Schopenhauer's Logic in Its Historical Context

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Abstract Schopenhauer never wrote a whole book on logic, but there are nonetheless several passages in his works where he reflects extensively on the topic. His approach to logic is dominated by two beliefs that were very common in the period: firstly, that there had been hardly any developments in the field of logic since Aristotle and, secondly, that everybody intuitively and unwittingly follows the rules of logic without first needing to be taught. Although Schopenhauer argues that there had been no crucial developments in logic since the days of Aristotle, he does give a short list of the enhancements and additions that logic had undergone in the intervening period. However, Schopenhauer does not prove himself to be a historian of logic. Rather, he positions himself within the context of the contemporary debate on logic. As a result, he places a clear emphasis on, firstly, the principle of sufficient reason of knowing and, secondly, the separation of concepts and representations of perception. This paper works through Schopenhauer's own list of the main developments in the history of logic and offers critical commentary on it. It concludes by examining some of the issues that do not appear on Schopenhauer's list.

Keywords Schopenhauer · Logic · Nineteenth century

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1 Introduction

Schopenhauer never wrote a whole book on logic, but several passages in which he reflects extensively on logic can nonetheless be found in his works. To name the most important of these passages in chronological order: the remarks on the principle of sufficient reason of knowing in *The Fourfold Root of the Principle of Sufficient Reason* (1813) [19, pp. 114–126], §9 in the first volume of *The World*

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as Will and Representation [WWR] (1819) [20, pp. 39–50], the long passages in the manuscripts of his 1820s lectures [21, pp. 234–366] and finally the passages on logic in general and on syllogistics in the supplements to the first book of the WWR (1844) [22, pp. 102–117].

Schopenhauer's texts on logic span a period of at least 31 years—and that is without considering the variations in later editions. Bearing in mind the changes in Schopenhauer's thought, it is unsurprising that the texts do not fit together perfectly, but are instead somewhat heterogeneous. Thus, it is not possible to assemble all the pieces into a single, coherent system of logic.

The paper starts by examining Schopenhauer's views on logic in general: specifically, he holds that not only is logic an already-perfected science, but also that everyone intuitively follows the rules of logic. The second section then presents the most important *Zusätze und Verbesserungen* (*additions and enhancements*) that Schopenhauer believes logic had undergone in the time since Aristotle. Finally, the third section looks at some of the aspects Schopenhauer did not deem worthy of being mentioned among the *Zusätze und Verbesserungen*: in particular, the *Port-Royal Logic* [1] and Kant's contributions to the logic of the nineteenth century. The purpose of these reflections on Schopenhauer's writings on the history of logic is not to present him as a historian of logic, which he certainly is not. Rather, his brief and occasional remarks on the history of logic reveal the aspects of logic that he considers noteworthy, something that is reflective not only of his perspective on logic but also of how logic was commonly understood in his contemporary context.

2 Logic as an Already-Perfected Science and Intuitive Way of Thinking

If Schopenhauer's writings on logic are considered as a whole, his position looks highly heterogeneous with numerous discontinuities. However, it is possible to give a general outline of the kind of logic Schopenhauer has in mind throughout the different periods of his thought. As is clear simply from the section headings of his lecture on logic (the manuscripts of which were published in 1913, edited by Paul Deussen [21]), Schopenhauer's general idea of logic—like most works on logic in the nineteenth century—roughly follows the traditional structure of Aristotle's *Organon*, which was established not by Aristotle himself but by editors in the first century BC, including Andronicus of Rhodes. Accordingly, Schopenhauer deals first with concepts (*Begriffe*), corresponding to Aristotle's *Categories* (*Categoriae*), and then with judgements (*Urteile*), corresponding to Aristotle's *On Interpretation* (*De interpretatione*), before turning to arguments or inferences (*Schlüsse*), corresponding to Aristotle's *Prior Analytics* (*Analytica priora*). In the nineteenth century, as well as in earlier periods, these three parts were normally followed by a fourth part on scientific methods, corresponding to the Aristotelian *Posterior Analytics* (*Analytica posteriora*) and parts of the *Topics* (*Topica*). Unlike in Schopenhauer's

lectures, the contents of the *Sophistical Refutations* (*De sophisticis elenchis*) were usually not given a separate section. At the time when Schopenhauer wrote his texts on logic, what was generally known as 'logic' covered all these different subjects, and sometimes even additional ones such as metalogical questions. A theory of deductive reasoning can be found—mainly in the form of syllogisms—in the third part of the *Organon*. Deductive reasoning in a strict sense is therefore only one element among others, and it was far from being the chief topic of scholarly interest at this time.

It is not only for traditional reasons that the concept or term is located at the beginning of Schopenhauer's logic. Rather, the term is the basis on which everything else is built. Although there are exceptions, the idea of starting logic with the proposition rather than with the term did not become commonly known in the German-speaking context until the works of Adolf Trendelenburg (see below). In line with this tradition, Schopenhauer clearly states that the structure of his logic is based on concepts or terms: 'Logic presupposes the existence of terms and now teaches how one has to operate correctly with them' [21, p. 259].[1]

One might be tempted to apply the sequence 'concept, judgement, inference' to both volumes of *The World as Will and Representation*, with the intention of assembling a 'complete' logic. However, §9 of the first volume—which is dedicated entirely to logic—deals mainly with concepts and judgements, and does not elaborate on inferences. Only the second volume appears to complete the sequence, as its tenth chapter is exclusively dedicated to syllogisms. But this appearance is deceptive. The two volumes were written at an interval of 25 years—or 24 years according to Schopenhauer himself—and cannot be read as if they were one; the conceptual changes are too extensive.

The parallel structure and content of the *Organon* and Schopenhauer's texts on logic is not surprising in the light of Schopenhauer stating that Aristotle had described logic to an 'extent of perfection' [21, p. 357] that left barely anything to add to bring it to the state it had attained by Schopenhauer's time, when logic was 'rightly regarded as an exclusive, self-subsisting, self-contained, finished, and perfectly safe branch of knowledge, to be scientifically treated by itself alone and independently of everything else' [20, §9, p. 46]. This was a very common view in the German-speaking world until the end of the nineteenth century. It was famously pre-formulated by Kant, who remarked on the fact that 'since the time of Aristotle it [logic] has not had to go a single step backwards [. . .]. What is further remarkable about logic is that until now it has also been unable to take a single step forward, and therefore seems to all appearance to be finished and complete' [15, p. Bviii/p. 106].

The belief that logic is a science that had already been brought close to perfection in the ancient world is paired with another belief that was equally common in the nineteenth century: namely, that the rules of logic are grasped intuitively. The idea is that the mind thinks logically as it is. Thus, it is not possible for the mind to work

[1] 'Die Logik setzt das Vorhandensein der Begriffe voraus und lehrt nun wie man regelrecht damit zu operiren habe' [21, p. 259].

against the rules of logic, because these rules prescribe the laws of thinking. For this reason, reflection on the performance of thinking—by means of an inductive method—necessarily reveals the universally valid rules of logic. Logic 'is the universal knowledge of the reason's method of procedure, expressed in the form of rules. Such knowledge is reached by self-observation of the faculty of reason, and abstraction from all content. But that method of procedure is necessary and essential to reason; hence reason will not in any case depart from it' [20, §9, p. 45]. That renders the study of logic quite useless in practice, because everybody follows the rules of logic anyway. There is only one exception: in an argument, making reference to logic allows deliberate attempts to deceive to be unveiled. If invalid conclusions are drawn intentionally, they can be referred to using the relevant technical terms [20, §9, p. 47]. In every other practical respect, logic is useless. Hence, Schopenhauer speaks in derogatory fashion of the elaborate logic of scholasticism. He concludes: 'To seek to make practical use of logic would therefore mean to seek to derive with unspeakable trouble from universal rules what is immediately known to us with the greatest certainty in the particular case. It is just as if a man were to consult mechanics with regard to his movements, or physiology with regard to his digestion' [20, §9, p. 45]. The latter, wittily expressed view was so common in the early nineteenth century that Schopenhauer is even prepared to agree on this point with his arch nemesis Hegel [12, p. 8].

The two assumptions, namely that logic has already been perfected as a science and that logic is just a reflection of the way the mind works anyway, sparked a rich debate about logic in the German-speaking world in the nineteenth century. This debate focused not on the traditional topics of concept, judgement and inference, but rather on metalogical issues such as the ultimate foundation of logic, its unity, its relation to content, etc. Subjects that came to the fore in the English-speaking world at the same time, such as the quantification of the predicate, the arithmetisation of logic and the distinction between term logic and propositional logic, were simply of no interest for most German philosophers, including Schopenhauer. (There are of course exceptions such as Bolzano and Drobisch [9], not to mention authors from the eighteenth century.)

3 The History of Logic After Aristotle

Schopenhauer does not say much about the history of logic. That comes as no surprise given that he thinks the development of logic as a science was (almost) completed 2000 years ago. Indeed, Schopenhauer and his fellow logicians must have thought that there was hardly a 'history' of logic at all. Regarding logic before Aristotle, Schopenhauer points out both: 'the awkward and tedious way in which logical truths are brought out in many of Plato's dialogues' and 'what Sextus Empiricus tells us of the controversies of the Megarics concerning the easiest and simplest logical laws, and the laborious way in which they made such laws plain and intelligible' [20, §9, p. 48]. Schopenhauer does not comment on the apparent

discrepancy between the claims, on the one hand, that it was so tedious to bring out the first logical rules and, on the other, that these rules are supposed to be the ahistorical and as it were 'natural' ground of all thinking across all times and places. This may be an inconsistency, but it does not have to be. The difficulties may relate not to thinking and arguing according to the rules of logic, but to expressing these rules in a general and unambiguous form.

In Schopenhauer's view, this was already achieved by Aristotle and since his time only a few 'additions and enhancements' had been added. In his lectures, Schopenhauer explicitly names six of these in a non-chronological order which has been retained here: (1) The universal laws of thought at the beginning of logic; (2) the scholastic mnemonics; (3) hypothetical and disjunctive inferences; (4) the separation between concepts and representations of perception; (5) the fourth figure; he concludes (6) with criticisms of certain aspects of Aristotelian logic [20, p. 357].

3.1 The Laws of Thought at the Beginning of Logic

The laws of thought are ranked first in Schopenhauer's list of additions and enhancements. Specifically, he speaks of 'the positioning of the universal laws of thought as starting point' [20, p. 357]. Schopenhauer recognises four laws of thought, all of which he regards as 'metalogical' propositions: the law of identity, the law of contradiction, the law of excluded middle and the law of sufficient reason. Apart from the latter, these laws are of course neither additions nor enhancements, as they were already well established at the time of Aristotle.

In the nineteenth century, the first three laws were often understood as actually being one law or as derived from one basic law. A typical example of this is the analytical logic of August Twesten [30], which stands in the tradition of Kant's logic, is at least akin to Schopenhauer's logic and attempts to unite all the different aspects that logic involved in this period. Laws of thought, concepts, judgements, inferences and methods ought, according to Twesten, to be understood as parts of one system of logic and not as an assortment of unrelated phenomena [30, §§29–30, p. 13]. Based on this system, Twesten believes that the law of identity and the law of contradiction are two expressions of one basic law, and that the law of excluded middle is another derivative of the basic law [30, §§25–26, p. 11]. The only law he cannot accommodate within his system is the 'new' law, namely Leibniz's law of sufficient reason, and so this law is excluded from his analytical logic [30, §27, p. 12].

Schopenhauer shares the understanding of the first three laws as essentially one, even if he ties them back to the law of excluded middle. But he differs from Twesten in retaining the law or principle of sufficient reason as an irreducible part of logic: 'It seems to me that the doctrine of the *laws of thought* could be simplified by our setting up only two of them, namely the law of the excluded middle, and that of sufficient reason or ground' [22, p. 103]. In *The Fourfold Root* Schopenhauer elevates the fourth law or, more precisely, the principle of sufficient reason of

knowing (i.e. the ground of knowledge) to the foundation of his whole doctrine of inferences: 'The whole syllogistic science, in fact, is nothing but the sum-total of the rules for applying the principle of sufficient reason to the mutual relations of judgments' [19, §30, p. 125]. Thus, on the one hand, Schopenhauer states that there are two irreducible laws, but, on the other hand, talks about only one. This heterogeneity might be due to the mingling of the principles of term logic and propositional logic. In respect of the semantic content of the 'principle of sufficient reason of knowing' [19, §29, p. 123], Schopenhauer explains that 'if a *judgment* is to express *knowledge* of any kind, it must have a sufficient reason: in virtue of which quality it then receives the predicate *true*. Thus *truth* is the reference of a judgment to something different from itself' [19, §29, p. 124; cf. V263].

The first three laws of thought specify which judgements are thinkable at all. The fourth law, i.e. the principle of sufficient reason of knowing, is the ground of possibility for assessing whether a judgement is true or not. According to Schopenhauer, there are four different kinds of grounds of knowledge that judgements may refer to and, accordingly, four different kinds of truth: logical, empirical, transcendental and metalogical [19, §§30–33, pp. 124–129]. A judgement is logically true if it has its ground in another judgement (cf. [21, p. 264]. The second judgement on which the truth of the first is founded may be founded on another judgement and so on. This line of argument comes to an end when it hits the laws of thought themselves, for these laws are judgements themselves. Finally, the reason for the laws of thought to be true is that thinking is only possible in accordance with them. They 'are founded on the formal conditions of all thinking, which are contained in the Reason; and in this case its truth is of a kind which seems to me best defined as *metalogical* truth' [19, §33, p. 127]. That means the laws of thought must be followed intuitively in any case. However, to become aware of them we must reflect on the way we think. We 'then find out, that it is just as impossible to think in opposition to them [the laws of thought], as it is to move the members of our body in a contrary direction to their joints' [19, §33, p. 123].

Schopenhauer regards the law or principle of sufficient reason as one of the enhancements that logic had undergone in the time since Aristotle. Additionally, he claims that these metalogically true judgements are to be situated at the beginning of every logic. In the nineteenth century, it was not unusual to begin a book on logic with the four (or sometimes only three) laws of thought. One example of this is the section on logic in Joseph Beck's *Grundriß der empirischen Psychologie und Logik* (*Fundamentals of Empirical Psychology and Logic*) [2], which was very popular in the nineteenth century and even into the twentieth century: between 1841 and 1928, 21 editions were published, with a series of different editors after Beck's death in 1883 (cf. [7, p. XXV]). Beck's logic is not especially remarkable in itself, but it provides a good sense of what was commonly meant by 'logic' in the nineteenth century. Beck's logic, like Schopenhauer's, starts with the four laws of thought and then, in line with the structure of the *Organon*, moves on to the doctrines of concept, judgement and inference, before concluding with a reflection on the methods of science. But while most logicians did not alter the sequence of concept, judgement, inference and method, the position of the laws of thought varied within

works on logic. Given that they are judgements, it made sense to place the laws after the sections on judgements (cf. Drobisch [10, §35]). Interestingly, Schopenhauer himself favours the latter option in his lecture [21, p. 261]. Hence, it does not seem to be very important for Schopenhauer where exactly the four laws of thought are presented.

3.2 The Scholastic Mnemonics

The second point on Schopenhauer's list of additions and enhancements that logic had undergone since Aristotle is: 'The invention of the naming of quantity and quality by using letters and as a consequence the naming of the types of inferential figures by using words whose consonants indicate the rules of reduction to the first figure through inversion' [20, p. 357].[2] Whereas Schopenhauer quite clearly regards the principle or law of sufficient reason as an enhancement, he probably only considers the 'barbaric words' [21, p. 358] which name the 24 valid types of syllogisms, to be an addition. At most, this addition might be of historical interest, but it is of even less practical use than logic in general: 'In the actual exposition of logic, these matters are still presented as one displays old and no longer used weapons in an armoury' [21, p. 358].[3] Knowledge of the scholastic mnemonics dwindled in the course of the nineteenth century. For example, Hermann Ulrici, who was far from being an irrelevant logician in his time, states that Barbara, Cesare, Datisi, etc. are: 'meaningless words in which only the vowels are significant' [31, p. 189].[4] In 1860, Ulrici (unlike the early Schopenhauer) was no longer aware of the sophisticated functions served by the consonants in the barbaric words. For example, that they indicate the rules and means to reduce imperfect modes to the perfect modes of the first syllogistic figure.

In this context, it is surprising that Schopenhauer, on the one hand, deems the traditional but (in his eyes) useless scholastic mnemonics worthy of mention in his brief list of additions and enhancements that logic had undergone since Aristotle but, on the other, does seemingly not include the illustration of logic by means of diagrams on his list at all, even though he not only praises highly the works of Ploucquet, Lambert and above all Euler [20, §9, p. 42] but also uses diagrams himself throughout his texts on logic. This would be understandable if Schopenhauer had listed only additions and enhancements that concern the content of logic, such as the principle of sufficient reason, while regarding diagrams merely

[2] 'Die Erfindung der Bezeichnung der Quantität und Qualität durch Buchstaben, und demnach der modi der Schluß-Figuren durch Wörter, deren Consonanten die Regeln der Zurückführung auf die erste Figur durch Umkehrung angeben' [21, p. 357].

[3] 'Im eigentlichen Vortrag der Logik führt man diese Sachen noch vor, wie man in einer Rüstkammer alte aus dem Gebrauch gekommene Waffen zeigt' [21, p. 358].

[4] 'sinnlose Wörter, in denen nur die Vocale von Bedeutung sind' [27, p. 189].

as formal or technical means of illustration. But in fact the mnemonics are listed as techniques. Thus, even as a technique diagrams should be part of the list as well.

3.3 Hypothetical and Disjunctive Inferences

The third point on Schopenhauer's list is: 'The consideration of hypothetical and disjunctive inferences, while Aristotle confined himself to categorical inferences' [21, p. 357].[5] In fact, Aristotle himself does not discuss hypothetical inferences, but they were addressed during ancient times by the Peripatetic and Stoic schools (cf. [4]). Later, they can be found in the *Port-Royal Logic* [1, p. 287], and in the nineteenth century they were part of the standard repertoire of all different kinds of logic (Kant's, Hegel's, Beck's, etc.). Schopenhauer discusses them in his lecture [21, pp. 333–339], where he points out that 'the disjunctive and hypothetical inferences are of a distinctly different nature to the categorical ones' [21, p. 339].[6] According to Schopenhauer, categorical inferences are directly based on concepts, while disjunctive and hypothetical inferences are based on the relations of judgements. One might get the impression that *modus ponens* and *modus tollens* do not quite fit in the framework of Schopenhauer's early logic, which at the time of his lectures was largely a term logic. This had changed completely by the time Schopenhauer published his supplements to the first book of the WWR in 1844. At the same time that George Boole was working in Britain on a propositional calculus with algebraic structures [5], Schopenhauer discarded major parts of his earlier logic by granting primacy to judgements. This indicates that at the latest from the 1840s German logicians too began to doubt whether logic had in fact been perfected long ago.

3.4 The Separation of Concepts and Representations of Perception

Schopenhauer credits the fourth point on his list to himself: one of the enhancements that logic had undergone during its history was 'my sharp separation of concepts and representations of perception, i.e. things' [21].[7] This statement might be a little bit surprising, as this distinction is usually attributed to Kant. But Schopenhauer

[5] 'Die Betrachtung der hypothetischen und disjunktiven Schlüsse, während Aristoteles sich auf die kategorischen beschränkte' [21, p. 357].

[6] 'Sie sehn daß die disjunktiven und hypothetischen Schlüsse merklich andrer Natur sind als die kategorischen' [21, p. 339].

[7] 'Meine scharfe Sondierung der Begriffe von den anschaulichen Vorstellungen, d. h. den Dingen' [21, p. 357].

replies to this objection: 'Unfortunately this [i.e. that Kant made this distinction] was not the case, although the reproach for this has not yet become known, and is therefore perhaps unexpected' [20, p. 437]. According to Schopenhauer, the Kantian thing as an 'object of experience' 'is not the representation of perception, nor is it the abstract concept; it is different from both, and yet is both at the same time, and is an utter absurdity and impossibility' [20, p. 437]. Schopenhauer opposes to Kant's assumption that even perceptions are always conceptually formed through the categories. Instead, Schopenhauer's philosophy distinguishes clearly between the 'mere *sensation* in the sense-organs' [20, p. 438] and representations. The latter are produced by the intellect, which converts sensations through both understanding—which follows the law of causality—and the forms of perception into representations of perception. Concepts do not appear at all prior to this point. However, Schopenhauer begins §9 of the WWR with the sentence 'The concepts form a peculiar class, existing only in the mind of man, and differing entirely from the representations of perception so far considered' [20, §9, p. 39]. I shall briefly elaborate (a) on the concepts being 'only in the mind of man' (*allein im Geiste des Menschen vorhanden*) and (b) on the peculiarity (*Eigentümlichkeit*) of these concepts.

(a) Concepts are the fundamental building blocks of Schopenhauer's logic. These concepts are, in his view, 'only in the mind', and hence logic exists only in the mind of man. Against the background of Schopenhauer's philosophy, that is no surprise. But for the nineteenth century, this position was not an obvious one to take. Especially in the mid-nineteenth century, more and more logicians attempted to align themselves more closely with the successful natural sciences. As a consequence, realism became fashionable amongst logicians. This view holds that the structures of reality match the structures of reasoning not merely because reality originates in the human mind, but because there is a reality outside the mind which has a logical structure. This ontological belief is combined with the epistemological view that the logic of thinking represents the logic of a reality which is held to be independent of the mind (cf. [13]). As well as these realisms or even materialisms of concepts, there were also positions more or less distantly related to Hegel's *Science of Logic* [12]. These approaches merge logic and metaphysics by, on the one hand, considering the structure of reality to be analogous to the structure of the mind, but, on the other, holding that reality is not contained within the human mind; rather, the human mind is an aspect of a reality that, as a kind of overarching mind, houses the human mind within itself.

(b) Regarding the peculiarity of concepts as a class that is entirely different from representations of perception, Schopenhauer points out that concepts cannot be experienced through the senses but can only be understood discursively, and that they are not located in time or space but only within thoughts. However, at the same time concepts are not independent of representations of perception. In fact, they are connected because concepts are generated through a process of abstraction that starts from perception. This means that, in a certain sense, the

concepts reflect the representations of perception. This reflection 'is necessarily the copy or repetition of the originally presented world of perception, though a copy of quite a special kind in a completely heterogeneous material. Concepts, therefore, can quite appropriately be called representations of representations' [20, §9, p. 40] or, more precisely, abstract representations of more concrete representations. Being abstract means to be universal, so all concepts have at least in principle 'a range, an extension, or a sphere' [20, §9, p. 42]. According to Schopenhauer, that is why concepts can be presented by spatial figures or diagrams, which 'is an exceedingly happy idea' [20, p. 42]. This might indicate that by '*anschauliche Vorstellung*' Schopenhauer does not mean 'representation of perception' but rather 'visual representation'. In that case, the mystery of the absent diagrams in Schopenhauer's list of enhancements would be solved: they were actually never absent but were included the whole time under the fourth point on the list. This thought is supported by Schopenhauer himself when he claims to be the first to have completely replaced the Aristotelian proofs with diagrams [21, p. 272].[8]

Since all concepts originate from perception, they remain in the final analysis bound to perception. This understanding illustrates again the cardinal role that the principle of sufficient reason as ground of knowledge plays in logic and especially in syllogistics: 'the abstract representation has its whole nature simply and solely in its relation to another representation that is its ground of knowledge. Now this of course can again be a concept or an abstract representation [. . .]. However, this does not go on *ad infinitum*, but the series of grounds of knowledge must end at last with a concept which has its ground in knowledge of perception' [22, pp. 40–41]. The truth in question here is of course not the logical or metalogical truth, like that mentioned above, but the empirical truth.

3.5 The Fourth Figure

The fifth point on Schopenhauer's list, the 'fourth figure', is another addition. Originally, Aristotelian syllogistics only recognised three figures. The supplementation of a fourth figure is usually ascribed to the Greek physician Galenus (c. 129–215). But Schopenhauer—like Theophrastus before him—does not regard it as an enrichment. He thinks that 'it is clear that this figure is merely the *first* wilfully [!] turned upside down, and by no means the expression of an actual process of thought natural to our faculty of reason' [22, p. 115]. Hence, this figure is obsolete. Although Schopenhauer is not the only thinker who regards the fourth figure as non-natural (cf. e.g. Twesten [29, p. 104] and Kant [14, p. 17]) and even if it is often regarded as

[8] 'Die Aristotelischen Beweise hat man schon längst aus der Logik weggelassen; aber man hat ihnen die Verdeutlichung durch anschauliche Schemata noch nicht so durchgängig substituirt, wie ich es thun werde.' [21, p. 272].

redundant (cf. e.g. Trendelenburg [26, pp. 235–237]) it did not disappear from logic (cf. e.g. Victorin [32, pp. 108, 201–208]) but remained a source of disagreement among the logicians of the nineteenth century (Stammler [23, p. 29]). A detailed discussion of the fourth figure can be found in the paper written by Hubert Martin Schüler and Jens Lemanski in this volume.

3.6 Criticisms of Aristotelian Logic

A short recapitulation reveals that Schopenhauer considers only two of the five points on his list to be enhancements: namely, the laws of thought, including the principle of sufficient reason, and Schopenhauer's own sharp separation between concepts and representations of perception. Meanwhile, he regards the scholastic mnemonics as obsolete, does not consider hypothetical and disjunctive inferences in depth and believes the fourth figure is simply unnecessary. He also deems some parts of Aristotelian logic to be unnecessary. In his lecture, he mentions explicitly only 'inferences whose modality is problematic', namely inferences that include judgements that are not actual or necessary but only possible. Modal logics and all other kinds of non-classical logic—in the sense of logics that transgress the principle of bivalence or the principle of extensionality or both—did not attract much interest in nineteenth-century German-speaking philosophy. Aristotle's remarks on such logics in the *Organon* were 'long since ignored. With good reason' [21, p. 339].[9]

But Schopenhauer is mistaken when he claims that in his time the original *Organon* was read 'very rarely [. . .], because it is a sparsely rewarding and very difficult read that takes a lot of time' [21, p. 357].[10] Contrary to this claim, Immanuel Bekker published the first volume of the collected works of Aristotle in 1831, 10 years after Schopenhauer's lecture. Bekker followed the Hellenistic tradition of opening with the *Organon*, which he subdivided (again traditionally) into concept, judgement, inference, etc. Even more interesting in relation to the reception of Aristotle in nineteenth-century logic is the rearrangement of the *Organon*'s traditional order by Trendelenburg, inspired by Otto Friedrich Gruppe [11, p. 38]. Mainly for philological reasons, in his *Elementa logices Aristotelicae* (1837) [24] Trendelenburg has Aristotelian logic start not with concepts but with judgements. As a schoolbook that was republished over and over again and eventually even several times in German [27], Trendelenburg's *Elementa* can be regarded as very influential. It seems natural that this new reading of the original Aristotelian texts paved the way for the rejection of the traditional order of logic (concept, judgement,

[9] 'Man hat diesen Theil seiner [Aristoteles] Logik schon längst unbenutzt gelassen. Mit Recht' [21, p. 339].

[10] '[Es ist] höchst selten gelesen [...], da es ein wenig lohnendes und sehr schwieriges Studium ist, was sehr viel Zeit erfordert' [21, p. 357].

inference) in favour of a logic that starts with judgements and therefore follows the context principle, as Frege [16] later did.[11]

4 Left Off Schopenhauer's List: The Port-Royal Logic and Kant's Logic

It is not just the aspects Schopenhauer mentions explicitly that are of interest, but also those he does not. They include (a) the *Port-Royal Logic* and (b) Kant's logic.

(a) The history of logic can roughly be divided into three periods: first, ancient and medieval logic starting from Aristotle (fourth century BC); second, early modern logic starting from the *Port-Royal Logic* (1632) [1] and third, modern logic starting from Frege's *Begriffsschrift* (1879) [28]. Even given that Schopenhauer was a critic of Cartesian logic [21, p. 254], it is, in view of the work's importance, remarkable that he makes absolutely no mention of the *Port-Royal Logic* or any of its innovative ideas; although the work was not widely discussed in the early nineteenth century, it was far from unknown (cf. e.g. Degerando [8, pp. 377–381]).

The *Port-Royal Logic*, on the one hand, stands in the tradition established by the *Organon*: its structure follows the sequence of 'concept, judgement, inference, method'. On the other hand, however, it also introduced some innovations that went on to have a profound influence on the subsequent period. They included, in particular, situating the topic of perception at the beginning of logic, thereby bringing epistemological and, above all, psychological explanations into logic, as well as a theory of signs. Schopenhauer does not appear to regard the last points as particularly important, given that he does not deem them worthy of inclusion in his list of significant events in the history of logic, although they are mentioned elsewhere. Overall, Schopenhauer's texts on logic are very rich in content despite their brevity.

(b) A clue as to why the integration of psychology into logic is not mentioned by Schopenhauer can again be found in Kant. Following the remark that logic has neither taken a single step backwards nor a single step forwards since Aristotle, Kant states: 'For if some moderns [i.e. modern logics, like the *Port-Royal Logic*] have thought to enlarge it [Aristotle's logic] by interpolating *psychological* chapters about our different cognitive powers [...], or *metaphysical* chapters about the origin of cognition or the different kinds of certainty in accordance with the diversity of objects [...], or *anthropological* chapters about our prejudice [...], then this proceeds only from their ignorance of the peculiar nature of this science [i.e. logic]' [15, p. Bviii/p. 106]. In a sense, Kant presents here his own list of unnecessary additions to logic. Kant's own idea of logic is that of a formal logic, and indeed it is Kant who first coined this term (cf. [15, p. B170/p. 267]). But what does formal

[11] Some thinkers believe the context principle first appeared earlier: Brandom, for example, argues that it can already be found in the work of Kant [6, 13].

logic mean according to Kant? Firstly, a formal logic has to abstract away from all content (empirical or transcendental). Metaphysics as an ontology therefore has no place in a formal logic. Secondly, a formal logic is purely a priori, which means it has no empirical principles either. Thus, psychology and anthropology have no place in logic [15, pp. B74–76/pp. 193–195].

Schopenhauer shares this concept of logic as formal logic. That does not mean, of course, that he does not talk about psychology and metaphysics. But it does mean that these issues are not to be found within logic. By endorsing the Kantian concept of a formal logic, Schopenhauer situates himself in what was a very broad current in at least the early part of the nineteenth century. Within this current, there was an undercurrent that equated logic with analytics [15, p. B170/p. 267]. Twesten [30], Beneke [3] and Schopenhauer were part of this undercurrent: 'I [Schopenhauer] think, however, that logic has only a theoretical interest in coming to know the essence of the lawful process of reason, that it should therefore merely be analytic' [21, p. 359].[12]

An answer to the question of how Schopenhauer's logic is embedded in its temporal context, of course, also has to make reference to the counterposition, or at least supposed counterposition: namely, what were known as transcendental logics, another term coined by Kant. But in fact, Kant's transcendental logic and his formal logic are not in conflict. According to Kant, transcendental logic is only an application of formal logic to objects which are known a priori (cf. [15, p. B82/pp. 197–198]). That means transcendental logic is the logic of the conditions of possible objects. Transcendental logic thus has content, in contrast to formal logic. It is a popular narrative to describe the development of logic after Kant in the nineteenth-century Germany as starting from a schism among the supporters of transcendental logic (such as Hegel [12], Ritter [18] and Prantl [17]) and the supporters of formal logic (such as Schopenhauer). Whether this is consistent in detail, I shall not discuss here. But the fact is that logic in the nineteenth century was by no means exclusively pure or formal, but could also be defined in terms of content. Towards the middle of the nineteenth century, a further current became increasingly prevalent: motivated by a desire not to practise any metaphysics, logicians aligned themselves more with the natural sciences. That led to a logic that bordered on being a theory of science. Examples include Trendelenburg's *Logische Untersuchungen* (*Logical Investigations*) [25].

In summary, Schopenhauer's logic is a fairly typical example of a formal logic in Kant's tradition at the beginning of the nineteenth century, if only the surface is considered. However, this does not say anything about how he treats the individual elements in detail in his logic. Beneath the surface there are some very interesting reflections on topics such as diagrams.

[12] 'Ich [Schopenhauer] halte indessen dafür daß die Logik bloß ein theoretisches Interesse hat, um das Wesen, das Gesetzmäßige Verfahren der Vernunft kennen zu lernen: daß sie also bloß Analytik seyn soll' [21, p. 359].

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