

Chapter 2

The Logical Mind: Wundt's Early Psychological Project

In order to show the plausibility of my central thesis enunciated in the introduction—that the development of Wundt's psychological project is intertwined with the development of his philosophical conceptions and that, therefore, it is not possible to understand his psychology independently of his philosophy—my first step will be an analysis of his early psychological program, which comprises the period between 1858 and 1863.¹ At this time, Wundt was an assistant of Hermann Helmholtz at the Physiological Institute of the University of Heidelberg.² The most relevant sources for my analysis are two books: *Beiträge zur Theorie der Sinneswahrnehmung* (Contributions to the theory of sensory perception) and *Vorlesungen über die Menschen- und Thierseele* (Lectures on the human and animal mind), published in 1862 and 1863, respectively. I will also rely on other primary sources to discuss some details of Wundt's position.

¹In fact, Wundt began his academic career in Heidelberg 1 year earlier. After receiving his *Habilitation* in February 1857 (Drüll, 1986, p. 307), he began lecturing in experimental physiology in the summer semester of the same year. However, his first psychological work was published only in 1858 (E. Wundt, 1927).

²According to Wundt's own report (EB, p. 1079), his assistantship with Helmholtz, which had begun in 1858, ended in 1863, information that most of his biographers have reproduced (Diamond, 1980; Gundlach, 1999; Lamberti, 1995; Meischner & Eschler, 1979; Schlotte, 1956; Ungerer, 1979). Others have proposed alternative dates (Boring, 1950; Flugel, 1964; Kim, 2009; Nicolas, 2003a; Robinson, 1987; Sprung, 2001; Titchener, 1921), and Helmholtz himself offered a different version of events, showing that Wundt could not have abandoned his post until 1865 (UAH, PA 2478; Kirsten, 1986, p. 215). Bringmann and Balance (1975), Nitsche (1990), and Werner (1997) have suggested the year 1865 but have not offered any documentary proof. Bringmann, Bringmann, and Cottrell (1976) tried to explain these contradictory claims, favoring Helmholtz's version, but left the question undecided. In a recent paper, I presented new archival sources that definitively establish the period of Wundt's assistantship between October 1858 and March 1865 (Araujo, 2014a). Given the selectivity and vulnerability of human memory, this case should serve as a warning not to put too much confidence in Wundt's late autobiographical reports, as Bringmann, Brauns, and Bringmann (2003) have already suggested.

In this chapter, my main goal is to show how Wundt articulated his initial program of a scientific psychology around two central ideas—a methodological reform and a unified conception of mental phenomena, the latter of which I will call the *logical theory of the mind*, the hypothesis of unconscious inferences being a crucial part thereof. After that, I will analyze the relationship between Wundt's psychology and his early philosophical ideas. Finally, I will discuss the intellectual roots of the young Wundt, situating him in the broader context of the German philosophical and scientific tradition. Only then it will be possible to understand why this early project was later abandoned—not so much at its methodological level but more in relation to its theoretical dimension regarding the nature of mental life—and to appreciate the extent to which Wundt found a new theoretical and conceptual unity in his mature psychological system.³

2.1 The Need for Reform

My starting point is Wundt's first book on psychology, *Beiträge zur Theorie der Sinneswahrnehmung*, published in 1862. This is a collection of articles previously published between the years 1858 and 1862 in the journal *Zeitschrift für rationelle Medizin*, containing the results of his first psychological experiments as *Privatdozent* and Helmholtz's assistant at the Physiological Institute of the Heidelberg University. As the introduction to the book, Wundt wrote a new essay, entitled “On the Methods in Psychology,” defending the need for a radical reform of psychology and outlining a program for a scientific psychology. Hence, its immediate relevance to my analysis.

When one reads Wundt's first theoretical program, it becomes evident that the proclaimed reform of psychology has a preponderantly methodological character. This is the central element. Appealing to the history of the natural sciences, Wundt saw both its progress and its enormous success as resulting from a revolution in the methods of investigation. This revolutionary process, however, had hitherto not affected psychology, as he noted:

If one considers psychology as a natural science, it should be quite clear that the great revolutions that completely reshaped the physical sciences since the time of *Bacon* and *Galileo* did not have any effect upon it. For one can say with still more reason of psychology what

³Although there are some biographical studies on different aspects of Wundt's Heidelberg years (Bringmann et al. 1976; Diamond, 1980; Robinson, 1987; Ungerer, 1978, 1979, 1980), theoretical and conceptual analyses of his early psychological project are lacking. The few existing attempts, notwithstanding the important questions they raise, bring one-sided, sometimes contradictory interpretations and consider only superficially the question of continuity with Wundt's later writings (Graumann, 1980; Hoorn & Verhave, 1980; Richards, 1980; Schmidgen, 2003b), or else they are restricted to aspects of *Völkerpsychologie* (Eckardt, 1997; Oelze, 1991; Schneider, 1990). Even the detailed and valuable analyses of Nitsche (1990) and Wassmann (2009) are problematic in some respects, as I will show in this chapter.

Kant once remarked of logic: that it has not progressed *a single* step forward since *Aristotle*. (BTS, p. xi, emphasis in original)⁴

What could be the underlying reason for this historical stagnation? What might explain this tragic difference between psychology and the natural sciences? According to Wundt, the problem lies in metaphysics. Not in metaphysics itself, it must be said, but more precisely in the confusion between metaphysical and psychological problems. Psychology, according to Wundt, should not engage in questions about the nature and origin of the soul, much as physics is not concerned with the ultimate nature of matter. In the same manner, discussions regarding the immortality of the soul do not belong to scientific psychology.⁵ These issues cannot be treated scientifically and lead us around in circles, resulting in stagnation. Natural science serves again as reference:

Those issues, however, mostly do not belong to scientific psychology, but to metaphysics, because the latter, not being a natural science, has been just as unable to take any advantage of the methodological improvements of the natural sciences. Although a certain right can be granted to the discussion of the metaphysical problems underlying psychology, one must, however, insist on the fact that, so far, since one does not tolerate considerations on the ultimate ground of things in physics, those problems do not belong to scientific psychology either. (BTS, p. xii)

This does not mean, however, that metaphysical questions should not be discussed at all. For Wundt, the problem was only the stage at which this occurs. Ultimately, psychology would inevitably return to the same metaphysical question concerning the nature of the soul, the difference being that the answer now would be based on concrete results from the empirical sciences (Wundt, BTS, p. xiii). In other words, metaphysics should come at the end of scientific research, not at the beginning.

The critique of metaphysics has a second aspect, which refers to the formulation of scientific hypotheses and is directly related to the previous point. While acknowledging some progress already underway even within philosophy itself—to the extent that the latter was undergoing reform⁶—Wundt saw in the psychological theories derived from philosophical systems at that time two fundamental errors. First, the construction of fanciful a priori metaphysical hypotheses (e.g., the mind is an immaterial substance) as a guide for the investigation of mental phenomena.

⁴It is interesting to note that Beneke, almost half a century before Wundt, used the same rhetorical strategy to promote his own reform of empirical psychology (Beneke, 1820, p. 1).

⁵This idea of building a psychology that avoided metaphysical disputes was not new in the German tradition. Beneke, Theodor Waitz (1821–1864), and Karl Fortlage (1806–1881), for example, had all proclaimed the need for an empirical psychology free from metaphysics (Beneke, 1820, pp. 1–9; Fortlage, 1855, pp. viii–ix; Waitz, 1846, pp. iii–vi).

⁶Although Wundt does not mention any specific author or philosophical position, it is clear from the context that he was referring to the general atmosphere of dissatisfaction with the speculative exaggerations of German Idealism, as well as to the new tendency among many German philosophers in the first half of the nineteenth century to base philosophy upon the empirical sciences (Beiser, 2014a; Köhnke, 1986; Schnädelbach, 1983). In the preface of the *Vorlesungen*, he repeated the same point (VMT₁, I, p. iii).

Second, an analysis restricted to the facts of consciousness (BTS, pp. xiii–xiv). The target of his criticism was, in the first case, rational psychology, in the second, empirical psychology.⁷

Rational or metaphysical psychology, for Wundt, was mainly characterized by its deductive procedure from concepts and/or metaphysical assumptions. In this sense, psychology as a whole would be a grandiose but chimerical rational construction in which the facts of mental life would be distorted to fit into the specific conceptual schema of each philosophical system. Thus, all idealist systems would fall within Wundt's classification, especially the one defended by Georg Wilhelm Friedrich Hegel (1770–1831) and his disciples (BTS, p. xx).⁸ Wundt also considered Herbart's mathematical psychology to be a clear example of metaphysical psychology proceeding deductively. For him, although Herbart's conceptions should be considered more realist than idealist, he committed the same fundamental error common to all metaphysical approaches: the principle from which all psychological inferences are derived—the simplicity of the soul—did not emerge from within the science in question (psychology), but from a science that is outside of it (metaphysics). Thus, the facts were always made to conform to a metaphysical principle (BTS, p. xxii).⁹

⁷Wundt resumed here the classical distinction suggested by Christian Wolff between rational and empirical psychology (see introduction). For Wundt, the essential difference between both psychologies was a methodological one, which would serve as a basis for his reform. As I will show in the next section, it comprises a complete refusal of rational psychology and an improvement of empirical psychology. It is interesting to note how the vocabulary of German psychology in the nineteenth century was firmly rooted in, and continuous with the tradition inaugurated by Wolff about a century earlier (Araujo, 2012a). In fact, continuity here seems to involve more than mere vocabulary. If we take 'psychology' as a field of coherently and systematically organized knowledge (science, *Wissenschaft*) about a specific subject matter (*Seele*) that is not identical with the physical body or the nervous system, I think we can talk of a continuous intellectual project running from Wolff to Wundt, aside from conceptual and methodological particularities. In this case, at least, there would be more involved than what Roger Smith called "the *appearance* of being psychological to a certain way of thought and a certain interest" (Smith, 1988, p. 159, emphasis in original).

⁸Wundt did not offer an example of how Hegel or his disciples accommodated psychological facts to their metaphysical systems, but the point here, which he would develop in the *Vorlesungen*, is a critique of the speculative method of German Idealism in general, namely, the deduction of facts from concepts (VMT₁, I, pp. 4–10).

⁹In the *Vorlesungen*, Wundt repeated the same point, including Herbart among the metaphysical psychologists (VMT₁, I, pp. 4–5). Herbart himself explicitly conceded that psychology is a subdivision of metaphysics and thus subordinated to it (Herbart, 1850b, §§ 14–15). According to Maigné, "Herbart turns psychology into an *applied metaphysics*" (Maigné, 2007, p. 104, emphasis in original). Wundt recognized the merit of Herbart's conception of the mind as a unit, but he deepened his critique of Herbartian psychology, condemning as illusory its proposed mechanization and spatialization of representations, along with its mathematical treatment. He also argued that the axiom underlying mathematical psychology, namely, that the sum of representations available in consciousness always remains the same, could be empirically refuted (BTS, p. 382), a claim related to his experiments on the speed of thought, as Titchener (1923) noted (see Sect. 2.2 for more details). Because of his criticisms, Wundt was attacked by Moritz Wilhelm Drobisch (1802–1896), Herbart's disciple, who published a review of Wundt's early work accusing him of extreme superficiality in his psychological knowledge (Drobisch, 1864). I will discuss the impact of Drobisch's review in Sect. 3.5.

In this second part of his critique of metaphysics in general—in which his critique of Herbart appears as a special case—it becomes even more evident that the problem was not with metaphysics in itself, only with its traditional method. According to Wundt, the facts must precede the hypotheses, not the reverse. Metaphysics, therefore, could not serve as the bedrock of psychology (as an empirical science). Instead, it must take psychology as its very foundation (BTS, xviii–xix).¹⁰

With regard to empirical psychology, Wundt claimed that it was restricted to self-observation (*Selbstbeobachtung*).¹¹ In spite of being necessary, this was far from sufficient, because self-observation could only deal with phenomena that appeared in consciousness, thus never reaching their cause, which was unconscious.¹² Consciousness, said Wundt, is a complex phenomenon, the compounding elements of which are initially hidden from common-sense observation. Hence, psychology should proceed in the same way as natural science in relation to all natural phenomena in general: by carrying out an analysis from the complex to the simple. In this case, the simple means the primordial elements of mental life¹³:

As anatomy only entered its scientific stage when microscopic analysis and embryological research showed us the origins of the forms in which the laws of the formation of tissues and organisms can be investigated, psychology will perhaps only be free from the ornament of metaphysical assumptions that surround it, and stay on the ground of its own laws, when it is possible to apprehend mental phenomena in the beginnings of their appearance, and to make them accessible to analysis. (BTS, p. xiv)¹⁴

¹⁰ It is important to note that, from the beginning, Wundt explicitly admitted the possibility of metaphysics, although at this point of his work it was still in an embryonic state. In Chap. 4, I will show how he finally justified the need for metaphysical knowledge in his mature work.

¹¹ In the preface of the *Vorlesungen*, Wundt repeated that empirical psychology “has accepted self-observation as its only source” (VMT₁, I, p. iv). However, since he did not mention any author or theory in this context, it is not easy to identify his target. In the first half of the nineteenth century, there were competing programs for an empirical psychology, all of which were based to a greater or lesser extent on self-observation (e.g., Beneke, 1820, 1833; Drobisch, 1842; Fortlage, 1855; Waitz, 1849). It is also unclear how much he knew of them at this time (see the first section of the Introduction).

¹² Wundt is criticizing here the classical conception of self-observation as developed in the German philosophical tradition since Wolff, that is, a pure or uncontrolled self-observation. His claim is that it gives us no access to mental processes outside of consciousness. For conscious phenomena, however, it was still valid. One should keep in mind that at this time he had not yet elaborated his proper conception of an experimental self-observation, rejecting this classical model (SIW). This means that Wundt’s early critique of pure self-observation has nothing to do with his later critique, since he had not yet rejected it. Unfortunately, Wundt’s conception of introspection remains largely misunderstood in the secondary literature. In Sect. 5.2, I will discuss this question in more detail.

¹³ Implicit here is Wundt’s first positive characterization of the subject matter of psychology. For him, mental life was much broader than consciousness, comprising phenomena that are not accessible to our immediate observation. As will become clear in Sect. 2.3, the preponderance of unconscious mental life over consciousness constitutes the central point of his early psychological theory. Therefore, one can say that associated with the idea of a methodological reform there is a conception of the subject matter of psychology.

¹⁴ The same strategy appears again 1 year later in the preface to the *Vorlesungen*: the stagnation of psychology and the need for methodological reform, the main objective of which is to overcome the limits of traditional self-observation by analyzing complex phenomena in terms of their underlying elements and to discover the general laws of mental life (VMT₁, I, pp. iii–v).

Having traced the overall goal to be followed by psychology (the discovery of the elements and laws governing mental life), it is important to follow Wundt's way toward its realization. However, before showing concretely how Wundt proposed to drag psychological knowledge out of its stagnation, I will present his program for a scientific psychology, because it is within this program that his methodological reform reveals its true meaning.

2.2 A Program for a Scientific Psychology

After this initial diagnosis, the primary goal of which was to identify the factors responsible for the stagnation of psychology, Wundt presented his proposal for the advancement of psychological knowledge (BTS). As he claimed, "general psychology" (*allgemeine Psychologie*) should be supported by two scientific disciplines: 1) the "history of the development of the mind" (*Entwicklungsgeschichte der Seele*),¹⁵ which deals with the gradual formation of mental life in man, and 2) "comparative psychology" (*vergleichende Psychologie*), the goal of which is to investigate the differences of this same mental life in animals (animal psychology) and among the different peoples and cultures that make up the human race (*Völkerpsychologie*) (BTS, p. xiv).¹⁶

This passage deserves special attention, not only because it is Wundt's first formulation of a program for a scientific psychology, but also because of its conceptual difficulties, which have received different interpretations in the secondary literature. At this early period, Wundt had not yet matured his central concepts and developed

¹⁵ In the German tradition, *Seele* has a broad semantic spectrum, always depending on the context and the author in question. Given the term's close relationship with the Western religious tradition, one possibility would be to translate it as 'soul,' which retains this religious dimension. However, in the nineteenth century, during which attempts at an epistemological and methodological emancipation of scientific psychology occurred, the term was often linked to discussions about how to define and characterize the field's proper subject matter—far removed from any religious connotations—so the word 'soul' seemed to me inappropriate to capture this specific aspect of the psychological debate. In Wundt's particular case, as I will show later (Sect. 5.3), *Seele* is a term that refers to the totality of psychological phenomena, serving to define the subject matter of psychology and to unify the multiplicity of mental processes. Therefore, I have preferred to translate it here as 'mind.' Besides being a more neutral term in relation to religious tradition, this word is more appropriate to designate the specific discussion around the subject matter of psychology. I am aware, nevertheless, of the possible limitations of this choice.

¹⁶ It is not easy to find an accurate translation for *Völkerpsychologie*. Given the specificity of the term *Volk* in the German tradition—which, especially in the nineteenth century, acquired at the same time political, ethnic, cultural, and social connotations (Brandt, 2001)—I could not find a corresponding English expression, faithful to the multifaceted semantic content of the original term. Danziger (1983) and Gundlach (1983), p. ex., have shown how problematic and misleading are the usual candidates ('social psychology,' 'ethnic psychology,' 'racial psychology,' 'folk psychology'). 'Cultural psychology' may offer an alternative, but it is equally misleading if associated with its contemporary meanings in psychology. To avoid all these problems, I will keep the original term throughout the book, adding clarifications whenever necessary.

them into a coherent system. For this reason, one finds him using provisional terms and expressions that he will later abandon. I believe, nonetheless, that a satisfactory solution to this loose terminology can be found by pursuing two complementary strategies: 1) an internal analysis of the text, noting its conceptual links to other chapters and to the *Vorlesungen*, and 2) an analysis of the broader context of the German intellectual tradition in the nineteenth century, in which Wundt's early ideas are embedded. Thus, we should first ask, what Wundt meant by "general psychology" and how it related to its auxiliary disciplines? We should then ask what precisely the expression "history of the development of the mind" means.¹⁷ Finally, we need to ask what Wundt understood comparative psychology to be.

Let us begin with the meaning of "general psychology." For Wundt, it means, in the first place, that psychology, in its search for the origins of mental life, must deal not only with some particular beings but with the whole hierarchy of ensouled creatures (*der ganzen Stufenleiter der beseelten Geschöpfe*), thus surpassing both the individual and the human sphere.¹⁸ Wundt intended to discover the general laws that rule this mental life (BTS, p. xiv), but because these laws could only be established from particular empirical investigations, a division of labor was necessary. In this sense, general psychology would receive the results of its auxiliary disciplines (history of the development of the mind and comparative psychology) and extract therefrom the most general laws of mental processes.

The meaning of the "history of the development of the mind" is more difficult. The phrase has been interpreted to refer to either a kind of psychology of child development (Nitsche, 1990; Titchener, 1921) or as an evolutionary psychology in Darwin's terms (Graumann, 1980; Richards, 1980; Wassmann, 2009). Both interpretations seem to me incorrect. First, child development was not what Wundt had in mind here. This is clear from his own methodological prescription, according to which the investigations should be conducted with individuals already developed, not with individuals at the beginning of their development (BTS, p. xv). Moreover, the examples he used to illustrate the development of the mind were experiments on the emergence of sensation and perception, the latter being the central theme of all the papers included in the *Beiträge* (BTS, p. xv), in which there is no mention of children at all. Even in the *Vorlesungen*, where child development sometimes appears in the discussions, it plays only a secondary role, serving as an illustration

¹⁷The idea of psychology as *Entwicklungsgeschichte der Seele* was already present in the German tradition long before Wundt, usually associated with the acceptance of the genetic method. C. G. Carus, for example, defined psychology as *Entwicklungsgeschichte der Psyche* (Carus, 1831, p. 27) or *Entwicklungsgeschichte der Seele* (Carus, 1846). Following a different path, Beneke and Waitz, among others, also defended the genetic method in psychology (Beneke, 1827, pp. 28–30; Waitz, 1849, pp. 25–26). However, because they used this method within different theoretical frameworks, the very idea of *Entwicklung* assumed different meanings.

¹⁸It is no accident that animal psychology occupies, at least theoretically, an important place in the Wundtian project. As the unity of the mind goes beyond the human dimension, psychology cannot be restricted to the investigation of the human being. It is important to remember that Wundt's goal is, from the beginning, to grasp the totality of psychic life (VMT₁, I, pp. 23–24).

of daily life and complementing Wundt's theoretical reflection, but without any systematic treatment.

In a similar way, the idea of an evolutionary psychology seems to be very distant from Wundt's project. He became acquainted with Darwin's work through the first German translation of *On the Origin of Species*, which came out in 1860,¹⁹ at which point he had already formulated his theory of unconscious inferences and convinced himself of the universality of the logical processes of the mind, at least with regard to perception (see Sect. 2.3). Furthermore, his discussion and use of Darwin's ideas are restricted to a single chapter of the *Vorlesungen* (Lecture 52), in which he admitted the possibility of some very basic gestures (*mimische Bewegungen*) being collectively inherited in the form of very simple reflexes (e.g., a baby's facial expression upon tasting for the first time something bitter). Notwithstanding this recognition, its role should not be exaggerated (see Sect. 2.4). For Wundt, the principle of natural selection, along with the notions of variability and heredity, was only a useful tool, which he used to fill an explanatory gap in his psychological system and, therefore, to complement his own account of mental development (VMT₁, II, pp. 352–363). This does not turn his proposal into an evolutionary psychology, which has natural selection as its fundamental explanatory principle of the most important mental phenomena.²⁰ For Wundt, phylogenesis had, if any, a complementary explanatory role in the main aspects of mental development. Otherwise, how could such a fundamental theoretical principle as natural selection be absent from the whole *Beiträge* and only appear in one chapter of the *Vorlesungen*?

I think the central point in Wundt's early conception of mental development, which has escaped the attention of Wundt scholars thus far, is the preponderance of the logical dimension of the mind. If we consider both his definition of the mind (*Seele*)—"a being that develops and acts out of itself in accordance with logical laws" (BTS, p. 451)—and the law he takes as the foundation of psychology—the "law of the logical development of the mind" (BTS, p. xxi)—there can be no doubt that this development must first be understood in a purely logical sense, as a kind of formal unfolding. The latter will occur in time, since mental phenomena can only exist in concrete beings, but here the primacy is of the logical over the temporal dimension, in spite of the latter being the starting point for our understanding of the former. In this way, what really matters to Wundt is the logical form of all mental phenomena, the universality of which will permit him to unify the most diverse

¹⁹ Wundt makes this explicit in the *Vorlesungen* (VMT₁, II, p. 459).

²⁰ It is important to keep in mind that, at that time, evolutionary psychology as a large-scale application of Darwin's central principles, such as we have today, still did not exist. For this reason, I will appeal to its current form, in order to enhance the contrast and show how problematic such claims are. If we compare Wundt's proposal with, say, contemporary evolutionary psychology, in which psychological phenomena are explained through Darwin's principles (e.g., Buss, 1999; Tooby & Cosmides, 2005), the difference becomes immediately clear. One does not find either in the *Beiträge* or the *Vorlesungen* anything like an explanation of mental processes (e.g., perception, consciousness) in terms of psychological modules evolved as result of adaptation and natural selection. Thus, it is wrong to conclude that "he applied Darwin's evolutionary theory to the development of psychic capacities and the nervous system" (Wassmann, 2009, p. 226).

mental expressions, including those of the animal kingdom, under a small number of laws. Consequently, the most distinctive expressions of mentality (animal and human, individual and collective) are objects of psychological analysis only insofar as they reveal something of this universality.²¹

It should be clear now that the development to which Wundt referred is the logical deployment of mental processes, which is realized in each individual (feeling, sensation, perception, representation, consciousness, etc.), and which psychology must investigate through experimental methods. In other words, we can see here a first demarcation of what would later become the specific field of ‘individual, physiological, or experimental psychology,’ even if Wundt did not yet use any of these expressions (see Sect. 5.2).

As for comparative psychology, its general meaning does not present any special difficulties. Nevertheless, it is important to know precisely what Wundt had in mind. In the case of animal psychology, as becomes clear later in the *Vorlesungen* (VMT₁, I, pp. 490–491), he was referring to the tradition founded by the German philosopher Hermann Samuel Reimarus (1694–1768), which was still dominant at that time (Reimarus, 1762). Besides Reimarus, Wundt’s remarks on animal psychology until the first edition of the *Vorlesungen* were based on the previous work of Peter Scheitlin (1779–1852), a Swiss professor who had published a very influential book on the subject (Scheitlin, 1840). With respect to *Völkerpsychologie*, Wundt’s reference was primarily the research program established by Moritz Lazarus (1824–1903) and Heymann Steinthal (1823–1899), the main goal of which was to study the psychological processes underlying language, customs, and the history of culture.²² It is also worth mentioning the influence of Waitz’s anthropological project on Wundt’s early reflections on *Völkerpsychologie* (Waitz, 1859). In the *Vorlesungen*, Wundt cited him only once and very briefly (VMT₁, II, p. 451), but in some passages of the second volume, one can detect his influence, for example, when Wundt discusses the impact of the climate on the development of human culture and behavior (VMT₁, II, pp. 125–129).²³

²¹ One should not forget that the concept of *Entwicklung* had a long tradition in German philosophy before Darwin’s theory appeared and that a confusion between the philosophical (metaphysical) and biological aspects of evolution can lead to major misunderstandings, as happened in the reception of Darwinism in nineteenth-century Germany (Solies, 2007). As Bayertz rightly notes, Hegel cannot be regarded as a precursor of Darwin (Bayertz, 2007, p. 16). Wundt’s conception of *Entwicklung* is deeply rooted in this philosophical tradition, without any significant biological connotations. Thus, he is much closer to Hegel than to Darwin. In fact, it comes as no surprise that Wundt did not play any important role in the reception of Darwinism in Germany, as the literature shows (Bayertz, Gerhard, & Jaeschke, 2007b; Kelly, 1981; Montgomery, 1974).

²² The relationship between Wundt and Lazarus’s program will be discussed at two separate points (Sects. 2.4 and 5.2), respecting Wundt’s development of two distinct conceptions of *Völkerpsychologie* (Araujo, 2013b).

²³ The similarities are more than apparent. Wundt seems to have taken many examples from Waitz’s book, such as the different effects of cold and hot temperatures on the temperament (Waitz, 1859, pp. 396–403). In Wundt’s mature psychological system, however, this influence seems to disappear. For an overview of Waitz’s life and work, see Gerland (1896) and Zeller (1877a, pp. 363–372).

Having clarified the general meaning of Wundt's early psychological program, I can now return to the question of method. As I said earlier, it is within this program that the methodological reform will acquire significance. Wundt recognized that in both the auxiliary disciplines of general psychology—the history of the development of the mind and comparative psychology—there were already some positive results. However, the correct path had not yet been found. In the case of comparative psychology, for example, animal psychology still had to free itself from an old prejudice, namely, the attribution of a different instinct to each mental phenomenon.²⁴ In its turn, *Völkerpsychologie*, despite the important initiative of Lazarus and Steinthal, still had to discover the psychological meaning of the huge material already made available by studies of language and of the history of culture and customs.²⁵ As for the history of the development of the mind, he identified valuable physiological studies on sensation and perception, which nevertheless had not yet led to a broader theory of the perceptual processes.²⁶ The main problem for him was that the methods employed up to that point did not allow for fine and reliable observations of the emergence of complex mental phenomena. Hence the necessity of methodological reform (BTS, pp. xiv–xvi).

In order to understand the nature of the correct path, which psychology had yet to find, it is necessary to return to the methodological distinction presented in

²⁴ Reimarus used the terms *Trieb* or *Instinkt* to refer to “all natural impulses to certain actions” (Reimarus, 1762, p. v). To explain animal behavior, he distinguished three main classes of instincts (mechanical, representational and volitional) with many subdivisions, resulting in a total of 47 types. However, his main topic in this book was those instincts related to the preservation and welfare of each animal, which he called *Kunsttriebe* (Reimarus, 1762, p. vi). For a general presentation of Reimarus's animal psychology in English, see Jaynes and Woodward (1974a, 1974b) and Wilm (1925, pp. 94–119).

²⁵ Wundt referred to the establishment of a new journal, the *Zeitschrift für Völkerpsychologie und Sprachwissenschaft*, which carried in its first issue a long introductory essay by both authors, in which they defined the program and the general guidelines of their *Völkerpsychologie* (Lazarus & Steinthal, 1860). It must be noted, nonetheless, that the original idea belongs to Lazarus, who had already presented in a previous essay (Lazarus, 1851/2003)—incorporated in the introductory essay of 1860—the concept of a *Völkerpsychologie*. Since the articles in this journal encompass a very broad thematic spectrum, ranging from linguistics to mythology to art and poetry, it is very difficult to know exactly what Wundt meant when he said that the psychological meaning of this material had not yet been explored. For example, in his essay “Assimilation und Attraction,” Steinthal presented association (*Association*) and fusion (*Verschmelzung*) of representations as fundamental mental processes underlying language understanding and production (Steinthal, 1860, pp. 114–117). In the same way, Lazarus offered an example of how the approximation of geography and psychology belongs to *Völkerpsychologie* (Lazarus, 1860, pp. 213–214). For different accounts of the program of Lazarus and Steinthal, see Belke (1971), Beuchelt (1974), Eckardt (1997), Kalmar (1987), Klautke (2013), Köhnke (2003), Sganzi (1913), and Trautmann-Waller (2006).

²⁶ Again, Wundt did not mention any name or theory. However, in the preface to the *Vorlesungen*, resuming the same context, he referred to the following names: Lotze, Ernst Heinrich Weber (1795–1878), Fechner and Helmholtz (VMT₁, I, pp. vii–viii). This reinforces my hypothesis that the “history of the development of the mind” is very similar in its general meaning to what Wundt would later call individual, physiological, or experimental psychology.

the previous section between empirical and rational psychology. The latter proceeds deductively from metaphysical hypotheses and/or concepts (e.g., the simplicity of the soul), while the former uses an inductive procedure, but one mostly restricted to self-observation. On the basis of this diagnosis, Wundt saw only one solution: to reject the deductive method and to follow the path of induction, expanding its reach and its possible use in psychological research.²⁷ This meant a twofold but complementary strategy: an expansion of the observational methods used thus far and the introduction of the experiment in the investigations (BTS, p. xxiv). It is Wundt's emphasis on induction, together with his enthusiasm for the experimental method, which defines the preponderantly methodological character of his psychological reform.

The next step is to establish the exact relationship between this twofold methodological operation and the psychological program presented above. In fact, it is simple and straightforward: comparative psychology must expand its observational methods, and the history of the development of the mind must introduce the experiment as a methodological resource. Let us look at each of these separately.

To expand the observational methods in comparative psychology, Wundt's first strategy was to emphasize the use of statistics to investigate the facts of social life.²⁸ His intention was to break with the tradition of studying the collective life of societies through the observation of a small number of isolated cases. In this way, statistics could offer to psychology, through the apprehension of a large number of facts, rich material for analysis that would bring, rather than vague assumptions, conclusions of mathematical certainty. To illustrate his point, Wundt considered the

²⁷ In the *Vorlesungen*, Wundt reintroduced the positive role of deductive processes in the development of the mind and in the establishment of scientific knowledge. I will come back to this point in Sects. 2.3 and 2.5. Here, it is important to highlight the fact that Wundt's early emphasis on the inductive method, as well as his critique of traditional metaphysics, poses some problems for the interpretation shared by some historians of psychology according to which Wundt would be anti-empiricist, anti-inductivist, and anti-positivist (Danziger, 1979, 1980b; Leahey, 1981). First, both Danziger and Leahey directed their attention only to Wundt's mature psychology, without worrying about his early phase, which had a strong empiricist and inductivist character (see Sects. 2.3 and 2.5). Second, the use of such broad labels as 'positivism,' in the absence of a concrete context of reference (e.g., empirio-criticism) or detailed textual evidence, does not help us to understand the nuances of Wundt's thought, thus producing more confusion than clarification. Therefore, at least with respect to Wundt's early psychological project, one can conclude two things: 1) it is wrong to classify him as anti-empiricist and anti-inductivist, and 2) it is inadequate to apply the label 'positivism' here, given the absence of systematic philosophical discussions up to that point. As for his mature work, see Sect. 4.5.

²⁸ It is curious that Wundt never referred to animal psychology in his methodological prescriptions for reform. All examples are related to *Völkerpsychologie* in a broad sense. While acknowledging the importance of animal psychology to ensure the unity of his psychological project, he did not devote much space to it in his early work. From the 57 lectures in the *Vorlesungen*, only two are devoted exclusively to the animal kingdom, namely, Lectures 29 and 42, dealing with intelligence and social life, respectively. This problem will reappear in his mature project, as I will show later (see Sect. 5.2).

consolidation of national economy (*Nationalökonomie*)²⁹ as a new field of investigation, which provided reliable statistical correlations, for example, between suicide and its multiple causes (BTS, pp. xxiv–xxv).³⁰

At this time, Wundt was indeed very optimistic about the contribution of statistics to psychological knowledge, even claiming that, “one can learn more psychology with statistical investigations than with all the philosophers, except for Aristotle” (BTS, p. xxv).³¹ He was not alone in this. According to Yeo, “a proliferation of government and voluntary survey work on an unprecedented scale characterized the age of statistical enthusiasm” (Yeo, 2003, p. 87). Along similar lines, Porter has observed that, “[S]tatistics was in many ways the characteristic social science of the mid nineteenth century. [...] Between about 1830 and 1850,

²⁹ In the early nineteenth century, the expression *Nationalökonomie* appears, directly linked to the German reception of Adam Smith's (1723–1790) work—especially *The Wealth of Nations*—and his economic theory. However, throughout the century, it acquired new meanings, receiving social and historical connotations rather than purely economic (Rabe, 1984; Schäfer, 1971; Winkel, 1977). It is in this sense of a statistically grounded social theory (*Gesellschaftslehre*)—a new and autonomous field of investigation of social life—that Wundt understood *Nationalökonomie* and its positive contributions to psychology.

³⁰ Graumann (1980, p. 38) argues that Wundt was deeply impressed by the work of the famous Belgian statistician Adolphe Quetelet (1796–1874), who promoted the idea of a *statistique morale* (Quetelet, 1848), but he fails to offer concrete evidence. Rather, I think that Wundt's positive attitude towards social statistics was primarily aroused by the work of the English historian Thomas Buckle (1821–1862), whose monumental *History of Civilization in England* had been translated in Germany in 1860. In the introduction, Buckle gave very similar examples on the application of statistics to social life (homicide, suicide, marriage, etc.) and cited the work of Quetelet (Buckle, 1858, pp. 24–30). In fact, as Turner (1986, pp. 90–91) and Heilbron (2003, p. 47) have pointed out, Buckle adopted Quetelet's ideas concerning moral statistics. Since Wundt explicitly referred to Buckle's work within the same context (BTS, p. xxvi), but not to Quetelet, I believe that his contact with the latter's work was initially indirect, via Buckle. In the *Vorlesungen*, when he returned to the same topic, he referred again to Buckle, but this time he also mentioned Quetelet's work and considered him to be the founder of statistics (VMT₁, II, pp. 409–410, 462). I will return to this point in Sect. 2.4. For a very informative account of Quetelet's project, see Porter (1986, pp. 41–54) and Turner (1986, pp. 60–89). Regarding Buckle's work, see Fuchs (1994). Diamond (1984) has also noted Buckle's influence on Wundt. According to him, “[...] Buckle was Wundt's mentor in statistics” (p. 148). His claims on influence, however, are much stronger than mine are.

³¹ Wundt praised Aristotle for being the first to discover the law of the unity of thought (*Einheit des Denkens*), according to which we can never have more than one thought or representation at a time in consciousness (VMT₁, I, p. 42). This law, which Wundt also called the unity of representation, played an important role in his early psychology, as will be clear in the following. In fact, Aristotle, in his *On Sense and the Sensible*, raised the question: “is it possible or not that one should be able to perceive two objects simultaneously in the same individual time?” (447a13–14, translation of J. E. Beare in Aristotle, 1995, p. 709), and answered in the following way: “it is not possible to perceive the possibility of perceiving two distinct objects simultaneously with one and the same sense” (447b19–20, translation of J. E. Beare in Aristotle, 1995, p. 710). References are given according to Immanuel Bekker's standard edition of the Greek text of Aristotle from 1831 (page number followed by column and line of text) and to the *Revised Oxford Translation of the Complete Works of Aristotle* (date and page number). For an outstanding presentation of Aristotle's psychology, see Daniel Robinson (1989).

it came to be defined in terms of its use of numbers, as the quantitative science of society” (Porter, 2003, p. 28).³²

The importance of statistics to the expansion of psychological observation was also associated with historical research. Wundt pointed out the limits of the personalist model of historiography, which sought to explain historical events through the influence of extraordinary individuals and their free will—the Great Man Theory of history. To complement this traditional conception of history (which he labeled here *Geschichte*), he suggested a natural history of humanity (*Naturgeschichte der Menschheit*) as an instrument of psychological observation.³³ It was a new science that made extensive use of statistical tools and opened up a new perspective for the understanding of social and historical phenomena. In Wundt’s words,

Humanity or certain complexes of people as a whole have a natural historical existence, which in all phenomena depends on the state of the whole society. Everywhere, where the material for the observations is sufficient, the law of large numbers imposes itself—i.e., isolated deviations, which we ascribe to chance or individual will, cancel each other out, and the historical and natural law finds its clear and complete expression. (BTS, p. xxvi)³⁴

³² One should keep in mind, however, that a descriptive statistics of population and state administration data was already present in the eighteenth century, as Sturm (2009, pp. 321–322) shows in relation to the Göttingen historical school, especially concerning the work of the historian Johann Christoph Gatterer (1727–1799).

³³ The term ‘natural history’ (*Naturgeschichte*) usually refers to the description and classification of natural objects, which in the nineteenth century incorporated the temporal factor related to evolutionary thought, and also became highly popular in many countries (Bates, 1950; Farber, 2000; Jardine, Secord, & Spary, 2000; Lepenies, 1978; Nyhart, 2009). In this context, however, Wundt used the term to oppose two historical approaches to mental life. For this reason, he insisted on the conceptual distinction between *Geschichte* and *Naturgeschichte*, contrasting the limits of the former with the positive contributions of the latter. The basic idea is to study, with the help of statistics, the modifications of man caused by nature and social variables, thus looking for collective patterns of behavior. Wundt’s model here was Buckle’s *History of Civilization in England*, despite some reservations (BTS, p. xxvi). In the *Vorlesungen*, the terms *Geschichte* and *Naturgeschichte* also appeared as complementary methodological approaches to the study of mental life. Nevertheless, Wundt also used them in a different context, referring to *Völkerpsychologie* and the development of customs and social norms. He did not want to contrast a personal with an impersonal account of historical and social events but to highlight the difference between the diachronic (*Geschichte*) and synchronic (*Naturgeschichte*) perspectives on social and cultural development, the first provided by history, the second by anthropology (VMT1, II, p. 120). Wundt’s model of *Naturgeschichte* here was no longer Buckle’s work, but the first three volumes of Waitz’s *Anthropologie der Naturvölker*, published between 1860 and 1862 (VMT1, II, p. 451). See Sect. 2.4 for further details on this topic.

³⁴ In a very similar way, Buckle speaks of “those vast social laws, which, though constantly interrupted, seem to triumph over every obstacle, and which, when examined by the aid of large numbers, scarcely undergo any sensible perturbation” (Buckle, 1858, p. 29). Again, this is an idea Buckle borrowed from Quetelet (1848, pp. 5–6), which reinforces my suspicion that at this time Wundt did not have direct contact with the latter’s work. Nevertheless, a century before, in his *Idea for a Universal History*, Kant had also praised the role of statistics in capturing a supra-individual pattern of historical development: “Thus marriages, the births that come from them and deaths, since the free will of human beings has so great an influence on them, seem to be subject to no rule in accordance with which their number could be determined in advance through calculation; and yet the annual tables of them in large countries prove that they happen just as much in accordance with constant laws of nature [...]” (AA II, 17). For the *Idea for a Universal History*, I use the translation by A. Wood in Kant (2007b).

This passage makes clear that Wundt was flirting with the idea of a supra-individual level of analysis of human actions such as homicide, suicide, marriage, etc. The main tenet behind all this optimism was the thesis that social or moral statistics could provide reliable regularities, or 'laws,' that are not significantly changed by individual volition (see Sect. 2.4).

Nonetheless, Wundt clearly recognized the limits of descriptive statistics. It was relevant only to what he called "practical psychology" (*praktische Psychologie*)³⁵ and not to the fundamental theoretical activity of psychology, to the extent that the latter involves the search for the emergence of complex phenomena in their causal connection, which descriptive statistics cannot provide, although it might serve as a starting point for every investigation. Further, in the *Vorlesungen*, when Wundt spoke about the will, he admitted that while statistical facts could demonstrate that social influences were included among causes of the will, they could never prove that social influences were the only causes (VMT₁, II, p. 412). I will return to this issue in Sect. 2.4.

It is time now to discuss the second form proposed by Wundt to improve and extend the inductive method, which is associated with the history of the development of the mind. Wundt prescribed here the large-scale use of the experimental method, borrowed from physiology. He said, however, that we would first have to get rid of a prevailing prejudice in psychology, according to which the experiment might only be used in the field of sensation and perception—given its intimate relationship with physiological factors—and never in the sphere of higher mental activities. As evidence for the inadequacy of this prejudice, he mentioned his own experiments on the speed of thought, which had surpassed the psychophysical domain and should thus be characterized as purely psychological investigations (BTS, pp. xxvii–xxviii).³⁶

³⁵ The phrase 'practical psychology' should not be understood here in its contemporary sense, meaning a supposed professional application of psychological knowledge. In this context, Wundt was referring to the psychological facts of everyday life in society, such as suicide. In addition, the restriction of statistics to practical psychology indicates that, however useful, statistical facts cannot provide us with the general laws of mental life, which was the ultimate objective of Wundt's general psychology. In other words, implicit here is the primacy of the experiment in his methodological reform.

³⁶ According to Wundt, the astronomers' issue of personal equation led him to his experiments on the speed of thought (VMT₁, I, p. 469). In September 1861, during the 36th Congress of German Naturalists and Physicians at Speyer, he gave a talk reporting his first experimental results on individual differences regarding visual and auditory perception (Schmauss & Geenen, 1861, p. 25). In 1862, he published a paper entitled "Die Geschwindigkeit des Gedankens" (The speed of thought), in which he considered the formation of representations and thoughts to be the proper activities of the mind: "In comparison with the mere sensation transmission, these are already very complex processes, which build themselves on more simple processes" (DGG, p. 263). However, according to Wundt, the construction of a representation from such simple processes could not be measured, for "we do not know where it begins, we only know where it ends" (DGG, p. 264). Instead, he proposed to measure the time of the swiftest thought (*die Zeit des schnellsten Gedankens*) through an apparatus he called "the thought meter" (*Das Gedankenmesser*), a pendulum clock with a metal crossbar attached to its shaft, so that when the pendulum swings the crossbar rings a bell that is fixed on the extremities of the clock. Wundt's idea was to investigate the

The next step was to define the specificity of the psychological experiment. Wundt emphasized that although the sensory stimuli were essential here, they were only useful experimental tools, the manipulation of which served to access the laws of mental life, and never the center of the investigation, which was purely psychological in its essence. At the same time, he insisted on the difference between experimental psychology and psychophysics. Despite the importance of Fechner's law for the mental domain, Wundt was keen to distinguish between the two scientific undertakings, affirming that experimental psychology had a very particular objective, namely, the genesis or development of mental processes (BTS, pp. xxviii–xxxi).³⁷ This genesis, which in the *Beiträge* was restricted to perception, would be extended to all mental phenomena in the *Vorlesungen*, as I will show in Sect. 2.4.

Two points deserve attention here. First, throughout the introduction to the *Beiträge*, it is clear that Wundt considered himself to be the founder of this new psychology, conceived according to the model of the natural sciences. In the preface, he had insinuated that, from that moment on, experimental psychology would no longer be only a name (BTS, p. vi). Even acknowledging the relevant work carried out by his predecessors (Weber, Fechner, etc.), he believed that none of them had succeeded in establishing a truly scientific psychology because their studies were restricted to sensation. Second, Wundt's initial enthusiasm in relation to the experimental method was very clear. Indeed, he defended in his *Beiträge* its full

relationship between two classes of representation—visual (the position of the pendulum pointer) and auditory (the bell sound)—by measuring the time interval between them. This was the swiftest thought or “the shortest time in which two representations can follow one another” (DGG, p. 264). As for the experimental hypothesis, it can be reconstructed as follows: “If we are able to represent two things simultaneously, we would be able to see the pendulum at the same moment that we hear its sound” (DGG, p. 265). Unfortunately, Wundt did not provide information on how exactly he conducted these experiments, how many subjects participated, who they were, and so on. He only reported the general result of one eighth of a second (0.125 s) as the average time extracted from “a great number of observations” (DGG, p. 264). Nevertheless, from these experiments he inferred a law on the limits of consciousness: “Consciousness grasps only one single representation, one single thought” (DGG, p. 265). In the *Beiträge*, Wundt called it the law of the unity of representation (*das Gesetz der Einheit der Vorstellung*), providing the following characterization: “when two impressions that cannot be unified in one representation act on consciousness, only one of them comes to be grasped” (BTS, p. 335). Later, in the *Vorlesungen*, Wundt reaffirmed the same idea (VMT₁, I, pp. 25–40; 365–377). For a broader context of Wundt's experiments in relation to the issue of personal equation and the beginnings of mental measurement, see Boring (1961), Canales (2009), Michell (1999), and Schmidgen (2003a).

³⁷ At this time, Fechner had not yet conceived his experimental aesthetics (Fechner, 1871, 1876), which would have a great impact on subsequent psychological studies of aesthetic phenomena (Allesch, 1987; Hetrick, 2011). Thus, Wundt's judgment was based only on Fechner's psychophysics. From this perspective, it is clear that Wundt's main goal was different from that of Fechner's initial program, to the extent that the central concern in psychophysics was the establishment of functional relationships between stimulus and sensitivity. Moreover, the scope of Wundt's project was much broader than Fechner's was, since he wanted to extend the use of the experimental method beyond the field of sensation and basic perception. Schneider did not perceive this crucial difference, claiming that psychophysics was at the basis of Wundt's proposal (Schneider, 1990, p. 57). For an in-depth analysis of Fechner's program, see Gundlach (1993) and Heidelberg (2004).

use, including the case of higher mental activities. Nevertheless, in the *Vorlesungen*, he presented a more balanced view, arguing against the possibility of any experimental investigation of phenomena related to *Völkerpsychologie* (VMT₁, II, pp. iii–iv). The experiment continued to be his first methodological option, however (VMT₁, I, p. 23). This is easy to understand if one keeps in mind Wundt's claim that the experimental method was the great innovation of his psychology and that only through it would one be able to overcome the limits of self-observation, thereby reaching unconscious phenomena and discovering the natural laws of mental life (VMT₁, I, pp. v–vii). Thus, if one accepts that Wundt was the first to propose in the nineteenth century the extension of the experimental method into a broad program for a scientific psychology—different from psychophysics and Herbartian psychology—the goal of which was to study the emergence and development of mental life in its causal connections, then one has to conclude that experimental psychology in Wundt's sense was founded not in Leipzig, but in Heidelberg.³⁸ In Leipzig, Wundt's scientific psychology became truly institutionalized, grew to be globally influential, and found its complete development. From an intellectual point of view, however, as an epistemic project, it was first conceived in Heidelberg, despite the theoretical changes he later introduced.

2.3 The Logical Theory of the Mind and Unconscious Inferences

Wundt's next step was to extend the genetic perspective, used in the *Beiträge* for the investigation of perception, to the whole series of mental phenomena. In order to understand how he managed to consolidate this early project, I will add an ontological dimension to my analysis, thus complementing the previous methodological considerations.³⁹ Why is it necessary to introduce this new factor? Because it is clear that, since Wundt's experimental method had received for the first time a concrete restriction,⁴⁰ the unification of his psychological program

³⁸ I will discuss the novelty of Wundt's early project and its relationship to the German psychological tradition before his Heidelberg years in Sect. 2.6. All the same, it is curious that, as early as 1866—i.e., long before his canonization in twentieth-century historiography of psychology as its founding father (e.g., Blumenthal, 1979; Boring, 1950)—in an anonymous review of the *Beiträge* and the *Vorlesungen*, Wundt had already been labeled “the father of experimental psychology” (Anonym, 1866, p. 439). I thank Horst Gundlach for this information.

³⁹ I use the term ‘ontology’ to refer to the set of objects designated by a theory, as well as to their nature. It has nothing to do with Heidegger's fundamental ontology (Heidegger, 1927/1993, § 4), but only with what one might call a regional ontology for psychology.

⁴⁰ Although he had already announced in the introduction of the *Beiträge* the expansion of his observational methods, especially through statistics, as a complementary step to the introduction of the experiment in the reform of psychology, Wundt's investigations presented in the following chapters of the *Beiträge* were restricted to the field of sensory perception and, therefore, to the experimental method. It was only in the *Vorlesungen* that the program would be fully developed, as I will show in the next section.

could no longer be grounded in method, but only in the unity of the object (the mind). Therefore, from this moment, Wundt's insights into the nature of mental life, including the hypothesis of the unconscious inferences, comes to assume a central role in his psychological project. Let us follow, then, the emergence and consolidation of his theory.

In his article "On the Sense of Touch, Especially Considering Its Spatial Perceptions," published in 1858 and included later as the first chapter in the *Beiträge*, Wundt announced for the first time a hypothesis to explain the particular experience of tactile perception, something to which he had devoted himself for quite some time.⁴¹ Dissatisfied with the preponderantly anatomical and/or physiological hypotheses then in vogue (Weber, Lotze,⁴² etc.), which considered the spatial element as immediately given in sensation, he felt the need to introduce a purely psychological process in the explanation of tactile perception, thereby establishing a distinction between sensation and perception itself. For example, when we perceive the location of a stimulus on the skin, the determination of the location is only possible only through the necessary connection of the quale of the sensation with the representation that is given earlier through vision or muscular feeling. In the same way, when we perceive the distance between two sensory impressions, the mind is forced to establish an intermediate space between the two perceived local sensations and to represent this intermediate space from the experience given through vision or muscular feeling. According to Wundt, in both cases the process would have the character of an unconscious inference (*unbewusster Schluss*),⁴³ and it would be present in any act of perception:

⁴¹ Starting in the second semester of 1855, after he had graduated in medicine, Wundt worked until the beginning of 1856 as assistant of the pathologist Karl Ewald Hasse (1810–1902) at the Medical Clinic in Heidelberg, where he had contact with patients who had tactile sensory disorders caused by muscle paralysis. According to him, these first experiences in the field of tactile perception—in which he came across the limits of Ernst Weber's theory—led him from physiology to psychology, when he became acquainted with the main psychological ideas of the time (EE, pp. 100–101). Nonetheless, we should also consider in this regard another important source, never mentioned by Wundt in his autobiography, namely, the psychophysiological experiments carried out at the Physiological Institute in Heidelberg by his uncle and professor of physiology, Friedrich Arnold (1803–1890). Arnold had a laboratory with a wide experimental program (Arnold, 1858), which certainly helped his nephew to become acquainted with some of the activities he would later develop, not only with Helmholtz, but also for his own purposes. So far, only Gundlach (1986) and Wassmann (2009) have called attention to this fact. However, its implications for Wundt scholarship have not yet been fully analyzed, a point that I will discuss later (see Sect. 2.6). At the same time, one should note that many authors cited by Wundt in this context—Waitz, Lotze, Fortlage, Johann Friedrich Leopold George (1811–1873), Wilhelm Fridolin Volkmann (1821–1877), etc.—were not exactly physiologists, but philosophy professors with a keen interest in psychology.

⁴² In the case of Lotze, Wundt recognized his importance for having introduced the psychological point of view in the analysis of perception. However, with his theory of local signs (*Lokalzeichen*), according to Wundt, Lotze eventually returned to an essentially physiological explanation (BTS, pp. 12–19).

⁴³ It is usually held that Helmholtz originated the term, and that Wundt borrowed it from him. Nonetheless, as I will show in Sect. 2.6, Wundt was the first to use it, and the general idea of an unconscious judgment or inference already existed long before Helmholtz came to defend it.

The analysis of local and spatial perceptions through the skin shows us that they are not immediately given with sensation but that between sensation and its perception there still exists a psychic process in the middle. [...] This process is unconscious, and its existence can only be deduced from the elements that appear in consciousness. However, when we, completing those unknown links, translate it into consciousness, it takes the form of *inference*. This *unconscious inference* is the process that aligns itself with sensation and the simple or more frequent course of which enables it then to become a perception. (BTS, p. 65, emphasis in original)

The following year, Wundt extended his hypothesis to the realm of visual perception. In his article "On Monocular Vision," published in the same journal and included as the third chapter in the *Beiträge*, he used the same strategy as before to introduce an eminently psychological variable into the explanation of the emergence of the visual field⁴⁴:

When we see, then, that a *psychic* factor at any rate co-determines the differentiation of the smallest spatial distances, we must also expect that the formation of the representation of the entire visual field as spatially extensive is not already given with the specific anatomical disposition of the elements of sensation, but that in this case, too, there is still a psychic process involved. This process, according to the result of logical analysis of every act of perception, can only be an inferential process, namely, an *unconscious* inferential process, since we do not have any immediate knowledge of it. (BTS, p. 149, emphasis in original)

Still in the field of visual perception, Wundt took another important step in consolidating his hypothesis of unconscious inferences. In the fifth chapter of his *Beiträge*, "On Some Special Features of Binocular Vision,"⁴⁵ he used it also to explain binocular vision as a whole, thus giving it an even more comprehensive character:

The first conclusion is that binocular vision should not be considered to be merely the sum of impressions from both eyes, that the visual field in common is not formed by the direct combination of excitations of corresponding points on the retina. On the contrary, each eye separately performs its perception, both perceptions act separately on the mind, and it is only through *mental* combination that full binocular visual perception arises from them. Just as the formation of perception of the individual eye consists of a series of mental processes of an unconscious nature, so also the formation of binocular perception is nothing but an unconscious inferential process. (BTS, p. 373, emphasis in original)

In the last chapter of the *Beiträge*, however, this idea ceased to be a mere local hypothesis and assumed the character of a general theory of perception, the only one, according to Wundt, that would explain all the facts hitherto observed (BTS,

⁴⁴ One should not forget the important role that reflexes play in Wundt's theory of perception. They are the first link in the chain of mental development, from which objective perceptual processes and, consequently, many high-order mental processes become possible (BTS, p. 426). According to him, "the colligation of sensations is based on the physical mechanism of reflex" (BTS, p. 442). However, the reflexes can also be considered from a psychological point of view: as goal-directed movements, as judgments and inferences closely associated with sensations. In the *Vorlesungen*, Wundt discussed the nature of reflexes from both perspectives (VMT₁, I, pp. 203–240). However, in most part of his psychological theory, reflexes were treated merely from the physical point of view. In this sense, they do not belong to the proper *psychological* side of Wundt's project.

⁴⁵ This chapter had also been previously published in the *Zeitschrift für rationelle Medizin*.

p. 437). Moreover, he convinced himself that it was more than a mere hypothesis, that he had reached the very nature of the unconscious:

We believe ourselves to have completely demonstrated that the assumption of unconscious logical processes is able not only to explain the results of the perceptual processes but also that in fact it correctly reveals the real nature of these processes, even though the processes themselves are not accessible to our immediate observation. (BTS, p. 438)

But which nature is this? For the first time, Wundt tried to determine the exact nature of unconscious inferences, identifying them with the logical processes of induction:

Now, as we deepen the analysis of the logical processes that form perception, a major uniformity between the most different processes of this kind is immediately revealed to us, and this uniformity is based on the fact that each perceptual process is, in truth, an act in and for itself, but which, in its turn, is only part of a broader act. Thus, if we start from the isolated processes to reach the totalities to which they are related and, from these latter, the more comprehensive complexes, all individual perceptual processes finally reveal themselves to us as ramifications of a uniform whole, as members of a single large process, which contains the particular as its element. In approaching this uniform process of perception, it reveals itself to us in its totality as a large *inductive* process, the individual ramifications of which repeat that form on a smaller scale. (BTS, p. 439, emphasis in original)⁴⁶

One can ask, however, whence this comes. How did Wundt arrive at this conclusion? In order to justify his position, Wundt offered three arguments, which can be reconstructed in the following way. First, as it usually happens with most natural phenomena that only their results can be directly observed, the same goes for mental phenomena. There is only one exception, namely, our conscious thought. In this case, it is possible to follow not only its results but also how they emerge. Therefore, this should be our starting point. Now, Wundt said, “this emergence shows itself to us in the form of a logical development” (BTS, p. 436).⁴⁷ However, why should we accept the passage from conscious to unconscious processes? This question leads to the second argument, which is a justification by exclusion. According to Wundt, the hypothesis of the logical nature of perception was the only one that could explain not only each particular perception, but also all perceptual processes involved

⁴⁶ Wundt defined induction as a generalization from particular cases. However, he emphasized that this experience was not limited to a single set of facts of the same kind, which would be the basis for small-scale induction. In other words, he argued that the concept of induction should be expanded to designate the simultaneity of several inductive processes of different types, which together would constitute a complex totality, as in human perception (BTS, pp. 439–441). I will return to this point in Sect. 2.5.

⁴⁷ Wundt’s early understanding of logic was framed within the context of the Aristotelian tradition, as was usual until the first half of the nineteenth century. His main concern was the distinction between two classes of inference or logical proceeding, as he understood them (BTS, p. 439): inductive (from the particular to the general) and deductive (from the general to the particular). The advent of modern or mathematical logic through the work of George Boole (1815–1864) and Gottlob Frege (1848–1925), among others, set up a new agenda with many different topics, such as the quantification of propositions. However, even after the mathematization of logic, as Simon notes, “German logicians continued to produce large and wordy textbooks of traditional logic” (Simons, 2003, p. 124), Wundt being a clear example thereof (see Chap. 4).

therein, including cases of false perception, such as sensory illusions. In this sense, it was more than a simple hypothesis like any other; it had the status of a firmly grounded theory (BTS, p. 437). The third argument relies on the continuous transition between consciousness (*Bewusstsein*) and unconsciousness (*Unbewusstsein*), which was for him a matter of fact. For Wundt, such continuity could only exist "if both states have the same nature, if consciousness appears only as the later development of one and the same basic state" (BTS, p. 438). As the logical development of the unconscious mental life fulfills this requirement, then it should be accepted.

It is not enough, however, to define unconscious perceptual processes as inductive inferences, because in saying this one does not explain exactly how they work. In order to answer this question, Wundt also explained their three specific forms of manifestation. According to him, the entire perceptual process could be reduced to three basic mental acts: colligation (*Colligation*) of sensations, synthesis (*Synthese*) and analogy (*Analogie*). Colligation was defined as *the first perceptual act*, which consists in the intimate connection of diverse series of sensations (e.g., visual sensations and muscular sensations)⁴⁸ according to their frequency and constancy. This is the simplest inductive process, which in this case emerges through the reunion of a great number of elementary facts (sensations), but it has only a preparatory character, in which perception is not yet given (BTS, p. 442).⁴⁹ *The second perceptual act*—synthesis or fusion (*Verschmelzung*)—builds a unitary whole from the sensations connected by colligation. In contrast with the latter, which preserves the singularity of each colligated sensation, this synthetic process has as its main feature the production of a new element that was not contained in the previous singular sensations and cannot be deduced from them. The new product, for Wundt, "con-

⁴⁸ Wundt accepted a sixth sense, which he called "muscular sense" (*Muskelsinn*) or "subjective sense," in contraposition to the traditional five objective senses (BTS, p. 400). A muscular sensation for Wundt is a sensation that accompanies a muscular contraction that exists whenever a sensorial organ moves (e.g., when one follows the rapid course of a shooting star or when one lifts a weight), thereby being associated with the respective objective sensation (visual or tactile). To defend his point of view, he presented empirical evidence coming from his own studies on visual and tactile perception, from Weber's and Fechner's studies on sensation, and from medical observations. He argued that only the hypothesis of muscular sensation could explain why tactile perception is much finer when one lifts a weight than when one has the same weight brought over one's hand at rest on a table (BTS, pp. 400–422). In the *Vorlesungen*, he repeated the same point, highlighting the importance of the muscular sensations for spatial perception (VMT₁, I, pp. 220–240).

⁴⁹ Wundt referred here to Francis Bacon (1561–1626), comparing what he called colligation with Bacon's induction by simple enumeration. In the *Vorlesungen*, he claimed that Bacon "correctly specified the basic features of the true induction" (VMT₁, I, p. 471). However, it should be noted that, while Bacon did not understand inductive inferences as unconscious psychological phenomena, neither did he lavish praise on this kind of primitive induction: "the induction which proceeds by simple enumeration is a childish thing" (Bacon, 1620/2000, p. 83). Wundt took the word 'colligation' from William Whewell (1794–1866), who coined the phrase "colligation of facts" in his influential *Philosophy of the Inductive Sciences* (Whewell, 1847, II, pp. 36–46). Whewell, however, used the term in a much broader sense than Wundt, who criticized him for almost identifying colligation with the entire inductive process. See Sect. 2.5 and 2.6 for further details on Wundt's inductivism.

tains in itself the sensations, but is something totally different from them” (BTS, p. 443). One can say that synthesis is not only the productive, but also, and most importantly, the constructive or creative process of perception. In the case of spatial perception, for example, Wundt said that synthesis is, “a creative activity, because it constructs the space” (BTS, p. 444).⁵⁰

Imagine, for example, that you are in a forest and see for the first time an unknown object at a distance, say, a very strange bird. Different parts of the bird will excite your retina, causing retinal sensations in the eye. At the same time, these sensations will be combined with specific muscular sensations, depending on the bird’s distance and on your eye movement. If the bird moves or somehow the place of the images in the retina changes, the corresponding muscular sensation will also change. In this way, there emerges a systematic connection between different series of retinal and muscular sensations. This is the colligation of sensations. However, this alone cannot give the perception of any object (bird), because the colligated sensations remain individuated, side-by-side. Only when they are integrated into a unitary whole, will you finally see a bird (even if you do not know it is one), rather than a collection of individual sensations. This is the work of synthesis, which generates a new product that did not exist previously and that cannot be reduced to its constitutive elements.

Finally, Wundt explained *the third perceptual act*, analogy, which depends on the formation of previous perceptions through synthesis. Moreover, because analogy always connects itself with previous experiences, it can never produce a new perception alone, although it can complete the content of a previously formed schema. However, it is helpful after the construction of the first perceptions and the accumulation of experiences. In Wundt’s own words, “analogy infers one perception from another; it infers, when in a second case *some* conditions are found to be similar to a first case, the analogical nature of *all* conditions” (BTS, p. 444, emphasis in original). Briefly, analogy is for Wundt also a principle of economy, according to which it is not necessary to have all the previous elements of a previous perception to build a similar perception (BTS, p. 445).⁵¹

⁵⁰ It is interesting to note that Wundt already defended, long before the emergence of so-called Gestalt psychology, the fundamental principle through which it became famous: “The whole is greater than the sum of its parts.” Curiously, however, its founders—Max Wertheimer (1880–1943), Wolfgang Köhler (1887–1967) and Kurt Koffka (1886–1941)—have never stated this principle, as Ash has shown (1998).

⁵¹ In contemporary logic, the status of analogy is controversial. On the one hand, traditional textbooks continue to present it as a kind of inductive reasoning. Copi, for example, argues that, “the most common type of inductive argument relies on analogy” (Copi, 2014, p. 487). On the other hand, some philosophers defend the view that reasoning by analogy has proper basic features that make it different from both induction and deduction. As Juthe claims, “arguments by analogy differ from other types of arguments by making the inference from particular to particular and by the fact that the conclusion never follows solely in virtue of the semantics or the syntactical structure of the argument” (Juthe, 2005, p. 24). Curiously, in the *Vorlesungen*, Wundt presented analogy slightly differently than in the *Beiträge*, without changing either its definition or its function: “Analogy can be regarded as a kind of intermediate link between inductive and deductive inferential procedures. From one fact it infers another fact related to the former” (VMT₁, I, p. 440, emphasis in original). This can be explained by the fact that in the *Beiträge* he did not consider the positive role of deductive processes in mental development.

Take again the example of the strange bird. The next time you go to the forest and find a similar exemplar of the same species, it will not be necessary to wait for the same series of colligated sensations to perceive the bird. Based only upon some similar initial sensations, you infer that you see the same bird. This jump from a previous known case to an unknown one is what Wundt called analogy.

After the specification of the inductive processes underlying perception, Wundt proposed a general definition for each mental phenomenon in the development of the mind. Sensation (*Empfindung*) is for him the first *mental* act, which precedes the three perceptual acts mentioned above. It emerges in a yet unknown way through the conversion of physical processes and cannot be further decomposed or analyzed in psychological terms. Perception (*Wahrnehmung*) consists in the synthesis or fusion of two or more sensations, thereby forming a new product, say, a spatial perception, which is composed of several series of sensations but cannot be reduced to them. Representation (*Vorstellung*) is the arrival of perception in consciousness (*Bewusstsein*), or conscious perception. Because not every perception reaches consciousness, there is a huge field of unconscious perceptions.⁵² This led Wundt to the central issue of how to differentiate between conscious and unconscious mental phenomena. For him, consciousness was also the product of a gradual development of the mind, based on the unconscious processes of sensation and perception. "Consciousness consists in our capacity to separate our self from the external world" (BTS, p. 447). This means that consciousness develops in two directions: self-consciousness and objective consciousness. Whatever the direction, though, it is always the result of an inference by analogy. As Wundt says, "it is the last and highest perceptual act, which constitutes the boundary between the unconscious life of perceptions and the conscious life of representations" (BTS, p. 449).

As a final step in his theoretical considerations, Wundt discussed the question of the unity of the mind. As previously discussed, the logical nature of mental processes will apply both to the unconscious and conscious aspects of mental life, thus ensuring the continuity and unity of all psychic processes. In his words,

[...] the totality of mental manifestations appears to us as nothing but a continuous, simpler, or more complex application of a small number of fundamental laws invariably linked together, so that one is necessarily given with the other. These elementary laws, which are the basis for all mental life, are the fundamental laws of logic. Operating unconsciously, they shape perception from sensations that arise in regular sequence, develop consciousness from a series of perceptions, dominate the world of representations, form concepts from representations, and, finally, build ideas and systems from concepts. (BTS, p. 450)

⁵² Wundt's vocabulary is perfectly continuous with the philosophical and psychological terminology of the German tradition, which dates back to Wolff and Kant. If one takes, for instance, Kant's famous progression (*Stufenleiter*) of terms in his *Critique of Pure Reason*, one finds *Empfindung*, *Vorstellung*, *Bewusstsein*, etc. (CPR, B376–377). On the conceptual level, however, there is no continuity, since Wundt's *Stufenleiter* is very different from Kant. Unfortunately, Wundt does not strictly follow his own definitions throughout the *Beiträge* and the *Vorlesungen*. Sometimes he speaks of unconscious representations or uses the term 'perception' interchangeably with 'representation.' Moreover, he does not differentiate between mental processes and mental states in a very clear manner. Thus, the terms 'sensation,' 'perception,' and 'representation' sometimes denote processes, sometimes states. This is valid for both consciousness and the unconscious.

This passage leaves no doubt that all three inductive processes operate not only on the perceptual level but also across all mental life, from its lowest to its more complex levels.⁵³ Thus, one can speak of the colligation and synthesis of representations, concepts, and hypotheses, as well as of an analogical inference from a philosophical thesis to another one.

It is time now to clarify the essential aspects of these theoretical considerations so that we can properly understand the subsequent changes Wundt will later introduce in his work. His conception can be reconstructed as consisting in three different theses. First, he affirmed that every mental process is a logical process (*mental panlogism*) (thesis 1). Second, he postulated the existence of an unconscious mental life that precedes and determines the formation of consciousness (thesis 2). The theory of unconscious inferences (thesis 3) is a consequence of theses 1 and 2, which are mutually independent. Taken together, they constitute what I call *Wundt's logical theory of the mind*, which includes the theory of the unconscious and unifies his whole psychological project in this initial period.

With regard to thesis 2, Wundt's conception of the unconscious was directly connected to the notion of consciousness. That is to say, conscious reasoning was the model through which Wundt conceived of the unconscious (through analogy and the principle of continuity).⁵⁴ More specifically, the forms of inductive reasoning that appear in consciousness served as guide to the positive characterization of unconscious processes.⁵⁵ In this sense, one can say that the Wundtian unconscious is primarily a cognitive unconscious, following the Leibniz-Wolffian tradition in German philosophy (Kaiser-El-Safti, 2001; Pongratz, 1967).⁵⁶ Nevertheless, as this positive characterization was valid not only for the unconscious—being an analogy based on our own conscious logical reasoning—it was not sufficient to draw a demarcation line between both dimensions. Wundt recognized this difficulty and stated that it was impossible to overcome it, opting in the end for a definition of consciousness alone—the separation between subject and object—that is also the

⁵³ In the *Vorlesungen*, besides reaffirming the same stages in the development of induction, Wundt added the positive role that deductive processes, such as analysis, play in the development of mental life. Despite the fact that induction continued to be viewed as more fundamental, Wundt recognized that in real life both kinds of process were not so strongly separated (e.g., VMT₁, I, p. 441).

⁵⁴ One should not forget that the issue of the unconscious was very much alive in the German philosophical, physiological, and psychological traditions. However, the term 'unconscious' was conceived in many different and often incompatible ways. For recent accounts of these different, but intersecting traditions, see Buchholz and Gödde (2011), Ffytche (2012), Gödde (1999), Hemecker (1991), Mills (2002), Nicholls and Liebscher (2010), and Völmicke (2005). In Sect. 2.6, I will return to this point, showing the specific context of Wundt's inferential unconscious.

⁵⁵ In the *Vorlesungen* (Lecture 49), Wundt explained that the difference between unconscious and conscious (or methodical) induction consists not in the nature of the logical processes involved but only in the greater complexity of the latter (VMT₁, II, pp. 317–320).

⁵⁶ Notwithstanding the fact that the motivational-affective and volitional dimensions are not absent from Wundt's early system, they are in themselves derived from that primary logical function. It is also interesting to note that this notion of an unconscious cognitive activity remains a central element in contemporary cognitive psychology (Froufe, 1997; Hassin, Uleman, & Bargh, 2005; Hatfield, 2002).

result of a logical inference (BTS, p. 438). Ultimately, the unconscious received only a negative characterization, indicating a series of phenomena that do not appear in consciousness. At the same time, Wundt's notion of the unconscious is also relational. That is, he did not postulate an autonomous unconscious with a proper *modus operandi*, either in a metaphysical sense (Carus, 1846; Schelling, 1800/2003a; Schopenhauer, 1854a/2004a) or in a psychological sense (Freud, 1900/1996). For him, since both domains worked in accordance with logical laws, there was no fundamental rupture between them. It is no accident that the principle of continuity was an essential aspect of Wundt's early psychological theory.

Regarding thesis 1, Wundt's statement that mental processes are logical processes allowed him to defend the unity of the mind (a logical unity behind its particular acts) and had important implications for his psychology. First, sensation, perception, and representation are conceived of as mental acts (logical acts), indicating the active and constructive nature of the mind. The mind not only establishes associations and brings order to its contents but also produces through the act of synthesis new and irreducible contents. This should be seen as a departure from the British associationist tradition, in which association is the mental process *par excellence* and the key feature of which is reproduction instead of construction or creation.⁵⁷ In Wundtian psychology, even in its early phase, association played an important role in the constitution of mental life, but it was never the central process.⁵⁸ Second, the logical nature of the mind also guarantees the unity of Wundt's psychological project, in that it serves as a basis for his future mission, namely, to apply the laws of logic to the entire course of mental life. As mentioned above, it was not the method of investigation but the unity of the object that ensured the unity of Wundtian psychology. According to Wundt himself, it was this unity, derived from the unitary nature of its subject matter, that psychology had not yet reached, and which he would pursue in the future (BTS, pp. 450–451). This distinction between the ontological and the methodological levels is crucial to the interpretation of Wundt's psychological project. First, it enables us to understand that, even if method guided his reform, this latter was anchored in a comprehensive theory of the ultimate nature of the mind. Second, it serves as a comparative criterion for my

⁵⁷ Even in the case of John Stuart Mill (1806–1873), who admitted two distinct forms of association of mental contents (mechanical and chemical) as well as the creation of new and irreducible contents (Mill, 1872/1981, II, pp. 852–856), the laws of association are the fundamental empirical laws of mental phenomena: “It may be remarked, that the general laws of association prevail among these more intricate states of mind, in the same manner as among the simpler ones. A desire, an emotion, an idea of the higher order of abstraction, even our judgments and volitions when they have become habitual, are called up by association, according to precisely the same laws as our simple ideas” (Mill, 1872/1981, II, p. 856). As Danziger noted (1980c), we should not exaggerate the influence of the British tradition on Wundt (see Sect. 2.6 for further discussion on this topic).

⁵⁸ In the *Vorlesungen*, Wundt returned to this topic, stating, “association remains limited to the alignment of the particulars” (VMT₁, I, p. 412); i.e., it does not involve the creative work of the mind. I will return to this point in Chap. 5, where I will discuss the fundamental principles of Wundt's mature system.

analysis of the evolution of Wundt's ideas and allows for the detection of modifications in relation to this initial period.

2.4 The *Vorlesungen*⁵⁹ as Realization of Wundt's Early Psychological Project

The *Vorlesungen über die Menschen- und Thierseele* (1863), Wundt's first psychological treatise, should be understood as the full realization of the program outlined in the *Beiträge*. In 57 chapters, divided into two volumes, Wundt not only reproduced and discussed in detail all the topics previously treated but also included other major topics present in the psychological tradition (concept formation, feeling, desire, instinct, will, etc.). In this section, I will focus on three points that best illustrate Wundt's application of his logical theory of the mind: concept formation, feeling, and the will.

The greater part of the first volume is only a restatement of the main points presented in the introduction to the *Beiträge*, with a more in-depth treatment of sensory perception. However, Wundt also introduced here the first novelty of the *Vorlesungen*, namely, a detailed discussion of the nature and origin of concepts. Even though he had defended in the *Beiträge* the empirical origin of all concepts, he presented here for the first time an analysis of this process. At the same time, this analysis illustrates the methodological limitations of the experimental method, to which he had already briefly referred in the preface: "Where the intentional experiment ends, history has done the experiment for the psychologist" (VMT₁, I, ix). In other words, historical observations now replace the experimental method.⁶⁰

Wundt's analysis of concept formation appeared in different chapters, and his main goal was to determine the internal characteristics of thought itself. More specifically, he had two strategies in mind: 1) to refute the traditional view that con-

⁵⁹The term *Vorlesung* here is misleading. Usually, it refers to a kind of teaching activity in German universities, in which a professor reads a self-written text before the students. This is different, for example, from a seminar, in which a professor discusses or comments on a text from someone else with the students. In this context, however, Wundt's *Vorlesungen* do not refer to a text he wrote for his lectures in Heidelberg but to a kind of literary form intended for a broader audience, which is directly related to the popularization of science in the German culture of the time (see Daum, 2002). I will return to this point in Sect. 2.6.

⁶⁰At first sight, the positive role that history (*Geschichte*) plays in the *Vorlesungen* contrasts with the criticism it received in the *Beiträge*. This can be easily explained by taking into account the different contexts in which the term appears. In the *Beiträge*, Wundt was using the term in a very narrow sense to indicate the limits of the personalist or individualist explanation of historical events. Now, in the analysis of concept formation, what is at stake is the history of science (especially physics), which will be an important source for Wundt's observations (VMT₁, I, pp. 416–426). As Jahnke (1996) remarked, the appeal to the history both of science and of philosophy plays an important role in Wundt's work.

cepts lie at the origin of thought⁶¹ and 2) to establish the nature and unity of thought. Beginning with the distinction between concepts (*Begriffe*), judgments (*Urteile*), and inferences (*Schlüsse*), Wundt claimed that thought cannot start with judgments because the most simple judgment of experience with mental content (sensory perception) is already the result of an unconscious inference and, therefore, presupposes it (VMT₁, I, pp. 52–53). In the same manner, according to him, concepts must be ruled out because they arise through the association and synthesis of many judgments (an inductive inference) that precede them; therefore, they cannot be originary, a conclusion that brings us back to the primacy of inferences (VMT₁, I, pp. 54–55), as it is clear in the following passage:

We are now convinced that the true sequence of acts of thinking is completely different from that which has usually been accepted. We do not start with concepts to form judgments from concepts and then inferences from judgments. Rather, our thought always starts with *inference*; through inference, we come to judgment, and a number of judgments make up a concept. [...] Judgments and concepts [...] are the finished work of thought. The latter itself cannot consist in these *results* of the activity of thinking. *Inference* is the act that creates judgments and concepts; therein we find thought in movement toward its results. *Therefore, thinking consists uniquely in the activity of inference.* (VMT₁, I, pp. 55–56, emphasis in original)

At first sight, Wundt's position sounds strange. If inferences are the first acts of the mind that generate judgments and concepts, there must be something previously given upon which such inferences can operate. Otherwise, how can the first inferences have been effected in the history of the development of the mind? In other words, inferences cannot work on the void; they need some content. In the case of perception and representation, as seen in the previous section, inductive inferences operate on sensations, which are also judgments. However, if every sensation is a judgment, then sensations cannot be the bedrock of mental life. Following Wundt's idea that judgments are preceded by inference, they have also to be produced by inference. There must be something more basic that serves as the originary element in the beginnings of mental life, the raw material for the first inferences that cannot be a judgment in itself. Otherwise, this would generate an infinite regress. Thus, the basic element must be something other than a traditional judgment.

⁶¹ By "traditional view," Wundt meant the logic textbooks of his time, which presented the sequence of thought in terms of concept, judgment, and inference. He did not mention any author because this was a widespread conception or, as he put it, "the usual opinion of the logicians" (VMT₁, I, p. 54). However, he admitted to not being the first to criticize this classical conception, thereby referring to the work of the German philosopher and philologist Otto Friedrich Gruppe (1804–1876), one of the sharpest critics of Hegel and speculative philosophy in the first half of the nineteenth century. In fact, in one of Gruppe's most influential books, one finds the following passage: "Again, I am in absolute contradiction with all hitherto existing logic, which I cannot help but accuse of a great inversion. [...] According to it, concepts exist as something finished *before* judgments. On the contrary, I state that concepts are only products of judgments, that they are constantly extended by judgments, and that they can only be explained by the latter" (Gruppe, 1834, p. 43, emphasis in original). For a recent reappraisal of Gruppe's cultural legacy, see Bernays (2004).

In order to avoid the infinite regress, Wundt introduced a new element in his theory of the mind that was not present in the *Beiträge*. There, he had made clear that his main goal was to explain perception through sensation but that he would not explain the latter's emergence, which remained a task for the future (BTS, p. 424). Now, he offered an account of sensation to justify his position on the development of the mind. The key element is his notion of primitive judgments (*primitive Urtheile*) or the basic characteristics of sensation (e.g., the physical properties of colors, sounds, etc.). According to him, these are the most primitive elements out of which sensation is produced, the only judgments that do not arise from inference (VMT₁, I, p. 54). Just because of this, however, Wundt hastened to say that these primitive judgments could not yet be considered to be judgments related to knowledge and, therefore, to be true mental contents (VMT₁, I, p. 54). Moreover, they mark the limit of psychological analysis:

From the psychological point of view, we have to call these primitive judgments *empty* because they are beyond all inferences, and because only inferences give a content to our judgments and concepts. However, this means only that these judgments lack a *mental* content, not that they lack any content *at all*. [...] The material processes in sensation are in fact the characteristics through which sensations differentiate themselves from one another or, to put it differently, the judgments from which those inferences we call sensations are formed. (VMT₁, I, pp. 57–59, emphasis in original).

In summary, Wundt's inversion of the sequence of the acts of thinking only makes sense in the light of his double notion of judgment: a primitive judgment with physical content that forms the basis for the first inferences to operate, and the judgments later developed as true results of the process of knowledge. In this way, when he says that inferences precede judgments, he is talking about developed judgments and not the primitive ones, without which no inference can be drawn. One should keep this in mind throughout the *Vorlesungen*, because he frequently speaks of judgments, sensations, and the like, without saying in which sense he is using these terms.

We can now return to the problem of concept formation. By refusing the primacy of concepts over inferences, Wundt was also forced to explain their formation as a further step in the development of the mind, according to the same logical laws that govern mental life. For him, every concept is the result of an inductive inference (VMT₁, I, p. 55) and draws upon the previous formation of representations (VMT₁, I, p. 394). There are three stages involved. Initially, from a great number of singular representations, a general representation (*allgemeine Vorstellung*) is formed, which consists in the reunion of common characteristics from many representations. This first stage already represents a flight from immediate experience and from a concrete representation in the sense that a general representation cannot be empirically intuited as such (VMT₁, I, p. 395). For example, to build the general representation 'dog,' we have to abstract all individual particularities of the dogs we know, such as size, shape, color, etc., and to concentrate only on the common features of their particular representations. However, we will never be able to actualize this general representation in an empirical intuition. To do this, we have to come back to an empirical representation of a specific dog.

As these general representations modify in the course of our experience, it is possible that many general representations arise at the same time, generating some discrepancies. For this reason, there is a second stage, in which it is necessary that these general representations, after having their similarities and dissimilarities compared, be logically unified into a new unitary totality, thus generating an empirical concept (e.g., tree, horse, man, dog, etc.).⁶² Finally, in the last stage, abstract concepts emerge, transcending completely the frontiers of experience and making it impossible to find an object to which they can correspond (e.g., quality, quantity, being, necessity, cause, etc.). This happens, according to Wundt, because such concepts embrace a large number of experiences and cannot be situated within the limits of intuition any more. Nonetheless, their difference in relation to empirical concepts is only a matter of degree, not of essence (VMT₁, I, pp. 394–403).

It is in the second volume, however, that the major innovations of the *Vorlesungen* appear. Here, for the first time, Wundt offered an analysis of feelings (*Gefühle*) and all processes derived therefrom, including an exposition of *Völkerpsychologie*.

Wundt recognized that these phenomena had not been included in his previous investigations. So far, he had paid attention only to those processes involved in the constitution of objective knowledge (sensation, perception, representation, and concept). However, since mental life is not exhausted by these processes, it was necessary to extend the scope of his analysis. In fact, he admitted the existence of many mental phenomena that do not have the primary goal of obtaining knowledge properly speaking, and which he divided into two classes: feeling (*das Fühlen*) and desire (*das Begehren*).⁶³ Moreover, he gave up the experimental

⁶²The following passage illustrates the difference between a particular representation, a general representation, and an empirical concept: "For example, whereas the particular representation 'man' grasps only the individual with all his essential and unessential characteristics, and the general representation 'man' contains only the sum of his essential characteristics, the empirical concept of man relies on a greater or smaller number of related general representations, which initially align themselves with the general representation 'man'" (VMT₁, I, p. 400).

⁶³The idea that the mind or soul can be divided into different parts, functions, activities, or capacities dates back to ancient literary and philosophical thought (Plato) and extends well into the nineteenth century, being captured by the expressions 'faculty psychology' or *Vermögenspsychologie* (Easton, 1997; Eisler, 1910a; Heßbrüggel-Walter, 2004; Lorenz, 2009; Snell, 1953). Especially in the eighteenth century, German philosophers such as Moses Mendelssohn (1729–1786) and Johann Nicolas Tetens conceived of a tripartition of the mind (thinking/representation, feeling, and desire/will) that would be influential in subsequent generations (Mendelssohn, 1776/2006; Tetens, 1777, I, Chap. X). It is nonetheless important to highlight the fact that there are substantial differences among these authors. Tetens, for example, did not understand the tripartition as expressing three fundamental faculties, as did Mendelssohn. For him, all activities of the mind derived from a basic and unitary force (*Grundkraft*), the nature of which is unknown to us. Be that as it may, this general idea of a tripartition of the mind has been very influential in the development of psychological theories (Boring, 1950; Dessoir, 1902; Fodor, 1983; Hilgard, 1980b; Klemm, 1911; Pongratz, 1967; Robinson, 1995; Sommer, 1892). Wundt seems to accept this tripartition of the mind here, at least in its more general or neutral sense, without any ontological implications. In this respect, we may say that the division of the *Vorlesungen* acquires a new meaning: whereas the first volume deals with processes related to representation and thought, the second is restricted to the phenomena related to feeling, desire, and the will. However, it should be clear that this in no way means that Wundt adhered to faculty psychology. On the contrary, he was one of its critics in nineteenth-century German psychology.

method once more, arguing that the causes responsible for these phenomena are largely inaccessible to an objective proof. For him, the solution was to proceed indirectly, involving two simultaneous strategies: 1) to accept as a central postulate the existence of those unconscious mental processes previously investigated and 2) to appeal to self-observation and ethnological investigations rather than experimentation (VMT₁, II, pp. iii–iv).⁶⁴

From the beginning, it becomes clear that feeling (*das Gefühl*) plays a central role in this second part of Wundt's analysis because, for him, desire and the will developed from feeling.⁶⁵ One can say that it underlies all psychic processes treated in the second volume, in the same manner as sensation did in the first. Now, what is a feeling? Why bring phenomena so different from another, such as hunger, pain, love, hope, etc., under such a general label? For Wundt, all feelings have two common features. First, they refer to a state of a sentient being (*fühlendes Wesen*), a state of passivity or activity of the self (*Ich*), as opposed to sensation, which is related to an object, although at this point, he warned, we should be very careful because traditional language is overloaded with ambiguities and mistakes.⁶⁶ Hunger, for instance, can be both a sensation and a feeling. It always depends on the perspective from which it is considered: "We can conceive a touch on the skin merely as a modification of our state, and then we call it feeling; if we relate it to an object that causes the impression, then it immediately becomes a sensation or representation" (VMT₁, II, p. 3). Second, every feeling is felt as something pleasant or unpleasant, as pleasure (*Lust*) or displeasure (*Unlust*) (VMT₁, II, p. 18).⁶⁷

This general definition of feeling has an important theoretical consequence for Wundt's psychological project. If what characterizes a feeling is its relationship to a subject, then it already presupposes the formation of consciousness, which was previously defined as the separation between the I (subject) and the external world (object) (see Sect. 2.3). In this case, then, feeling cannot be an originary mental state and, therefore, must be determined by unconscious mental processes, like any other developed mental phenomenon. At the same time, Wundt defined feeling as the counterpart of sensation, meaning that it also forms the basis of mental life, from which other more complex processes will develop. Every psychic development will then be based on one of these two poles (subjective and objective), in

⁶⁴ This passage leaves no doubt that Wundt's early conception of self-observation has nothing to do with his mature view, which is closely related to the experimental method (see Sect. 5.2). Here, traditional, pure self-observation is still valid for conscious phenomena, such as feelings.

⁶⁵ Wundt used two different terms—*das Fühlen* and *das Gefühl*—to refer to the class of phenomena associated with feeling. In the first case, the emphasis seems to be on the activity of feeling; in the second, on the result of that activity. However, since he does not establish a conceptual difference between both, I will translate them as 'feeling' in all cases.

⁶⁶ Wundt was aware of the conceptual difficulties that psychology faces whenever it engages in an unreflective interchange with common sense, a problem that has hindered its theoretical development (Araujo, 2001).

⁶⁷ It is worth noting that Wundt's classification is very broad, ranging from the lower feelings, which he called "sensory feelings" (*sinnliche Gefühle*), to the abstract or higher feelings (aesthetic, moral, intellectual, and religious). Nevertheless, I will not discuss the details of each form of feeling, since this would lead me astray.

accordance with its reference either to inner or outer experience. In the first case, we would have emotions, abstract feelings, and desires; in the second, perception, representation, and concept (of objects).

At this point, however, there seems to be a problem. Did not Wundt in the *Beiträge* define sensation as the first mental act, which serves as the foundation of perception and precedes, therefore, the separation between subject and object (BTS, p. 423)? How to reconcile this claim with the new one that sensation and feeling relate either to a subject or to an object, thereby depending on the formation of consciousness? Is there a rupture in Wundt's psychological theory from the *Beiträge* to the *Vorlesungen*?

In order to solve what seems to be rather an obvious dilemma, it is necessary to understand the fundamental difference between the *Beiträge* and the *Vorlesungen*. While the latter presents a theory of the mind in all its aspects, the former aims only at establishing a theory of sensory perception. That is the reason why sensation appeared there only as the starting point in the general development of perception, "as the element that cannot be further decomposed, that precedes and determines perception" (BTS, p. 424).

In the *Vorlesungen*, however, there is a theory of sensation. Let us consider Lecture 8, in which Wundt dealt with two issues: unconscious sensations and the relationship between stimulus and sensation. Accepting the postulate of the continuity of mental events, he had to admit that conscious phenomena only arise from the gradual development of unconscious phenomena. That being the case, he decided to use the term 'sensation' (*Empfindung*) in two different senses, as he revealed in the following passage:

There is no other alternative but to use the word *sensation*, here and in the following, not only to designate sensations that can be apprehended by our consciousness, but also those sensations and sensorial differences that remain always unconscious to us. By sensation, then, we understand only sensation in and for itself, independently of our conception. (VMT₁, I, p. 113, emphasis in original)

Later, when he came to characterize feelings, he found the same problem and recognized again the lack of an adequate term to designate the originary process underlying the separation between subject and object. As a solution, he again introduced a semantic duality:

Here, a lack of a satisfactory characterization once more becomes clear, as always happens in psychology. For the kind of originary state of mind that precedes the separation between sensation and feeling, we do not have any name, because as soon as we give a state a name, that separation is already there. Sensation in itself is only a modification of our state. Yet, it is a mistake to believe that we conceive sensation also originally as such a modification of our state. In the beginning, we do not differentiate either our proper state or an external impression. Both develop and realize themselves simultaneously. From the moment sensations can be felt as modifications of our self, it is also possible to relate sensations to the nature of an external impression. Both equally presuppose consciousness. (VMT₁, II, p. 5).

The apparent contradiction is dissolved as soon as one pays attention to the different meanings of the term 'sensation' in Wundt's early work. First, it refers to an originary, hypothetical state in the development of the mind before the first appear-

ance of consciousness, a kind of 'pure' sensation without self-world differentiation, which remains forever unconscious.⁶⁸ Second, sensation means a hypothetical phenomenon preceding every new act of perception and representation after the formation of consciousness. In this way, it can always reach the conscious level and be considered from one of the two possible perspectives (subjective or objective). Third, when Wundt refers to sensation as something related to consciousness, he means a mental content that already depends on conscious activity and that is associated with an external object, confounding itself with perception and representation. The same applies to feeling. Before the formation of consciousness, it is identical with sensation, since there is no subject-object distinction, or, in Wundt's words, "it is originally included in sensation" (VMT₁, II, p. 5). Only after a sensation is considered as a subjective modification does it become a feeling. Therefore, 'feeling' can refer both to an originary state and to a developed state, but one which, in its turn, will form the basis for the development of other phenomena. Finally, one can also understand why Wundt had not yet established this identity between sensation and feeling that precedes the formation of consciousness, since in the first volume of the *Vorlesungen* the entire discussion was centered exclusively on the objective pole of mental life.⁶⁹

We can now return to the characterization of the affective processes. As he did previously for the series of processes related to objective knowledge (sensation, perception, representation, and concept), Wundt had to explain the empirical origin and development of feeling, because in principle he could not accept any mental content a priori. Thus, despite forming the basis for all other affective processes, feeling, too, has to be the product of a specific mental development. At this point, one can see once more clearly the unity of Wundt's early psychological project: "That being the case, we have to expect that the laws governing the formation of feelings are in accordance with the laws controlling the genesis of representation and concept" (VMT₁, II, p. 310).

For Wundt, the most basic subjective phenomena are the sensory feelings (*sinnliche Gefühle*). Usually, they are associated with sensation, as in the case of a stimulus with a high intensity that can cause pain (e.g., the sound in a concert can be so loud that you feel pain in your ears instead of hearing the music). This does not mean, however, that every feeling depends on an objective sensation in order to exist. According to Wundt, some feelings are pure, "since they not only emerge independently from external stimuli but also are based exclusively on a subjective state" (VMT₁, II, p. 9). This is the case, for instance, for feelings associated with internal organs, such as the stomach (hunger) or the lungs (feeling the need to breathe). As Wundt claimed:

For all organ feelings (*Organgefühle*) there must be, no less than for the sensations, a causal stimulus. However, this stimulus is not external, like in the latter case, but internal; and

⁶⁸ This is an abstraction, a logical necessity arising from Wundt's anti-innatist assumptions, since no possible experience can demonstrate the emergence of consciousness in the individual.

⁶⁹ Nonetheless, both in the *Beiträge* and in the first part of the *Vorlesungen*, Wundt gave some hints about this subjective side of mental life by discussing the role of muscular sensations in perception (BTS, 400–422; VMT₁, I, 220–240).

precisely because it is not an external stimulus, it can never be referred to an external impression. (VMT₁, II, p. 11)

It happens that, at any given moment, our subjective state (which is close associated with our bodily state) is determined not by one, but by a series of sensory feelings coming from different sources. However, given the law of the unity of consciousness (see Sect. 2.2), we can never grasp more than one feeling at any one time. For this reason, in the same way that sensations are ordered and grouped together for the synthetic activity of perception and representation, so too are sensory feelings united and fused into something new, which Wundt called the general feeling (*das Gemeingefühl*)⁷⁰:

In order to bring together the sum of feelings, which at any moment affect us, into that unified product that we call our bodily situation, this sum has to be necessarily brought into *one* impression; and it has to be fused into one single feeling. Usually, the reunion of all feelings affecting consciousness at a given time is labeled *general feeling*. (VMT₁, II, p. 12, emphasis in original)

Understood as the awareness of one's bodily state, this general feeling plays the same role in the subjective mental life that representation does in the objective one. The logic behind both is the same. They are a result of inductive inferences and emerge after the unification of a very large number of simpler mental states and processes (VMT₁, II, p. 14).

The logic extends further. Sensory feelings, in their turn, will serve as the foundation for higher subjective phenomena. Here, feelings begin to lose their immediate connection to internal stimuli and to emerge through pure mental causes, such as representations of past events (VMT₁, II, pp. 20–21). Moreover, they are no longer based on a single representation, but on a series of representations. Wundt gave this new class of feelings a special name, *affects* (*Affekte*), in order to distinguish them from the sensory feelings and from general feeling. Happiness or sadness, for example, are the result not of an isolated representation, but of an experience that encompasses a series of representations (e.g., remembering the death of a loved one involves many different episodic memories). Because of their special nature, they can be thought of as abstract feelings (VMT₁, II, pp. 21–29).

The last stage in the development of affective life involves the emergence of the most abstract kinds of feeling, which appear in three forms: aesthetic, moral, and intellectual feelings (i.e., feelings concerning beauty, morality, and truth). For Wundt, these three forms of feeling represent a stage that corresponds to the stage

⁷⁰The general feeling is the only topic in Wundt's early psychology that did not receive a deeper analysis in the *Vorlesungen* than in the *Beiträge*. In the latter, Wundt explained that he was attacking two main positions: first, the idea that we have immediate consciousness of our movements and that, therefore, we do not need previous sensory feelings (e.g., George, 1854, p. 203; Trendelenburg, 1840, I, pp. 200–203); second, the idea defended by different psychologists, according to which the general feeling is a simultaneous but confused awareness of every single sensation that affects us at a certain time. Wundt situated his position as being continuous with the physiological tradition, mentioning Müller's studies on visual perception and Weber's on tactile perception. For details, see the last chapter of the *Beiträge* (BTS, pp. 376–400).

of concept formation in the process of objective knowledge. "The aesthetic, ethical and intellectual concepts have taken their origin from feelings; they emerged when thought took over control of feelings and brought their underlying instinctive knowledge into the light of consciousness" (VMT₁, II, p. 46). The development of such abstract feelings set the agenda for most of the second part of the *Vorlesungen*.

I will focus only on the issue of moral feelings (*sittliche Gefühle*) because of space limitations and because, by discussing it, Wundt officially introduced his *Völkerpsychologie* (VMT₁, II, p. 449). Given its theoretical and methodological importance for Wundt's psychological system, I will discuss not only the specific context in which it arises, but also its relationship with individual psychology. Let us turn to each of these questions.

Wundt's starting point was the inadequacy of the philosophical analysis of moral action (*sittliche Handlung*), which has one of its origins in moral feelings. According to him, Kant had expelled from philosophy the question of the origins of moral feeling by postulating the categorical imperative as the a priori principle of all moral actions.⁷¹ In this way, Wundt said, philosophy limited itself to self-observation and to the facts of consciousness, such as the application of moral maxims to particular cases of our daily experience. The problem is, according to Wundt's theory of the mind, that what appears in consciousness is only the result of a series of unconscious processes. Thus, Wundt could not accept any a priori law as an explanation for a particular conscious content (e.g., a moral conviction). Instead, he had to trace back the empirical development of our moral ideas and maxims, which for him developed from moral feelings. It was necessary, therefore, to reintroduce psychological analysis into the debate and to search for the origins of moral feelings (VMT₁, II, pp. 100–103). For example, Wundt claimed that our moral consciousness (*das Gewissen*) presents itself as a comparative inference (*Vergleichungsschluss*): "it compares our own conviction with the general image of the good conviction that we constructed" (VMT₁, II, p. 106). Now, this being a kind of deductive inference (from a general moral law to a particular case), there must be an inductive inference that precedes it, as is always the case for Wundt. Here, the very idea of good must be the result of an inductive process, so that our moral consciousness can proceed deductively (VMT₁, II, p. 107).

At this point, Wundt came across a new methodological challenge, namely, the limits of individual consciousness. Not only are the moral contents of our consciousness a result of a long unconscious development, but every individual consciousness is only a small part of a long moral development that involves a collective dimension. For this reason, Wundt appealed to the historical and cultural development of peoples over time in order to be able to understand the emergence and the transformations of moral life up to its current state. To that end, he used two methodological tools. First, history (*Geschichte*), understood as historical accounts of the

⁷¹ In his *Critique of Practical Reason*, Kant formulated the categorical imperative as follows: "So act that the maxim of your will could always hold at the same time as a principle in a giving of universal law" (AA V, 30). For the *Critique of Practical Reason*, I use the translation by M. Gregor in Kant, 1996.

early stages of our developed cultures. Second, natural history (*Naturgeschichte*), which studies particular cultures in their current forms and compares their differences to discover a hierarchy extending from the most primitive to the most developed stages. Whereas history operates diachronically, natural history works synchronically, in a complementary way (VMT₁, II, pp. 118–121).⁷²

Ultimately, Wundt concluded that our moral feelings and moral actions result from mental processes involved in social life. In the same way that we arrive at natural laws by generalizing from particular natural phenomena, we formulate moral laws from our particular experiences in our community. The underlying process is always an inductive inference, as Wundt explains in the following passage:

That mental process, which says to the consciousness of an individual as well as to the collective consciousness of a people—which in fact is composed only of the consciousnesses of individuals—what is moral and what is immoral, lies originally outside of consciousness. Nevertheless, there can be no doubt about the nature of this process. It shows itself to us, when we analyze it through its products—the stages of development of moral life—as a single large inferential process. That every individual can only achieve the safe development and formation of his forces when he imposes on himself restrictive rules concerning others in custom and law, is only possible through inferences from experience. However, what was first obtained only from unconscious knowledge is soon confirmed by conscious knowledge. [...] The historical development of moral ideas, which we presented along general lines, shows us clearly the course of that unconscious process of knowledge. (VMT₁, II, pp. 183–184).

This brings me to the second issue related to Wundt's early *Völkerpsychologie*, namely, its relationship to individual psychology. One can say that, even appealing to the collective dimension of human moral consciousness, Wundt's position has an essentially individualist character. The historical and ethnological analyses presented here are subordinated to hypotheses and ideas established in the first volume of the *Vorlesungen*, that is, in his individual psychology. According to him, the individual human mind possesses a certain ontological priority over the collective: "For the individual already exists before society" (VMT₁, II, p. 124). In light of this, one can understand why he added at the end of the book, as an appendix to Lecture 38, a critique of the ideas of Herbart and Lazarus, which he insisted in distinguishing from his own. In spite of recognizing their merits, Wundt refused to accept the autonomy of *Völkerpsychologie* in relation to individual psychology suggested by Lazarus.⁷³ The following passage is revealing:

In the present work, we do not enter the field of *Völkerpsychologie* as it was first conceived by Herbart and then established by his followers. On the contrary, our basis lies in *individual*

⁷²Wundt proposed a difference between natural peoples (*Naturvölker*) and cultural peoples (*Kulturvölker*) to highlight the hierarchical development from a more primitive to a more developed cultural life. In this sense, the term 'natural people' does not mean the absence of culture, but only a lower cultural level (e.g., an Indian tribe) in comparison with European civilization (VMT₁, II, pp. 121–139). This was a widespread idea in the German anthropology and ethnology of this period (e.g., Bastian, 1860, I, p. 144–165; Waitz, 1859, pp. 334–394). For an overview of the German anthropological tradition in a broader context, see Penny (2009), Penny and Bunzl (2003), and Smith (1991).

⁷³It is extremely important to emphasize this dependence of *Völkerpsychologie* on individual psychology in Wundt's initial project. This is the only theoretical aspect explicitly discussed by him here. For a comparison with his mature *Völkerpsychologie*, see Sect. 5.2.

or, better still, *general* psychology. For this reason, our goal is to investigate the general laws of mental events, of which *Völkerpsychologie* will only offer special applications. To achieve this, we focus initially on individual consciousness and seek to extract therefrom whatever is possible, always with the help of observation and experiment. However, there are several phenomena about whose development consciousness does not give us the least idea, even though they play an important role here. Because of this, we have to appeal to ethnological research as an indispensable resource. (VMT₁, II, p. 452, emphasis in original)

The last single topic that Wundt addressed in the *Vorlesungen* was the will, which he would later use to characterize his psychological system as a kind of *voluntarism* (L₃, III, p. 158–162). It is therefore important to identify the place it occupies in his early project, so that one can compare it with his later work.

The first step is to understand how the problem of the will emerges. Why is it necessary to introduce a new psychological process? Wundt's argument runs like this. We are conscious of being free, i.e., in our reflective consciousness, two essentially different kinds of action appear to us, one that is under our conscious control, another that is not. Now, psychology is the only science that can explain the emergence of conscious phenomena. Therefore, it has to explain the origins of our consciousness of freedom.

To solve this problem, Wundt took the next step of introducing two opposed concepts: instinct (*Instinkt*) and the will (*der Wille*). On the basis of these concepts, he distinguished between instinctive actions (*instinktive Handlungen*) and voluntary actions (*willkürliche Handlungen*). Whereas instinctive actions are an expression of unconscious affective motives, in which our self blindly and mechanically obeys impulses that it cannot control, voluntary actions reveal the power of conscious auto-determination of the self, which thereby subjugates all impulses contrary to the accomplishment of its goals (VMT₁, II, p. 398). When one cries upon receiving the news that a loved one has just died, one acts instinctively, that is, there is a complex affect being unconsciously expressed in one's behavior. Instinct is the process that leads to this expression. For Wundt, then, instinct is an unconscious *mental* process that evolves to express our affects in behavior, which gives the term a preponderantly psychological meaning, in contrast with the strong biological connotations that it acquired throughout the nineteenth century (Rohden, 1976).⁷⁴ Now,

⁷⁴ Despite being a much-debated topic in the nineteenth century, instinct was defined in very different ways, as Boakes argues: "During the nineteenth century, there was considerable confusion concerning the concept of instinct. The term was used a great deal by biologists and psychologists as if it had some precise technical meaning. Yet what one writer meant when talking of a particular instinct often had very little in common with the meaning attached to such phrases by someone else" (Boakes, 1984, p. 204). For this reason, it should be clear that Wundt uses the term 'instinct' to designate an unconscious *mental* activity: "The term instinct always refers to the expressions of feelings and desires in the *action*. Since these expressions are unconscious, as are the motives of feelings and desires, the instinct is also an unconscious event. It is always that activity through which the individual expresses his feelings and desires, and it indicates the last stage in the hierarchy of these subjective states: feeling is still completely latent, desire strives already for activity, and to act instinctively is that very activity" (VMT₁, II, p. 341, emphasis in original). Wundt reinforced this point, by saying that he did not understand instinct as a natural impulse derived from our biological organization (VMT₁, II, p. 342). Richards (1980) seems not to have perceived this

the will being the counterpart of instinct, it can be defined as the conscious process that determines conscious actions (VMT₁, II, p. 422).⁷⁵ Resuming the example above, through the force of the will, a person might take control of his or her affective impulses and act without crying. In this manner, Wundt defined both concepts in a relational way, one negating the other.

We can say, then, that the first positive characteristic of the will is its restriction to the conscious sphere. Now, following Wundt's theory of the mind, if voluntary actions are expressions of a conscious determination, and if everything that appears in consciousness is an eventual result of our mental evolution through previous unconscious processes, then the will, too, must have an unconscious cause. Usually, according to Wundt, people say that the will is uncaused because one looks for its cause in consciousness and does not find it. However, he said, "from the fact that we do *not* know a cause of a phenomenon, it does not follow that it has *none*" (VMT₁, II, p. 402, emphasis in original). Thus, neither experimentation nor self-observation can help to resolve this issue. Here, once again, Wundt resumed his methodological reform defended in the *Beiträge*, by extending the inductive methods of observation in psychology. Statistics, history, and natural history come to his assistance (VMT₁, II, pp. 406–411).

According to Wundt, both history and natural history show that the union of individuals in a collectivity (people, nation, or culture) gives rise to a general or collective will (*der Gesamtwille*), which is first the expression of a great number of individual wills. However, it also occurs that two or more peoples group together to form a higher *Gesamtwille* (e.g., the German people understood as a union of different peoples). For Wundt, even in the moments when an extremely powerful will appears and changes the course of a culture (e.g., Alexander the Great or exceptional scientists and artists), the new ideas or creations depend on the collective will to be implemented. In this way, the collective will directs and determines the historical and cultural direction, thereby exerting a strong influence on the individual will (VMT₁, II, pp. 407–409). To explain how this happens, Wundt appealed to the social statistics of different countries (Belgium, England, France, and Germany) and found a great regularity and constancy in

peculiarity of Wundt's terminology, because he interprets it within a Darwinian context, without establishing the fundamental difference between them (see Sect. 2.2). Wundt's rejection of a biological meaning for instinct allowed him to overcome the main hindrance of animal psychology—diagnosed in the introduction of the *Beiträge*—by excluding from it the very notion of instinct as an all-encompassing explanatory concept for animal behavior. Not by accident, when he discussed the mental development of animals, he appealed to the same logical processes that govern human development. The difference is, according to him, only a matter of degree, not of essence (VMT₁, I, pp. 443–460). This means that the principle of continuity is valid not only for the intra-specific, but also for the interspecific scale.

⁷⁵ The concept of the will has a long tradition in the history of philosophy and psychology (Bourke, 1964; Eisler, 1910a; Heckhausen, Gollwitzer, & Weinert, 1987; Pink & Stone, 2004). In the particular context of nineteenth-century Germany, the term *Wille* assumed a central role in the discussions concerning freedom and causality (both in their metaphysical and psychological dimensions) in the aftermath of Kant's idealism (Gabriel, Hühn, & Schlotter, 2004; Hühn, 2004). Wundt's initial reflections on the will are deeply rooted in this context.

their respective rates of crime, suicide, and marriage.⁷⁶ His conclusions can be summarized by the following passage:

Thereafter, we can briefly designate the *social situation* of a people as the factor that exerts an essential influence on the actions of the will. [...] However great are the follies that the individual may commit, society as a whole acts with the greatest discernment. Nevertheless, this discernment appears as the product of a blind necessity. For actions of every kind follow a certain numerical law, which no individual will can alter. (VMT₁, II, pp. 410–411, emphasis in original).

This is not the whole story, though. Notwithstanding its usefulness, statistics also faced serious limitations. According to Wundt, statistics can only show that the social situation is one of the causes of the will, never that it is the only cause or that there cannot exist an indeterminate number of other causes. In other words, all it can show is that there are external causes of voluntary action. However, as long as the individual does not submit completely to the social situation, his or her actions also reveal the influence of a personal factor (e.g., when one acts differently from what is expected according to the social situation). Wundt called this individual component of actions, which do not appear in the population statistics, the internal cause of the will. Furthermore, he became convinced that this personal factor was the only one indispensable for the determination of the will. For this reason, he introduced a distinction between cause and motive (“a cause leads necessarily to its effect, a motive does not”), which enabled him to classify the external factors as motives of voluntary action but not as real causes (VMT₁, II, pp. 412–414).

Now, what is this mysterious, hidden personal factor behind the will? For Wundt, the character (*der Charakter*), the very essence of personality, is the immediate unconscious cause of the will, the factor that explains the singularity of each individual. Nonetheless, it is a puzzle. We can know it only indirectly, through its effects. Its intimate nature is inaccessible to us. We face here the intrinsic limits of thought itself, beyond which no knowledge is possible. For instance, if the character itself is also submitted to causality, this is something that cannot be determined from experience. Its origin, as long as it stands beyond consciousness and individual life, remains forever unknown.⁷⁷ This is the farthest our knowledge can reach (VMT₁, II, pp. 415–419).

Wundt's early approach to the problem of the will led him to the problem of freedom, offering a very clear example of how he thought psychology could contribute to solving philosophical problems. Against Kant and German idealism in general, he restricted the concept of freedom to a psychological dimension, i.e., to

⁷⁶This time, Wundt referred explicitly to Quetelet, borrowing from his works the statistical data concerning crimes, suicides, and marriages, among other phenomena. See Sect. 2.2 for more information about Wundt's interest in social statistics.

⁷⁷Wundt suggests here the possibility of a multiple determination, which involves simultaneously cultural and biological factors. The appeal to such determination appears whenever he finds a gap in his analysis. This supports my previous remark on the secondary role that biological factors play in a genuine psychological explanation for Wundt (see Sect. 2.2).

the consciousness of being free.⁷⁸ For him, the concept of freedom is empirical and has its origins in the activity of the will; it is an abstraction from the fact that we can consciously determine our actions. Outside consciousness, freedom is an imaginary concept, a mythological phantasy (VMT₁, II, p. 401). Therefore, he claimed, it makes no sense to speak of a metaphysical freedom as the cause of the will.⁷⁹ Moreover, the will itself being caused by another thing, the character, Wundt did not accept something beyond the causal chain of nature. Therefore, in a metaphysical sense, there is no freedom for him.

2.5 The Relationship between Psychology and Philosophy in Wundt's Early Work

In both the *Beiträge* and the *Vorlesungen*, Wundt referred to many philosophers in discussing specific points of his psychological work.⁸⁰ Moreover, he addressed a series of philosophical questions, such as the mind-body problem, the nature of

⁷⁸ Kant distinguished between a transcendental (theoretical) and a psychological (practical) dimension of freedom. First, he conceived of freedom as an a priori idea of reason, which refers to a type of causality with its proper laws, which stays outside space and time, and which is not subjected to natural causality, but the objective reality of which cannot be demonstrated. It is the freedom of pure reason: "By freedom in the cosmological sense, on the contrary, I understand the faculty of beginning a state *from itself*, the causality of which does not in turn stand under another cause determining it in time in accordance with the law of nature. Freedom in this signification is a pure transcendental idea, which, first, contains nothing borrowed from experience, and second, the object of which also cannot be given determinately in any experience. [...] Reason creates the idea of a spontaneity, which could start to act from itself, without needing to be preceded by any other cause that in turn determines it to action according to the law of causal connection" (CPR, B561, emphasis in original). He connected this transcendental freedom to a psychological or practical one: "it is this *transcendental* idea of *freedom* on which the practical concept of freedom is grounded [...]. *Freedom in the practical sense* is the independence of the power of choice from *necessitation* by impulses of sensibility [...] because sensibility does not render its action necessary, but in the human being there is a faculty of determining oneself from oneself, independently of necessitation by sensible impulses (CPR, B561–562, emphasis in original). For the *Critique of Pure Reason*, I use the translation by P. Guyer and A. Wood in Kant (1998).

⁷⁹ For Kant, although transcendental freedom lies outside nature, it can be a cause of the will: "At times, however, we find, or at least believe we have found, that the ideas of reason have actually proved their causality in regard to the actions of human beings as appearances, and that therefore these actions have occurred not through empirical causes, no, but because they were determined by grounds of reason (CPR, B578). However, because we do not know exactly how this is possible, we assume for practical purposes that this is so: "every being that cannot act otherwise than *under the idea of freedom* is just because of that really free in a practical respect, that is, all laws that are inseparably bound up with freedom hold for him just as if his will had been validly pronounced free also in itself and in theoretical philosophy" (AA IV, 448, emphasis in original). For the *Groundwork of the Metaphysics of Morals*, I use the translation by M. Gregor in Kant (1996b).

⁸⁰ The list is very long, ranging from the Pre-Socratics, Plato, and Aristotle to Wundt's contemporaries. Just to take one example, the epigraph Wundt chose for his *Beiträge*, the meaning of which I will discuss in what follows, came from Gottfried Wilhelm von Leibniz (1646–1716): *nihil est in*

freedom, the nature of the will, and the ultimate foundation of our knowledge. All these topics suggest that from the beginning his psychological program was not isolated from philosophical issues. At this point, however, he had not yet developed a clear conception of philosophy or a philosophical system, as he would do later.⁸¹ Besides, many of his philosophical ideas at this time were still in an embryonic, undeveloped stage, as I will show below. In what sense, then, can one speak of a relationship between psychology and philosophy in Wundt's early work?

In this section, I want to show that, despite the absence of a philosophical project in Wundt's early work, the relationship between both disciplines appear in two opposed, yet complementary directions.⁸² First, psychology as an empirical science is based on epistemological and ontological assumptions. One can speak, then, of a philosophical foundation to psychology. Second, psychology, in its turn, explains the formation of philosophical theses and contributes to solving philosophical problems. In this sense, there is also a psychological foundation to philosophy. In order to illustrate this bidirectional relationship, I will focus on four issues. With regard to the first direction, I will discuss Wundt's theory of knowledge, his philosophy of science, and his ontological assumptions about mind and nature. With regard to the second direction, I will highlight the meaning and scope of Wundt's psychologism.⁸³

First, both in the *Beiträge* and the *Vorlesungen*, Wundt presented some ideas concerning a theory of human knowledge with clear implications for psychology. To begin with, the epigraph Wundt chose for his *Beiträge* was Leibniz's response

intellectu quod non fuerit in sensu—nisi intellectus ipse (BTS, p. i). Even in his psychophysiological work, one finds many references to philosophers, as in the chapter on the history of vision (BTS, pp. 66–104).

⁸¹ In the nearly 1500 pages that compose his early psychological work (*Beiträge* and *Vorlesungen*), there is only one passage in which he offered something close to a definition of philosophy. After defending the interconnection and interaction of all sciences, he stated, "philosophy is a science for all sciences. It alone gives the particular fields of knowledge their meaning" (VMT₁, I, p. x).

⁸² So far, the extant analyses of Wundt's philosophy have not taken into account his early philosophical ideas (Arnold, 1980; Eisler, 1902; Nef, 1923).

⁸³ The term 'psychologism' was coined in the context of German debates in the nineteenth century on the foundations of philosophy (Janssen, 1989; Kusch, 2011). In its first widespread sense, it was pejorative and related to the arguments presented by Gottlob Frege and Edmund Husserl (1859–1938) against the attempts to reduce logic to psychology (Rath, 1994; Schmidt, 1995). In the course of time, however, it acquired many distinct, sometimes overlapping meanings and has been used in different contexts (Crane, 2014; Jacques, 2003; Kaiser-el-Saifi & Loh, 2011; Kusch, 1995; Marquard, 1987). For this reason, it only makes sense to use it nowadays if one can offer a concrete context of application. In a detailed investigation of the German context in the nineteenth century, Rath (1994) presents a classification of different types of psychologism, in which Wundt is considered only during his mature period. Nevertheless, if Rath had taken into account Wundt's first psychological project, he would have noted that Wundt had already defended, well before Theodor Lipps (1851–1914), a proposal to reconstruct philosophy on the basis of the empirical sciences, which Rath understands as a form of psychologism (*Psychologismus als Konstruktion*). Kusch (2011) also includes the mature Wundt among the representatives of psychologism. However, since in his later work Wundt stated that he did not want to reduce logic or philosophy as a whole to psychology, it seems that his inclusion among them must be qualified. For Wundt's conception of philosophy, see Chap. 4.

to John Locke's (1632–1704) position against innatism: “nothing is in the intellect which was not first in the senses—except the intellect itself” (Leibniz, 1764/1978c, p. 100). In his introductory essay for the *Beiträge*, Wundt resumed the theme of the epigraph, showing that he was trying to find an intermediate position between Leibniz and Locke:

In this sense, regarding the following investigations, I can subscribe to the principle of the sensualist Locke with the complement added by the idealist Leibniz: *Nihil est in intellectu quod non fuerit in sensu—nisi intellectus ipse*. With this intellectus, however, I am far away from putting back into the mind, as Leibniz did, a whole world of innate ideas. Rather, by intellectus I understand only the fact of the logical development that experience has shown, in which not knowledge itself, but only the possibility of obtaining it, is given. (BTS, xxxii)

This passage sounds very strange. After all, how could a fact be prior to experience? Moreover, Wundt did not continue discussing the subject. This shows, as I claimed above, how Wundt's early philosophical ideas were still undeveloped and unsystematically formulated. In the *Vorlesungen*, however, there is a clarification of his position, although he did not mention either his previous essay or the context of the dispute between Leibniz and Locke. According to Wundt, only one thing exists prior to all experience: the ability to conceptualize (*begreifen*) or to abstract. However, this does not mean that we have a priori or innate concepts (VMT₁, I, p. 13).⁸⁴ Here, again, he was fighting against the apriorism of Hegel and German Idealism: “We all have the capacity to build concepts, but the concepts themselves are acquired by us, and we acquire more or less according to the use we make of our capacity” (VMT₁, I, p. 14). More specifically, this capacity involves the laws of thought, i.e., the laws of logic (VMT₁, II, p. 316). Finally, putting all these pieces together, Wundt's position can be reconstructed in this way: it is the form of our *intellectus* that exists prior to all experience, this form being the laws of logic. This is what enables one to abstract or to think, which are the one and same thing (VMT₁, I, p. 14). Consequently, this is what guarantees the very possibility of all knowledge in general, including scientific knowledge and, a fortiori, psychology.

This brings me to the second point, which concerns Wundt's early philosophy of science. According to him, natural science is not limited to objects that are accessible to our immediate observation. Instead, science takes such objects only as a starting point; its goal is to reach what is hidden behind the observable phenomena. Now, to do this, we have to appeal to inferences by analogy, which was for Wundt one of the forms of induction, namely, the passage from known to unknown cases (see Sect. 2.3). This is valid for both physics and psychology. In Wundt's own words, “[A]nalogy is the only metaphysics that is justified and that extends deep into the empirical sciences” (BTS, p. 423). In sum, analogy, frequently used by Wundt as a synonym for induction, is a methodological a priori,

⁸⁴In Wundt's early work, the words ‘a priori’ and ‘innate’ were interchangeable. Moreover, he understood the issue of apriorism or innatism in psychological terms. This becomes clear, for example, when he speaks of an innate impulse to generalization (*Trieb zur Verallgemeinerung*) (VMT₁, II, p. 313).

the only one that science can accept.⁸⁵ In fact, as I showed in Sect. 2.3, it was through analogy that Wundt arrived at his logical theory of the mind. One can say, therefore, that inductivism was the guiding line of Wundt's early project, regulating the experiment, the construction of hypotheses, and the establishment of scientific theories, be it in physics or psychology.⁸⁶ In this sense, there is an epistemological foundation to psychology.

A third philosophical influence on Wundt's early psychology concerns his ontological assumptions about mind and nature. In order to demarcate the psychological field, Wundt stated, "[T]he subject matter of psychological investigations is *inner experience*" (VMT₁, I, p. 1, emphasis in original), which shows how immersed he was in the Kantian tradition of a separation between inner and outer experience. If one adds to that definition the claim that "[T]he world as object of experience is the world as we represent it" (VMT₁, I, p. 390), which is very close to Schopenhauer's famous statement at the beginning of *The World as Will and Representation* (Schopenhauer, 1859/2004b, § 1), the influence of idealist assumptions in Wundt's early project becomes even more evident, despite his criticism of the speculative method.⁸⁷

Still considering Wundt's ontological assumptions, he became convinced (see Sect. 2.3) that his logical conception was more than a hypothesis; that he had discovered the real nature of the mind. In so doing, he proposed an identity between mental phenomena and logical processes: all mental phenomena *are* logical processes. As shown earlier, not only perception and representation but also the feelings and the will were conceived of as a long developmental process of logical inferences. Thus, the unity of mental events is based upon their logical nature. In this manner, the mind would be nothing but *an eternal chain of logical inferences*, allowing us to speak of a *logicization of the mind* and, therefore, of a *logicization of psychology*.⁸⁸ This identity between the logical and ontological levels discloses the influence of metaphysical assumptions in the construction of Wundt's psychological theory (*the logical theory of the mind*), notwithstanding his intentions to proceed otherwise.

⁸⁵ The following passage is clear: "Things that converge in *one* aspect tend also to converge in *other* aspects. The inference by analogy acquires, through this principle that is drawn from experience, its authority and even its meaning in science (VMT₁, II, p. 314, emphasis in original).

⁸⁶ In the *Vorlesungen*, Wundt accepted that deductive processes also take part in the establishment of scientific knowledge. However, following the same logic of the development of the mind, induction played the major role in science, for "deduction is a process that necessarily follows induction everywhere" (VMT₁, I, p. 408).

⁸⁷ I will return to this question in the next section, where I will discuss the intellectual influences on the young Wundt, and in Chap. 4, in which I will suggest some similarities between Wundt's conception of philosophy and German Idealism.

⁸⁸ This can be seen as a strong form of cognitivism *avant la lettre*. Even though Wundt never mentions the possibility of, say, an artificial intelligence or a simulation of the mind's operations through Boole's algebra, his logical theory of the mind is already enough to include him in the history of the cognitive sciences. Unfortunately, to my knowledge, no such history has paid attention to his early cognitivism (e.g., Baars, 1986; Boden, 2006; Gardner, 1985).

Wundt's thesis on the constitution of the mind depends, in its turn, on a higher ontological assumption regarding the *modus operandi* of nature in general, namely, the principle of continuity. Here we meet Leibniz again. According to Leibniz, "[N]othing occurs suddenly, and it is one of my great and best confirmed maxims that *nature never makes leaps*: what I have called *the law of continuity*" (Leibniz, 1764/1978c, p. 49, emphasis in original). Without any mention of Leibniz, Wundt used this principle to guarantee the continuity between conscious and unconscious processes and to justify his logical theory of the mind (Sect. 2.3). Thus, his psychological project is also based upon ontological assumptions.

I come now to the fourth and last topic of this section, in which I will analyze the relationship between psychology and philosophy from the opposite direction. My goal is to show how Wundt's early psychology is also intended to explain the emergence of philosophical theses and to solve philosophical issues, which leads to a kind of psychologism. Indeed, it follows from his theory of knowledge—according to which all contents of our knowledge come from experience—that the right way to understand and to evaluate them is to pursue their empirical origins and to analyze the course of their development in the human mind (as mental acts). Now, this was precisely the central task of Wundt's early psychology, the *Vorlesungen* being its full realization. In its 57 chapters, he traced the psychological origins of spatial perception, concept formation, emotions, religious ideas, moral and aesthetic feelings, and so on. By the end, he firmly believed that psychology would be the foundation of all human sciences, including many branches of philosophy:

It is psychology that proves that, in all these cases, the internal processes remain the same; it establishes a common basis for the entire domain of the *Geisteswissenschaften*. Moreover, it does not stop here. Looking deeper into the driving forces of mental life, it acquires the conviction that the laws of beauty and morality have in the same manner an objective existence, because they are products of an internal activity. (VMT₁, II, p. 311)

One could ask, however, how it is possible to maintain simultaneously a philosophical foundation for psychology and a psychological foundation for philosophy. Is this not circular, even contradictory? Wundt himself saw this problem and hastened to explain his position. The apparent contradiction disappears, according to him, by taking into account the difference between unconscious and conscious processes of knowledge or, in other words, between instinctive and methodical induction. The maxims or principles of knowledge (e.g., the principle of continuity, the principle of uniformity, and the principle of causality) serve as a foundation for the empirical sciences in the sense that they exist before the methodological work of any scientist, i.e., before his conscious elaboration of experiments, hypotheses, and theories. However, it does not mean that they exist before all experience. Since those principles have not only a logical form but also a specific content, they must also have emerged in the course of human experience, through the same inductive process that guides science, except that they are *not* conscious or reflective. In Wundt's words,

All knowledge is prepared in the unconscious, but knowledge can never reach its end through that preparation in the unconscious. The selection is left for consciousness, but this

selection is the most important act for the safe apprehension of the truth. If induction itself always occurs in the unconscious, for consciousness is left that important task, which we have characterized as *inductive method*, and which consists in the *proof* of the results instinctively acquired. (VMT₁, II, pp. 320–321, emphasis in original)

In this way, many laws and maxims seem to be a priori or innate because we ignore the unconscious processes that originated them and focus only on our developed consciousness, thereby failing to find their remote origins in the history of the mind. Those laws and maxims are nevertheless the most general principles that guide our scientific knowledge, which represents a later stage in human development. The same goes for the principles of ethics and aesthetics. It seems, then, that logic is the only exception to Wundt's early psychologism, because he accepted the a priori or innate character of its laws.

To leave no doubts concerning this issue, I want to add a last example, related to how he addressed the mind-body problem as a philosophical problem. In the last chapter of his *Vorlesungen*, Wundt adopted as a metaphysical principle the fundamental unity of the mental and the physical, which he defined it in the following terms:

Such a principle, according to our exposition, is the principle of the identity of the physical and the mental event. For the former, we have the laws of mechanics, for the latter, the laws of logic; and it can be proved that both laws are in themselves identical, that inner experience conceives of as logical necessity that which outer experience sees as mechanical necessity. Nonetheless, we could not go beyond this proof. It was completely impossible to say in what consists that unity that underlies external dualism, and it *had* to be impossible because we can only know things in the form of either inner or outer experience. Precisely because of this, that unity was and remained a *metaphysical* assumption. (VMT₁, II, pp. 437–438, emphasis in original)

At first sight, Wundt's acceptance of a metaphysical principle sounds strange, given his previous attacks on metaphysics. Would this not be a contradiction, in the sense that he, too, was accepting from the beginning a metaphysical hypothesis on the mind-body relationship? Wundt recognized that he was not the first to postulate such an identity of the physical and the mental. The difference now, he explained, was that his investigations for the first time provided an empirical justification for that metaphysical principle, which resulted from the analysis of the emergence of sensation (VMT₁, II, pp. 437–438). In Lecture 13, Wundt first announced his principle as an explanation for the apparent contradiction of sensation being at the same time a material and a mental process:

Sensation is the identity of both forms; in its content, it is a uniform process that only externally, regarding the methods of investigation, separates itself into two forms. The methods of inquiry are based on the forms of our knowledge: the physical investigation begins with the sensory side of the phenomena, the psychological starts with the logical analysis of their connection. (VMT₁, I, p. 199)

Wundt's justification consists in the claim that, in sensation, the physical and the mental are so tied together that they can only be thought of as two forms of the same thing, which in itself is neither physical nor mental. However, since we are trapped in the forms of outer and inner experience, this unity can only appear to us if repre-

sented in one of those forms, and never in itself. Thus, it is impossible to determine empirically what it is. Hence, its *metaphysical* status. Nevertheless, for Wundt, this was the best explanation for his empirical results. In other words, Wundt defended here a kind of epistemological dualism combined with an ontological monism—a kind of neutral monism⁸⁹—which has three theoretical goals. First, it guarantees the irreducibility of our ordinary experience insofar as it respects the autonomy of its forms of expression (inner and outer). Second, it allows—*qua* metaphysical thesis—the simultaneous rejection of substance dualism (since mind and matter are not different substances) and other competing forms of monism, such as materialism and spiritualism (since the identity is neither material nor spiritual). Finally, it shows the relevance of psychology for philosophical discussions, especially with regard to metaphysics.⁹⁰ In fact, the germs of an inductive metaphysics, although not developed, are already here.

In sum, we can state in the following way the relationship between philosophy and psychology in Wundt's early work. On the one hand, there is a philosophical foundation for psychology, to the extent that both its subject matter and its method are conceived against the background of philosophical assumptions. On the other hand, there is also a psychological foundation for philosophy, since psychology reveals the empirical origins of philosophical theses and contributes to solving philosophical problems.

2.6 Intellectual Roots of the Young Wundt

In my analysis of Wundt's early psychology, another crucial step is still missing. Given the divergence of interpretations in the secondary literature about the sources and the theoretical meaning of his early ideas, it is not enough to present them within the internal context of his early work. Thus, I will offer a further delimitation, defining their origins and specific contours in relation to other scientists and philosophers of the time. Having indicated concrete influences, such as Aristotle, Leibniz, and Lazarus, among others, I will now concentrate on four theoretical issues that permeate the psychological project of the young Wundt: 1) his conception of the scientific method, 2) his notion of scientific psychology, 3) his hypothesis of unconscious inferences, and 4) the identity of mind and body or spirit and nature. The main obstacle one faces in such a task is Wundt's lack of formal philosophical training, which makes the tracing of his philosophical ideas more difficult (e.g., those with whom he studied, the identity of his intellectual mentor, etc.). With the exception of an aesthetics course offered by Friedrich

⁸⁹ Nitsche (1990) and Wassmann (2009) understood this identity in materialistic terms, which it is not. I will discuss the point in Sect. 2.6.

⁹⁰ Although Wundt did not use here a name for his position, we can say that the main ideas of his psychophysical parallelism, which he would later develop and justify (see Sect. 5.3), are here already foreshadowed. Heidelberger (2000) has also noted this point.

Theodor Vischer (1807–1887), when Wundt still was in Tübingen, there is no record of any other formal contact with philosophy during his medical studies.⁹¹ Even the valuable Wundt collection at Leipzig University, which includes his correspondence, contains very few documents related to this early phase of his professional life. This being so, one is forced to appeal to his autobiography, even though it contains many gaps and inaccuracies.

Notwithstanding all these obstacles, I believe that it is possible, with the aid of additional sources (texts and other documents related to the development of German philosophy and psychology in the nineteenth century), to ascertain some limits to the interpretation of Wundt's early project, thus balancing the one-sidedness of some analyses present in the secondary literature.⁹²

With regard to the first topic, it is important to keep in mind that Wundt did not yet have an explicit theory of science, but only an implicit one. Its core element was inductivism, accompanied by an enthusiasm for the experimental method. In light of this, many scholars have claimed to detect a strong influence of John Stuart Mill on Wundt's early conception of science and its methods (e.g., Bistricky, 2013; Boring, 1950; Graumann, 1980; Richards, 1980; Schmidgen, 2003b; Titchener, 1921). It is true that Mill's *Logic*—introduced in Germany in 1849 through an incomplete translation by Jakob Wilhelm Schiel (1813–1889)—was a reference present in Wundt's intellectual formation, as he acknowledged in his autobiography (EE, p. 223). Nonetheless, Mill's influence should not be exaggerated. First, in both the *Beiträge* and the *Vorlesungen*, Wundt's explicit references to Mill—which confirm that he used the first German translation—are always followed by criticisms of Mill's general theory of induction, indicating significant differences between them (BTS, 441; VMT_I, I, p. 472; VMT_I, II, 455).⁹³ In addition, as I showed in Sect. 2.3,

⁹¹ Vischer became a full professor at the University of Tübingen in 1844. He became famous for his work on aesthetics and arts in general. According to Wundt, "his lecture on aesthetics in the winter semester is the only philosophical lecture I attended in Tübingen" (EE, p. 67). However, there are no signs of any intellectual influence here.

⁹² To take a recent example, Wassmann (2009) aims to offer a "novel look" at Wundt's early work by focusing on Wundt's physiological background and rejecting any approximation to philosophy. As she claims, "Wundt's work needs to be situated in the context of German medical and physiological research. [...] While historians interpreted Wundt's work in a philosophical framework, Wundt's concept of brain function, cognition, and emotion was thoroughly informed by physiological research" (Wassmann, 2009, p. 215). I think she is right with regard to the German physiological tradition. In fact, it is difficult to understand Wundt's early psychological investigations apart from his physiological background. It is also true that his early theory of emotion developed out of his previous psychophysiological work on vision. On the other hand, as I hope to make clear in this chapter, there is from the beginning in his psychological work a very close relationship to philosophy, to the extent that many of his views were also embedded in the German philosophical tradition. Therefore, a complete rejection of philosophical considerations in favor of an exclusively physiological analysis will produce the same distortion one is trying to correct.

⁹³ The following passage provides a very clear example: "Even Mill, who most deeply penetrated into the nature of the inductive method, offers very inadequate conceptual definitions. [...] He goes on to say that every induction is a syllogism, of which the major premise is missing. [...] A syllogism *without* a major premise is unconceivable, is a contradiction in itself, for if that premise is missing, nothing can ever be inferred" (VMT_I, I, p. 472, emphasis in original).

Wundt's conception of induction was at least in part conceived after Bacon and Whewell. Therefore, Wundt's early inductivism cannot be considered to be a mere repetition of Mill's ideas, as Richards (1980, p. 49) seems to believe, notwithstanding the fact that Wundt always recognized the merits of Mill's inductive method.

Concerning Wundt's initial enthusiasm for the experimental method, it is also important not to overstate the influence of Mill. It was the chemist Robert Wilhelm Bunsen (1811–1899), and not Mill, who first aroused Wundt's interest in the experiment. Under Bunsen's guidance, Wundt performed his first experimental investigation, which in its turn generated his first scientific publication (EE, pp. 74–78).⁹⁴ All this happened during the winter semester of 1852/1853, at a time when Wundt had not yet become acquainted with Mill's *Logic*.⁹⁵

Moreover, it is worth recalling another important fact (see Sect. 2.3), related to the role played by his uncle and professor of physiology in Heidelberg—Friedrich Arnold—who had in his didactical program a wide range of psychophysiological experiments (Arnold, 1858). In the third chapter of his book, Arnold presents a list of all kinds of experiments he had been conducting in Heidelberg from 1853 to 1857, before Helmholtz's arrival (Arnold, 1858, pp. 50–88). Of special interest here are the following investigations: 1) experiments on animal electricity, using the same apparatuses as those elaborated by Emil du Bois-Reymond, which attests to Wundt's early acquaintance with his experiments (Arnold, 1858, p. 56); 2) experiments on muscle mechanics (Arnold, 1858, pp. 57–60), some of which are in perfect harmony with Wundt's first book—*The Theory of Muscular Movement*—published in 1858 (LMB)⁹⁶; 3) a series of 56 experiments on sense perception (Arnold, 1858, pp. 77–81); 4) experiments on the functions of the nervous system in animals (Arnold, 1858, pp. 81–85); and 5) experiments on muscular force in humans, using the method and the apparatuses developed by Johannes Müller, which also reveals Wundt's familiarity also with his experimental work (Arnold,

⁹⁴ This does not mean, as Schmidgen (2003b) claims, that Wundt's early contact with chemical experiments (e.g., on salt and urine) had much of an impact on the development of his psychology. Schmidgen does not offer any convincing evidence of such an impact. Instead, he appeals to “a deliberately anachronistic move” (Schmidgen, 2003b, p. 472), through which he interprets Wundt's experiment on salt and urine, conducted in 1853, from the perspective of Wundt's experimental criteria established in the 1880s! Neither the arguments nor the evidence presented by Schmidgen support his general claim. He seems to confound a first motivation with a permanent influence. As I hope to make clear in this section, we must avoid such exaggerated and one-sided claims of influence, except in the light of overwhelming evidence, which is not the case here.

⁹⁵ In his autobiography, Wundt reported that, soon after the reading of Mill's *Logic*, he debated it with its first German translator (J. Schiel), who was then a docent at the Medical Faculty in Heidelberg (EE, p. 223). These debates can only have occurred between 1859 and 1861, the only period in which Schiel, after his return from a long stay in the USA, taught alongside with Wundt in Heidelberg, before moving to Frankfurt (Munday, 1998). This is in accordance with the remarks on the reception of positivism in Germany made by Fuchs (1994, pp. 260–334), for whom one can only talk of the real penetration of Mill's *Logic* among German scientists from the end of the 1850s and beginnings of the 1860s.

⁹⁶ This means that, before going to Berlin, Wundt may already have had a good source of empirical data for his first book, written and published before Helmholtz's arrival.

1858, pp. 85–86). Unfortunately, Wundt never said a word about this early contact with the experimental method. I think, however, that there can be no doubt that this links his undergraduate studies to his early professional career and explains much of the direction of his experimental studies.

The fact that Wundt must have participated in these courses offered by his uncle proves that he had previously received some practical training in experimental (psycho)physiology.⁹⁷ Thus, it comes as no surprise that Wundt chose to spend the summer semester of 1856 in Berlin studying with Müller and du Bois-Reymond, whose influence he always recognized (UAL, NW, Letter 1621; EE, pp. 112–114).⁹⁸ Both Müller and du Bois-Reymond were central figures in the introduction of the experimental method in German physiology, without this having any direct relation to Mill's work.⁹⁹ In sum, there was an intellectual climate in Germany during the nineteenth century, characterized by a general enthusiasm for the natural sciences and the experimental method, but also by a dissatisfaction with idealist philosophy and its speculative method, until then dominant in German academic life. In other words, we can speak of a general context of revaluation of experience to the detriment of transcendent speculation (Köhnke, 1986; Schnädelbach, 1983). Wundt's intellectual formation thus occurred in a period of great cultural effervescence in Germany, in which many scientific initiatives were undertaken, apart from Mill's *Logic*.¹⁰⁰

⁹⁷We can infer therefrom that the claim “physiological experimentation was something Wundt learned by himself” (Schmidgen, 2003b, p. 470) is incorrect. Moreover, the lessons Wundt learned from his uncle make clear that the physiological experiment, not the chemical, was the great influence on his early psychological program.

⁹⁸In a letter to du Bois-Reymond on December 28, 1857, Wundt affirmed that he had been his first great influence in physiology, and asked for permission to dedicate his first book to him (UAL, NW, Letter 26). Contrary to what Diamond has suggested, the relationship between them did not have a “bitter ending just before Wundt started working for Helmholtz” (Diamond, 1980, p. 31). Their correspondence, preserved at the Archives of Leipzig University, testifies to a friendly interchange at least until October 1861, the date of the last letter (UAL, NW, Letters 20–34). In addition, du Bois-Reymond recommended Wundt to Helmholtz, saying that, “Wundt is a very decent and nice person to have around in laboratory” (Kirsten, 1986, p. 187). It seems, however, that du Bois-Reymond changed his mind and developed a more negative attitude toward Wundt. In a letter to Helmholtz in April 1868, he criticized Wundt's *Handbook of Medical Physics* and claimed that politics would be a more appropriate pursuit for him than science (Kirsten, 1986, p. 230).

⁹⁹According to Young, Müller was, alongside Marie-Jean-Pierre Flourens (1794–1867) and François Magendie (1783–1855), one of the “the three major exponents of the experimental method in neurophysiology” (Young, 1990, p. 90). Müller's influential book on visual perception, for example, written many years before Mill's *Logic*, has a section on observation and experiment, in which he defended the necessity of both, arguing for the expansion of observation and the introduction of the experiment (see Sect. 2.1). For a lively account of the role played by both Müller and du Bois-Reymond in the nineteenth-century physiology, see Otis (2007) and Finkelstein (2013), respectively.

¹⁰⁰It has also been argued that Mill's program for psychology had an impact on Wundt's project, which would explain the similarity between them (Bistricky, 2013; Boring, 1950; Schmidgen, 2003b). Again, I do not find any convincing evidence here. Even if *some* similarities are granted, they are not sufficient to support the conclusion. To discard false positive suspicions, a much deeper philosophical analysis is needed, which has not been done. Moreover, if we leave aside the

The second topic concerns Wundt's notion of scientific psychology. As I showed in Sect. 2.2, he understood his psychological program as the first truly scientific psychology. How should we understand his claim, given the existence of a long German psychological tradition? In fact, recent historiography of psychology has shown that as a *science* (*Wissenschaft*), i.e., as an organized and systematic field of knowledge with a proper subject matter (the mind), psychology had already existed since the eighteenth century (see Introduction). In addition, there is ample evidence of measurement attempts and experiments on mental phenomena, such as attention and visual perception. In this sense, it is clear that Wundt's call for a methodological reform of psychology through the experimental method cannot be taken as something new in history, regardless of how much he knew of this tradition.¹⁰¹ Nevertheless, this does not exhaust the question. In order to understand Wundt's claim, another context has to be considered.

The first half of the nineteenth century is the real background of Wundt's project. Before his programmatic essay of 1862, one finds many attempts to establish a scientific psychology, as I showed in the introduction. However, the term *Wissenschaft* is not to be taken at face value, because underlying these programs are different conceptions of what a scientific psychology should be. In the context of Wundt's early work, it is clear that he intended a rejection of all speculative and romantic systems in favor of a psychology oriented towards natural science, especially with regard to the use of the experimental method. It is against this background that Wundt's call for a methodological reform has to be viewed. His early program was directed against the psychological systems of his time, in which the experimental method did not occupy pride of place.¹⁰² As I argued in Sect. 2.3, although Fechner and some physiologists were doing experiments on sensation and perception, this did not qualify their work as a large-scale psychological program, which was exactly what Wundt had in mind. More importantly, Wundt's intention of being the founder of a scientific psychology was not grounded only

similarities and focus on the differences, the situation becomes much worse, because they seem to be the rule rather than the exception. To give just two crucial examples, Mill's confidence in observation and experiment for the moral sciences (psychology included) was much lower than Wundt's, and he ended up recommending deductive rather than inductive methods for the universal laws of human nature (Mill, 1872/1981, I, p. 384; II, pp. 863–870). See, for example, Turner (1986) and Wilson (1998), for a detailed discussion of Mill's program. Be that as it may, there are many other factors involved in Wundt's project, as I will show in what follows.

¹⁰¹ With the exception of Wolff's psychological work, it is almost certain that in his early career Wundt knew practically nothing of this eighteenth-century tradition. At least, there is no evidence in either the *Beiträge* or the *Vorlesungen* of such empirical or experimental studies.

¹⁰² We should not forget that Herbart, for example, opposed the use of the experimental method in psychological matters: "psychology cannot experiment with humans, and artificial tools do not exist for it" (Herbart, 1850a, § 4). Moreover, even when not opposing the experimental method, many strands of empirical or scientific psychology never used it, thereby becoming different kinds of what we now call 'armchair psychology.' This discontinuity in the use of the experiment in psychological matters between the eighteenth and the nineteenth centuries is best explained by the huge influence of Kant's critique of experimental psychology in his *Metaphysical Foundations of Natural Science* (AA IV, 471).

on its methodological aspect; it was also closely associated with the proposal of the theoretical integration of the entire psychological field under the banner of his logical theory of the mind. Taken together, these two elements would give psychology something it had not yet achieved, as he argued (BTS, pp. 450–451). In this sense, Wundt's early idea of a scientific psychology represented something new, regardless of its later abandonment.

This brings me to the third topic, undoubtedly the most controversial so far, which concerns the theory of unconscious inferences and the relationship between Wundt and Helmholtz. Is it possible to speak of a direct influence here?¹⁰³ Considering that Wundt was Helmholtz's assistant during the entire period under analysis, it seems natural to look for an intellectual debt here.¹⁰⁴ In fact, many scholars defend the thesis that Wundt would have either plagiarized or borrowed from Helmholtz his notion of *unconscious inference* (Boring, 1950; Diamond, 1980; Drobisch, 1864; Erdmann, 1879; Graumann, 1980; Nitsche, 1990; Sachs-Hombach, 1993).¹⁰⁵ In the light of the available evidence, this claim is very problematic, to say the least. As I will show in the following, there are many concurrent, equally plausible hypotheses.

Initially, it is important to keep in mind that Helmholtz used the term 'unconscious inferences' (*unbewusste Schlüsse*) for the first time in the second part of his *Handbuch der physiologischen Optik*, first published in 1860, and reissued without modification in 1867 (Helmholtz, 1867, p. 430).¹⁰⁶ Two years before, Wundt had already used this expression to explain tactile perception (see Sect. 2.3). Therefore, at least with regard to the use of the term, Wundt used it earlier than Helmholtz did.¹⁰⁷

¹⁰³ I will divide the discussion of the relationship between them into two parts, according to the internal logic of Wundt's intellectual development. Here, as I am dealing only with his early psychological project (1858–1863), the relevant issue is the idea of unconscious inferences. In the next chapter, which deals with the abandonment of this early project, the pertinent question is the influence of Kant.

¹⁰⁴ Just a reminder: Helmholtz arrived in Heidelberg in 1858 and remained there until 1871. Wundt was his assistant between October 1858 and March 1865 but remained in Heidelberg until 1874.

¹⁰⁵ There are exceptions, though. Turner (1982, pp. 154–157) argues for the partial influence of Wundt on Helmholtz's *Optics* and mentions that both defended the notion of unconscious inference, but he does not make any claim of priority. Hatfield (1990, pp. 195–208), in a careful and detailed reconstruction of Helmholtz's theory of spatial perception, argues that Wundt anticipated the notion in several ways, favoring his precedence over Helmholtz. Furthermore, he shows that Helmholtz was well acquainted with Wundt's experiments on sensory perception and held him in high esteem. For Benetka (2002), "Wundt goes far beyond Helmholtz's use of this concept" (p. 72).

¹⁰⁶ The first complete edition of Helmholtz's *Physiological Optics* (comprising three parts) appeared only in 1867. The first two parts were first published separately in 1856 and 1860, respectively. However, following the page indications from the 1860 edition given by Drobisch (1864), one concludes that they are identical with the 1867 edition. Thus, it is safe to use the complete first edition as a reference for the present discussion.

¹⁰⁷ It is interesting to note that August Classen (1835–1889), a German physician contemporary of Helmholtz and Wundt, also adopted the theory of unconscious inferences to explain visual perception and attributed its formulation to Wundt, not to Helmholtz: "By emphasizing particularly that

This is not sufficient, however, to exclude Helmholtz's possible influence, since he had previously published an essay on human vision in which the idea of perception as an unconscious inference is already present, even though the expression as such does not appear: "For only through inferences can we know in any way what we do not perceive immediately. We agree that it is not an inference executed with self-consciousness. On the contrary, it has more the character of a mechanically exercised inference" (Helmholtz, 1855, p. 34).¹⁰⁸ This essay is the basis upon which the argument favoring Helmholtz's priority has been built.¹⁰⁹

Nevertheless, it is exactly at this point that the one-sidedness of the traditional interpretation becomes visible. Helmholtz was by no means the first to suggest a model of perception as a logical and unconscious act.¹¹⁰ A closer look at the history of philosophy, for example, reveals that different philosophers from distinct philosophical traditions had similar ideas.¹¹¹ If we take only the nineteenth century as reference, it is already sufficient to recall the name of Schopenhauer—one of the philosophers who explicitly formulated the idea of visual perception as an unconscious inference—in order to discard the hypothesis that Helmholtz was the creator of that concept.¹¹²

In his inaugural dissertation—*On the Fourfold Root of the Principle of Sufficient Reason* (1847/2004c)—but also in his essay *On Vision and the Colors* (1854b/2004d), Schopenhauer affirmed the intellectual nature of every perceptive act. According to him, it is only through the intellect or understanding (*Verstand*) that subjective sensation can be transformed into objective perception. Nonetheless, this operation of

the act of seeing is a logical inference that occurs largely unconsciously, [Wundt] has indicated the correct point of view from which all new investigations have to start" (Classen, 1863, p. 3).

¹⁰⁸Two years later, in a paper that is usually not mentioned in the context of this controversy, Helmholtz applied the same principle to explain sound perception, highlighting the importance of training to achieve correct inferences. Again, he did not use the term 'unconscious inference' (Helmholtz, 1857/1876, p. 82).

¹⁰⁹In the first edition of his *Textbook of Human Physiology*, published in 1865 (LPM₁, p. 478), Wundt claimed to be the first to introduce the idea of unconscious inference to explain perception, reporting that Helmholtz joined him in his attempt. Fifteen years later, he defended himself against an accusation of having taken it from Helmholtz by saying that 1) he did not know Helmholtz's essay on human vision, 2) Helmholtz's early idea was much more restricted than his theory was, and 3) his theory diverged in fundamental aspects from Helmholtz's idea (BBA, p. 138).

¹¹⁰Ellenberger's claim that "Helmholtz discovered the phenomenon of 'unconscious inference'" (Ellenberger, 1970, p. 313) is simply false.

¹¹¹In his historical analysis of theories of visual perception, originally published in 1859 (BTS, pp. 66–104), Wundt was well aware of this fact. Just to mention one example, he claimed that Hegel had already conceived of visual sensation as an inference (*Schluss*) (BTS, p. 99). However, we can go back much further. Hatfield (2002) convincingly shows that the first explicit theory of unconscious inferences to explain visual perception was proposed around 1030 by the Arab mathematician Ibn al-Haytham or Alhazen (965–1040).

¹¹²Even outside the German philosophical tradition, this was by no means a novel idea. At about the same period, the great logician George Boole, for example, defended a similar idea (Boole, 1854). I thank Thomas Sturm for calling my attention to this fact.

the intellect is totally intuitive and immediate, in contrast with its activities mediated by reflection and concepts (Schopenhauer, 1847/2004c, pp. 69–70; 1854b/2004d, pp. 204–205).¹¹³ In the following passage, after having explained the first steps involved in the construction of perception, he stressed its unconscious character: “This operation of the understanding, as well as the previous ones, is also performed in such a fast and immediate way that nothing but its result reaches consciousness” (1847/2004c, p. 82). Could not Wundt have borrowed the idea from Schopenhauer rather than from Helmholtz? Alternatively, could not Helmholtz have taken the idea from Schopenhauer?¹¹⁴

It is not only in the philosophical tradition that perception was conceived of as an unconscious inference. Within physiology itself, one finds kindred ideas.¹¹⁵ Müller, for example, in his *Comparative Physiology of Vision*, not only distinguished sensation from representation, but also claimed that visual perception is the result of a judgment (*Urtheil*), a logical process (Müller, 1826, pp. 41–44).¹¹⁶ Following the same line, Weber suggested in his famous article “The Sense of Touch and the General Feeling” the need for a clear distinction, valid for every sensation, between pure sensation and the interpretation we extract from it (Weber, 1846/1905, p. 482). Later, in an attempt to explain in what this interpretation consists, he postulated an intellectual innate impulse that is not consciously determined:

The way we proceed in the interpretation of our sensations does not entirely depend on our free self-determination, because we are forced by an unknown cause to represent sensations according to the categories of space, time and number, and to order them in a coherent totality. [...] These representations are not, then, a result of experience, since experience itself only becomes possible through our ability to interpret sensations in accordance with the categories of space, time and number. [...] If one thinks of the concept of instinct in a more general form

¹¹³Crone (1997) observes that Schopenhauer’s essay on colors contained a general theory of perception, including both physiological and psychological elements, in an attempt to reconcile Goethe’s romantic views with Kant’s rigorous philosophy.

¹¹⁴In his *Physiological Optics*, Helmholtz did not refer to anyone before him, as if he were the first to propose the idea. Curiously, he was accused of plagiarizing Schopenhauer (Hörz, 1994; Hörz & Wollgast, 1971). Indeed, a careful reading of their texts reveals a striking similarity of point of views, as Wundt (UEG) and Zöllner (1872) had already observed. In his outstanding intellectual biography of Helmholtz, Koenigsberger reproduces a letter from Helmholtz’s father defending him against such accusations, which suggests how lively the controversy must have been (Koenigsberger, 1902, p. 278).

¹¹⁵Even in physics and astronomy, the idea was also being used to explain visual illusions. The French physicist Georg Friedrich Parrot (1767–1852), interested in explaining why external objects seem to diminish in size when seen from the window of a fast-moving locomotive, came very close to saying that mental judgments responsible for this illusion are unconscious (Allik & Konstabel, 2005). The astronomer Johann Karl Friedrich Zöllner (1834–1882) published a paper in 1860, short before the appearance of the second part of Helmholtz’s *Optics*, in which he employed the idea of unconscious inferences to explain a visual illusion that now bears his name (Zöllner, 1860). In an early attempt to map the history of the concept of the unconscious, Volkelt (1873a, p. 6) mentioned Helmholtz, Wundt, and Zöllner as representatives of the idea of unconscious inferences, without any claim of priority.

¹¹⁶Wundt was well acquainted with Müller’s theory of sensory perception, as he showed in the *Beiträge* (e.g., BTS, pp. 93–97).

than usually happens, if one wants to call instinct the unknown cause of every useful innate activity, for which the mind does not determine itself—be it related to the formation of representations or to the production of movements—then it is also possible to characterize that mental disposition as an intellectual instinct (Weber, 1846/1905, pp. 486–487)¹¹⁷

Faced with all this evidence, should we not consider the possibility of Müller's influence, if not during Wundt's undergraduate studies, then at least in the summer semester that he spent in Berlin and had the opportunity to meet and talk with Müller? Furthermore, why discard Weber's influence, if it was through his work on tactile perception that Wundt became interested in psychology (EE, pp. 100–101)? After all, it was in the field of tactile perception that Wundt first formulated his hypothesis of unconscious inferences.¹¹⁸

With regard to this hypothesis, it is also worth bringing into focus the significant differences between Wundt and Helmholtz. Those who have defended the Helmholtzian origin of the idea did not perceive its distinct epistemological and ontological implications within each theory. First, in Helmholtz's essay of 1855, the thesis that perception depends on unconscious mechanical processes is subordinated to the assumption of causality as an *a priori* principle and reveals, thereby, his Kantian agenda (Hatfield, 1990; Riehl, 1904).¹¹⁹ In Wundt's case, by contrast, his basic epistemological assumption is a kind of anti-apriorism, understood as a rejection of any innate content of the mind, including the principle of causality (VMT₁, I, pp. 396–399).¹²⁰ This gives Wundt's hypothesis a theoretical meaning distinct from Helmholtz's. Second, Helmholtz was not interested in elaborating a complete theory of the mind, in which perception would be only one aspect. It was, for him, a local hypothesis, without major

¹¹⁷ In Weber's text, there is an explicit Kantian tone, in the sense that the passage from sensation to perception presupposes the application of *a priori* categories. In truth, one can say that a significant number of the representatives of the new German physiology in the first half of the nineteenth century were searching for a Kantian interpretation of physiological facts, which had already been noted by Wundt himself and some of his contemporaries (BTS, pp. 91–97; Liebert, 1915; Riehl, 1904). Nowadays, it is usual to refer to this movement as *physiological Neo-Kantianism* (e.g., Schmitz, 1996). I will return to this point in the next chapter (see Sect. 3.6), where I will discuss the relationship between Wundt and Neo-Kantianism. Be that it as it may, this close relationship between philosophy and natural science in the German context of the nineteenth century is in itself strong evidence in favor of my general thesis, according to which Wundt's philosophical inclinations are not a late product in his development.

¹¹⁸ With the exception of Graumann and Sommer (1983) and Meischner (2000), Weber's possible influence on Wundt's hypothesis has not been taken into account in the secondary literature. Wassmann (2009), after a very informative review of Wundt's physiological background, did not notice that the idea of unconscious acts was already present in the physiological tradition before Helmholtz. Having also neglected the philosophical tradition, she believes that “at the moment when Wundt first elaborated upon unconscious processes of thought, obviously, this idea was inconceivable” (Wassmann, 2009, p. 223).

¹¹⁹ Helmholtz's text is the reproduction of a talk he gave in Königsberg in honor of Kant—“as the best monument for Kant,” as the subtitle says (Helmholtz, 1855). I will return to this point later (see Sect. 3.6).

¹²⁰ Since Wundt would soon change his mind, I will return to this issue in the next chapter and discuss the implications of his new position for his psychological project.

psychological significance.¹²¹ By contrast, for Wundt, the hypothesis of unconscious inferences was the point of departure for achieving a global conception of *all* mental processes. Indeed, the notion of inference was the foundation of all mental life. Because of these differences, there emerge distinct ontological implications. According to Helmholtz, the unconscious processes are not in themselves logical inferences; we conceive of them analogically, as if they were such in order to make them intelligible. Contrarily, although Wundt was aware of the fact that it was a hypothesis, he ended up defending the objective reality not only of unconscious inferences but also of the inferential character of the mind as a whole (see Sect. 2.3).

In light of the above considerations, I would like to suggest a more balanced evaluation of the Wundt-Helmholtz issue. I do not want to reject the possibility of Helmholtz's influence. What I do reject is the claim that there is a unique origin of Wundt's notion of unconscious inference. Given the lack of any acknowledgement by Wundt himself or a definitive independent source, any attempt to establish a fixed source for his hypothesis sounds arbitrary and can be deleterious for the interpretation of his work. Considering his broad erudition and his personal inclination toward working independently—both qualities recognized by Helmholtz himself (UAH, PA 2478; UAL, NW, Letter 1209b)—I think it is more adequate to speak of an appropriation and fusion of ideas coming from different traditions, as seems to be the case for his logical theory of the mind.

The fourth topic concerns the philosophical background of the metaphysical identity postulated by Wundt (Sect. 2.5). I start by addressing the hypothesis raised by Nitsche (1990). He sees in the young Wundt an adherence to so-called 'vulgar materialism,'¹²² indicating parallels between some passages from his *Vorlesungen* and Büchner's *Kraft und Stoff* (Force and Matter). According to Nitsche, these parallels show that "the worldview of the young Wundt is identical with the worldview that the materialists of the 1850s disseminated" (Nitsche, 1990, p. 36).¹²³

¹²¹ Even the most optimistic interpreters (e.g., Conrat, 1903; Darrigol, 2003) recognize that Helmholtz had only a peripheral interest in psychology as a whole. His psychological ideas were subordinated to his epistemological agenda.

¹²² So-called mechanical or vulgar materialism was an intellectual movement that emerged around the 1850s in Germany, the main objective of which was to defend a mechanistic and materialistic worldview, based on the progress of the natural sciences. With regard to psychological questions, its adherents believed in a material identity between the mind and the brain and rejected every form of spiritualism. The main representatives of this movement were Karl Vogt (1817–1895), Jacob Moleschott (1822–1893), and Ludwig Büchner (1824–1899). Through writings directed mainly at a general audience (Büchner, 1855/1971; Moleschott, 1852/1971; Vogt, 1847/1971a; 1855/1971b), they played an important role in the German intellectual context of the second half of the nineteenth century, especially with regard to the popularization of science (Daum, 2002; Gregory, 1977; Klimke, 1909; Nieke, 1980).

¹²³ My response to Nitsche applies equally to Wassmann, who also understands Wundt's position in materialistic terms, although she does not use the term 'vulgar materialism.' She argues that, "Wundt's specific contribution to epistemological questions lies in the fact that he approached the psyche in terms of brain function" (Wassmann, 2009, p. 216). For her, the brain is the real subject of Wundt's psychology: "Wundt asked how the brain acquired a sense of space" (p. 229); "In Wundt's view, [...] the brain would interpret the sensation as referring to the Self" (p. 230); and so on. Since Wundt never said anything like this, Wassmann cannot provide textual evidence for such claims. This is the price paid for turning Wundt into a materialist.

Nitsche's interpretation presents the same problem as the previous ones do, namely, its one-sidedness and lack of attention to the diversity of intellectual influences upon Wundt. Nevertheless, the main reason for rejecting his hypothesis is the amount of direct evidence—present in Wundt's own work—that contradicts it. In other words, the same passages selected by Nitsche acquire a very different meaning when put in the context of the huge differences that separate Wundt from materialism, which Nitsche did not take into account. Wundt's inductivism and anti-innatism, for example, should be seen as general elements of a tradition methodologically oriented against speculative philosophy rather than as principles of a particular worldview, such as vulgar materialism.¹²⁴ As I argued previously, Wundt's work clearly reveals aspects of the German idealist tradition.¹²⁵

More important, though, are the differences between Wundt and the vulgar materialists. As I will show in the following, Wundt was opposed to two central assumptions of vulgar materialism: 1) an unrestricted acceptance of mechanism as a basic principle of explanation of all phenomena of the universe, and 2) a defense of the material identity between mind and brain.¹²⁶

¹²⁴ A good example of how it is possible to share similar methodological perspectives without being in agreement about fundamental philosophical questions can be seen in the differences between French and German physiology of the first half of the nineteenth century. While French physiologists were close to the sensualist tradition of Étienne Bonnot de Condillac (1715–1780), Müller had a vitalist and idealist background (see Young, 1990, Chap. 2), although the exact contours of his philosophical positions remain controversial (Hagner & Wahrig-Schmidt, 1992; Otis, 2007). But even within the German tradition, there is another good example. Müller and du Bois-Reymond, who worked together during many years in Berlin, shared the same enthusiasm for the experimental method and a faith in the progress of physiology, in spite of their rather distinct metaphysical positions (du Bois-Reymond, 1848; Liebert, 1915; Wenig, 1988). Finkelstein also sees in metaphysics the central point of divergence between du Bois-Reymond and his German mentors (including Müller), pointing out what he calls, “the three planks of his scientific program: shunning recourse to vitalism, establishing functional relationships, and positing only matter and motion” (Finkelstein, 2013, p. 64). Finally, one should not forget the differences and contradictions within materialism itself, despite some methodological consensus (Araujo, 2012c, 2013c; Flügel, 1902; Lange, 1866).

¹²⁵ Wundt himself recognized the influence of Fichte and Hegel in some aspects of his early psychological theory (GPP₁, p. 702). It was not by accident that Wilhelm Tobias (1834–1905), from reading Wundt's *Vorlesungen*, saw them as the expression of an “unrelenting Neo-Hegelianism” (Tobias, 1875, p. 37). Curiously, Tobias's labeling ended up acquiring historical significance: apparently, it was the first time the expression ‘Neo-Hegelianism’ was officially used in the nineteenth century. However, this does not mean any involvement by Wundt in the emergence of the Neo-Hegelian movement properly speaking (Kleiner, 1984). The similarity between some of Wundt's ideas and Hegel's has been suggested in the secondary literature (p. ex., Arnold, 1980; Robinson, 1982), but so far, no systematic analysis of this relationship has been done.

¹²⁶ I am well aware both of the minor differences among the three vulgar materialists and the contradictions that every form of radical materialism ends up producing. Büchner, for example, oscillated between identity, epiphenomenalism and property dualism (Büchner, 1855/1971). Nevertheless, as Nitsche only referred to identity, I will restrict myself to it. If Büchner's notion of identity bears any resemblance to Wundt's, this indicates his departure from the basic assumptions of vulgar materialism rather than Wundt's adherence to the materialistic worldview. As I showed elsewhere, the rejection of materialism as a metaphysical perspective is a constant feature of Wundt's work (Araujo, 2006).

With regard to mechanism, Wundt acknowledged, already in his first book—*The Theory of Muscular Movement*, published in 1858—the limits of its full application to organic phenomena, which result from the difficulties of reducing them to atomic movements (LMB, pp. 9–11). Even accepting in his sensory psychology “the principle of the conservation of energy” and other theoretical tools of the mechanics of his time, this in no way represents an unconditional adherence to mechanism. For Wundt, it was only valid for physical phenomena underlying mental processes, as the latter belong to the domain of logic (see Sect. 2.5).

The metaphysical identity postulated by Wundt also differs from the one advocated by vulgar materialists. That it is not a defense of materialism becomes evident from a more careful reading of other passages of the *Vorlesungen*. In the second chapter, for example, he not only introduced a long criticism (VMT₁, I, 15–20) of the famous materialist thesis that thought is a function of the brain (e.g., Vogt, 1855/1971b; Büchner, 1855/1971) but also rejected their identity in physical-chemical terms, which was a fundamental assumption of vulgar materialism:

Thought escapes our sensory perception: we can hear the word that expresses it, see the man who formulated it, and analyze the brain that thought it, but the word, the man, and the brain are not the thought. In the same way, the blood that flows in the brain, the chemical transformation of substances that occur in it, the heat and electricity liberated there—none of this is the thought. (VMT₁, I, p. 17)

Wundt indicated very clearly in this passage that his criticism was directed specifically at those authors involved in the so-called *Materialismusstreit*.¹²⁷ For him, both materialists and spiritualists committed the same mistake, namely, of starting with metaphysical assumptions about the nature of the mind rather than with the facts of inner experience (VMT₁, I, 19). As I showed in Sect. 2.5, the identity defended by Wundt is a metaphysical one, because it posits a reality beyond the field of our possible experience, and for this reason, it cannot be determined in either physical or mental terms. At the same time, it was based (at least for Wundt) on empirical facts (the duality of sensation). All this precludes any approximation between Wundt’s point of view and the perspective of mechanical or vulgar materialism, be it that of Vogt, Moleschott, or Büchner.¹²⁸

¹²⁷Around 1850, a fierce intellectual battle emerged in Germany, which came to be known as *der Materialismusstreit* (the materialism dispute). Two opposing worldviews (*Weltanschauungen*)—idealism and materialism—were at the center of the dispute, in which the problem of the mind and its relation to the body or brain occupied a prominent place (Bayertz, Gerhard, & Jaeschke, 2007a, 2012; Cornill, 1858; Flügel, 1902; Klimke, 1909; Meschede, 1980; Meyer, 1856).

¹²⁸Nitsche argues further that the form in which Wundt’s *Vorlesungen* were published would be another proof of his relationship with vulgar materialists, since this was also their favorite type of publication. However, putting this fact in the broader context of the popularization of science in the nineteenth century in Germany, one comes to the conclusion that, rather than a peculiarity of vulgar materialism, the publication of a book in the form of letters, lectures or popular essays was widespread among German scientists and philosophers at the time, whenever they wanted to reach a larger audience (Cahan, 1995; Daum, 2002). This was exactly Wundt’s goal, as he made clear in the preface (VMT₁, I, p. ix). Drobish (1864), who wrote a detailed review of Wundt’s *Vorlesungen*, also understood them in this sense. Moreover, even antagonists of materialism published books in

By rejecting Nitsche's hypothesis, however, I have to return to the subject of the origin of the identity defended by Wundt. Given the plethora of proposals for overcoming any form of dualism in the first half of the nineteenth century, I will point here to two divergent alternatives. Would Wundt be approximating the position defended by Schelling in his philosophy of identity, in accordance with which there would be a point of absolute undifferentiation in which the opposition between subject and object is annulled (Schelling, 1801/2003b)? Or would he be trying to articulate a different form of materialism, as elaborated by Ludwig Feuerbach (1804–1872), who saw the unity between the mental and the physical in the activity of the organism itself, without appealing to any form of absolute (Feuerbach, 1846/1982)? To answer this question, I will introduce here an important source of influence in the intellectual formation of the young Wundt—the philosopher Adolph Cornill (1822–1902)¹²⁹—which has thus far not received the proper attention in Wundt scholarship.¹³⁰ In the following passage of his autobiography, Wundt revealed his almost daily contact with Cornill:

I was even closer to the Cornill couple. Sometimes almost on a daily basis. Adolph Cornill, who had become known to me through various philosophical works, especially through his writing on materialism, lived at that time as a *Privatgelehrter* in Heidelberg. I read or discussed with him some philosophical works in which we shared a common interest, especially Hegel—with whom he was zealously engaged—and the natural scientists of that time who had a philosophical inclination. (EE, p. 236)

His correspondence with the Cornills, despite the absence of any philosophical discussion, reveals a very intimate relationship (UAL, NW, Letters 111–131), which reinforces my suspicion that Adolph Cornill is a very important source of influence in Wundt's early professional days.

The point of departure of Cornill's philosophical project, as stated in his first philosophical works, is an attempt to refute speculative philosophy and its concept of the absolute—especially Hegel—and to establish a new philosophical principle and a new *Weltanschauung* (Cornill, 1848). At the same time, Cornill understood his own work as part of a general reorientation that was already on the march in German philosophy: “The path I critically followed in these investigations seems to me to be the same adopted by philosophy in its more recent historical development” (Cornill, 1848, p. 3). This new stage, as he announced in the passage that follows, can be summarized as the transition from idealism to realism (Cornill, 1848, p. 16). Even though he did not specify what this new real-

the form of *Vorlesungen* (e.g., Carus, 1831). Still others, more neutral in relation to the idealism/materialism dispute, also adopted this form of publication (e.g., Meyer, 1856).

¹²⁹About Cornill's life, we know very little. There is very little information available. He was a docent of philosophy at the University of Marburg and moved later to Heidelberg, where he lived as a *Privatgelehrter* (independent scholar) from 1853 to 1862. After that, he moved to Frankfurt am Main, where he remained until his last days.

¹³⁰So far, Ungerer has been the only one to note Cornill's importance (Ungerer, 1980). Nonetheless, by considering Cornill's ideas in a superficial way, Ungerer perceived only some aspects related to Wundt's idea of a physiological psychology, leaving aside the sources and the central aspects of Cornill's philosophy.

ism meant, his point of reference at both the anthropological and the cosmological level was Feuerbach: "This is undeniably the splendid achievement of the genial Feuerbach. He destroyed speculation; he sought to conceive man in his natural constitution" (Cornill, 1848, p. 9). He continues:

Feuerbach wants not only anthropology, but also cosmology. He says so ingeniously: we have not only the egoist and highly materialist senses of taste and smell, but also the idealist senses of the eye and the ear, with which we are allowed to penetrate *a posteriori* ever deeper into the nature of things, so that it can reemerge in our spirit. However, the external relationships of the processes will always be for us the judges of the internal ideas. (Cornill, 1848, p. 42—emphasis in the original)

In this way, Cornill considered Feuerbach to be the representative of a new kind of philosophy, the objective of which was to overcome the extremes of materialism and idealism. Three years later, however, Cornill presented a more critical attitude in relation to Feuerbach and published an analysis of his philosophy, identifying and explaining his errors and the limits of his anthropology (Cornill, 1851). In order to fill the gaps left by Feuerbach, Cornill pointed out the future path to be followed:

With *Beneke* one should certainly recognize the two central requirements of the new psychology: that the content of thought be reduced to inner and outer experience, and that ideas must be seen only as functions of a mental organism [...] Also in accordance with its requirements are the results of the physiologists, such as *Joh. Müller, Henle, Wagner*, etc., who see knowledge as determined by our subjective essence and try to explain the mind from the chemistry of our substances. [...] And so philosophy, too, should give *Herbart's* statics and mechanics a chemistry or physiology of the mind as a problem for the near future. (Cornill, 1851, pp. 303–304, emphasis in the original)

But there is another philosopher who, according to Cornill, illustrates in an exemplary way this transitional phase of philosophy, namely, Schopenhauer. Cornill saw in Schopenhauer a spirit that moves between the extremes of idealism and materialism, but which, despite his correct attempt at establishing an inductive foundation for philosophy, did not succeed in overcoming its contradictions (Cornill, 1856). For him, Schopenhauer failed to reach true realism because he still was trapped in idealist assumptions, as Feuerbach was. What kind of realism did Cornill have in mind, then? According to him, the term 'realism' served to indicate a meta-physical position that conceives of the spirit not as an ideal principle but as a phenomenon or a set of phenomena of a substance that in itself is real (Cornill, 1856, p. 3). The following passage illustrates the type of identity he was looking for:

Only when a philosophy is able to reach, through a theoretical and ethical construction, the development of the individual being, and thereby to show how the absolute substance obtains its eternal self-formation and organization in the development of its modifications—the finite beings; only then, does it seem possible to me to achieve a higher unity in the theoretical principle and a greater joy for the practical feeling and for the necessity of ethics. Such a truly idealist conclusion of a philosophical system is the requirement of any worldview that is truly realist, the goal of which is to compensate for the extremes of spiritualism and materialism. (Cornill, 1856, p. 151)

Two years later, Cornill published his major work, *Materialism and Idealism*, the major goal of which was to overcome these two extremes. He considered the crisis

of both materialism and idealism to be evidence of an epoch in transition (Cornill, 1858). Moreover, the particular target of his criticism was the materialism dispute (*Materialismusstreit*), the one-sided solutions to which he rejected in favor of a higher unity—realism as worldview. The only path that might lead us to this unity, according to Cornill, was the adoption of a different conception of both science and philosophy. In his own words:

The point of view of an inductive theory of science is adequate to compensate for the opposed principles of both sensualism and speculation; and a realist worldview based upon it is equally adequate to conciliate the opposed metaphysical principles of idealism and materialism. (Cornill, 1858, p. vii)

It seems evident that in Cornill's project the philosophical activity *par excellence* is the elaboration of a new worldview that must take as its foundation the investigations of the particular sciences, constituting thereby a positive philosophy (Cornill, 1858, p. 13). Here, psychology played a fundamental role, to the extent that its main goal was to investigate inner experience, following the model of the natural sciences (Cornill, 1858, p. 12). Simultaneously, Cornill recognized the autonomy of psychology and considered any attempt to reduce inner experience to outer experience, or vice-versa, to be mistaken (Cornill, 1858, p. 16). There are two different perspectives that point to a higher unity, which, in its turn, is their condition of possibility:

On the basis of the above-mentioned position, according to which our two sources of knowledge allow that their objects—nature and spirit—be conceived of only as phenomena, but not in their true essence, we are really convinced that nature and spirit are not related as opposed and completely incompatible poles. Instead, they are equally conditioned in a yet unexplored way by the ultimate ground and can be dissolved in a higher real unity. (Cornill, 1858, p. 20)

This passage sounds very similar to Wundt's position concerning the mind-body problem, as I showed in Sect. 2.5. The idea of a unity behind or higher than the duality of mind and matter, which would lead to a rejection of both materialism and spiritualism, was exactly what Wundt had in mind. Therefore, Nitsche's and Waismann's materialistic interpretation of Wundt's identity thesis does not do justice to his thought.

Having presented, then, the central aspects of Cornill's philosophical project, I will return to the original question, namely, Wundt's intellectual formation. The similarities (inductivism, anti-apriorism, critique of the speculative method, psychology as natural science, the underlying identity of mind and body) are more than evident. Given the almost daily contact between both, and Cornill being, if not the only, then at least the main philosophical source for Wundt's early theoretical elaborations, should we not reconsider the philosophical meaning of his ideas presented in the *Beiträge* and the *Vorlesungen*? Should we not also consider the possibility that Cornill, rather than Mill or Helmholtz—especially after the evidence that Wundt already had contact through Cornill with Schopenhauer's work, and that he could then have taken therefrom the idea of unconscious inference—be the great philosophical influence upon the young Wundt? I do not intend to suggest that Wundt has passively and integrally adopted the philosophical perspective of any

philosopher, be it Feuerbach's, Schopenhauer's, or even Cornill's. As I claimed before, I do not want to correct the one-sidedness of the interpretations I am criticizing by introducing a new one-sided interpretation. My main goal is to show that Wundt's intellectual formation involved distinct elements and that it is impossible, given the lack of his testimony or of convincing primary sources, to establish a unique origin for his ideas. Rather, his psychological project is characterized by an attempt to reconcile heterogeneous intellectual traditions, not by an affiliation to a specific intellectual system.

In this chapter, I have tried to show how Wundt's first psychological project, even in the absence of an explicit philosophical program, is already intertwined with philosophical questions that play an important role therein. This will become clearer in the next chapter, in which I will consider his philosophical maturation, showing another major source of inspiration—Kant's critical philosophy—which would have a huge impact on his early psychological project.

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