

THE CONCEPT OF EMPIRICAL REALITY  
BETWEEN LOGIC AND PSYCHOLOGY:  
THE PROPOSALS OF THE YOUNG MUSATTI

*Roberto Poli*

1. *Introduction*

Understanding the purpose and results of the scientific research conducted by Musatti in the first stage of his long and outstanding career requires us to address, at least in part, what has been one of the ‘black holes’ of twentieth-century scientific research.<sup>1</sup> At the end of the century, the distance from its beginnings allow us to discern aspects and patterns of research in its early decades which until very recently were simply invisible. Some of Musatti’s early works belong to this emerging pattern, and they are today easier to construe than they were some time ago. Consequently, what I am about to say should come as no surprise: namely that Musatti squandered his chance to become one of the giants of contemporary science. Let me make this clear: Musatti was a great scientist, a figure absolutely central to the history of psychology and the history of Italian culture. But he was not a giant, a scientist who leaves a permanent mark in science not only Italian but in general. He could have achieved such heights, however, and it is my task here to state the reasons for my apparently harsh judgement of him.

Musatti’s case involves not so much outright errors as aspects much more impalpable and difficult to pin down. One must, in fact, take account of the intellectual climate of his time, of the demands made by the scientific community, and of the intellectual tools then considered suitable and therefore acceptable. To speak of admissible demands and acceptable responses to such demands is to imply that certain questions cannot be put and that certain answers cannot be circulated, if one wishes to retain membership of the jealous and back-biting scientific community.

Before explaining myself in more detail, I must first provide a brief description of Musatti as a person.

<sup>1</sup> A preliminary and partial version of this paper appeared in the preprints series of the Laboratorio Interdisciplinare per le Scienze Naturali e Umanistiche, Settore “Linguaggi Letterari e Linguaggi Scientifici” ILAS/LL-7/1995, SISSA, Trieste.

C. Musatti and S. De Marchi, in the thirties (picture by G. Cavignato, Padua)

## 2. *A brief biography*

Cesare Musatti was born in Venice in 1897 and died in Milan in 1989. His life therefore spanned almost the whole of this century. At school he was a disappointment, achieving below average results and showing promise only in mathematics. He enrolled at the University of Padua to study mathematics but was unable to apply himself to the subject. However, he was so galvanized by his reading of Antonio Aliotta's *La reazione idealistica contro la scienza*, published in 1912, that he immediately transferred to philosophy (even before the Christmas holidays).

This reference to Aliotta's book prompts me to point out that, in the first decades of this century, at least four books were published which – *if they had been read* – would have given greater vitality, variety and sophistication to Italian philosophical debate.<sup>2</sup> Unfortunately, they are books that have been almost wholly ignored, amongst other things because they were printed in mediocre editions and in a modest number of copies. It may seem a banal observation to make, but besides writing good books, it is necessary for someone to read them. The books in question were Piero Martinetti's *Introduzione alla metafisica* (1904), Antonio Aliotta's already-mentioned *La reazione idealistica contro la scienza* (1912), Antonio Banfi's *Principi di una teoria della ragione* (1926), and Musatti's *Analisi del concetto di realtà empirica* (1926), which I shall discuss here. That said, we may return to Musatti and his career.

One day a university porter told Musatti about a newly appointed lecturer whose lessons had failed to attract not even a single student, suggesting that he should go. Musatti accepted out of curiosity (inviting a female student to accompany him). The new professor was Vittorio Benussi, an odd character who invariably wore black, with a wide-brimmed hat and long hair. Benussi had transferred from Graz, where he had been unable to pursue an academic career or – despite his numerous experimental achievements – become director of the psychology laboratory. Indeed, because he was Italian, Benussi was dismissed from his post after the war, whereupon he attempted suicide.

Musatti was fascinated by Benussi's unusual personality and made up his mind to become his assistant. He graduated in 1922 and, as he had already decided, became Benussi's voluntary assistant. In 1925 he obtained a full-time appointment and in 1926 published *Analisi del concetto di realtà empirica*.

In the meantime Benussi alternated between periods of hyperactivity and depression. At Graz he had been psychoanalysed by a peculiar analyst, a murderer who later committed suicide. He in turn analysed Musatti (in unorthodox conditions) and engaged him in tenacious games of chess. One day it happened that count Papafava and his wife Bianca (friends of Benussi's who

<sup>2</sup> [Guzzo 1989], 145.

financed his research) visited the laboratory and asked for the professor. He was found upstairs in his office, dead from what the official diagnosis described as cardiac arrest. Shortly afterwards, however, Musatti discovered a cup of tea containing traces of cyanide. Whereas after the war Benussi's had failed in his attempted suicide because the substance he ingested had deteriorated, this time he was entirely successful. Musatti threw the contents of the cup down the lavatory, which was of course a crime, although the statute of limitations applied when Musatti later recounted the story.<sup>3</sup>

Sante de Sanctis came up from Rome to examine Benussi's unpublished works and had Musatti appointed lecturer and director of the laboratory.

In his commuting between Padua and Venice, Musatti made the acquaintance of Francesco Carnelutti, a university professor and jurist of great fame, who invited him to teach a course on the psychology of witness testimony. Musatti agreed, delivering a course of lectures which was attended by students of philosophy and law, as well as by several of the city's lawyers. The concrete outcome of his course was publication of *Elementi di psicologia della testimonianza* (1931), ten lectures with exercises. The latter consisted, for example, in filming witnesses while they gave evidence in order to demonstrate how they typically distorted reality. Also investigated were variations over time in witness statements, showing, for example, that an account was more accurate after eight days than it was after three, because the false elements had been decanted out in the meantime. It was this work that made Musatti's reputation as a specialist in the psychology of testimony and in judicial psychology.

In 1930 Musatti had won the university competitive examination but he was not awarded the chair (Bonaventura, who had preceded him, was refused on racial grounds, and Musatti may have suffered the same difficulty). He consequently went to teach in the city's high schools. Gemelli had him transferred to Milan but made no attempt to find a place for him in his Institute of Psychology. It was suggested that Musatti should continue to publish his psychological research under a pseudonym, now that the racial laws had excluded him from university teaching and from publication in journals. Musatti replied that he would never agree to publishing any of his articles under another name: reasons of dignity and loyalty made the idea repugnant to him.<sup>4</sup>

During the Second World War Musatti met Adriano Olivetti, who commissioned him to translate the works of Jung into Italian. The project never bore fruit, but in the meantime (1943) Olivetti invited him to open an institute of work psychology. In 1948 he won two competitions for professorial chairs: Psychology in the Faculty of Letters and Psychoanalysis in the Faculty of Medicine. He managed to publish *Trattato di psicoanalisi*, ready since 1938, which achieved great success. The book was written in clear and accessible

<sup>3</sup> Cf. [Gerola 1989].

<sup>4</sup> [Semi 1989], 20.

language, and it was the only text of its kind on the market. The book sold out in three months, in fact, and had to be type-set all over again, because the printers had not expected it to be so successful and had destroyed the printing plates. In around 1965, Musatti was asked by Boringhieri to coordinate publication of Freud's complete works. In the meantime, he published numerous other items, literary and otherwise.

Musatti's scientific interests divided into two areas: experimental and psychoanalytical. In this respect, he was one of the few contemporary psychologists to have worked in both sectors. Nevertheless, he always insisted that his pupils chose either an experimental-academic career or psychoanalysis. In other words, he forbade them to do what he himself had done: except that he then rebuked the experimentalists for failing to grasp the profoundest meaning of the human mind, and the psychoanalysts for lacking scientific rigour.<sup>5</sup>

I have provided this outline of the life, work and influence of Cesare Musatti in order to show that he was a figure of outstanding importance and of great and widespread influence. I must now move to the more difficult part of my task.

### 3. *The concept of empirical reality*

I began by mentioning 'black holes' in twentieth-century science, of thematic patterns which we are only now beginning to glimpse at century's end. Musatti was bedevilled by two curses in his lifetime, one to do with his school, and the other to do with his era. The former concerns the fact that he was a pupil of Benussi, who in his turn had studied under Meinong. Musatti's early publications, as he himself points out, can only be thoroughly understood if they are inserted in the theoretical framework of the theory of objects elaborated by Meinong and his followers.

Before I examine certain features of Meinong's thought, however, brief description is required of Musatti's work and of the intellectual climate of the time.

As said, in 1926 Musatti published his first book, *Analisi del concetto di realtà empirica*, which was reprinted in 1964 in *Condizioni dell'esperienza e fondazione della psicologia*.<sup>6</sup> In his first work, on the basis of his training in the theories of the Graz school (Meinong and Benussi in particular) Musatti analysed some of the mental procedures used to organize the data of experience. The work must have been too advanced for the idealist culture of the time, or perhaps simply incomprehensible, given that its first edition was remaindered

<sup>5</sup> [Funari 1989], 55-6.

<sup>6</sup> [Musatti 1964], 13-175.

and then pulped.<sup>7</sup> Ill-fortune seems to have dogged the book: it is said that the reprint of 1964 had just been completed and the entire print run stored in the publishers' warehouse when it was destroyed by the great floods that struck Florence in that year. Only the few complimentary copies already sent to some of Musatti's colleagues survived.

This was a sad fate for what could have been one of the most outstanding contributions by an Italian author to science in this century. I say 'could have been' because the book's failure to appear prevented its recognition by the academic community, and its author thereafter preferred to delve into other matters.<sup>8</sup>

In effect, Musatti's subsequent lack of interest in his first important work provides a point of departure for the discussion that follows. In his preface to the 1964 edition Musatti expresses dissatisfaction both with formal and terminological flaws in the book, and with its reliance on theoretical positions to which he no longer subscribed. He writes: "for example, when I wrote the book, I had assimilated through Benussi's teachings the doctrines of the Graz school concerning the problem of formal structures (Meinong's *Gegenstandstheorie*). The Graz school, and Benussi in particular, were in polemic with the *Gestalttheorie* of the Berlin school. And I, out of loyalty to my master, but also because Meinong's logical thought more closely matched the ideas that I had formed from my previous studies, adhered to the Graz school's positions and entirely neglected *Gestalttheorie*."<sup>9</sup> He continues: "later ... I wholly subscribed to the principles of this indubitably more complete theory,"<sup>10</sup> while also noting that "another serious shortcoming of the book concerns psychoanalysis" and that "the whole of 'inner reality,' as it is constructed by the activity of the intellect ... appears excessively static."<sup>11</sup>

The influence of the Graz school is immediately apparent in the book, both in direct references and in the employment of concepts entirely characteristic of

<sup>7</sup> [Musatti 1964], 7.

<sup>8</sup> That the book immediately provoked a form of systematic neglect is evident from a paper entitled "Psicologia sperimentale" written by Ferruccio Banisconi in 1939. The article is a wide-ranging survey of the history and current state of Italian psychology. In the section on Padua, Banisconi writes "of the Padua school summary mention may be made of ... the three main groups of works by Musatti ... concerning the doctrine of perception, the psychology of testimony [and those] on psychoanalysis ... Particularly noteworthy in the first group are the following works: the psychology of form, on stereokinetic phenomena, on apparent movements due to the illusion of figural identity, the reality of spatial and temporal magnitudes in the special theory of relativity, form and assimilation, on the perception of shapes of oblique figures with respect to the frontal plane, the empirical factors of perception and the theory of form." Several of Musatti's articles are cited in the ample space devoted to him in the article, but the book that he had written thirteen years previously is wholly ignored.

<sup>9</sup> [Musatti 1964], 8.

<sup>10</sup> [Musatti 1964], 8-9.

<sup>11</sup> [Musatti 1964], 9.

that school. It may suffice to mention its references to higher-order objects, to the opposition between the completeness and incompleteness of objects, and its emphasis on assumptions.

But even if we accept Musatti's later criticisms of his first systematic attempt at cognitive analysis, the fact remains that it is a work that still today offers numerous stimulating insights. We therefore find ourselves in the classic and somewhat distasteful position of trying to understand an author better than himself.

In order to clarify that route that I shall follow, one may ask why Musatti came to be convinced that his first work was a piece of juvenilia that did not warrant close attention. Or conversely one may enquire why I believe it to be an important work that even today deserves re-reading.

Generally speaking, there are two essential reasons, which for the sake of convenience I shall label (1) *Aufbau*-theories, and (2) cognitive semantics. These I now discuss.

#### 4. *Aufbau*-theories

The construction theories conventionally grouped under the heading *Aufbau*-theories<sup>12</sup> were introduced in Rudolf Carnap's first important work, *Der logische Aufbau der Welt* (1928). The fundamental problem addressed in the book is the elaboration of a general theory (of the reconstruction) of the objects of empirical knowledge (on a given basis). Carnap's general thesis is that the rational reconstruction of the concepts of all fields of knowledge must proceed on the basis of concepts which refer to the immediately given. In his autobiography Carnap tells us:

Although I was guided in my procedure by the psychological facts concerning the formation of concepts of material things out of perceptions, my real aim was not the description of this genetic process, but rather its rational reconstruction – i.e. a schematized description of an imaginary procedure, consisting of rationally prescribed steps, which would lead to essentially the same results as the actual psychological process...

A change in the approach occurred when I recognized, under the influence of the Gestalt psychology of Wertheimer and Köhler that the customary method of analyzing material things into separate sense-data was inadequate – that an instantaneous visual field and perhaps even an instantaneous total experience is given as a unit, while the allegedly simple sense-data are the result of a process of abstraction. Therefore I took as elements total instantaneous experiences (*Elementarerlebnisse*) rather than single sense-data. I developed a method called

<sup>12</sup> [Sauer 1991].

‘quasi-analysis,’ which leads, on the basis of the similarity-relation among experiences, to the logical construction of those entities which are usually conceived as components. On the basis of a certain primitive relation among experiences, the method of quasi-analysis leads step by step to the various sensory domains – first to the visual domain, then to the positions in the visual field, the colors and their similarity system, the temporal order, and the like. Later, perceived things in the three-dimensional perceptual space are constructed, among them that particular thing which is usually called my own body, and the bodies of other persons. Still later, the so-called other minds are constructed; that is to say, mental states are ascribed to other bodies in view of their behavior, in analogy to the experience of one’s own mental states.<sup>13</sup>

It is well known that Carnap’s constructional project was subsequently taken up and developed by Nelson Goodman in *The Structure of Appearance* (1951).

Unlike Carnap, Goodman discarded the hypothesis that a construction theory can map the entire empirical world. But in framing the structural presuppositions of the theory in formally richer terms, he seemingly lost sight of its original psychological matrix. In developing Carnap’s theory, Goodman recognized that the elements on whose basis the system is constructed may be concrete individuals or non-individual individuals (qualities). One would say in this case that the system is, respectively, particularist or realistic. Moreover, the logic itself of the system may be Platonist (if it is founded on set theory) or nominalist (if it uses the calculus of individuals or mereology). It follows that the constructional perspective is able to offer and analyse the four fundamental types of ontology shown in the following table:

TABLE 1

with respect to calculus		with respect to individuals	
platonist	and	realist	[≈ Russell]
nominalist	and	realist	(Goodman)
platonist	and	particularist	(Carnap)
nominalist	and	particularist	[≈ Lesniewski] <sup>14</sup>

By way of extreme summary, the general thesis of the constructionist perspective is that objectivity depends more on structures than on content. In this sense Carnap’s theories were anticipated by Cassirer, and in particular in his *Substanzbegriff und Funktionsbegriff* of 1910. Cassirer’s influence becomes more explicit in Goodman, particularly in the works of his maturity, where he extends his system to theory of art and of artistic objects, and approaches, topically as well, the theory of symbolic forms.

<sup>13</sup> [Carnap 1963], 16-17.

<sup>14</sup> [Matteuzzi 1981], 109. Of the four thinkers Lesniewski is certainly the least known: see [Poli and Libardi 1997a].

The constructionist perspective adopted by Carnap and Goodman uses as its substrate theory a conceptual framework of logical nature. The fundamental point, however, is that logic is only one of the options available. An equally well-founded alternative is to remain tied to the specific nature of data, using a psychological conceptual framework as one's substrate theory. And this is precisely what Musatti did. The underlying perspective is the same, what changes is the starting theory or what mathematicians call the substrate theory. In Musatti's development of his analysis, the two perspectives – logic-based and psychology-based – importantly overlap. For example, in both we find the results of the 'quasi-analysis' that, in Musatti's terminology, became the proposal of perceptive fields and fields of decomposition. I shall return to this subject later.

The first point to make is that Musatti published his book two years before Carnap. Secondly, Carnap and Musatti related respectively to Vienna and Graz, and they helped to give closer specification to the categorial references of each centre of inquiry: in short, the comparison/opposition between logic and psychology. Here one should bear in mind a crucial problem that still today is largely invisible: namely, the meaning of the opposition between metaphysics and ontology.<sup>15</sup> It does not seem that this is an old and largely superseded question, because it is precisely this issue that is being talked about here. To use a categorization developed by the school of Brentano – and specifically by Meinong – we may say that if ontology is defined as the general theory of objects, metaphysics is the theory of real objects.

Meinong and his pupils – like all the Brentanians – developed their analyses on the basis of study of the presentation, or in other words, the psychological study of something that is actually given. For this reason their inquiries can and must be viewed in terms of a close connection between metaphysics and psychology.

The scholars of the period following the Great War (among them Carnap) instead employed a categorial apparatus founded on what would subsequently become the concept of model. They grew increasingly aware of the importance of the multiplicity of possible models, so that their interest concerned not what in some way is given but what is possible. For this reason their inquiries fit perfectly with the relationship between ontology and logic.

### 5. *Cognitive semantics*

The epoch-making clash between logic and psychology also reverberates in the contemporary studies on representation theory prompted by the birth of

<sup>15</sup> Cf. [Poli 1994b], [1997b], [1998b].

cognitive psychology. In order to establish a context, I shall briefly describe the current situation from the viewpoint of studies on language, the sector in which reflection is probably most advanced. In this case, and with reference to the theory of representation, the contemporary literature displays two main perspectives.

On the one hand stands the logicist tendency (Chomsky, Montague and the logicist version of the theory of semantic categories) to utilize the usual array of semantically determined, atomic (and therefore unrelated) formal entities.

On the other stands the cognitive semantics based on the decomposition of semantic contents into features, characteristic or aspects *with meaningful content*. The point to stress is that this decomposition has specific content and is not formally empty. This perspective broadly articulates into the following three directions.

1. The resumption by Fillmore of the case grammar tradition (Hjelmslev) using such primitive categories as Agentive, Dative, Instrumental, Locative, Objective and Benefactive.
2. Jackendoff's identification of a small set of ontological categories comprising Thing, Event, State, Action, Location, Trajectory, Property and Amount. Note that this list of categories is patterned on the traditional Aristotelian one.
3. The revival by Talmy and Langacker of the idea of schema and the consequent distinction between the schemata of object, relation (atemporal or temporal), windowing of attention, force dynamics, etc., each of which is the result of a more or less complex arrangement of a limited number of 'visual' primitives like inclusion, coincidence, separation and proximity.<sup>16</sup> The catastrophist semantics of Thom, Petitot and Wildgen can be included in this category.<sup>17</sup>

Musatti brilliantly anticipated some of the third group's ideas. Today, now that the works of the authors just mentioned, as well as numerous others like Fauconnier and Lakoff, have helped to mark out a 'new' ambit of inquiry often called cognitive semantics (some variants on 'cognitive' are: conceptual, spatial, random, actantial, catastrophist, etc.), one finds that some of their most significant positions were anticipated by Musatti.

Musatti's subsequent development of his theory in the direction of Gestalt and greater dynamism is precisely what the theoreticians of cognitive semantics are now doing.

<sup>16</sup> [Langacker 1987] and [1990], [Talmy 1988a] and [1988b], [Lakoff 1987], [Serra Borneto 1993].

<sup>17</sup> Cfr. at least [Thom 1985] and [1990], [Petitot 1985] and [1995a], [Wildgen 1982] and [1994].

This, though, should not come as a surprise if Gardner, in what is still today the most thorough historical reconstruction of the cognitive sciences, advises us to consider whether we have really advanced beyond Gestalt psychology and the Würzburg school, or whether we are simply rediscovering what they already knew.<sup>18</sup> The reference to the Graz school is not explicit, but anyone acquainted with the history of German-language philosophical and scientific reflection of that period knows that the investigations at Graz are inseparable from those at Berlin and Würzburg.

### 6. Brentano and his influence

We know from the works of Durkheim and Mauss that dichotomous oppositions typically characterized primitive thought. On the other hand, it is nobody's fault if it is difficult to do without the primary oppositions (before / behind, above / below, right / left, within / without) that govern the space of distinctions and its dynamics, if nothing else because of their obviously corporeal matrix.<sup>19</sup>

In this sense, if one seeks to give somewhat more precise specification to the twofold oppositions of logic and psychology and metaphysics and ontology, one sees that from Brentano onwards there developed an impressive series of attempts to modulate their relationships. Brentano did not restrict himself to development of descriptive psychology, he also proposed a reform of logic.<sup>20</sup> His dictations contain clear evidence of an underlying constant interest in the formal aspect of the topics analysed. For its part, Meinong's *Gegenstandstheorie* develops Brentano's descriptive psychology, emphasising the objectual dimension of the entire spectrum of the thinkable and thereby occupying an intermediate position between psychological and formal analysis.<sup>21</sup> Specific interest in the strictly formal components of the *Gegenstandstheorie* was developed by a pupil of Meinong's, Ernst Mally.<sup>22</sup> Husserl's phenomenology conjugates the logic/psychology problem in yet other ways. And the same applies to another outstanding pupil of Brentano, Kazimierz Twardowski, the undisputed founder of the Lvov-Warsaw school, the merits of which in

<sup>18</sup> [Gardner 1984].

<sup>19</sup> On binary oppositions see [Durkheim e Mauss 1963], [Mauss 1933], [Odgen 1967], [Needham 1973], [Shils 1975], [Schwartz 1981].

<sup>20</sup> [Poli 1993] and [1998d].

<sup>21</sup> For some recent studies of Meinong see [Haller 1995], [Albertazzi 1996] and [Jacquette 1996]. A systematic reconstruction of his thought is currently being prepared by [Albertazzi, Jacquette and Poli 1999].

<sup>22</sup> On Mally see the recent [Hieke 1998]. See also [Poli 1990], [1996] and [1998c].

methodological logic are universally acknowledged. Less known are its achievements in psychology, for example by Witwicki and his pupils.<sup>23</sup>

Thus described are three different directions of inquiry originated by Brentano (those of Meinong, Husserl and Twardowski). Although these directions do not exhaust the enormous diversity of theories ascribable to Brentano's initial influence, they nevertheless testify to its fertility.<sup>24</sup> Faced with this multiplicity of proposals, the neo-positivists declared *ex cathedra* what was relevant and what was not. With them, and on their decree, descriptive psychology – although they acknowledge its positive influence – was no longer regarded as a thematic area worthy of serious scientific interest. On the other hand, that Brentano was in many respects one of the originators of the analytic movement, and in particular of the Vienna Circle which was one of the main initial stimuli of that movement, is explicitly stated in the *Manifesto* of the Vienna Circle. In the section on the historical background of the circle, one reads:

The commitment of physicists like Mach and Boltzmann to the teaching of philosophy testifies to the then dominant interest in the logical and gnoseological problems of the foundation of physics. From this fundamental theme also arose the requirement to renew logic; and it was at Vienna, although he moved from an entirely different direction, that Franz Brentano had opened the way. As a Catholic priest, Brentano was well-versed in scholastic philosophy, and he undoubtedly took from it its logical doctrines together with Leibnizian contributions for a reform of logic, while he left aside Kant and the systematic idealist philosophers. The appreciation by Brentano and his pupils of the work of scholars like Bolzano and others who sought to give a rigorous foundation to logic became more and more apparent. Alois Höfler stressed this aspect of Brentanian philosophy before a public which comprised, because of the influence of Mach and Boltzmann, numerous adherents of a scientific conception of the world. The philosophical society directed by Höfler held frequent meetings on the gnoseological and logical aspects of the foundation of physics at the University of Vienna ... During roughly the same period (1870-1882), at work within Brentano's Viennese group was Alexius von Meinong (subsequently professor at Graz), whose *Gegenstandstheorie* had a certain affinity with the modern theory of concepts and whose pupil Ernst Mally likewise conducted research in the field of the logic.<sup>25</sup>

This long quotation is of particular interest for several reasons. It suffices, in fact, to point out that Meinong was a pupil of Brentano, and that Höfler and

<sup>23</sup> On the Lvov-Warsaw school see [Wolenski 1989], [Coniglione, Poli e Wolenski 1993], [Kjania-Placek e Wolenski 1996] e [1997]; on its psychology in particular see [Stachowski 1993].

<sup>24</sup> For a general reconstruction of the thought of Brentano and his school see [Albertazzi, Libardi and Poli 1996] and [Poli 1998].

<sup>25</sup> [Hahn, Neurath and Carnap 1929], my translation.

Mally were in turn pupils of Meinong, to see that many of the names cited belonged to what was in many respects a unitary research group.

### 7. *Alexius Meinong*

In order to proceed, I must provide at least some schematic information about Meinong. When in 1875 Brentano arrived in Vienna from Würzburg, Meinong recognized that under his direction his progress in philosophy would be more rapid, and accordingly attended his courses. Meinong wrote his habilitation thesis on Hume's nominalism (1877). Together with Husserl, Stumpf, Maly, Ehrenfels and Twardowski, Meinong was one of Brentano's six brilliant pupils. In 1882 he obtained a position at Graz, where he remained until his death (1920). In the almost forty years of residence in Graz he created a school of thought which addressed questions of metaphysics and ontology, values theory, psychology, semantics and philosophy of language, theory of evidence, theory of possibility and probability, theory of the emotions, of the imagination, of assumptions and of abstraction: in other words, the entire range of philosophical inquiry. Meinong also founded the first laboratory of psychology in the Austrian Empire. He believed that philosophy, psychology and logic should be developed jointly, and not in isolation from each other. Besides the already mentioned Ernst Mally and Vittorio Benussi, his most outstanding pupils were Rudolf Ameseder, Stephan Witasek, France Veber and Hans Pichler. I have already said that when Benussi was rejected as director of the psychology laboratory because of his Italian origins, he transferred to Padua where he became Musatti's mentor.

The analysis developed by Meinong and his pupils is distinguished by its extreme rigour and its painstaking attention to detail. Indeed, Meinong explicitly stated that: "Between two authors, one of whom draws a distinction and the other does not, it is usually the case that the author who draws the distinction has seen something that the other has not."<sup>26</sup> Which is undoubtedly true, or at least extremely likely. On the other hand, it should be pointed out that an excess of analyticity may also have its drawbacks. Paolo Bozzi has made the point well: "Meinong is a master because he is able to have the reader share his torment when excogitating his ideas. Meinong's difficulty in writing becomes an expressive device because it forces the poor reader to undergo all the travails that he suffered before setting his words on paper."<sup>27</sup>

I shall not even try to describe the principal components of Meinong's theories. To do so I would have to write an entirely different work. But there are at

<sup>26</sup> [Meinong 1921].

<sup>27</sup> [Bozzi 1993], 191.

least a couple of things that should be said. I have already mentioned Meinong's belief that logic, psychology and philosophy are bound together, and I shall not develop the topic. Instead, I shall briefly discuss the theory of objects, which is the core of Meinong's thought.

In developing Brentano's theory of intentionality, Meinong elaborated the principle that thought is able to grasp any whatever type of object – a contention which should be taken in its maximum generality. Thinking any type of object means not only thinking objects of which we have had or have experience but also those of which we will have experience and even those of which we have never had experience, it means thinking every form of fictitious, abstract and ideal object. But it also means thinking every type of impossible object, like a square circle for example. This therefore concerns not only objects that exist but also possible objects and impossible ones. For Meinong, the realm of intended objects, the realm of the objects of thought, therefore has no limit. For this reason he claims that the realm of intended objects is *jenseits von Sein und Nichtsein* (beyond being and non-being), it is *Aussersein*. Because of this characteristic the objects of thought are *heimatlos*.

Secondly, every intended object has a nature, a *Sosein*, which tells us that the object is made in this or that manner. For Meinong, the *Sosein* of intended objects is independent of their *Sein*, from their ontological status. This means that one can describe objects without committing oneself ontologically to them.

Thirdly, intended objects which possess being are distinguished between existent objects (spatio-temporal existence – that of real objects) and subsistent ones (abstract, platonic subsistence – that of ideal objects). Some intended objects do not possess any form of being (that is, they neither exist nor subsist, they are neither real nor ideal), examples being the square circle or the golden mountain.

It goes without saying that proposals such as these inevitably provoked fierce controversy.

For my present purposes I would merely add that Meinong developed his arguments with great systematicity, employing not only the tools of conceptual analysis pure and simple but also the results and insights of laboratory work. The figure and role of Benussi are paradigmatic in this sense.

Musatti endorsed the theories that I have just briefly described. But what were his own fundamental ideas?

### 8. *The logical function of the irrational*

In order to analyse the concept of 'law' used in *Analisi del concetto di realtà empirica*, I shall draw on an essay written shortly afterwards: "La funzione

logica dell'irrazionale" published in 1928 in *Logos* and which still takes the stance of the previous book.

Common to both works is the Kantian thesis that phenomenal multiplicity is rationalized by reducing a multiplicity to a unity.<sup>28</sup> The intellect carries out this reduction by resorting to a set of fundamental concepts. Although Musatti believed that it was not possible to itemize a complete and concise set of these fundamental concepts, it was nevertheless possible to list those that can be identified: namely cause, reality, species, law.

Correlated with each of these fundamental concepts is another one, without which the fundamental concept would not be determinable. We thus have the concept of

EFFECT	with respect to	CAUSE
APPEARANCE	with respect to	REALITY
INDIVIDUAL	with respect to	SPECIES
FACT	with respect to	LAW

The relative relationships of multiplicity and unity operate in the following manner:

MULTIPLICITY of EFFECTS	of a SINGLE CAUSE
MULTIPLICITY of APPEARANCES (aspects)	of a SINGLE REALITY
MULTIPLICITY of INDIVIDUALS	of a SINGLE SPECIES
MULTIPLICITY of FACTS	of a SINGLE LAW

It follows that when rationalization takes place, the intellect does not utilize the fundamental concepts listed above, but rather the relationships that they express jointly with their correlates.<sup>29</sup> Of interest to us here is the law-fact connection.

Musatti called the fundamental concepts that we have just seen the "categories of the intellect," although he immediately pointed out "that this use of the term 'category' differs ... from the original meaning of the term, in determination of which prevails a criterion of static classification of the possible objects of thought rather than a functional criterion like this one."<sup>30</sup>

Before I broach the principal theme of my paper, permit me to note that there is a non-rationalizable element in every category, that is to say, a residue which cannot be rationalized by the categorial relationship in operation. 'Non-rationalizable' for Musatti is that something which eludes the unification proper

<sup>28</sup> [Musatti 1964], 49, 187.

<sup>29</sup> [Musatti 1964], 188.

<sup>30</sup> [Musatti 1964], 188.

to a specific intellectual construction (186). The non-rationalizable aspects of the four categories considered are:

CONTINGENT: what cannot be assumed to be the EFFECT of any CAUSE

NON-REAL: what cannot be assumed to be the APPEARANCE of any REALITY

AMOMALOUS: what cannot be assumed to be an INDIVIDUAL of any SPECIES

MIRACULOUS: what cannot be assumed to be a FACT of any LAW.

Each category expels its non-rationalizable particular from its field. It should be noted, however, that what is non-rationalizable with respect to one category may be rationalizable by another category. The multiplicity of rationalizations allowed by a functionalist perspective yields a team game which could not even be hypothesised in a non-functionalist context.

### 9. *The internal and external worlds*

I now turn to Musatti's psychology. He developed his theory on the basis of a conceptual grid devised by Benussi where the data of consciousness display the following features:

presence	localizable	perceptive data
	non-localizable	introspective data
absence	indeterminate	fantasy
	determinate	memory

The object of a perception is experienced as present, as here before us, as given (Benussi).<sup>31</sup> The data of consciousness endowed with presence constitute *empirical reality*. Those with absence (or only mental presence) constitute representative states. In what follows I shall refer mainly to the layer of empirical reality, as distinguished into external (perceptive) reality and internal (introspective) reality. Synoptically:

1. EMPIRICAL REALITY
  - 1.1. EXTERNAL REALITY
  - 1.2. INTERNAL REALITY
2. REPRESENTATIVE STATES.

<sup>31</sup> [Musatti 1964], 40.

The first step, therefore, is to give more exhaustive characterization to the concept of 'reality.' I shall proceed as follows. First I shall seek to characterize the concept of reality (and the correlated concept of 'appearance'). This will enable me to characterize the concept of 'object.' It will then be possible to go further, seeking to characterize the concept of 'fact' with respect to that of 'object.' Once the concept of 'fact' has been specified, it will be possible to back-track to the concept of 'law.'

The point of departure is the already-mentioned thesis that phenomenal multiplicity is rationalized by being reduced to unity. In his analysis of the concept of reality Musatti singles out four forms of construction of both external and internal reality, viz.:

FIRST FORM OF REALITY CONSTRUCTION. Given two simultaneous discordant phenomenal givens, relative to two distinct sensory fields, we assume that one corresponds to reality and that the other is apparent (example of the stick half immersed in water).<sup>32</sup> The discordance between the two phenomena is removed if one is used to give account of the other. We can describe this situation as the assumption, between discordant perceptive givens, of one datum as real and the other as apparent.<sup>33</sup>

With respect to inner reality, in situations of close concentration we realize the real complexity of phenomena which on other occasions we may have perceived in less complex terms. It is in regard to the latter, therefore, that we speak of the illusory or apparent poverty of data.<sup>34</sup>

SECOND FORM OF REALITY CONSTRUCTION. This proceeds by assuming reality to be the imaginary phenomenal datum of a practically impossible, but rationally thinkable, experience,<sup>35</sup> for example the molecular structure of organisms. Atomic structure is real for science although none of our immediate impressions correspond to it.<sup>36</sup> But we can imagine ourselves as able enormously to expand our perceptive capacities until we are putatively able to 'go and see.'<sup>37</sup> By using the concept of 'extended perceptive apparatus,' we can unite these first two forms of reality construction.

As a form of construction of inner reality, consider the onset phases of a process introspectively experienced as immediate. It appears immediate to us although we know that it is constituted by a sequence of phases. What appears to us as a single and immediate perceptive event is in fact only the final event in

<sup>32</sup> [Musatti 1964], 16.

<sup>33</sup> [Musatti 1964], 17.

<sup>34</sup> [Musatti 1964], 99.

<sup>35</sup> [Musatti 1964], 18.

<sup>36</sup> [Musatti 1964], 17.

<sup>37</sup> [Musatti 1964], 7-18.

that process.<sup>38</sup> We explain the appearance by assuming that the phases are too brief to be grasped.

These are practically impossible but rationally thinkable cases.

THIRD FORM OF REALITY CONSTRUCTION. This proceeds by assuming as real the imaginary phenomenal datum of an experience which is not only practically impossible but also rationally absurd, and only thinkable if we ignore the condition that defines the problem.<sup>39</sup> Think of the world as it was before the appearance of the human species. By definition we cannot describe it. Moreover, this is an assumption that enables to account for otherwise incomprehensible phenomena (geology, etc.).<sup>40</sup>

The unconscious is an example of the third form of inner reality construction.<sup>41</sup> The reality of unconscious processes is constructed by means of a fiction which ignores the condition that they cannot be raised to the level of consciousness.<sup>42</sup>

FOURTH FORM OF REALITY CONSTRUCTION. This is a reality determined outside the terms of our phenomenal experience. A better formulation would be that reality is indirectly determined only in relation to those given phenomena that it serves to organize.<sup>43</sup> All cases of physical energy, the physical or chemical properties or conditions of bodies are cases of this form of reality construction.

Examples of the fourth form of internal reality construction are: capacities, dispositional attitudes (intelligence, memory, discernment). Properly speaking, memory, intelligence, and so on, are not psychic facts; that is, they are not introspectively graspable states or processes.<sup>44</sup>

In short, the four forms of reality construction understand reality as:

EFFECTIVELY GIVEN EXPERIENCE

PRACTICALLY IMPOSSIBLE BUT RATIONALLY THINKABLE EXPERIENCE

PRACTICALLY IMPOSSIBLE AND RATIONALLY ABSURD EXPERIENCE

REALITY DETERMINED WITHIN PHENOMENAL EXPERIENCE.

<sup>38</sup> [Musatti 1964], 100.

<sup>39</sup> [Musatti 1964], 19.

<sup>40</sup> [Musatti 1964], 18.

<sup>41</sup> [Musatti 1964], 101.

<sup>42</sup> [Musatti 1964], 102.

<sup>43</sup> [Musatti 1964], 19.

<sup>44</sup> [Musatti 1964], 102.

These four forms of construction have interesting features in common. For example, in all four cases the element assumed as *reality* always takes specific form, but less clear are the *appearances* to account for which these realities are conceived.<sup>45</sup>

Besides the forms of construction of reality, Musatti distinguishes other mechanisms which intervene in the organization of psychic data. Here I shall discuss only assimilative processes and associative processes. The former are the processes whereby an object of our actual perception is *enriched* with perceptive elements without the corresponding adequate external conditions.<sup>46</sup>

We enter the field of assimilative processes, for example, when we reinforce the condition utilized in the fourth form of the construction of reality so that we have a reality determined *solely* in relation to the phenomenal data that it serves to explain. A particularly significant example is provided by amodal presence. To use Kanizsa's words, "by 'amodal presence' is meant that type of perceptive presence (not only imagined but 'encountered,' as Metzger terms it), which does not occur in any sensory modality." An important case is the segmentation of the perceptive field into figure and ground, where the ground behind the figure is (amodally) completed. The figure has a rear which is not visible but phenomenally present. Objects experienced as three-dimensional objects present an interior, which is encountered and not solely thought.

In general, we may say that "the optical system always fills gaps, it always goes beyond the information given by means of perceptive interpolation."<sup>47</sup> The reality thus postulated by the perceptive system enables us to make comprehensible phenomena that otherwise would be incomprehensible, or to render heterogeneous data homogeneous.

Benussi distinguishes assimilative processes from associative processes as follows:<sup>48</sup>

1. Associative processes develop according to an additive pattern; assimilative processes alter the perceptive element from which they start (and therefore become one with it). I see an English word and I associate the corresponding Italian word with it: associative process. I 'see' a word spelt incorrectly and I read it in its correct form: assimilative process.
2. The additive pattern of associative processes is unlimited; assimilative processes tend towards a limit.<sup>49</sup>

<sup>45</sup> [Musatti 1964], 20.

<sup>46</sup> [Musatti 1964], 37; [Albertazzi 1995].

<sup>47</sup> [Kanizsa 1980], 91.

<sup>48</sup> Cf. [Benussi 1922-23] and [Benussi 1925], 30 and 32.

<sup>49</sup> [Musatti 1964], 38.

3. Assimilative elements are perceptively experienced in the object in which they are presented; associative elements are presented in representative or mnestic situations.
4. Assimilative processes are activated before, and independently of, mnestic factors.<sup>50</sup>

The rationalization induced by assimilative processes is different from that of the four schemes of reality construction.<sup>51</sup> As already mentioned, the above reference to amodal presence could be resolved by articulating the cases of assimilation. Here, however, I am obliged to restrict myself to the four forms of rationalization expounded above.

The multiplicity of the forms of reality construction consequently entails the relativity of the concepts themselves of reality and appearance,<sup>52</sup> and it also entails that “we *trust* in the reality of objects as they are perceptively given to us *until we have proof to the contrary*.”<sup>53</sup>

In other words, on the basis of a particular perceptive datum it is often possible to draw numerous distinctions of reality and appearance such that what in one construction is assumed to be reality may prove in the next distinction to be the appearance of a *further reality*. However, one must also realize that there are limits to these processes of exploring reality.

That said, a further step is required before arriving at characterization of the concept of object. We still need to distinguish between sensory fields and perceptive fields. The former roughly coincide with the sense organs, the latter comprise the data under observation. Sensory fields are of little relevance to my purposes here, and I shall consequently concentrate on perceptive fields.

To gain an idea of what a perceptive field is, we can begin with the observation that elementary perceptive data can be grouped into classes.<sup>54</sup> The most natural grouping procedure is the one founded on operations of continuous transformation.

We may say that an (elementary) datum A is transformable into another (elementary) datum B when there exists a series of data B,C,D,... such that in the series A,B,C,D,...,N each term is indistinguishable from the one immediately adjacent to it and distinct from all the others.<sup>55</sup> The reference is obviously to the concept of continuous variation. The set of data of a perceptive field therefore constitute a continuum.<sup>56</sup> To forestall misunderstandings, I would

<sup>50</sup> [Musatti 1964], 39.

<sup>51</sup> [Musatti 1964], 41.

<sup>52</sup> [Musatti 1964], 43.

<sup>53</sup> [Musatti 1964], 45.

<sup>54</sup> [Musatti 1964], 52.

<sup>55</sup> [Musatti 1964], 51-2.

<sup>56</sup> [Musatti 1964], 53.

point out that this is not a continuum in the mathematical sense, but rather a continuum in the perceptive one (the concept of perceptive continuum is much weaker than that of mathematical continuum).

The distinction of perceptive data into continuous classes entails that every datum can be transformed into another datum of the same class but not into a datum of another class.

We may therefore say that a perceptive class is independent of other perceptive classes if continuous variation can occur between any two data in the first class, with the other simultaneously present perceptive data remaining constant. Each continuous class constitutes a distinct perceptive field.<sup>57</sup>

We can always geometrically represent a perceptive field as a spatial continuum,<sup>58</sup> although this representation need not necessarily be linear. In other words, the transformation of one element into another may come about in various ways, and not through a single predetermined continuous series.<sup>59</sup> It may therefore be possible to identify diverse kinds of *qualitative aspects* (for example, brightness, chromatic saturation, hue for colours) in the elements of a perceptive field such that each of its elements displays qualitative aspects of each of the species determined for that perceptive field.

An element is univocally determined only when the qualitative aspects of each of its species have been determined. One may use the expression ‘decomposition fields’ for the fields that result from the decomposition of a multidimensional perceptive field.

These distinctions between perceptive fields and decomposition fields are also present, albeit with different terminology, in later works by Carnap and Goodman.

Before concluding this section, another distinction must be drawn. Some perceptive fields are such that each of their elements is given only with data that belong to other fields. For example, a spatial form cannot be the object of a perception without the simultaneous occurrence of perceptions of places.<sup>60</sup> This is a situation different from that of qualities. In one case we say that spatial form is grounded or rests on places, whereas in the other we say that qualities are synthetically joined together in the presence of colour.<sup>61</sup> This idea is at the basis of the formal reconstruction of Husserl’s third logical investigation by Jean Petitot.<sup>62</sup>

<sup>57</sup> [Musatti 1964], 52.

<sup>58</sup> [Musatti 1964], 55.

<sup>59</sup> [Musatti 1964], 55.

<sup>60</sup> [Musatti 1964], 57.

<sup>61</sup> [Musatti 1964], 57-8.

<sup>62</sup> Cf. for example [Petitot 1995b].

There are also forms of partial independence between the field of places and the field of forms. A figure may be experienced on the basis of diverse groups of places but not on the basis of any group of places (and vice versa).<sup>63</sup>

There is more to be said, for example, regarding the concepts of form and relationship, but this is discussion that must be left for another occasion.

We now come to the concept of 'object.' To be pointed out first is that objects are neither actual perceptive data nor possible perceptive data, nor even complexes of such data. Objects are in fact thought as constant and unique even when the perceptive data relative to them change.<sup>64</sup> In this sense, objects are realities of the fourth kind. (Although they are of a particular type because the various perceptive data relative to them are experienced assimilatively in a formal unity, and also because the assumption of an object may be purely assimilative, that is, without processes of rationalization.)

Objects are exactly those ordered fragments of reality addressed by our rationalizing and assimilative activities.

There are certain conditions which enable us to distinguish objects: namely there must be:

1. a succession of data
2. assignable to something
3. with boundaries.<sup>65</sup>

The distinction between external and internal object is given by the further condition of completeness. An object is 'complete' when it is graspable by all the types of perception.<sup>66</sup> Complete objects are fragments of external reality.

Sometimes, however, the condition of completeness apparently does not apply to certain external objects. For example, we may say of some objects that they are odourless and colourless.<sup>67</sup> In these cases, completeness can in fact be easily re-established when one considers the lack of odour or of chromatic hue as a positive aspect.<sup>68</sup>

Finally, completeness is intrinsically bound up with spatiality, although the latter is not a necessary condition for objects to be assumable.<sup>69</sup> For Musatti, non-complete objects are non-spatial objects.

The second condition, that of the membership of data to something, can be satisfied in various ways. For example, in a succession of data, a group of them

<sup>63</sup> [Musatti 1964], 58.

<sup>64</sup> [Musatti 1964], 69.

<sup>65</sup> [Musatti 1964], 70.

<sup>66</sup> [Musatti 1964], 71.

<sup>67</sup> [Musatti 1964], 73.

<sup>68</sup> [Musatti 1964], 74.

<sup>69</sup> [Musatti 1964], 76.

may be assumed as constant in that succession. Or one may assume a group of data in continuous transformation. In this case we may speak of the condition of continuity.<sup>70</sup>

This latter possibility seems to disappear in all those situations in which we say that a single object presents itself to us in successive moments interrupted by intervals in which it is not perceived.<sup>71</sup> In order to be able to talk about a single object, it is therefore necessary to fill these intervals, and we do so with an *absent* object.

The concept of 'absent object' is a particularly delicate one, and it is much more common than might seem at first sight. In effect, since we can never simultaneously grasp all the perceptive aspects of an object, also a present object is always at least partly (or even mostly) absent. Although Musatti does not say so, it follows from these premises that the 'external object' is experienced more with the feature of presence than it is *effectively* experienced in all its sensory dimensions. Strictly speaking, indeed, an external object is never completely present.

With this characterization of 'object' we may now turn to the concept of 'fact.' Like objects, also facts are realities of the fourth kind.<sup>72</sup> The examples of fact provided by Musatti are: a chemical reaction, the fall of a weight, the development of an organism.<sup>73</sup>

Because several perceptive data relate to one fact, it is necessary that they:

1. constitute a succession in time,
2. display a condition which permits their attribution to the same fact,
3. have limits.<sup>74</sup>

In this sense, the characterization of facts proceeds in the same way as the previous characterization of objects. In reality, facts are distinct from objects because in their case conditions (2) of membership and (3) of delimitation are satisfied in different ways.

For example, for facts the succession of the data need not necessarily be continuous. Indeed, there are facts where continuity is explicitly excluded: for instance in the case of an intermittent fever or of social events like a legal judicial trial constituted by temporally and sometimes also physically discontinuous phases. The point is that the reduction to unity that characterizes objects is different from the reduction to unity that characterizes facts. For objects, the multiplicity of perceptive data is *effectively* reduced to unity, while

<sup>70</sup> [Musatti 1964], 70.

<sup>71</sup> [Musatti 1964], 73.

<sup>72</sup> [Musatti 1964], 82.

<sup>73</sup> [Musatti 1964], 81.

<sup>74</sup> [Musatti 1964], 83.

for facts this reduction has a fictitious character which is revealed in the *aggregative aspect* of the fact itself.<sup>75</sup>

The intervention of two different forms of reduction to unity (or of two different theories of parts and wholes) enables us to think an object independently of its duration as an effective unity, whereas a fact is always experienced with an aspect of change, of unfolding. An object is experienced in every moment as a realized whole; the individual moments of a fact are experienced as the elements of an aggregate, and it is necessary to specify the other elements of the aggregate in order to know the fact (i.e. the aggregate itself). For this reason, a fact is thinkable only with a beginning and an end, while an object is thinkable independently of a beginning and an end.<sup>76</sup>

The aggregative aspect of facts is revealed in the particular relationship that may exist between the parts and the whole constituted by the fact itself: the parts of a fact are realized in succession as phases of it. An object instead does not unfold in time but is wholly given in any slice of time. The fact correlated with a given object is what we may call the ‘history’ of the object.<sup>77</sup>

So far, so good. It will also have been noticed that in speaking of objects and facts I have referred only and exclusively to the outside world. The moment has now come to consider the other half of the picture.

To do so, we must return to the problem of sensory fields. The first difference between analysis of the external world and analysis of the internal world arises from the fact we cannot talk of fields analogous to sensory fields with reference to introspective data.<sup>78</sup> Secondly, the constantly changing nature of introspective data means that it is impossible to prove independence between any two classes of introspective data, and it also entails that it is impossible to assume – as was done with perceptive data – the independence of one of these classes from the others.<sup>79</sup>

But if there are no longer fields of introspective data, nor are there forms of introspection. Therefore one cannot speak of various *perspectives* of introspection, or of its various *qualities*. Introspective data constitute a *single introspective field*: Musatti explicitly states that the inner qualities are all of a single kind.<sup>80</sup>

It further follows that the distinction between reality and appearance does not apply to the inner world. In the absence of this distinction, it is the character of reality that prevails.<sup>81</sup>

<sup>75</sup> [Musatti 1964], 83-4.

<sup>76</sup> [Musatti 1964], 84.

<sup>77</sup> [Musatti 1964], 84.

<sup>78</sup> [Musatti 1964], 122.

<sup>79</sup> [Musatti 1964], 123.

<sup>80</sup> [Musatti 1964], 123.

<sup>81</sup> [Musatti 1964], 126 and elsewhere.

Again: inner reality cannot be fractionalized into objects.<sup>82</sup> For the complex of introspective data, therefore, there does not even exist that divisibility of reality into pieces that pertains to objects. And if there are no objects, one cannot even apply to the concept of identity.<sup>83</sup>

Already from these brief remarks it is evident how different internal reality is from external reality. But note that this diversity has been obtained by applying the same procedure of reality construction to both.

The result obtained above – that inner reality cannot be divided into objects – may be interpreted better if we assume that the complex of introspective data relates to a single object, namely the consciousness. In this case a form of global correspondence can be established between the physical object ‘outside world’ and the psychic object ‘consciousness.’<sup>84</sup>

In the complex of introspective data, although objects cannot be assumed, facts instead can be: they are what we usually call *processes, stretches or states of consciousness*.<sup>85</sup> These facts, moreover, are facts of a different type from those of the external world, for they are not facts *of* particular objects or *relative to* particular objects (given that there are no objects).

This does not prevent the facts of consciousness from having (like perceptive processes, or the assumptions of forms or relationships, mnemonic and representative processes) an output of objectual nature.<sup>86</sup> Only that whereas in the external world facts depend on the objects to which they refer, in the internal world it seems that exactly the reverse situation obtains, so that objective outcomes depend on the facts to which they refer. To be precise, this is my inference, not a statement by Musatti.

The facts of consciousness are not given as such to introspection; rather, they are constructed as internal realities on the basis of both introspective and non-introspective data. Introspective data, however, play only a minor part in the assumption of facts of consciousness.<sup>87</sup> In effect, very few data are grasped introspectively.<sup>88</sup>

Moreover, some data elude immediate rationalization. Those that do so are data which are not accompanied by a spatial localization (precisely those data which we call ‘internal’) and which are if anything characterized by their possession of a purely temporal location.

For Musatti, a datum is *enmeshed* with external reality through its spatial location. This latter constitutes the basis for other rationalization procedures,

<sup>82</sup> [Musatti 1964], 132.

<sup>83</sup> [Musatti 1964], 133.

<sup>84</sup> [Musatti 1964], 134.

<sup>85</sup> [Musatti 1964], 135.

<sup>86</sup> [Musatti 1964], 140.

<sup>87</sup> [Musatti 1964], 144.

<sup>88</sup> [Musatti 1964], 151.

since the rationalization of external data takes place prior to that of internal data.<sup>89</sup> The mental presence of internal data cannot come about unless they are in some way connected with external data.<sup>90</sup>

We have seen that the relationship between facts and objects is structured differently in external and internal reality. It follows that also their correlated categories have different valences. It thus seems possible to conclude that – in the case of the external world – initially at work are mechanisms for the objectual construction of reality, with perhaps the intervention of the further rationalization procedure governed by the law/fact connection. In the case of the internal world, given the absence of an underlying layer of objects, the initial rationalization procedures are those governed by the law/fact connection, on which objectualization intervenes in wholly residual manner. Put in these terms, the question seems to allude to something important but not sufficiently clear.

As far as I can see, the crux of the matter is construction of a credible theory of representation. If it is, then two steps are necessary. The first concerns the distinction between theory of representation and theory of presentation. The difference is a subtle one and difficult to specify, presumably because pure presentation and pure representation are nothing but the two extremes of a single experiential continuum. Supposing it were possible to discretize this continuum, one could perhaps say that presentation is the *immediate* domain of consciousness, while representation is the domain of what is cognitively characterized. For our purposes here, the two theoretical domains are distinguished by their different types of constitution.

The theory of presentation, in fact, requires a temporal foundation, while the theory of representation requires a spatial one. This, is evidently a distinction wholly present in Musatti. Above all, it is a distinction which intervenes in the government of the differences between inner and outer reality. It is this that justifies, at the level of representation, the use of geometric instruments. Intervening in the passage from presentations to representation is a correlated passage from a temporal *a priori* to a spatial *a priori*.

The second step preliminary to development of a credible theory of representation concerns the distinction between two irreducible situations in which (a) objectivity precedes modelling and (b) modelling constitutes objectivity.<sup>91</sup> This distinction is perhaps the principal contemporary outcome of the late nineteenth-century opposition between the natural sciences and the human sciences, with the difference that the tools are now becoming available for investigation of the latter which does not postulate the intrinsic incompatibility of the respective scientific instruments.

<sup>89</sup> [Musatti 1964], 152 and elsewhere.

<sup>90</sup> [Musatti 1964], 157.

<sup>91</sup> [Petitot 1985].

Situations of the first kind are those which can exist independently of the existence of a cognitive subject. It goes without saying that, even though situations of the first type may *exist* independently of the existence of the cognitive subject, they cannot be *known* independently of the existence of such a subject. It follows that it is not possible to start from the situation in which modelling constitutes objectivity. It is then a matter of explaining why the reverse option seems so patently to be discounted.

To establish the terminology, I shall refer to ‘constitution’ of objectivity in the case when modelling involves the constitution of objectivity, and to ‘modelling’ in the reverse case. It is obvious that the term ‘modelling’ occurs in two different senses in these two situations.<sup>92</sup>

It is equally obvious that connected with this difference are two different ways of ‘giving form’ (which proceeds from pre-categorical to categorical and from this to model).

Both the constitution and modelling of objectivity are based on a preliminary requirement: that of the *geometrization* of the constitution itself. The metaphors that we customarily use are highly indicative here: I need only cite expressions like ‘semantic *space*’ or ‘*space* of representation.’

In any case, the requirement of geometrization (or as Musatti put it, the requirement of spatiality) is a necessary condition for the representability of objects. For the school of Meinong, this requirement was inextricably bound up with the requirement of the completeness of the objects represented. If, as for the members of that school, the concept of ‘object’ is broader than the ambit of that which can be represented, then the ‘spatiality’ condition only applies to complete objects. It follows that non-complete objects are assumable but not representable, which also Musatti himself explicitly states.<sup>93</sup>

Two remarks are in order here. First Meinong’s notion of *Aussersein* objects is less startling if it is located in its natural psychological base. Secondly, the development of topology and the other sciences of ‘space’ in this century has equipped us with tools which may prove able to handle the problem of the semantic spaces of *Aussersein* objects as well. In this case, the requirement of geometrizability comes to coincide with the requirement of assumability.

In other words, if we use a sufficiently powerful geometry, ‘object’ becomes synonymous with ‘region’ (in some space of representation). Geometrization in this case coincides with the conditions for construction of a topology.

In both cases, the crucial aspect is the conditions that express the *proximity* between two objects (points, indices, qualities). Once the conditions of proximity have been established, everything else follows.

<sup>92</sup> On this see [Poli 1994a] and [Poli 1995].

<sup>93</sup> [Musatti 1964], 76.

## 10. *Conclusions*

With this it seems that I may conclude my *sortie* into Musatti's theory. There is much more to be added, but I shall be satisfied if I have aroused the suspicion that I have not engaged solely in an operation of archaeological rediscovery; an operation which, independently of any other evaluation, would not have met with Musatti's approval. In any event, Musatti's theory, of which I have provided a brief sampler here, is highly articulated and apparently very promising. And yet it will not bear fruit.

Its very history exemplifies its fate. I have already mentioned that the 1926 book was pulped for lack of sales, and that the 1964 reprint was destroyed by the Florence floods.

Besides external circumstances, other factors have contributed to the book's almost total lack of impact. Apart from its incomprehensibility to the idealist culture of the time, a further factor was that psychology was now moving towards its desertification by behaviourism, opposed by Gestalt theory in its three versions of Berlin, Leipzig and Graz. The clash between the theories advanced by the three groups saw the defeat of Graz and Leipzig and the assertion of the proposals advanced by the Berlin group. Musatti's above-mentioned declaration that he recognized the superiority of Berlin over Graz is indicative, both because of its tone and because it highlights the particularly close attention paid by Meinong to formal and logical components.

A third factor not to be forgotten is the actual history of Meinong's school (and more in general of the school of Brentano, to which Meinong's group belonged). We have seen that Benussi – Musatti's master – committed suicide in 1927, and that Meinong died in 1920. In effect, by the end of the Great War the School of Brentano had ceased to exist (Brentano died in 1917, Marty in 1914).

At this point, Musatti seemed to have no alternative. His attempt at the categorial reconstruction of the concept of reality had been ignored, Meinong's school had died out, and the novelty of psychoanalysis had been launched on the market. His choice seems almost obligatory.

What is the situation today? Behaviourism has gone, and no one mourns its demise. On the other hand, there are the cognitive sciences and artificial intelligence.

The former seek to understand how the psyche works, the latter develops sophisticated procedures for the analysis and automatic manipulation of various types of information. On the one hand, therefore, lie the new frontiers of psychology (cognitive sciences), on the other the search for adequately sophisticated models of those frontiers. Developing sophisticated models means using mathematical and logical models. For this reason, once again hypothesised today is the situation so vigorously opposed at the beginning of the century,

namely the alliance between mathematics and logic, on the one hand, and psychology on the other. It is therefore now possible to re-read works like those by Meinong and Musatti in search of ideas, insights, proposals and suggestions that may be applicable in the frenetic world of contemporary science.

From this point of view, the sad fate of what could have been one of the most outstanding contributions by an Italian author to the psychology of this century may perhaps change.

But this is not all that I want to say. I began by discussing a problem characteristic of the early decades of this century and which now – at its close – is beginning to prove amenable to solution. One of the components of the problem we have seen, at least in part, and it concerns the relationship between logic and psychology. Throughout the twentieth century (with some few exceptions) logic and psychology have looked askance at each other. Both has gone its own way without the slightest concern about what was happening in the other discipline. While at the beginning of the century it was deemed necessary to keep them separate, now attempts are being made to find points of convergence. This is fine as far as it goes, but it is not enough if the rapprochement is viewed in purely external terms. In my view, the reconciliation of logic and psychology must go beyond the mere logical modelling of certain psychic phenomena. Not because this is misguided, but because its feasibility can be taken entirely for granted. Models can always be constructed, using any tools. But then one must ask what their purpose is. The problem that I have in mind is another. What I want to do is not so much analyse the external application of logic to psychology as to see whether it is possible to establish an intimate connection between logical analysis and psychological analysis. This was the crux of the problem at the beginning of this century. The thesis to be refuted is that logic and psychology are disciplines intrinsically alien to each other. And this is the point that I wish briefly to develop before concluding. The question can be analysed from numerous points of view. For obvious reasons, I must necessarily be succinct, although sometimes an overview highlights certain points that an excess of analysis would obscure.

‘Logic,’ of course, derives from ‘logos.’ Among the various meanings of ‘logos,’ there is one of particular relevance to our purposes here. In fact, ‘logos’ also means ‘account,’ in the sense that one can ask someone to give an account of their actions. Accordingly, logic concerns the problem of how an adequate account can and must be framed. With this origin in mind, it is evident that for the Greeks logic was closely connected with the nature of persuasion, refutation and explanation. The first consequence to be drawn, therefore, is the close affinity between logic and rhetoric. If logic is the science of providing an adequate account, and rhetoric is the science of persuading someone of your ideas, it is clear that these two forms of discourse organization have many features in common. Studying logic therefore means studying both the

correctness of argumentation and the methods used to persuade and to refute the arguments of others.

Proceeding in extremely broad historical outline, the next step was taken by the medievals when they posed the problem of a theory of signs. If from the class of signs we consider linguistic signs, it is evident that they can be divided into two main groups: those which have a thing, a property or a relation (like 'tree,' 'green' or 'larger than') as their object, and those which have another sign as their object (like 'noun,' 'verb,' or 'subject'). Following the medieval usage, I shall call the form 'signs of first intention' and the latter 'signs of second intention.' The medievals realized that practically everything contained in Aristotle's *Organon* related to signs of second intention. It was at this point that logic began to be called the 'science of the second intentions.'

In reality, if a definition of this kind is adopted, logic comes to incorporate the entire range of the sciences of language, including grammar and semantics.

It was thus that an important modification was made to the concept of logic. Whereas Greek thought considered logic to be closely connected to rhetoric, medieval thought viewed it as more closely related to the analysis of language. The two pairings obviously do not contradict each other. Rather, they assert the presence of differing focuses of attention: aspects important in the former case become less important in the latter.

But this first modification of the meaning of logic engendered further ones. Here it suffices to bear in mind how broad the concepts of 'sign' and 'intention' are, since properly speaking they include not only the sphere of language but also that of thought.

The inclusion of the domain of thought in logic's 'sphere of competence' gave rise to at least three distinct reforms of logic between the sixteenth and nineteenth centuries: those of the logic of discovery (16th-17th centuries), of idealist logic (18th), and of the algebra of logic (19th).

In this transition from logic as a discipline mainly concerned with language to logic as a discipline mainly concerned with thought, the theories of Hegel and Boole, for example, seem less eccentric. For both, in fact, logic had to do with the laws of thought. The difference between them resided less in their conceptions of logic than in their further assumptions on the matter. Hegel made metaphysical assumptions which identified thought with the real and led to outcomes that we well know. Boole was more modest, since he and the other nineteenth-century scholars of what we know as the algebra of logic simply assumed that the laws of thought can be expressed in mathematical form. However, the idea – one which was entirely natural – that there are laws of thought and that it is the task of logic to study them, very soon entered into crisis. The main challenge against Boole's theory was raised by the discovery of non-Euclidean geometries. Thus undermined was the central pillar of all the various forms of logic hitherto described and which had only ever been affected

by Hegelian logic. I refer to the problems of the certainty of intuition and of the evidence of first principles.

If there can be different geometries, or different categorial structures, each of which is consistent (that is, non-contradictory), it is impossible to know on what basis to choose the true structure. The evidence/truth relationship presupposes the uniqueness of the reference structure. In other words, whatever is evident is also true because there are no consistent alternatives. However, as soon as one discovers that there are other consistent alternatives, evidence no longer guarantees truth. It follows that the criteria on which choices are made must be of another kind, given that the evidence or certainty of the intuition can no longer guarantee anything at all. One thus understands the origin of the rigidly formalistic approach. Since it was no longer possible to rely on a non-formal support like the evidence of first principles – which provided the certainty of a solid point of departure for the formal description of the structure of reality – the problem of logic had to be radically recast. The logic between Frege and Gödel's results of 1931 was a response to this situation. What happened afterwards is a story that still warrants meditating upon. Gödel's results were so surprising that logic continued to develop without taking proper account of what was happening. I have just said that the recourse to formalism was the most forceful response to the collapse of the certainty of evidence and intuition. Gödel's results showed that formalism pure and simple did not solve the problem because, in every sufficiently rich system, for structural reasons there are always truths that cannot be proved within the system itself. The problem thus arose once more. And this is the situation in which we find ourselves today.

Two remarks on what has just been said are in order.

With reference to the late nineteenth century, the period just after Boole, it is interesting to note that logic and geometry responded in different ways to the crisis provoked by the discovery of non-Euclidean geometries. As said, the collapse of the certainties guaranteed by evident intuition so alarmed logicians that they completely abandoned intuition to take refuge in the study of pure formalism. Given Gödel's subsequent results, we may also conclude that it was an unfortunate decision, to say the least. Unlike logic, however, geometry maintained a loose link with intuition by studying the dialectic between local and global. Geometricians began to understand that Euclidean geometry is the geometry in which the local characteristics of curves enable reconstruction of their global characteristics. The advent of non-Euclidean geometries amounted to saying that the global characteristics of space may be different from local ones.

Our organism offers an excellent simulation of the thesis that our space is locally Euclidean. In effect, everything that we are able to manipulate responds perfectly well to the canons of Euclidean geometry. However, this does not

entail that space is globally Euclidean, because the nature of the global structure of space for obvious reasons eludes organic simulation and may be the object only of some form of integration (cognitive or of another kind). For example, one can point out that locally – that is, in every domain of infinitesimal extension – hyperbolic geometry becomes Euclidean. In other words, a hyperbolic space admits to a tangent Euclidean space at its every point. One may therefore say that hyperbolic space gives concrete form to another way of extending the local Euclidean structure of space to the global which *differs from the direct extension* that holds for Euclidean geometry.<sup>94</sup>

The problem therefore concerns the passage from the local to the global in a situation in which there may be different ways to accomplish that passage.

The next step in the course of the nineteenth century was Riemann's idea that 'space' should be considered to be in all effects every space obtained by *glueing together* local models. With Riemann the problem of the passage from local to global became a fundamentally mathematical issue.

In the foregoing brief (and necessarily incomplete) historical outline, we have seen that logic has been something different in different periods. But we have also seen that there is a linking theme among at least some of these differences. Logic was born as a tool of rational persuasion, it was extended to a general theory of signs, it concentrated on the psychology of rational thought, and in the end became the study of formalisms. Mathematical thought evolved in parallel, coming up with an innovative solution to the problem of the crisis of intuition and certainty. The two responses – that of logic and that of geometry – however diverse they may be, today seem to be growing closer, also under the pressure exerted by the problems raised by artificial intelligence. By way of conclusion, it seems that we can say at least the following: a non-dogmatic history of logic discloses the constant presence of a problem, that of the relationship between formal analysis and psychological analysis. The various solutions offered to this problem have all proved faulty and they all have been discarded. But the problem is still with us, and after decades of oblivion it is once again topical, *inter alia* on the promptings of technology and industry.

Musatti sought to answer fundamental problems by drawing on the beliefs of a school at odds with the intellectual mainstream of his time, a school which furthermore – owing to the demise of its principal members – was in decline. In the light of subsequent history, we may perhaps also say that it was a school too advanced for its time (consider the rediscovery of Meinong in the form of so-called Meinongian semantics of the 1970s, or the rediscovery by experimental psychologists of dozens of Benussi's laboratory results). In any event, it would be unfair to blame Musatti for not following the same route. The commercial failure of his first book, his academic and personal difficulties, the success of

<sup>94</sup> [Petitot 1979], 437.

Berlin Gestalt, and the advent of psychoanalysis, justify his decision to explore other avenues. It is still to his credit that with *Analisi del concetto di realtà empirica* he has given us one of the best products of Italian science and philosophy. A pity that nobody has read it.

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Department of Sociology and Social Research  
 26, Verdi st.  
 I-38100 Trento – Italy  
 e-mail: roberto.poli@soc.unitn.it