the United States fully 90% of psychologists embraced several orientations (Norcross, Karpiak, & Lister, 2004), that is, declared themselves not be rigidly bound to a single therapeutic approach. On the other side, such integrative or eclectic attitude is idiosyncratic and rather “instinctive” in character, within the clinical psychology community. Although a psychotherapy integration movement raised and developed in the last three decades – as well as a related literature – as an autonomous area of interest (Goldfried, Pachankis, & Bell, 2005, p. 24), the managing of different clinical psychological tools, their integration, the examination of their theoretical basis and similar processes are so far left to the initiative of single professionals within their everyday practices. In other words, in this exciting professional and scientific challenge, clinical psychologists seem to try to orient themselves in the jungle of techniques and theories without a proper compass, but with the only help of their intuition and expertise. A bottom-up approach (single psychologists’ initiative informs theoretical and methodological issues) stand in for a top-down approach (theoretical and methodological remarks inform single psychologists’ initiative). Sure enough, this state of affairs – which seems to emphasize the role of the expertise and “nose” of single practitioners rather than the role of scientific and philosophic meditation – does nothing but feeding the fragmentation of clinical psychology.

Before examining more in detail how clinical psychology is generally defined – through the review of the American and the Italian definitions of its peculiar disciplinary content – it is worth considering some data about the clinical psychologists’ community that highlights its state of affairs

and the specificities of the current fragmented scenario so far described. In a relevant paper, Norcross, Karpiak and Santoro (2005) reviewed the data provided by five significant researches about crucial features of the professional community of clinical psychologists – namely Kelly (1960), Garfield and Kurtz (1973), Norcross and Prochaska (1981), Norcross, Prochaska and Gallagher (1986), Norcross, Karg and Prochaska (1995) – and compared the outcomes with those of a 2003 study⁶⁵, which is the core of the paper. Here I will report some interesting data that reveal the state of fragmentation of clinical psychology's community today, together with the data gathered in Italy by the psychologist Claudio Bosio in a 2011 research⁶⁶ about the professional and scientific features of the Italian psychological community.

Norcross and colleagues show that in every data gathering, from 1960 to 2003, the modal orientation⁶⁷ regarding the theoretical orientation is eclecticism or integrational approach (29% in 2003) (2005, p. 1471). Since 1960, more or less one third of the sample declared to endorse an eclectic theoretical attitude as the primary orientation. Behavioral orientations remain constant during time, while the cognitive approaches continuously increase in popularity, almost reaching eclecticism in 2003 (28%). On the other hand, psychodynamic orientations progressively decrease their influence, reaching the 15% of the sample in 2003. The data show a rather fragmented scenario; the fact that the modal orientation has always been eclecticism provides evidence for an even more serious situation. In fact, while those who endorsed a traditional approach (behavioral, cognitive, constructivist, humanistic, psychodynamic orientations etc.) may be properly referred to well-known and prominent professional and scientific traditions, those who endorsed eclecticism couldn't be referred to any known or scientifically qualified theoretical approach. In other words, whereas the traditional orientations can be easily – even if approximately – traced back to a limited numbers of core principles and primary methods, eclecticism can be envisaged as a great holder where different kinds of approaches coexist. The problem is that those eclectic approaches are not explicitly defined and cannot be intersubjectively reviewed, rather, their blend seems to be idiosyncratic in character. Thus, it can be argued that the relevance of eclecticism actually enhances the state of fragmentation beyond the boundaries of traditional psychotherapeutic approaches, rather

⁶⁵ The authors mailed a self-administered questionnaire to 1,500 randomly selected members and fellows of the APA Division 12 (clinical psychology) living in the United States, concerning their professional practice. The final sample consisted in 654 clinical psychologists; 649 questionnaires were returned, but 40 of them were not usable for various reasons, primarily due to retirement (n=36).

⁶⁶ The author administered a structured interview, by telephone, to 1,947 Italian psychologists selected among the members of the Regional Psychological Associations in Italy (Ordini Regionali). 79% of them (n=1,541) accepted to be interviewed and constitute the final sample.

⁶⁷ The most frequently occurring score in a batch of data.

than representing a common ground among orientations. For example, Norcross (2005, p. 12) reports the outcomes of an impressive study where 90% of psychologists reported to embrace several orientations. Here, the crucial question is: do all these psychologists combine those different orientations in the same way? And how? It is evident that fragmentation does not only stem from the existence of different codified approaches, but also from eclecticism, and even more seriously.

The Italian situation has either similar and different aspects. When psychologists are asked to indicate their theoretical orientation, different schools and approaches are mentioned. Most of them (25%) declare to be devoted to approaches that can be somehow traced back to the psychodynamic area (Freud, Klein, Adler, Lacan, Jung, Transactional Analysis). This datum seems to diverge from the American trend, where the psychodynamic approaches are progressively losing ground. Then, 11% of psychologists endorse a systemic approach, while cognitive-behavioral orientation is endorsed by only 9% of them (Bosio, 2011, p. 51). It is quite clear that the psychodynamic tradition is still very relevant among Italian practitioners, while the behavioral and cognitive approaches are still behind the lines, as they represent 38% of American practitioners, when added. It is worth noting that eclecticism, in the Italian research, is mentioned by only 1% of psychologists, a very different value in comparison to the American study (23%). Evidently, eclecticism plays a marginal role among Italian clinical psychologists, at least on the basis of what they verbally report. Indeed, eclecticism may be just an unpopular verbal label in Italy, although it might be actually practiced: easier said than done, as the saying goes, but also the reverse can be valid. In general terms, the Italian and American situations share the existence of different orientations among clinical psychologists, though they hold different weights and relevance in the two professional communities. It can be reasonably argued that, on the one hand, American clinical psychology, dominated by eclecticism, seems to be more concerned with the pragmatic aspects of the discipline, whose components (theories, techniques, methodologies) are deemed to be tools which can be creatively combined, based on the individual practitioner's targets. On the other hand, Italian clinical psychology, dominated by the strong reference to psychotherapeutic schools, seems to be more concerned with the social image of the community, whose identity and professional legitimation seems to be uniquely or mainly achievable through the reference to strong psychotherapeutic traditions.

A relatively similar scenario stems from the activities of clinical psychologists. In America in 2003, psychotherapy was still the predominant activity, with 80% of the sample spending 34% of their professional time in it. Although psychotherapy was prevalent, almost half of psychologists were routinely involved in other six activities, other than psychotherapy (diagnosis/assessment, teaching,

clinical supervision, research/writing, consultation, administration) (Norcross et al., 2005, p. 1474). Even though the Italian sample comprises psychologists and not specifically clinical psychologists (as in the American study), when they are asked to report about the activities they are engaged in, 55% of them turn out to be devoted to activities that can be easily defined as clinical (psychological support, counseling, psychotherapy and clinical interview), while 25% are devoted to interventions performed in schools' settings (school intervention, education) (Bosio, 2011, pp. 49-50). In general terms, from these data psychologists seem to be rather clustered around interventions oriented to help people and promote health. Though, it is worth noting that the prevalence of psychotherapeutic or para-psychotherapeutic activities does not provide *per se* a proper anchorage for the profession. Indeed, the reference to psychotherapy provides a general frame which includes tremendously different practices, theories and methodologies. In other words, the reference to psychotherapy, though representing a useful social label that legitimates psychologists' professional practice, enhances the state of fragmentation, rather than representing a common ground for the discipline. In addition, it can be argued that this strong reference to psychotherapy – as a great holder from which is provided professional legitimation and social credibility – can be somehow risky, as it can be considered as a hindrance to a serious meditation on the targets, methodologies and social usefulness of psychological interventions.

To better evaluate such a fragmented situation it is worth to briefly review the issue of the training in clinical psychology. In the United States, clinical psychologists are trained through graduate studies (PhDs, mainly awarded from universities, or PsyDs, mainly awarded from freestanding professional schools). As already illustrated, the main controversy about their education is focused on the role played by science and research in the education of professional clinical psychologists: in general terms, those who maintain that clinical practice must be research-based and that clinical psychologists must be trained both to provide services and to conduct research, integrating these two functions in their work (i.e., the Boulder, or scientist-practitioner, Model), are opposed to those who maintain that clinical psychology is a local enterprise: research-based principles provide a basis for clinical practice, whose main aim is to face real, unique problems, which require a proper application of those principles. In order to do so, practitioners are trained to be skilled consumers of research, not producers (i.e., the Vail, or practitioner-scholar, Model). In other words, two different conceptions of clinical psychology are at stake, where the connection or disconnection between opposite components of the discipline, such as science vs. practice and generality vs. individuality, is a crucial issue. Such a debate has longstanding origins, since it directly reflects the different positions supported by those who contributed to the birth and development of scientific psychology

(see Chapter 5) and it indirectly reflects the controversy between the supporters of monistic and dualistic approaches (see Chapter 1).

As in the United States, in Italy clinical psychologists are trained through graduate studies. Though, this training is mostly delegated to freestanding psychotherapy schools, which are therefore in charge for the education of clinical psychologists. It is clear that this situation is evidently vitiated: to become a clinical psychologist one must be trained by a psychotherapy school, as if clinical psychology *is* psychotherapy, nothing more, nothing less. Even from this simple fact – outwardly just an organizational issue – the relevance of psychotherapy in Italy as the main reference in the clinical education and practice turns out to be evident. Therefore, the training in clinical psychology is inherently fragmented: psychotherapy, as already illustrated, is but a holder where diverse kinds of treatment and intervention coexist. Thus, the great importance of psychotherapy in the education of clinical psychologists makes their education clearly diversified and fragmented, as psychotherapy as a whole is diversified and fragmented. The fact that psychotherapy schools, on the one hand, embody strong therapeutic traditions (such as psychoanalysis, behaviorism, cognitivism etc.) and, on the other hand, embody idiosyncratic and minute variations of those traditions (which can often be considered as mere sub-schools) jeopardizes the integrity and autonomy of Italian clinical psychology. Some recent data on psychotherapy schools will confirm this scenario. In a 2011 study commissioned by the MIUR (Ministero dell’Istruzione, dell’Università e della Ricerca, the Italian Department of Education), 212 Italian freestanding psychotherapy schools attended to a research about the quality of training (Maffei et al., 2012). It is worth noting that the schools, when asked to specify their own scientific orientation, declared to endorse 102 different orientations. This means that for each orientation there are just little more than two schools! More in details, 64% of schools (135) shared a orientation with at least another school, while 36% of them (77) didn’t have any shared orientation, that is, had a unique orientation⁶⁸. These data are impressive and they confirms what mentioned before: the world of psychotherapy training (and practice) is fragmented and this fragmentation stems both from the existence of well-known, self-referential, great traditions, and from the existence of a large number of “new” schools whose theoretical and methodological references cannot be neatly traced back to well-known traditions.

The qualifications of those who provide education for clinical psychologists is also important for the issue at stake. In the research of Maffei and colleagues (2012), 66% of the teaching staff

⁶⁸ It is interesting to note that these data are basically coherent with those gathered by Lombardo and colleagues more than twenty years ago. Indeed, in their study, 31% of freestanding psychotherapy schools declared to be devoted to a “specific and original vision of psychotherapy” (Lombardo et al., 1991, p. 301, my translation) elaborated by their own founders.

working in the sample of 212 schools is formed by “skilled psychotherapists”, while only 34% comes from academic settings. It is arguable that those skilled psychotherapists gain expertise mainly from their practice and from their professional experience under the guidance of their school’s orientation: the implicit assumption is that the practice of psychotherapy, based on that specific orientation, is capable of developing an expertise that legitimates the possibility to teach that technique. If this hypothesis is sound, what is taught by those skilled professionals in many freestanding schools has little or, in the worst case, no reference to research-based practice or general psychological principles, as most of the teaching staff is not connected to academic settings. The relevance of clinical psychologists employed in private practice in the training area is evidently growing (see also Norcross et al., 2005, p. 1474; Bosio, 2011, pp. 59-66), and this can be viewed as a further source of fragmentation for clinical psychology, which is likely to be progressively disconnected from procedures based on science and psychological principles and to be progressively more connected to procedures based on expertise and “clinical sense”.

But what precisely is clinical psychology? A comparison between two influential definitions seems to be a useful way to approach the issue of the boundaries of clinical psychology. For this purpose, I will deal with the definition provided by the Division 12 (Society of Clinical Psychology) of the APA (American Psychological Association), representative of the American outlook on clinical psychology, and the definition provided by the Collegio dei Professori Universitari e dei Ricercatori di Psicologia Clinica (Board of University Professors and Researchers of Clinical Psychology), the Italian Association which gathers those interested in promoting and developing clinical psychology, both on scientific and applied sides (Molinari, Labella, 2007, pp. 315-6). Let’s first discuss the common aspects of the two definitions. Both describe clinical psychology as a psychological discipline which addresses problems relating to psychological uneasiness and suffering, such as maladjustment, disability, discomfort, dysfunctional mental processes. The target is at the individual, interpersonal or group level: the interventions can be designed in order to work on single individuals or on relationships in general, including groups or families. While soothing psychological discomfort seems to be its primary aim in both definitions, clinical psychology is also devoted to the promotion of psychological health, according to a model which considers the integration and the interdependence of the biological, social and psychological aspects. In other words, psychological health is considered to be strongly intertwined with biological and social conditions, so clinical psychology cannot ignore those aspects in its mandate. Given those boundaries, clinical psychology generally aims to understand (APA; Molinari, Labella, 2007), explain, interpret, reorganize (Molinari, Labella, 2007), predict and alleviate (APA) psychological distress. While generally committed to unravel interpersonal problems relating to psychological

discomfort and to promote health, clinical psychology as defined by Italians seems to emphasize those aspects pertaining the intellectual understanding and explanation of phenomena (understanding, explaining, interpreting), rather than the pragmatic dimension of the prediction and the alleviation of distress, as Americans do. This remark shows up some slight differences in the two visions upon clinical psychology, beyond the commonalities already discussed. In the Italian definition, where the intellectual aspects of the inquiry seems to be slightly prevalent, the pluralistic character of clinical psychology is repeatedly mentioned as an intrinsic feature and as a virtue of the discipline: clinical psychology operates through “natural science standards as well as human science standards” (Molinari, & Labella, 2007, p. 316, my translation), psychotherapy has “different strategies and methods” (*ibidem*, p. 315, my translation), the research and applied dimensions are “profitably fed by a plurality of models” (*ibidem*, p. 315, my translation) and their methods are “legitimated by different traditions of study” (*ibidem*). Every expression of clinical psychology seems to be under the auspices of plurality and inner diversity. The American definition, on the other hand, seems to identify the diversity within clinical psychology focusing on the gap between science and practice (see Chapter 5). In the intentions of those that wrote the definition, this gap seems not to be a virtue, but something that needs to be filled through the integration of the two aspects, no matter what “integration” means: “the field of Clinical Psychology integrates science, theory, and practice [...]” (APA), “the Clinical Psychologist is educated and trained to generate and integrate scientific and professional knowledge and skills [...]” (*ibidem*), “researchers study the theory and practice of Clinical Psychology [...]” (*ibidem*). Therefore, both definitions recognize some sort of fragmentation within clinical psychology: while the American definition seems to strive for filling that gap, the Italian definition describes a discipline where different aspects (traditions) coexist with no or little room for comparison and exchange. Such a scenario may be similar to the one described by the psychologist Robyn Dawes, who suggested that when he entered the field, the state of clinical psychology could be finely caught by the name *Chargoggaggoggmanchargaggoggcharbunagungamaug*⁶⁹ (the ancient name of Lake Webster, in Connecticut) (Dawes, 2005, pp. 1245-6): different approaches were legitimated by their own traditions and their research, methods and professional applications operated quite independently from those of other traditions. Indifferent independence was (is?) the prevailing attitude. It can be suggested that the American definition, emphasizing the pragmatic side of clinical psychology, is more inclined to wish for the integration of the scientific and professional aspects; it describes a field that strives for connecting the basis (science) to the applied dimension (practice), which is depicted as very relevant. Though, the expressed intention of connecting theory and practice doesn't

⁶⁹ Native American for “I fish on my side, you fish on your side, and no one fishes in the middle”.

specify the modes of that connection. On the other hand, the Italian definition, emphasizing the intellectual, speculative side of the discipline, simply recognizes a state of pluralism which seems to be rather unproblematic. This definition describes a field that is more oriented to the preservation of an existent, legitimate, unproblematic pluralism: phrases like “the research tradition [...] is profitably fed by a plurality of models” (Molinari, & Labella, 2007, p. 316, my translation), “[...] such models are guided by different epistemological and theoretical-methodological assumptions” (*ibidem*) and “ [they] are characterized by infeasible differences” (*ibidem*) are meaningful expressions. The origins of such a plurality are argued to be rooted in the variety of traditions that developed in the course of time within the scientific community.

One last point to be noted concerns the issue of subjectivity. In the Italian definition, subjectivity has a pivotal role in clinical psychology, specifically as a tool to design and perform clinical interventions. The “subjective system of the clinical psychologist” (*ibidem*) is argued to be one of the most relevant tool for the practice of clinical psychology. The professional, properly trained through a “specific training and clinical practice” (*ibidem*), makes her own “emotional, cognitive and relational system” (*ibidem*) a methodological device in the service of her professional practice. This reference to subjectivity is completely missing in the American definition, where the education of clinical psychologists is centered on scientific and professional knowledge, which seems to constitute a sort of double core of the discipline. This odd position of subjectivity – completely ignored by the American definition, deemed as crucial in the Italian definition – may be somehow connected to the different views that the two definitions hold about the intrinsic plurality of clinical psychology. As a matter of fact, the emphasis on subjectivity fits fairly well with a legitimate state of methodological and theoretical plurality: the professional use of subjectivity, although properly trained, is supposed to give rise to a variety of procedures, which are in turn legitimate by the fact that one of the most relevant tool of clinical psychology is argued to be subjectivity itself. In other words, it can be reasonably assumed – as an hypothesis, for the moment – that the legitimization of subjectivity as a sound device for clinical practice is connected to the unproblematic pluralistic nature of clinical psychology as defined by the Italian board.

Part 5

13. An Empirical Research: Psychology as a Science and a Profession

What have been so far illustrated are some – interesting I hope – theoretical remarks on issues somehow connected to the main topic of this work, namely the unity, or disunity, of psychology. In Part 1, some general, philosophical issues have been touched, in order to provide a sort of framework in which to place the state of psychology and, later, of clinical psychology. There, a primary dialectical tension emerged, that between those who supported a monistic, method-oriented psychology and those who supported a dualistic, object-oriented psychology⁷⁰. As now is clear, similar oppositions unsettled the development of psychology as a cohesive discipline; rather, different levels of fragmentation have been uncovered, showing psychology's vulnerability, from a theoretical as well as from an applied point of view (Part 2). Various forms of unification have been proposed in Part 3, with various aims and different degrees of complexity. Even in such attempts to unify psychology, the traditional tensions and vulnerabilities of psychology are apparent; sometimes the authors hold a clear position, sometimes they are not explicit about their assumptions. Then, in the brief illustration of clinical psychology's roots and in the analysis of the Italian and American definitions of the scope of the discipline, the emergence of different, mutually incoherent, seemingly acritical conceptions of clinical psychology shows how problematic is the inclination of psychologists to cover and not to explicit their fundamental philosophical and theoretical assumptions.

Part 1, 2, 3 and 4 are designed to examine some important issues about the unity or disunity of psychology, from a theoretical point of view. Next Part (5) illustrates an empirical work concerning how psychologists see their discipline as a science and as a profession. Indeed, professional practice is a strategic area where both the theoretical and the applied dimensions of the discipline strives to find a reciprocal and efficient balance. Indeed, the relevance of professional practice lies in its double concern about, on one side, theoretical issues – whose purpose is to direct the professional behavior toward specifiable and desirable ends – and, on the other side, practical issues, relating to the specificities of what is asked to the practitioner in ecological contexts. The aim of the present research is to explore the practitioners' different perspectives on psychology and to uncover what kind of features they attribute to their work, as practitioners in a scientifically-based field. The interest of the present research lies in those emerging aspects that can be compared with the

⁷⁰ Also the basic conception of the world, as briefly noted in Chapter 4, presents a similar tension, between those who support various form of essentialism and those who refuse such kinds of position; adopting one position or another is influential for the issue at stake.

theoretical issues illustrated in the previous parts. Indeed, the approach underlying the theoretical remarks here presented is substantially top-down, in the sense that theory precedes and should inform professional practice. This kind of approach strongly reflects the academic way to create and manage knowledge: the privileged perspective is the theoretical one. On the contrary, the present empirical research grounds on a bottom-up approach, in the sense that professional practice provides data that are potentially useful for theory construction. This kind of approach strongly relates to the professional way to create and manage knowledge. In this perspective, such a research should integrate the traditional, top-down approach, through giving voice to issues coming from the professional world, which have to be strongly connected with the work of those who deal with theory construction, in order to give applied psychology a solid, scientific ground, and to make academic research significant and useful for practitioners, as already noted in Part 2.

13.1 Theoretical Background: Emotions and their Social Display

The present research got under way considering the fact that emotions are primary determiners of human behavior. Emotions are usually defined as complex reaction patterns by which the individual attempts to deal with a personally significant matter or event (APA, 2007). The quality of the emotion is determined by the significance and the meaning of the stimulus, in order to readily react to cogent aspects of the environment. Emotions are predominantly associated to individual processes, as hard-wired ways to moderate the connection between the organism and the environment. Though, emotions are not just important determiners of individual behaviors, rather they also play a primary role in group and organizational processes.

In particular, the Italian psychologist Renzo Carli and his colleagues developed over time an analysis of the role of the emotions in organizational settings, in order to understand the dynamics of the behavior of social groups. In line with the literature on groups' dynamics, the authors noticed that the behaviors of organized social groups – such as, for example, teamworks, sport teams, professional groups or just groups that share common objectives – are not only guided by rational considerations, which would permit to achieve their explicit (e.g., productive) goals in the most direct and effective way. The behaviors of groups and organizations *are supposed* to be completely oriented in such a way, but they are not. Rather, their behaviors are strongly influenced by factors that are completely unrelated to those goals, although such groups or organizations are naturally expected to be focused on those goals for which they were formed or established. From this perspective, groups or organizations seem to show two different dimensions (for more details, see

Carli & Paniccchia, 1981). On the one hand, one dimension concerns the rational planning oriented to the achievement of explicit goals, which can be achieved through processes as the specifications of roles, the division of tasks, the adoption of goal-oriented strategies and so on. It is the most evident, explicit dimension of an organized social group. On the other hand, the other dimension concerns the emotional aspects that influence the explicit functioning of that group, that is the way the members emotionally experience the context they share. Here emotion means the way an individual, or the members of a group sharing a context, defines an aspect of reality, experiencing it in its emotional dimension. The term emotion refers to the way an individual (or members of a group) idiosyncratically relates to specific aspects of reality. It is worth noting, however, that those two dimensions can be mutually coherent or not. In other words, the emotional aspects that substantiate a specific social group can either serve or hinder the achievement of its explicit goals.

But what exactly are the social displays of emotions, as those that reveal in organizational and group processes? Renzo Carli tried to detail this phenomenon through the notion of *collusion*⁷¹. Such a word comes from Latin *cum-ludere*, to play with, together, and *colludere*, conspire, and thus it suggests the idea of sharing something among other people. In fact, collusion, as a psychological term, refers to the common way the members of a social group emotionally experience the context to which they belong (Carli, 1993, p.14). In other words, there are common, shared, emotional components among those who belong to the same context; for context, we specifically mean those elements of the real world that the members of a group share. From such a perspective, collusive processes keep social cohesiveness within those who belong to that group, serving as a sort of common view with reference to that specific context. Moreover, collusive processes – being social displays of emotions – specify the way the members react to cogent aspects of the environment, especially other human beings. This is the reason why emotions, while are usually defined in a-contextual terms (such as joy, sadness, anger and so on), *de facto* always refer to a relational system or context, that is to a relationship of some kind (such as, for example, the couple friend-enemy) (Carli & Paniccchia, 2002, p. 21). In this sense, the analysis of collusive processes permits to investigate the emotional – that is, not necessarily related to the achievement of rational, explicit goals – aspects of the way the members of the group get in touch with others, by means of their shared emotional models of reality; in other words, such analysis is able to disclose important aspects of the relational patterns of the group as a whole, *beyond* the explicit and rational goals for which the group has been originally formed or established.

⁷¹ Hereafter, this term will be used in its technical meaning, as specified in the text.

The collusive processes characterizing a specific context and a specific social group form a *local culture*⁷² (*ibidem*, pp. 15-7). The authors maintain that collusive processes are conveyed by language – both spoken and written – and therefore the analysis of it permits to investigate important aspects of a local culture, disclosing its features. So, the key hypothesis is that language is the main door to explore the emotional world of a social group. But language also conveys aspects relating to the explicit achievement of organizational goals. So, in what sense does language convey emotions? The assumption at the basis of such hypothesis is that every word has an emotional value: some words have a low value (as articles, adverbs, pronouns, conjunctions), some have high value. Those words that have high emotional value are called *dense words* (*ibidem*, p. 23). For example, “bomb” is a dense word, because it conveys polysemic emotional meanings and evokes many emotional hints. On the contrary, a word as “go” is not a dense word, because it evokes ambiguity, it needs to be inserted within a sequence of words, in order to organize its own emotional dimension; by itself, it doesn’t convey emotional meaning. So, dense words can be defined as symbolic expressions whose emotional meaning *precedes* the intentional meaning as it is organized by the syntactic and rethorical structure of language (*ibidem*). From this perspective, what is relevant to uncover the collusive processes that substantiate the local culture is not the intentional network of links between words, which conveys the intentional meaning of a text as we read it. Rather, the assumption is that, beyond this connecting structure of the text, the analysis of selected recurring words (i.e., dense words) can show a *new and different meaning* between those words. Since the syntactic connections between words are not the target for the analysis here proposed, the intentional, explicit meaning of texts is not interesting, according to the assumptions above specified. Though, the proper examination of the recurrence of dense words permits to decrease the polysemy of each word, unraveling its emotional meaning within the text. In other words, in order to understand the emotional dimension of the texts under analysis, the target is not language, but sequences of single (dense) words, parceled out from the linguistic structure of the original text. These words, making up new sequences, not present in the original text, can suggest new emotional meanings, that have to be interpreted in inferential ways. In conclusion, the main assumption of the present research is that the analysis of the recurrence of dense words – by means of proper softwares – reveals important features of the local culture of the social group whose members produced the text (both spoken or written). In this perspective, there is a sort of isomorphism between the local culture and the emotional structure of the text, as revealed by the analysis of the recurrence of dense words (*ibidem*, p. 57).

⁷² Culture here is used a synonym of collusive processes.

Such an analysis is made using a specific method, called AET (Analisi Emozionale del Testo, Text Emotional Analysis), whose aim is to interpret the emotional meaning conveyed by the sequences of dense words, which are the outcomes of the computer analysis. AET is a method aimed to get the emotional meaning of the text referring to that specific social group in that specific moment of its existence. In other words, the method tries to connect the sequences of dense words with the features of the social group at stake and its context, in order to better reconstruct the emerging local culture. The choice of the dense words, achieved by the researcher, depends on two aspects: the stimulus – in response to which the text has been produced – and the context – which represents the common dimensions of reality shared by those who produced the text. Indeed, these aspects constitutes the framework of the local culture to be analyzed. In this theoretical framework, AET is a method that can be adopted in order to interpret the outcomes of the computer analysis, so it works on sequences of words extracted from a text, in order to reduce their polysemy. Indeed, those sequences of dense words are highly polysemic, that is they can convey many different meanings. For example, a sequence of dense words of a text produced by a client attending to a psychotherapeutic treatment can be: *to be afraid of – delay – session*. The reconstruction of the emotional meaning can be accomplished in many different ways: for example, “I am afraid to come to session, then I come late”; “I am afraid to come late, then I come to session”; “The session comes late in my life, alas! I fear for myself”, and so on. Those words have to be organized in reference to the context of those who have produced the text from which the sequence of dense words have been pulled out. The “correct” meaning can be only referred to the specificity of the circumstances at stake, reconstructing the emotional meaning by means of associative inferences, starting from the sequence of dense words at stake (*ibidem*, p. 53). Thus, once the intentional, linguistic meaning has been deconstructed, the interpretation of the sequences of dense words permits to reconstruct another kind of (emotional) meaning, often very different from the former. In other words, AET is a theory about the analysis of the emotional relationship between the dense words of a text.

The procedure that we followed envisaged these steps. We created a corpus, that is the complete text on which the analysis will be carried out. At this step, it is fundamental to disambiguate the text, for example differentiating between words with different meaning, but written in the same way (for example, in Italian “legge” can be either “law” or “he/she reads”). This process of differentiation between words has to be accomplished only on words that seem to be key for the issue at stake. Moreover, in the creation of a corpus we chose the explanatory variables that we intended to consider. Then, the software produced a list of words (or, better, lexemes) to be analyzed. This step envisaged the choice of the dense words to include in the analysis. Afterward, the software executed the analyses to specify clusters, which are differentiated by the presence of

the same, specific dense words. In particular, every sequence of dense words is composed by words that recur within a specific text unit; at the same time, every sequence significantly differ from other sequences that recur in other text units (*ibidem*, p. 55). The assumption is that the recurring words of a text unit illustrate features of a local culture. Within every cluster, dense words are hierarchically organized, from the more statistically significant to the less significant. Such an arrangement permits to decrease the infinite polysemy that characterize each word (if considered individually). Indeed, words are arranged in list where their chi2 values progressively decrease, so each word has a limiting function on the polysemy of those words that precede in the statistical importance (Carli & Paniccia, 2007, p. 46). In this way, the encounter of dense words determines the meaning of the cultural repertoire (cluster) at stake, unveiled by AET.

In the present research, we collected reports, which constituted the material of the whole analysis. The key assumption about reports is that a report is a sort of description of an event based on idiosyncratic interpretative models; in other words, the description of the object of the report is strongly influenced by those models, which emerge within the report itself. Indeed, proposing to someone to produce a report about a specific object/event induces her to clarify her theoretical pre-conceptions about the object/event itself (Battisti, 2006, p. 122). Such assumptions support the use of the report in this research, as main method to get in touch with those pre-conceptions that make up collusive processes.

13.2 Introduction to the Present Research

Given these premises, the research here presented is intended as a preliminary exploratory endeavor. Its object is the way practitioners view their discipline considering its double soul: theory and practice. The hypothesis is that the texts produced by a decent number of psychologists are able to convey important aspects about the way they *emotionally represent* their profession, beyond the formal, often trite aspects that emerged from the reading of such texts. Those emotional aspects are relevant for the present work, because they necessarily inform the practice of psychology, which is heavily influenced by the theoretical pre-conceptions of those who practice it, as any other human activity. In other term, the hypothesis is that the emotional dimensions revealed by the present analysis can shed some light on the way theory and practice are *really* articulated in everyday professional practice, showing those hidden conceptions that most characterize psychology as a professional – here, intended as not academic – endeavor. This would also show symmetries and

asymmetries between those two souls of psychology, practice and academy, which have been shown to be too often divergent and reciprocally insignificant.

13.3 Instruments and Method

We collected 96 reports produced by Italian psychologists working in different areas. The creation of the report were asked through a target-question: “We ask you to think about your professional experience regarding psychology as a science and as a profession and to write your considerations down”⁷³. The form was administered by email⁷⁴ to 716 psychologists working in Lombardia and Lazio, two Italian regions where psychologists are numerous. The email addresses have been collected through the website of the professional psychologists association in Lombardia⁷⁵ and through personal knowledge of colleagues. About 15 or 20 days after the first email, those who didn’t answer were requested again to answer to the form attached (with an additional email). After two attempts, the contact was considered not included in the research.

96 psychologists, out of 716 who had been contacted, wrote up the form and sent it back. The form, that can be fully examined in the appendix⁷⁶, presented the present research as “a multidisciplinary research aimed at describing the way psychologists consider their own discipline”. They were asked to consider the target-question as a stimulus for better illustrating their opinion about the issue at stake. The form also suggested to write one’s opinion at two different times (for example, two different days), in order to foster a deeper and broader analysis of the issue at stake. Furthermore, the form asked some information about the education and the professional practice of the compiler. The explanatory variables considered were: sex (two levels, male/female), age (two levels, younger/older than 35), residence (two levels, Lombardia/Lazio), type of degree (two levels, psychology/other⁷⁷), year of graduation (three levels, up to 1987/from 1988 to 1999/from 2000 on⁷⁸), psychotherapy license (two levels, yes/no), theoretical orientation (four levels, psychodynamics/cognitive-behavioral/systemic/other), area of practice (eight levels, psychiatry/drug abuse/child psychology/forensic psychology/health psychology/rehabilitation/more areas/other).

⁷³ The original Italian target-question is: “Le chiediamo di pensare alla Sua esperienza professionale in rapporto alla psicologia come scienza e come professione, scrivendo per esteso le Sue riflessioni a riguardo”.

⁷⁴ The email text can be found in the appendix at p. 157.

⁷⁵ www.opl.it.

⁷⁶ See pp. 158-9.

⁷⁷ In Italy, the first degree course in psychology was established in 1971, therefore some colleagues haven’t a degree in psychology, but surely a PhD in psychology.

⁷⁸ The levels of this variable reflect key point where academic reforms occurred. Such reform could supposedly influence psychologists’ the view of their discipline.

The reports collected have been analyzed by the software *Alceste* (Analyse lexicale par Contexte d'un Ensemble de Segments de Texte), by Max Reinert. This program is able to operate on the text and to perform factor and cluster analysis, which permit to observe how dense words organize and create clusters, depending on their statistical connections. According to the assumptions above specified, this kind of connections shows those collusive processes that differentiate each clusters (also called *cultural repertoire*).

The procedure that we followed envisaged these steps. We created a corpus, that is the complete text on which the analysis will be carried out. At this step, it is fundamental to disambiguate the text, for example differentiating between words with different meaning, but written in the same way (for example, in Italian “legge” can be either “law” or “he/she reads”). This process of differentiation between words has to be accomplished only on words that seem to be key for the issue at stake. Moreover, in the creation of a corpus we chose the explanatory variables that we intended to consider. Then, the software produced a list of words (or, better, lexemes) to be analyzed. This step envisaged the choice of the dense words to include in the analysis. Afterward, the software executed the analyses to specify clusters, which are differentiated by the presence of the same, specific dense words. Then, factors are found, with regards to the number of clusters (factors = number of clusters – 1). In particular, every sequence of dense words is composed by words that recur within a specific text unit; at the same time, every sequence significantly differ from other sequences that recur in other text units (Carli & Paniccia, 2002, p. 55). The assumption is that the recurring words of a text unit illustrate features of a local culture. Within every cluster, dense words are hierarchically organized, from the more statistically significant to the less significant. Such an arrangement permits to decrease the infinite polysemy that characterize each word (if considered individually). Indeed, words are arranged in list where their chi2 values progressively decrease, so each word has a limiting function on the polysemy of those words that precede in the statistical importance (Carli & Paniccia, 2007, p. 46). In this way, the encounter of dense words determines the meaning of the cultural repertoire (cluster) at stake, unveiled by AET.

13.4 Results

The complete text is rather wide: 55 pages, type Times New Roman, dimension 12. The procedure followed the steps above illustrated. The *corpus* has been prepared for the analysis, removing problematic graphic signs and differentiated the homographic words with different linguistic meanings. The total amount of words is 35.244; the actual number of words considered (reduced

forms) is 1.612. Within those words, 447 words have been analyzed. The clusters (cultural repertoires) emerged on the basis of 528 u.c.e. (elementary contextual unit), that is 55.17% of the total u.c.e. (957); this is considered to be a valid value. The average number of dense words analyzed for each u.c.e. was 5.42. Chart 13.1 shows the variance referring to the factors in the factorial space.

Factors	Variance (%)	Cumulative variance (%)
1	31.20	31.20
2	27.02	58.22
3	22.89	81.11
4	18.88	100

Chart 13.1

The chart below (13.2) shows the statistical significance of each cluster (chi2 values) found by means of the cluster analysis. The data are rather cohesive, indeed almost all chi2 values are negative or zero, so the clusters are significantly different from each other (an exception is the relationship between cluster 4 and 3, which is slightly positive).

Cluster	1	2	3	4	5
1	303	0	-16	-37	-23
2	-24	284	-5	-30	-54
3	-25	-13	200	21	-45
4	-12	0	-3	98	-31
5	-19	-117	-21	0	375

Chart 13.2

In Chart 13.3, the statistical relationship between factors and clusters is shown. Factors are latent variables that make up the factorial space (or cultural space, in AET terms) where clusters forms. These are the values that shows the relationship between the clusters and the factors: the values which specify the stronger relationships between the clusters and the factors are in red.

	Factor 1	Factor 2	Factor 3	Factor 4
Cluster 1	0.231	-1.156	-0.475	0.100
Cluster 2	-0.711	-0.170	0.678	-0.403
Cluster 3	-0.857	0.703	-1.118	-0.179
Cluster 4	-0.322	0.282	0.348	1.410
Cluster 5	0.782	0.401	0.095	-0.157

Chart 13.3

Chart 13.4 shows the dense words that make up each cluster, arranged in a decreasing manner, according to their chi2 values, which points out the statistical importance of each word in the process of cluster formation. In the analysis, only those words with significant (high) values have been considered. The analysis ended when the meaning of the cluster at stake fully emerged through the consideration of the dense words.

Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5	
Chi2	Words	Chi2	Words	Chi2	Words	Chi2	Words	Chi2	Words
67.89	progett<	85.55	client<	72.94	oggettiv<	35.86	uman<	44.46	lavora<
52.92	istituzion<	42.23	teori<	47.49	soggettiv<	33.34	mestier<	34.02	medic<
43.35	organizzazi on<	21.94	interven<	44.09	assu		stimol<	24.35	pazient<
38.37	cittadin<	20.15	pensier<		capacita	26.01	terap<	15.99	educa<
	territor<	19.50	relazional <	36.60	limite<	24.09	cresc<	15.57	ospedal<
29.64	cultur<	19.49	util<	32.06	epistemolog <	22.79	metodo<	14.05	paga<
29.17	grupp<	16.55	complessit a		filosofi<	18.17	risultat<	13.60	accett<
26.19	social<	14.84	ortopedic <	21.83	intuit<	16.54	lettur<	12.12	tirocin<
23.66	committen<	13.64	esplorare	19.35	natura	16.54	protocoll<	11.63	contratt<
21.38	famil<	13.53	tecnic<	16.95	variabil<	15.93	vita		soldi
19.62	adult<	13.27	perd<	15.84	scientific<	15.10	obbliga<	10.66	psicoterap eut<

18.86	convive<	12.01	condivi<	14.96	rigor<	11.50	verific<	10.22	universit<
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Chart 13.4

Chart 13.5 shows the chi2 values of the explanatory variables that turned out to be significantly associated to the clusters. It shows the statistical relationship between clusters and explanatory variables. In other words, those are the explanatory variables that statistically associate with each emergent cluster and define some features of those who contributed to the formation of that specific cluster. In the chart are reported only three variables with higher chi2 values for each cluster.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Psychotherapy license - no	50.92	119.90			
Area of practice - other	54.49	107.58			
Residence - Lazio	49.84	168.84			
Year of graduation – up to 1987			47.90		
Theoretical orientation - systemic			39.94		
Sex - m			25.30		
Area of practice - health				44.69	
Age < 35				27.97	
Psychotherapy license - yes				23.67	83.54

Chart 13.5

The figure below (13.6) shows the factorial space (or cultural space) where five clusters (or cultural repertoires) emerged.



Figure 13.6

We will now start the analysis of the co-occurrence of dense words within each cluster, showing their reciprocal relationships and their positions in the factorial space.

13.5 The Clusters and Their Meanings

Cluster 5 is on the right side of the first axis. This cluster is characterized by dense words that associate with illustrative variables as psychotherapy license – yes, theoretical orientation – other, residence – Lombardia. That means that psychologists with those features significantly contributed to cluster 5 formation. Here follows the inferential process that permits to progressively decrease the polysemy of the dense words characterizing cluster 5.

Lavora< (to work, job)

From *labor*, effort, strenuous physical or mental work. To devote physical or mental energy to a productive activity. To have a turnover, to have many clients. This first word is very polysemic and it points an activity with highly emotional value, especially, but not only, for the psychological community in Italy, where the employment opportunities are scarce (Bosio, 2011). The word is connected to issues relating to employment, but also to underemployment and unemployment, which are basic aspects of the current psychological profession in the current social and economic context. The primary organizing factor of this cluster is the issue of working and employment; it may be deemed to be an extremely desired dimension, even though it may evoke concerns about the future.

Lavora< (to work, job, practice) Medic< (medical, physician) Pazient< (patient)

The employment, the possibility to work and earn money, may be anchored to the medical profession, which is strong and socially legitimated; this may lead to give to a specific professional psychological identity, fostering the identification in the medical profession. In other words, psychology as a profession may be considered as legitimate only if it merges with the medical profession, acquiring its peculiar features: the existence of a disease connotes the patient, who is in fact an ill individual. Such considerations may lead to a model of psychology that is highly medicalized: in the relation with the psychologist, the client has a passive role. The psychologist possesses the means to heal the disease. The merging between those two profession permits to work, to practice. It may be said that the only in this way the psychological profession is conceivable, provided that the clients' pain is deemed as a (medical) pathology.

Lavora< (to work, job) Medic< (medical, physician) Pazient< (patient) Educa< (to teach, to train)

Educa< derives from *e*, outside, and *ducare* (*ducere*), to lead, to draw, to raise. To train one's character and personality, especially young people; to drill. This word may refer to the kind of psychological intervention provided by the professional model so far illustrated: the psychologist brings back an ill body to health. In a sense, the educational intervention is an orthopedic intervention, that is it fosters the elimination of the deviations from the norm, consonant with the medical model: in other words, the asymmetrical relation between the client and the psychologist (borrowed from the physician/patient relation) is considered as the means to bring back the illness to normality (*restitution ad integrum*). Here, the psychologist is considered as a skilful professional, which autonomously set what is healthy and what is not and whose expertise doesn't require the active participation of the client-patient. The psychologist is an external observer of the client's

system, about which he is an expert. Another important aspect evoked by Educa< in this model of psychology is the evident psychologist's need to be trained in order to be admitted to practice, "as if" the psychologist would need to be accepted by those who already practice the profession and occupy a privileged position. The need to be trained seems to be functional to become part of the medical world, with the aim to acquire those skills that constitute the psychological expertise, consistently with the model so far illustrated.

Lavora< (to work, job) Medic< (medical, physician) Pazient< (patient) Educa< (to teach, to train)
Ospedal< (hospital)

It is the place *par excellence* where the medical profession is practiced. It is the place that legitimizes the value and the social recognition of the profession. It is the place where the professional training is accomplished, within the lines so far illustrated. The hospital is the place where the processes connected to the training and the practice acquire social visibility and legitimacy.

Lavora< (to work, job) Medic< (medical, physician) Pazient< (patient) Educa< (to teach, to train)
Ospedal< (hospital) Paga< (to pay, wage) Accett< (to accept, desk, reception) Tirocin< (apprenticeship, internship)

The strong merging between the psychological profession and the medical profession opens up the possibility to earn money, to be paid for one's work. However, the inclusion of the psychological profession into the medical one seems to be uncertain, because it is dependent from the acceptance of others, by means of a specific training, the internship, which is the entrance to the professional world. In order to work with, and like, physicians, psychologists must be accepted and included in that system. Thus, this model seems to abdicate to a specific psychological expertise, on behalf of a different professional identity that is not specifically psychological. It is a different identity, considered to be socially more legitimate and to be able to guarantee a good profit [later in the analysis there are words with lower chi2 values but meaningful in this sense: soldi (money), guadagn< (gain), stipendi< (salary)].

It is worth noting that the first reference to a psychological service, namely psychotherapy (however it is shared with the medical profession), shows up rather late in the analysis, with a low chi2 value (10.66). This is coherent with the hypothesis that in this model the prevalent fantasy is the merging with the medical world, which guarantees a strong social identity and prospects of gain. However, the inclusion in this élite is problematic because it is not immediate; indeed, it is connected to a specific training, to the uncertainty to be accepted. Such a possible inclusion in the élite is not based

on an expertise. This is clear by the fact that no words about specific psychological services or methods, excluded psychotherapy, are mentioned in the analysis. Precisely, psychotherapy seems to be the only shared area with the medical profession, representing a sort of “anchorage” to it. Here, the professional identity of psychology is accomplished through the merging with the medical profession, which guarantees employment, prospects of profit, social legitimacy and credibility, opposite to the psychological profession that is considered to be weak in these respects.

Cluster 2 is on the left side of the first axis, but it is in an opposite position (compared to cluster 5) in respect to the second axis. This cluster is characterized by dense words that associate with the illustrative variables as psychotherapy license – no, area of practice – other, residence – Lazio. That means that psychologists with those features significantly contributed to cluster 2 formation. Here follows the AET analysis.

Client<

The word comes from *colere*, to farm, or from *klyo* (Ancient Greek), to listen to, to lend an ear, so to give attention, to follow. This word suggests the recipient of the psychological intervention. The client is who actively asks for a qualified service on the basis of specific needs. The professional collaborates with clients with the aim to design and deliver psychological services, as in all other kinds of services production (see Normann, 1984/85).

Client< Teori<

The word comes from the Ancient Greek *theoros*, to behold, to regard, to contemplate, to observe, to look at. The two words together seems to suggest the need to establish a connection with the client, whose needs’ analysis will reveal core features of her requirement for a psychological intervention. In other word, the client needs to be considered through the lens of a specific theoretical outlook, in order to better understand her needs. There seems to be two emotional meanings connected to the notion of theory, here: on one side, theory can be understood as a valuable outlook that fosters knowledge about the client, which is the basis for the design of a psychological intervention. On the other side, the notion of theory can be emotionally understood as a model that is imposed and is irrespective of the client’s needs, which are considered in an unproblematic way.

Client< Teori< Interven<

The word comes from *inter*, between, among, and *venire*, to come; it means to “come among”, to participate, to contribute. The word seems to suggest a sort of mediation between the psychological

expertise (held by the professional) and the needs of those who may be the users of psychological services (the potential clients). Thus, the word refers to a relational dimension, where people interact and collaborate. This word sheds light on the seemingly more adequate interpretation of the previous word, *teori<*: if psychological intervention implies the connection between the professional and the client, so the theory to be used seems to be understood in a constructive way, as a means to foster the gathering of data about the potential client and the identification of different ways to better meet the client's needs. In other words, *interven<* seems to disambiguate the meaning of *teori<*, which is positive in the present cluster.

Client< Teori< Interven< Pensier< Relazional<

Pensiero (thought) comes from *pensum*, the amount of wool (which had been weighted⁷⁹) that the spinners had to handle. So, it means to weight, to weigh up, to ponder, and also issue to be treated, to be pondered, to be examined. The connection between professionals and clients is to be pondered, carefully examined. The professional performs competent actions, which has to be thoughtful. *Relazione* (relation) comes from *relatus*, past participle of *referre*, to lead back, to relate. It refers to the way of being of a thing in respect to another thing. Here seems to emerge a specific psychological expertise which is developed by means of the thoughtful connection with someone else, the client, within a relational frame. The connection between professionals and clients turns out to be symmetrical. Once again, the connection with the client is understood as a primary element in psychological interventions; it is not an unspecific connection, but it seems to be a thoughtful relation led by a theory about the relation itself. Here we have the core of psychological expertise, as it seems to be described by those who contributed to this cluster.

This general description shows an outlook where science and practice are integrated elements, focused on the applied aspects of psychology: indeed, among the words with higher chi2 values, there are words referring both to the applied side (*clien<*, chi2 = 85.55; *interven<*, chi2 = 21.94; *relazional<*, chi2 = 19.50) and to the theoretical side (*teori<*, chi2 = 42.23; *pensier<*, chi2 = 20.15) of the discipline.

Cluster 1 is at the low end of the second axis and slightly on the right side of the first one. This cluster is characterized by dense words that associate with the same illustrative variables as cluster 2: psychotherapy license – no, area of practice – other, residence – Lazio. That means that psychologists with those features significantly contributed to cluster 1 formation. Here follows the analysis of the dense words characterizing this cluster.

⁷⁹ In Italian *pesare* (to weight) is very similar to *pensare* (to think).

Progett<

From *pro*, ahead, and *jacere*, to throw, is the action to throw something ahead, to make something move forward, what one has the intention to do in the future. Here, the issue is about the construction of future on the basis of what is known in the present. Proactiveness and openness are key dimensions.

Progett< Istituzion< Organizzazion<

Istituzion< comes from *statuere*, to put in a certain place, to establish, to give rise, to ratify. Organizzazion< comes from *organum* (Latin) or *organon* (Ancient Greek), tool, and *ergo*, to work. The constitution and the arrangement of the organs in an animal body. To lay out, to arrange. Here, the issue is the need to standardize, to organize, to institutionalize the psychological work, so to make the application of psychology a set of codified procedures within the social context. Indeed, only the social context can ascertain psychology's usefulness and validity. Psychology is included in the broader context of society and its structures, where individuality is outdated.

Progett< Istituzion< Organizzazion< Cittadin<, Territor< Cultur<

A citizen (*cittadin<*) is a member of a community, while a district (*territor<*) is an area which is a judicial and administrative unit (the words *cittadin<* and *territory<* have the same χ^2 value = 38.37). The citizens are those who benefit from the psychological work; here, they are described as member of a whole (district) defined by a specific culture. The passing of individuality occurs through the consideration of the social dimension, which defines its members, the citizens. Psychological work is characterized by a specific culture of a social organization, whose members are those who benefit from it. The design of the psychological work occurs within society, which is constituted by members who are defined by such a membership. So, psychology deals with issues regarding the coexistence of individuals, giving rise to a psychology whose focus is the relationships between the individuals and the social context where they live.

It is worth noting that in cluster 2 there are words which seems to point out – even though with low χ^2 values – the various forms the social dimension can take as targets of the psychological work: we find *grupp<* (group, $\chi^2 = 29.17$), *famili<* (family, 21.38), *adult<* (adult, 19.62), *uten<* (user, 15.94), *disagi<* (distress, 14.84), *coppi<* (couple, 14.68), *adolescenc<* (adolescent, 14.15), *popolazione* (population, 5.25), *scholastic<* (scholastic, 3.10). Patients (persons defined by their own disease) and clients (persons defined by the act of asking for a service) are not anymore depicted as the recipients of the psychological work; the recipients are described as citizens,

someone who takes part to a social organization, the district. This is the context where the psychological work arises and acquires legitimacy.

Cluster 3 is at the left side of the first axis and on the upper side of the second one. This cluster is characterized by dense words that associate with illustrative variables as year of graduation – up to 1987, theoretical orientation – systemic, sex - m. That means that psychologists with those features significantly contributed to cluster 3 formation. Here is the analysis of the dense words characterizing cluster 3.

Oggettiv< Soggettiv<

Oggettiv< (objective) comes from *obiectum*, object, which comes from *obicere*, to put in front, what can be seen or thought. On the other hand, soggettiv< (subjective) comes from sub, under, and jacere, to throw, to place, to put. What is beneath one's thought or sight, something that escape one's thought or sight. These two words refer to the object of psychology *par excellence*: the pair objectivity/subjectivity. This is a key juxtaposition for psychology, which is a discipline that strives for finding a balance between those two dimensions. Though, it is worth noting that the highest chi2 value benefits objectivity (chi2 = 72.94).

Oggettiv< Soggettiv< Assu<, Capacita

Capacita (ability, skill) comes from *capax*, which derives from *capio*, to take, to understand, to comprehend. It refers to what can be contained so, metaphorically, what can be understood. It seems that the *proprium* of psychology is the action of revealing what is concealed from view and from thought. Psychology is depicted as able to contain, to unveil, both objective and subjective dimensions.

Oggettiv< Soggettiv< Assu<, Capacita Limite<

Limite< (border) comes from *limes*, transverse road, therefore path which serves as a border. The friction between the objective and subjective dimensions sets limits to psychological knowledge as a scientific discipline. The inclination toward objective find a limit in the subjective dimension. Psychology, as depicted in this cluster, seems to be focused on such issues: it is a scientific discipline which deals with its own intrinsic contradictions, the conflict between objectivity and subjectivity, the impulse to investigate their relationship and the awareness of the limits of psychology's capacity to produce knowledge.

Oggettiv< Soggettiv< Assu<, Capacita Limite< Epistemolog<, filosofi<

Here, psychology seems to be sketched as a “fringe science”, at the border with philosophical and epistemological enterprises, as a scientific discipline which is aware of its foundational issues and its limits. The limits are those regarding objectivity and subjectivity, knowledge and its borders and also between psychology and “close” disciplines as philosophy and epistemology. Here, the limits seem to be epistemological, foundational, not limits regarding the pragmatic application of psychology.

There are other words with lower chi2 values which catch the same issues as above, namely words recalling some theoretical and methodological aspects of psychology: intuit< (intuition, chi2 = 21.83), natura (nature, 19.35), variabil< (variable, 16.95), scientific< (scientific, 15.84), rigor< (rigour), dubbi< (doubt), setting (setting, 14.96), sperimentar< (experiment, 10.86), contraddiz< (contradiction, 8.43). It is worth noting that the professional and applied side of psychology doesn't appear in this cluster: the first words which refer to this dimension, cura (care, treatment), has a very low chi2 value (7.87). Moreover, also those who benefit from the psychological work don't appear, differently from the other clusters (5, 2, 1) where they were pointed out respectively as patients, clients and citizens. In conclusion, that the critical consideration of psychology as a problematic scientific discipline seems to entails to neglect and to exclude its practical and applied dimensions.

Cluster 4 is at the left side of the first axis and slightly on the upper side of the second. This cluster is characterized by dense words that associate with illustrative variables as area of practice – health, age < 35, psychotherapy license – yes. That means that psychologists with those features significantly contributed to cluster 4 formation. Here follows the analysis of the dense words, in order to decrease the polysemy of the sequence characterizing this cluster.

Uman<

It is a dense word that deals with the issue of being human. To be human is a common saying (to be human is tantamount to be good, generous) and it also refers to one's belonging to the human race. It is a very generic word, whose meaning is very unspecific. It seems to identify both those who benefit from the psychological work and those who practice psychology, in an indistinct way.

Uman< Mestier<, Stimol<

Mestier< means profession, but also expertise, to have skills. “Agire con mestiere” (to act skillfully) means to perform a task with ability due to experience. In such a meaning, “mestiere”, as ability got through experience, can even considered to be opposed to former meaning specified above

(profession). Indeed, to have skills (as included in the Italian meaning of “mestiere”) involves to learn something through direct experience, while the term “profession” rather refers to a formal educational training. Psychology deals with human, and it is also practiced with human, personal proficiency; in this sense, psychological skills seems to refer to a sort of natural competence, not specifically a learned, professionally acquired competence. The human dimension is the stimulus, and the target, of psychology; however, the human dimension seems to be also the tool through which psychology is practiced. In the same way as above, the term *stimol<* (stimulus, incitement) has a double meaning: on one side, the human is a stimulus for psychologists to create and apply their knowledge, on the other side, psychologists, through their interventions, are a sort of stimulus for those who benefit of their work. In this way, a practical knowledge without a specific competence seems to take shape; this kind of knowledge is constituted by personal, human features presumably based on experience, rather than on a specific, learned professional proficiency.

Uman< *Mestier<*, *Stimol<* *Terap<**Cresc<*

As noted above, psychological work seems to be based on an unspecific kind of knowledge, made of personal features, rather than of professional proficiencies. The word *terap<* (therapy) points out that psychology deals with care, but those who benefit from psychology don't explicitly appear. Indeed, *uman<* (human) is a very general word and it identifies both those who practice psychology and those who benefit from psychology. This suggests that the psychological work entails a sort of mutual (involving both psychologists and users) path of personal growth (*cresc<* refers to growing, growth) produced by a generic human contact. Psychology seems to be defined by the mutual encounter between human beings, whose very contact is therapeutic *per se*. The sharing of human condition seems to be the guarantee that the both psychologist and user serves as stimulus for each other; moreover, such an encounter is able to trigger a reciprocal personal growth.

Cluster 4 depicts the image of a psychology that seems just to foreshadow a profession. Such a profession is generic, not oriented toward the users, and based on personal, rather than professional, skills. In the analysis, we found words that seems to recall the dialectical tension between objectivity and subjectivity that emerged in cluster 3. Such words as *metodo<* (method, $\chi^2 = 22.79$), *risultat<* (outcome, 18.17), *protocoll<* (protocol, procedure, 16.54), *verific<* (test, 11.50) semantically contrast with words as *artistic<* (artistic, 9.36) e *creativ<* (creative, 9.22). In this view, being human can be understood as a big cover that serves as the foundation of psychology. Though, within psychology there are dialectical tensions that are solved adopting a framework based on common sense, on human closeness and on the sharing of the common experience of being human;

this involves to give up the possibility to establish a psychology founded on a specific professional and scientific knowledge.

13.6 Discussion: Some Remarks on the Clusters and the Quarters

Factor 1 is defined by clusters 5 and 2. It seems to express, on the one hand, the issue of creating and defining psychology's customers and, on the other hand, the issue of the acritical adoption of a producer/consumer model borrowed from a socially strong discipline, namely medicine. On one side, this is the factor that considers the user of psychology as an active individual, directly involved in the process of designing and supplying psychological activities, starting from the nature of the issues brought by the user herself. On the other side, the factor describe the user as a passive individual, identified *ab origine* by her own disease. Here, the user is depicted as an individual whose problems and personal features are already known, are understood as "starting points", rather than as objects to uncover through the psychological work; from this perspective, the psychological work is considered as a sort of imitation of the medical work. So, what provides legitimacy to psychology is organized on two opposed poles: on one side of the factor, the psychological work is depicted as achieved through the collaboration between psychologists and users, on the other side, psychology renounce to a specific competence and adopts a successful professional model (a sort of medical model) where the user has a substantially passive role. In other words, the relation between cluster 2 and 5 deals with, on one side, the image of psychologist as a practitioner who gives up her specific competence, which is the base of professional identity, in order to embrace a vicarial identity, based upon the acceptance and endorsement of those who take part to the medical establishment. From this view, their approval will warrant the credibility and the earning capacity of physicians. On the other side, there is the image of a psychologist who seeks a proper identity, based on the skills to work with a specific competence. Here, psychology deals with the possibility to work with the client, on the basis of a theoretical account which is able to manage the intervention toward a specific direction. In summary, cluster 5 seems to aggregate around the issue of the substitution of a proper professional and scientific identity with a "stolen" identity from medicine. However, cluster 2 seems to aggregate around the issue of psychology as a discipline grounded on its own theoretical tools, which are oriented to be applied and to make knowledge a practical endeavor.

Factor 2 is defined by cluster 1, which is on factor 1 in a middle position between clusters (2 and 5), and cluster 3. On the one hand, factor 2 presents some (meta) scientific observations on the

theoretical foundations of psychology, which turn out to be deprived from its applied dimension (cluster 3). On the other hand, there is an overtaking of the individual conception of the psychological work and the opening to the social dimension, where the institutional contexts and the users orient and shape psychology as a profession. Thus, the theoretical observations, on one side, and the social dimension, on the other side, are organizing aspects of this factor. However, those aspects seem to mutually exclude each other: the scientific reflections exclude from their scope the applied and professional dimension of psychology (cluster 3), while the emphasis on a professional psychology based on the collaboration with social actors seems to take up space for theoretical observations (cluster 1). Factor 2 seems to dialectically represents the dilemma of psychology in front of the problem of the connection between theory and practice: on one side, we find a psychology with theoretical feet and lacking an applied head, on the other side there is a psychology with an applied head and lacking theoretical feet. It is as if the theoretical reflection did not concern practice, and practice did not concern theory.

The other two factors, 3 and 4, seems to be independent, they don't convey a dialectical meaning as those conveyed by the first two factors. In this regards, it is worth noting that the first quarter (where clusters 3 and 4 are) is characterized by an important problem characterizing psychology, already considered while illustrating the meaning associated with factor 2. In this quarter the image of a psychology that lack in its applied and professional dimension (cluster 3) juxtaposes the image of a psychology established on a non specific professional competence which lacks in theoretical models (cluster 4). The quarter contains between two relevant aspects of psychology, theory and practice, that seems to be ironically mutually excluding, as if theory didn't need practice or practice didn't need theory.

In sum, on the basis of the analysis of the clusters emerged two main dimensions that give meaning to the data collected. One dimension (factor 1) deals with different conceptions of the users of psychological services, understood as those who benefit from the psychological work. On one side, the user is understood as someone who actively cooperate in the design and in the implementation of the psychological work. The reason of such a collaborative role lies in the need – emerging from this view of psychology – to give rise to the psychological work on the basis of the necessities of the client. The psychological work is designed to be set up from the nature of the problems presented. On the other side of factor 1, the user is understood as someone whose role is passive, relegated to the status of patient. The role of the psychological user is not considered in its peculiar features, but it seems to acritically coincides to a sort of medical patient. In other words, instead of a

proper reflection on the role of the psychological user, its conception and role are borrowed from a different professional field (namely, medicine) (see Figure 13.7).

On the contrary, the other dimension, emerging from factor 2, deals with two different organizing factors of the psychological work. On one side, we find the theoretical reflections on psychology and its foundations, a sort of meta-outlook on the discipline which have poor connections with practice. This is a dimension that conveys awareness of the problems of psychology as a scientific discipline, lacking in a reflections on the practical consequences of such an awareness. On the other side of factor 2, we find the social dimension as organizing factor of the psychological work. Psychology is depicted as a social discipline, which means that it obtains legitimacy and direction from its belonging to a social context. Though, such a social bent seems to exclude a proper theoretical activity on the relationship that links the psychological work to the context where it is carried out (see Figure 13.7).

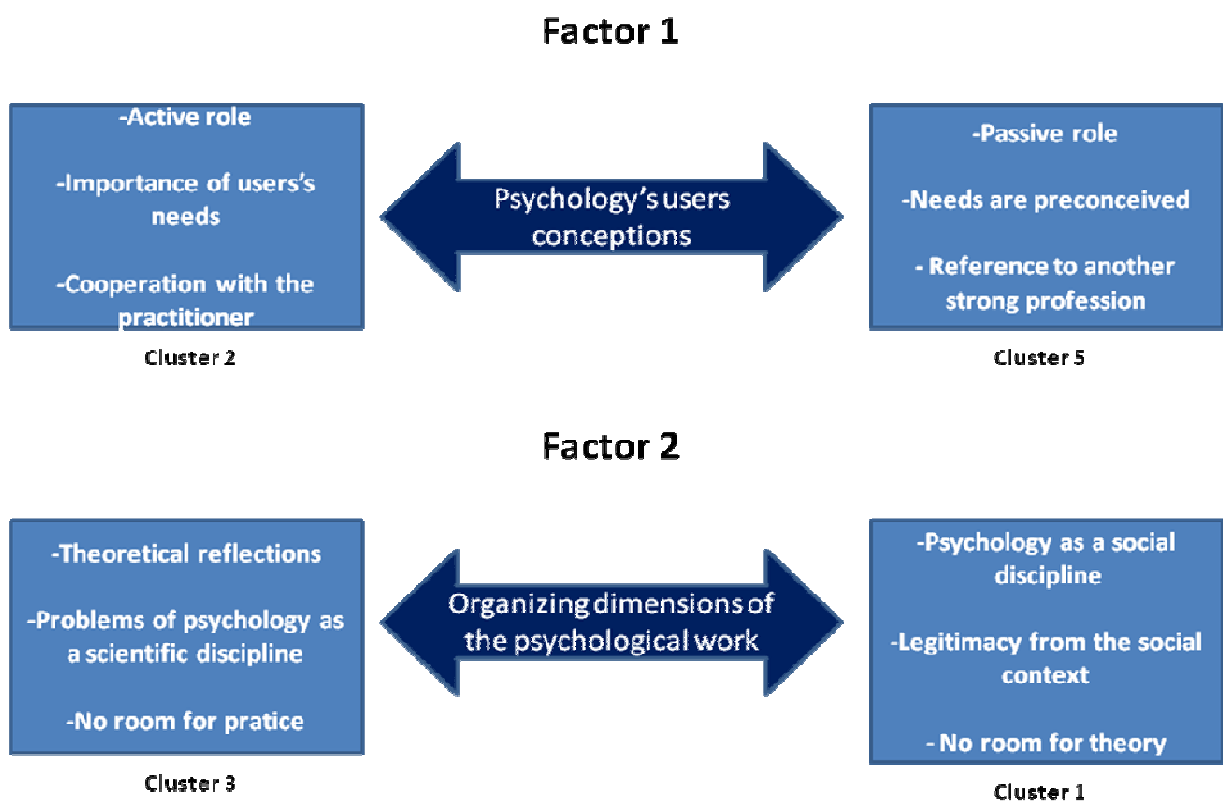


Figure 13.7

14. Conclusions

The two dimensions so far highlighted turned out to be rather primary in the emotional definition of the psychological work by the side of the practitioners. What about the academic side of psychology? As already asserted, the empirical research presented was designed to integrate the theoretical aspects of the proposals illustrated in Part 3, in order to give a more complete view of psychology as a discipline, including theoretical as well as applied dimensions. So, we will try to compare the reflections provided by the authors in Part 3 with the different understandings of psychology that emerged from the reports of the practitioners.

The proposal of Gregory Kimble (see Chapter 7, p. 57) seems to fit with one pole of factor 2, namely the dimension emerging from cluster 3. Indeed, the author considers psychology as a scientific discipline, for which he chooses the objective pole of the objective/subjective dilemma. For Kimble, psychology is a scientific, naturalistic discipline devoted to the objective study of behavior. The analysis of behavior is abstract, that is it not considers the content of behavior, it just considers the syntactic aspects of it, and this is concordant with the considerations proposed by one pole of cluster 3. Moreover, Kimble's proposal explicitly tries to bridge the rift between the nomothetic and idiographic traditions, recalling again the dichotomy expressed by cluster 3. In the same way, as in cluster 3, in Kimble's proposal there is no room for the relationship between theory and practice, i.e., the ways psychological knowledge can be applied to practical, real problems. There is an exclusion of the practical, applied side of psychology. Indeed, psychology is a science, not a profession, for Kimble. The practical aspects of psychology seem to be confined to the common sense of practitioners, as practice didn't put relevant problems regarding the application of theories in ecological contexts. This point is interesting, since the application of theory is not linear *at all*. What is missing here is a proper reflection on the way psychological knowledge can be properly applied to real problems. One of the aim of such a position is to get (scientific) credentials for psychology, connecting its status as a science to a naturalistic perspective. In this sense, in the author's proposal can be also detected the need emerging from cluster 5, namely the need for credentials got from outside psychology, in order to strengthen the status of the discipline. Psychology as a science seems to obtain credentials imitating hard sciences, in a naturalistic outlook (see Kimble's Functional Behaviorism); psychology as a profession seems to obtain credentials imitating a different, strong profession (see cluster 5). From such a point of view, the two positions coincide.

Also Arthur Staats' Psychological Behaviorism (see Chapter 8, p. 65) seems to share some aspects emerging from cluster 3. Indeed, unified positivism reconnects two traditionally opposed ways to

consider the object and the method of psychology, namely in objective or subjective way. Staats maintains that observation in psychology contains both objective and subjective aspects, reflecting the dichotomy emerging in cluster 3. Moreover, the author strongly links theory to practice and so the application of theory to practical problems is not an ignored issue. On the contrary, practice is directly guided by theory, in terms of problems formulation and intervention procedures: problems are defined in behavioral terms and interventions are based on learning techniques. In this sense, this proposal has some aspects highlighted by cluster 2, which present practice as the outcome of theoretical considerations about the relationship between the practitioner and the client. Also here, the issue at stake is a theory about the practice, but, contrarily to Psychological Behaviorism, this is a kind of theory whose object is the way users and practitioners interact, it doesn't refer to basic psychological principles, as Staats does. In this sense, the author and the position emerging from cluster 2 differ.

Gregg Henriques' Unified Theory of Psychology (see Chapter 9, p. 77) perfectly embodies the unsolved dialectics between objectivity and subjectivity or, in methodological terms, between monism and dualism. Again, some aspects of cluster 3 emerge. Such dialectics is rather clear in the reference to Emergentism, which is an attempt to overcome the opposition between monism and dualism at an ontological level. Moreover, Henriques propose a split between two aspects of psychology. Indeed, Psychological Formalism is different from Human Psychology because they refer to distinct ways to scientifically understand their objects: the "naturalistic" side of psychology (Psychological Formalism), where the objective dimension is primary, is opposed to its "social" side (Human Psychology), where the subjective dimension is a *proprium*. Though, Henriques admits that practice is somehow different from theory, since the connection with the needs of those who benefit from psychological interventions makes professional psychology something different from the other two parts. Indeed, the author highlights that the goals of the scientists (descriptive in nature) are completely different from those of the practitioners (transformative in nature), although theory and practice are connected. In this perspective, professional practice is an applied social science, grounded on scientific psychological knowledge. Such a position can be easily shared by most; what is missing here is the *exact nature* of this kind of connection: how does basic science provide grounds for the correct application of psychological knowledge? How does their connection work? How does their relationship organize? Again, those and connected questions remain unanswered and the link between theory and practice seems to be acritically assumed and left to psychologists' common sense. As if the joint point was unproblematic or taken for granted. Again, the absence of a proper reflection on practice somehow associates Henriques' proposal to some aspects emerged in cluster 3.

Norman Anderson's Information Integration Theory is openly an attempt to reconcile two traditionally opposed approaches: the nomothetic and the idiographic. Therefore, it refers to one of the main distinctions in social sciences, which can be surely traced back to the key theme of cluster 3, namely objectivity versus subjectivity. Again, such a dialectic seems to be considered strongly embedded in psychological methodology, as in cluster 3, so that Anderson explicitly aims at solving it with IIT. Moreover, IIT doesn't present any reflection on the application of psychological knowledge, except those regarding experimental or research settings. This can be also compatible with cluster 3. More specifically, the problems connected to the applicability of psychological knowledge to real world settings is left uncovered, leaving professional practice out of the discussion. Regarding this issue, an interesting point is that, among the limits of IIT, Anderson admits that his theoretical framework has not predictive power (see Chapter 10, p. 91). Tolerating such a limit – which can have an enormous impact on professional practice – expresses how little consideration practical issues have for Anderson and colleagues.

Sternberg and colleagues' proposal identifies the distinction in aims between theory and practice, as Henriques does. Theory and practice must be independent because they have different aims and, consequently, different procedures to achieve their goals, respectively knowledge and change. Though, science and practice must be connected, because scientific knowledge is understood as the starting point of practice. Sternberg maintains that practice has a sort of "monitoring function" on the application of scientific knowledge, in the sense that the aim of practice is to assess this knowledge, evaluate its practical relevance and the conditions of application in the real world. This is a position that can be shared by most. What is missing in this proposal are the details regarding the procedures professional practice must use in order to effectively play such a "monitoring" role: which features must scientific knowledge have to be properly applied in ecological contexts? Which are the constraints practice must respect in order to properly, and effectively, use psychological knowledge in the real world? Which is the difference between useful and useless psychological knowledge, with regards to its application in real contexts? How is this usefulness assessed? How do the contexts' features influence the applicability of psychological knowledge? Unfortunately, these and similar questions remain unanswered.

From this brief summary emerges that the dialectics expressed in cluster 3 seems to be primary in the theoretical reflections proposed by the authors considered. In other words, the distinction between objective and subjective reflects a leitmotiv that spans the different theoretical proposals and characterizes one pole of the two main factors emerging from the factorial space, representing the cultural space of our sample of psychologist. Therefore, it can be probably assumed that such a

dualism can play a key role in the connection between the theoretical, academic dimension of psychology (here represented by the theoretical models outlined) and the practical, professional dimension (whose emotional representations of psychology emerge in the empirical research). Though, the fact that cluster 3 is characterized by the absence of a reflection on practical issues is indicative of the shared difficulties about the possibility to reflect on practice. To make it easy, it seems that practitioners practice, without thinking, while scientists theorize, without practicing. It is like there is no room in psychology for an area where *a theory about the practice* can be developed, taking advantage from the contributions of both scientists and practitioners. What are the reasons at the basis of such a situation? Most of them refer to the aspects that originate and feed the fragmentation of psychology (see Chapter 5 and 12), but it can be assumed that the peculiar conception of method, as scientific method, in academic psychology probably plays a central role in its reluctance to develop an appropriate theory of practice. With this regard, Machado and colleagues (2000) maintains that psychology overemphasizes the importance of data gathering through the scientific method, while underestimates – or even refuses – the relevance of conceptual analysis, that is the reflection on the procedures used to develop scientific knowledge. For the authors, among academic psychologists, the overconfidence in the scientific technical procedures as means to mechanically collect data, together with a general suspicious attitude toward philosophical speculation, led to a negative attitude toward those aspects of scientific method that are unrelated to data gathering (*ibidem*, p. 2). In this sense, an asymmetry developed, between the sophistication of the technology of data gathering and analysis and the primitiveness of the conceptual, philosophical tools (*ibidem*, p. 5-6) used to clarify, sharpen, delimit, coordinate the process of theory construction. Indeed, as theory has its object in the empirical data – summarizing and giving meaning to the data collected – the conceptual analysis has its object in theory construction – proving its conceptual adequacy, i.e., identifying errors, exposing incoherence, finding nonsense. Such a situation naturally entails a narrow, dull view of the scientific method among psychology. This view is also shared by the psychologist Joseph Rychlack, who maintain that the belief that scientific method can be only applied within a mechanistic theoretical framework is an arguable assumption, caused by a superficial and non sophisticated account of the scientific method (2005, pp. 154-5). In sum, in psychology a sort of overemphasis and oversimplified version of the scientific method – inclined to exclude conceptual aspects supposedly unrelated to data gathering – seems to hinder the development of those conceptual aspects that would permit to link theory to practice. This requires a “sophisticated understanding of just what is involved in science” (*ibidem*, p. 154), that comes, in my understanding, from an in-depth philosophical reflection on psychological knowledge, which can be the foundation for the development of a theory of its potential applications.

Such a narrow conception of the scientific method usually coincide with the biased propensity for the nomothetic approach in psychology, opposed to the idiographic approach⁸⁰. Contrarily to what is commonly assumed, these approaches are not really incompatible, as an accurate analysis of their ambit of application reveals. In fact, they serve different aims. For the nomothetic approach, what is interesting is the universality of (human) facts, while for the idiographic approach what is interesting is the uniqueness of that specific (human) fact. So, mental or behavioral events are understood in different ways, according to these approaches: as members of a class or category (i.e., as expression of universal or probabilistic-statistical laws/processes) for the former, as display of irreducible uniqueness (i.e., expression of the uniqueness of that specific circumstance) for the latter. Therefore, on the one hand, the nomothetic approach permits to get valid intersubjective knowledge, but it lacks in object's detail; on the other hand, the idiographic approach permits to gain in object's detail, but it lacks in generalizability. In other words, the more we get close to one desirable aspect of the scientific inquiry, the more we get far from the other, and vice versa. Thus, these approaches are surely irreducibly different, but not necessarily incompatible. Rather, they can be both used in order to get *information of different nature* on the object at stake⁸¹. Indeed, The nomothetic approach provides information about the processes concerning human behavior *in general* (considering very large groups of subjects). When psychologists want to investigate the *variability between subjects* (why the behavior of that subject differs from what expected by her belonging to a specific group), the idiographic approach provides useful information. Such a collaborative relationship between the two approaches is illustrated in Figure 14.1.

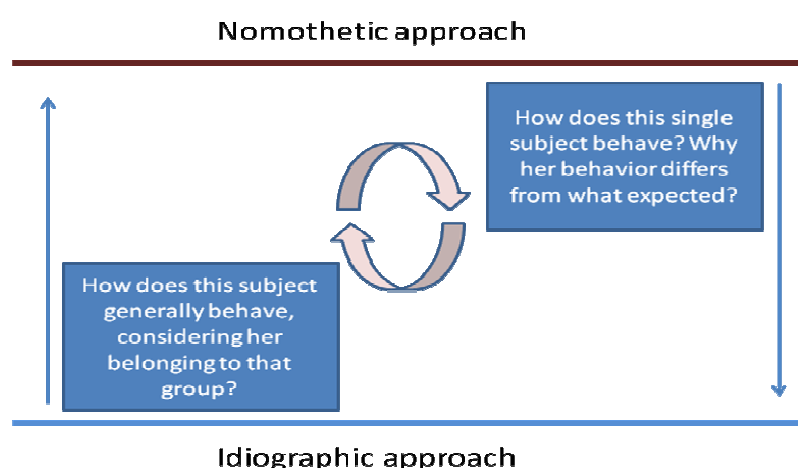


Figure 14.1

⁸⁰ The nomothetic approach involves the study of groups of people or cases for the purposes of discovering those general and universal valid laws or principles that characterize the average person or case. On the other side, the idiographic approach involves the thorough, intensive study of a single person or case in order to obtain an in-depth understanding of that person or case (APA, 2007; see also Chapter 1).

⁸¹ See the proposal of Sternberg and colleagues about converging operations (Chapter 11).

Such a wider understanding of these aspects of scientific method would permit to integrate general aspects of psychological knowledge, detected and analyzed by basic science, with particular aspects, relevant for properly achieve professional practice. In particular, in order to better articulate the relationship between theory and practice, three aspects must be considered, according to Sternberg and Henriques (2004, p. 1054): psychology needs to define itself in order to clarify its *mission*, psychology needs to solidify its place as a primary *health care discipline*, psychology needs to clearly specify its *boundaries* with other discipline. The first point deals with the specification of the propelling forces of the discipline, while the second and the third deal with its identity. Ironically, these considerations are pretty theoretical, even if they primarily concern practice. In fact, these points can be worked out mostly through in-depth theoretical work about the shape of psychology. Here, it is worth noting that the term “theoretical” is not equivalent to “it doesn’t deal with practice”. On the contrary, as already asserted, what psychology needs is a *theoretical reflection about the foundation of psychological practice*. In my opinion, such a reflection can only originate from a sophisticated and critical use of the scientific method, in order to connect the needs for rigor of basic science with the needs for applicability of a science-based practice. Though, methodological issues are not in a vacuum: they are strongly connected to some sort of assumptions about the content and boundaries of “psychological reality”, understood as the object of psychology. This means that methodology entails some sort of ontological reflection. In other words, psychology has to risk to provide ontological commitments about their objects of interest, even if such commitments are provisional, a sort of working hypotheses. Such a commitment – although provisional – will suggest appropriate methods of inquiry. Indeed, according to the philosopher Daniel Robinson, without this interplay between ontology and epistemology there is no rational basis on which to choose a mode of inquiry (2007, p. 193). In this view, ontological assumptions influence theoretical construction, which would in turn inform psychological technology, understood as the theoretical reflection about the problems produced by the application of practical procedures. Actually, it is reasonably arguable that appropriately managing the relationships between theory and practice requires in-depth philosophical reflections about what is supposed to exist and how we can affect it.

In conclusion, is psychology united in its different constituents? Is unity a desirable goal, as many author argue? Are the two primary souls of psychology, namely theory and practice, mutually coherent? On the basis of what emerged in the present analysis of the issue, I think that unity in psychology, as in all other sciences, is not a goal for its own sake. In other words, unity is not

something to actively and directly search for and it cannot be considered an *a priori* goal of psychological research and theory development. I agree with the psychologist Christopher Green, when he maintains that “Genuine unification, if it is to come, must come of open competition among theories, some of which will offer increased unification, some of which will not. [...] Surely, at the end of the day, we value truth over unity!” (Green, 1992, pp. 1058). From these assumptions follows that good theory-construction practices and reliable use of the scientific method turn out to be the primary tools to do good science. Therefore, if psychology will be unified, we do not know, being a matter of empirical, theoretical and philosophical research.

E-mail Text

Gentile collega,

mi chiamo Nicolò Gaj e sto svolgendo una ricerca per conseguire il dottorato di ricerca in Filosofia presso l'Università Cattolica di Milano.

Si tratta di una ricerca di natura multidisciplinare finalizzata a descrivere il modo in cui gli psicologi considerano la psicologia. In quanto professionista, le risposte che fornirà saranno molto utili per raggiungere gli obiettivi di conoscenza prefissati.

In allegato troverà il quesito, a cui chiediamo di rispondere direttamente nel corpo della mail o utilizzando l'allegato stesso, unitamente a una sezione dedicata ad alcune informazioni preliminari. Scriva tutto ciò che Le viene in mente, ricordando che non ci sono risposte giuste o sbagliate, né contenuti 'fuori tema'.

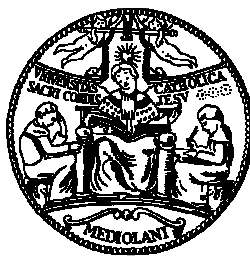
Le raccomandiamo, infine, di scrivere ciò che ha in mente almeno in due occasioni diverse (per esempio, in due giornate diverse), così da avere la possibilità di tornare sulle proprie riflessioni. E' molto importante seguire questa indicazione al fine di rendere valida la raccolta delle informazioni.

Quando ritiene di aver terminato la compilazione, mandi l'allegato a questo indirizzo (nicolo.gaj@unicatt.it).

Certi della Sua cortese e preziosa collaborazione, rimango disponibile a qualsiasi chiarimento.

Sarà mia cura, al termine del processo di ricerca, farLe avere i risultati.

Nicolò Gaj



Come anticipato, chiediamo la Sua collaborazione per contribuire alla presente ricerca, realizzata all'interno del dottorato di Filosofia della Facoltà di Lettere e Filosofia dell'Università Cattolica del Sacro Cuore di Milano.

Si tratta di una ricerca di natura multidisciplinare finalizzata a descrivere il modo in cui gli psicologi considerano la psicologia. In quanto professionista, le risposte che fornirà saranno molto utili per raggiungere gli obiettivi di conoscenza prefissati.

Per prima cosa, Le chiediamo di fornire alcune informazioni preliminari.

Sesso_____

Età_____

Laurea in_____

Anno di laurea_____

Anno di iscrizione all'Albo_____

Albo Psicologi

Albo Medici

Abilitazione alla psicoterapia Sì

No

Orientamento principale Psicodinamico

Cognitivo-comportamentale

Sistemico

Gestalt

Umanista

altro

Condizione lavorativa consulente

dipendente

libero professionista

Area professionale principale (segnare solamente 1 area)

Psichiatria

Tossicodipendenza

Età evolutiva

Giuridica

Salute □

Riabilitazione/disabilità □

E' possibile rispondere alla domanda sotto riportata direttamente nel corpo della mail o utilizzando questo allegato. Una volta elaborati i dati, verrà al più presto messo al corrente dei risultati della ricerca a cui ha dato il Suo prezioso contributo.

Le chiediamo di considerare la domanda che Le porremo come uno stimolo per poter esprimere le Sue opinioni sul tema. Scriva tutto ciò che Le viene in mente, ricordando che non ci sono risposte giuste o sbagliate, né contenuti 'fuori tema'.

Le raccomandiamo, infine, di scrivere ciò che ha in mente in due occasioni diverse (per esempio, in due giornate diverse), così da avere la possibilità di tornare sulle proprie riflessioni.

Le chiediamo di pensare alla Sua esperienza professionale in rapporto alla psicologia come scienza e come professione, scrivendo per esteso le Sue riflessioni a riguardo.

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