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# Kant and the Logic of Aristotle

Kurt Mosser

*University of Dayton*, [rmosser1@udayton.edu](mailto:rmosser1@udayton.edu)

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## **Kant and the Logic of Aristotle**

### **1. Introduction**

In the Preface to the second edition of the Critique of Pure Reason, Kant offers his best-known—indeed, notorious—remark about Aristotle's logic:

Since Aristotle . . . logic has not been able to advance a single step, and is thus to all appearance a closed and completed doctrine (Bviii).<sup>1</sup>

I wish to explore here the following question: is Kant in fact saying that since Aristotle, there need be no more concern about logic as a discipline or a field of study, that Aristotle (with some minor embellishments, in terms of presentation) is the last word in logic?

Certainly that is how Kant has almost invariably been understood. Thus Hegel relies on such a view when he writes

Now if logic has not undergone any change since Aristotle—and in fact, judging by modern compendiums of logic the changes frequently consist mainly in omissions—then surely the conclusion which should be drawn is that it is all the more in need of a total reconstruction.

C.S. Peirce similarly observes that "we are to remember that, according to Kant, nothing worth mention had been contributed to logic since Aristotle"; P. F.

Strawson notes that Kant believed "without question" in the "finality" of Aristotelian logic; E.W. Beth clearly has this standard interpretation in mind when he writes that "Aristotle's logical work, far from being a closed system, already contained the germs of future development." Such comments are commonplace in the literature, both on Kant and on the history of logic; as Kneale and Kneale sum up what must be called the "received" view, Kant was

apparently unaware of the value of any contributions made to logic after the time of Aristotle, and that the doctrine which he regarded as the complete and perfect discovery of Aristotle was in fact a peculiarly confused version of the traditional mixture of Aristotelian and Stoic elements.<sup>2</sup>

Kant himself, of course, is largely responsible for this interpretation. However, I believe that it is at best historically naive and, at worst, gives a very misleading picture, both of Kant's understanding of the history of logic as well as his conception of general logic and its role in philosophical inquiry. The alternative interpretation I outline below will reveal that Kant's conception of general logic is considerably more sophisticated and historically informed than he has traditionally been given credit for; more important, on this reading Kant's strategy in the First Critique, grounded as it is in logic, becomes more plausible, more defensible, and, consequently, more attractive.

## **2. General logic**

We can begin by examining Kant's account of the role of general logic. General logic, as the canon of necessary rules for the possibility of thought—the systematic presentation of the a priori principles of the correct use of the understanding überhaupt (A796=B824)—yields what Carboncini and Finster describe as the "sine qua non," or what might be described as a set of constraints on rationality simpliciter.<sup>3</sup> This can perhaps best be seen by looking at what general logic can—and, always important for Kant, what it cannot—establish, relative to determining the truth of a given judgement.

General logic establishes minimal necessary conditions for the possibility of truth, yielding what Kant calls the "negative touchstone of truth" (A60=B84). Such a negative criterion insures only that a given thought<sup>4</sup> is not self-contradictory, for "I can think

whatever I please, provided only that I do not contradict myself, that is, provided my concept is a possible thought" (Bxxvi n.; see A569n.=B624n.).<sup>5</sup> Presumably, this eliminates any obviously self-contradictory judgements as possible thoughts, e.g. "Some men are not men," or "No bodies are extended."<sup>6</sup> It may also exclude judgements about Meinongian "impossible" objects, such as prime numbers divisible by six. The more important point for Kant, however, is that a well-formed judgement may still fail to make an objective reference, and that this failure only becomes clear with the introduction of the sensible manifold (and thus lies beyond the ken of general logic):

That a concept of the possible must not contain any contradiction is a necessary logical condition; but this is far from sufficient to determine the objective reality of the concept, that is, the possibility of such an object as is thought through the concept. Thus there is no contradiction in the concept of a figure [Figur] which is enclosed within two straight lines, since the concepts of two straight lines and of their coming together contain no negation of the figure. The impossibility arises not from the concept in itself, but in connection with its construction in space, that is, from the conditions of space and its determination (A220-221=B268).

The point is that a well-formed judgement can be made even about a figure enclosed within two straight lines, for its terms are not self-contradictory. The impossibility of this judgement making an objective reference—albeit here to a mathematical object—is shown by the attempt to construct the object in pure intuition. The point can be generalized, relative to truth-claims: the truth of a given judgement can only be determined with respect to an object judged about. Thus no judgement can violate the principles of transcendental logic "without at once losing all content, that is, all relation to any object [Objekt], and therefore all truth" (A62-63=B87). Similarly, a concept in the absence of possible experience functions as a mere idea—without truth, that is, without relation to an object

(Gegenstand) (A489=B517). Because general logic abstracts from all cognitive content, it has nothing to say about any reference to an object, and can provide only a negative criterion of truth. Consequently, a traditional characterization of logic, such as that with which Jungius begins his Logica Hamburgensis—"Logic is the art of our mental operations directed to determining the true and the false"<sup>7</sup>—must be interpreted quite narrowly on Kant's conception of general logic, providing only a negative criterion for any such determination. In short, after the analysis of a judgement given by general logic, we are still quite far from determining the truth of that judgement, or even whether—at that point—it is a viable candidate as a judgement of possible experience.

Kant introduces the question "famed of old . . . What is truth?" in the context of general logic. As Prauss persuasively argues, the question in this context is absurd in itself, and can find no response in general logic, for it is a question that must be dealt with by transcendental logic.<sup>8</sup> In a vivid image, (probably taken from Lucian of Samosata or, perhaps, Virgil), repeated from Kant's Inaugural Dissertation, the attempts by general logic to provide such a response leads to the "ludicrous spectacle of one man milking a he-goat and the other holding a sieve beneath it" (A58=B82-83). If "truth" is taken to be the agreement of knowledge with its object, for a determination of truth we must turn to a logic that exhibits rules for cognitive claims relative to objects. Thus Kant calls transcendental logic—more precisely, transcendental analytic—a "logic of truth" (A59=B84). In contrast to mathematics, which begins with definitions, definitions only come at the end of philosophy (A731=B759), and when Kant calls the truth the "agreement of cognition with its objects," he is careful to describe it only as the

"nominal" definition of truth (A58=B82), not as a definition in the strict sense. This characterization of "truth" is one Kant repeats throughout the Critique, and presents only one aspect of his considered view of this issue. The result then is that it is only when the concepts and principles of transcendental analytic have been secured that we can then go on to inquire about the applicability of this nominal definition. In this sense, transcendental analytic serves as a "logic of truth," in contrast to the (solely) negative criterion provided by general logic. Even then, however, we are not in possession of a universal and sufficient criterion of truth, but only in possession of a structure within which truth can be meaningfully inquired about.

### **3. Natural logic and Artificial logic**

All agents— all but those, to cite Thomas Good, "which is not an Idiot"<sup>9</sup>— maintain beliefs which result in the issuance of judgments, embedded in language. Those judgements must follow some minimal set of rules, such as a commitment to consistency, to yield a coherent set of beliefs (where that set has at least two members).<sup>10</sup> Anyone reflective enough to consider what those rules would look like might provide a logica naturalis or logica utens to characterize them, just as anyone reflective enough to consider the rules of language might develop a similar set of rules to be construed as a grammatica naturalis.<sup>11</sup> Indeed, at one point Kant suggests that grammarians gave us our first hint about developing a logic, in the sense of reflecting on the use of language to specify those rules that were necessary for language to be possible. The development of logic, in terms of a logica artificialis or logica docens, required a systematicity in the rigorous specification of the rules of logic that were unavailable within "natural" logic, and only such an artificial logic could be regarded as a science, a result that could not be attained

by grammar (due, presumably, to the unavoidable ambiguity inherent in natural language). A science of logic—general logic—as exemplified by a formal treatment of the principle of non-contradiction, could then provide that set of rules which must hold universally for thought to be expressed as judgement, and thus can be construed as the sine qua non of thought simpliciter, or as a set of universal and necessary, or a priori, constraints on rationality itself. In ranging over all possible expressions of thought, such constraints would, of course, have to be recognized as holding—i.e. would have to be presupposed—for any formal presentation of a logic, in the contemporary sense of a formal model of mathematical logic or a natural deductive technique. On what has been called a "neo-Kantian" or "neo-Tractarian" conception of logic,<sup>12</sup> we can now see that the standard treatment of the Critical philosophy has systematically misrepresented and misunderstood what Kant says about logic, and thus the criticisms grounded in those inaccuracies can largely be deflected.

#### **4. Kant's Remarks on Aristotle**

Stefan Körner has given a succinct description of what one can call this standard picture, that Kant

believes himself to have discovered all the absolute synthetic presuppositions of our thinking. They are, in particular, the presuppositions of arithmetic and Euclidean geometry, of Newtonian physics, and, in a sense, of the traditional logic. Since he believed these fields of thought themselves to be ultimate and permanent achievements of the human mind, he naturally regarded their presuppositions as absolute.<sup>13</sup>

Focusing here on "traditional logic," we see that Kant, on this account, is constrained by the conceptual and structural limitations of Aristotelian logic; he is, in short, forced to think in terms of Aristotelian logic, particularly syllogistic, when he

characterizes logic. When he says (Bviii) that Aristotle's logic appears to be "finished and complete," and unable to develop any further, he is compelled—if only for his historical situation, or his ignorance of the history of logic—to dismiss those developments that logic had undergone since Aristotle (e.g. by the Stoics, Leibniz, and others). The subsequent history of logic since Kant's era reveals Kant's claim to be the glaring blunder that it is, and his philosophical approach thus suffers from Kant's willingness to have "remained content with the poor version of traditional logic which he used."<sup>14</sup>

Before turning to the question of what Kant might mean in this context by the "completeness" of Aristotle's logic, it is worth looking at some of the other things Kant says about Aristotle, particularly from his logic lectures. Taken as a whole, the picture that emerges is one of respect for Aristotle's accomplishments, particularly in logic, while recognizing the limitations of Aristotle, the artificial "subtleties" of his logic, and the anti-philosophical spirit among those who uncritically venerated him (on the latter, see Ak. XXIV.2, 740).

"Aristotle developed a blind trust in himself, and he harmed philosophia more than he helped it" (Ak. XXIV.1, 36). It is perhaps surprising that one who provided philosophy with a complete and perfect doctrine could harm philosophy more than help it, but Kant is clear:

Through frequent observations we have scouted out the rules of the understanding. Aristotle established some; but these were nothing but road signs toward errors. It took great effort to forget such false propositions, to give the understanding its natural perfection again, and to investigate its true rules (Ak. XXIV.1, 27).

Aristotle can be regarded as the father of logic. But his logic is too scholastic, full of subtleties, and fundamentally has not been of much

value to the human understanding. . . . There is much acuity in his organon. All our logical terminology is from him. Otherwise it tends to mythology and subtlety and is banned from the schools (Ak. XXIV.2, 796; see Ak. IX, 20).

In these lectures, of course, Kant (or his auditor) tends to speak much more freely and expansively than he does in his more polished writing. But it is difficult, in any case, to reconcile the standard picture described above, that sees Kant viewing the Aristotelian syllogistic as a human achievement without equal, with a philosopher Kant characterizes as providing "nothing but road signs toward errors," and whose logic "fundamentally has not been of much value to the human understanding." Thus it is appropriate to ask what precisely Kant saw as Aristotle's achievement, and in what sense it is "complete."

I earlier cited Manley Thompson's distinction between contemporary conceptions of logic that take logic as having an "external subject matter" and a "neo-Kantian or neo-Tractarian" conception of logic, and argued that it is clear that it is the latter one finds in the Critique of Pure Reason. I think one way of getting at Kant's regard for Aristotle's accomplishment is to see the latter's Organon as a first attempt to provide, in the West, a scientific logic, an attempt to give a systematic account of the rules of thought in general as a logica artificialis. At the same time, as Kant himself points out in the Critique, Aristotle proceeded haphazardly, and without using a principle to provide the systematicity demanded of a science (A81=B106). The idea seems to be that within Aristotle's logic, a set of minimal concepts (and rules) can be found that are indispensable to any logic worthy of the name of "science," but by lacking the appropriate philosophical methodology, Aristotle's logic remained "rhapsodic" and was overwhelmed by "subtleties." At the same time, the content characterizing the necessary and universal

rules of thought, the minimal a priori principles of judgement, were in place qua logica naturalis. These conditions cannot change, in that they are simply the conditions to which a judging subject must conform in order to think; here, we might find Kant in agreement with Locke, when the latter observes that "God has not been so sparing to Men to make them barely two-legged Creatures, and left it to Aristotle to make them Rational."<sup>15</sup> Yet the formal presentation of these rules must be given in a systematic, in-principle fashion for logic to attain the status of science. And this is precisely what Kant says in the Jäsche logic: "From Aristotle's time on, logic has not gained much in content, by the way, nor can it by its nature do so. But it can surely gain in regard to exactness, determinateness, and distinctness" (Ak. IX, 20; Kant's emphasis). The a priori constraints on judgement, insofar as they provide necessary rules that range over all possible thought, cannot change; their presentation, of course can.<sup>16</sup> In no way does it seem that, on this view, that Kant would be limited to syllogistic or unwilling to recognize more elegant presentations of those a priori rules; nor does this eliminate his acceptance of contemporary formal techniques in mathematical logic.

In what sense, then, is Aristotle's logic "complete"? In employing this term, it is obvious that Kant does not mean "complete" in the contemporary sense when logicians distinguish formal systems as "weakly" or "strongly" complete<sup>17</sup>; as Tonelli has persuasively shown, this relies on a conception of logic that is not only alien to Kant, but one that, if Tonelli is correct, is alien to Western philosophy before the beginning of the Nineteenth-century.<sup>18</sup> A more plausible candidate in this context is the notion that one has a set of necessary and sufficient rules for thought in Aristotle's logic; while not presented in a way to Kant's liking, a complete but unsystematic list of the rules of

thought are to be found in the Analytics, or more broadly, the Organon. In other words, for any given judgement, all the rules we need for that judgement to be syntactically well-formed are in place; not only is there no need for others, the sufficiency condition indicates that there can be no others. In that sense, a set of necessary and sufficient rules would be complete. Kant is standardly interpreted in this way, and he occasionally speaks in ways that make this interpretation attractive (e.g. A13=B27). However, I don't think that his conception of the completeness of general logic must be regarded as committed to this strong sense of completeness, and for philosophical and textual reasons it is more plausible to regard Kant's notion that general logic is "complete" in the sense of only providing a set of necessary conditions. Certainly, Kant identifies "strictly necessary" and "absolutely universal" as independent, and each sufficient, criteria of the a priori; when we describe the rules of general logic as a priori—which they indisputably are on Kant's account—they clearly are delineated as necessary in the strongest sense possible. Thus an inventory of the rules necessary for thought would include those Kant has identified; the demand that they also satisfy the criterion of sufficiency is not required by (much of) Kant's characterization of general logic. And it is worth noting that this result is supported by a somewhat surprising source, P.F. Strawson: "The fundamental logical operations or forms of judgment recognized in Kant's table are such as are, and must be, recognized in any general logic worthy of the name."<sup>19</sup> Kant also seems to indicate that "complete," in the sense of providing necessary and sufficient conditions, is better thought of in terms of a Transcendental Idea, where we posit "a certain collective unity as the goal of the activities of the understanding" (A644=B672). Along these lines, he indicates how completeness functions normatively, as a desideratum: "A correct logic

is like a straight line, so that one must not deviate from it either to the right or to the left. It would be desirable [es wäre zu wünschen] that logic could be brought [gebracht wäre] to such correctness and perfection" (Ak. XXIV.1, p. 28).<sup>20</sup> In short, it seems that Kant's notorious comment about Aristotle's logic tells us much more about Kant's conception of logic, as a set of rules that are necessary and universal (a priori) for the possibility of thought, than it does about what he thinks of Aristotle.

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<sup>1</sup> This is Kemp Smith's translation; the entire passage reads "Daß die Logik diesen sicheren Gang schon von den ältesten Zeiten her gegangen sei, läßt sich daraus ersehen, daß seit dem Aristoteles keinen Schritt rückwärts hat tun dürfen, wenn man ihr nicht etwa die Wegschaffungeiniger entbehrllicher Subtilitäten, oder deutlichere Bestimmung des Vorgetragenen als Verbesserungen anrechnen will, welches aber mehr zur Eleganz, als zur Sicherheit der Wissenschaft gehört. Merkwürdig ist noch an ihr, daß sie auch bis jetzt keinen Schritt vorwärts hat tun können, und also allem Ansehen nach geschlossen und vollendet zu sein scheint" (Bviii). I have presented the text in the original here, for it is worth looking at how Kant's central claim has been translated. As we see, Kemp Smith has Kant claiming that logic "to all appearances [is] a closed and completed body of doctrine," employing a term—"doctrine"—that is not only not justified by the text but complicates issues by introducing a technical term from Kant's philosophical vocabulary. Kant characterizes "doctrine" as "an attempt to provide a priori an expansion for the understanding in the field of pure cognitions" (A135=B174), that is, to extend the range of pure cognition in its a priori employment. Pluhar's version reads "Another remarkable fact about logic is that thus far it also has not been able to advance a single step, and hence is to all appearances closed and completed." Guyer and Wood render the claim in a way similar to Pluhar, that logic "until now . . . has also been unable to take a single step forward, and therefore seems to all appearances to be finished and complete." All translations of Kant are my own, although I borrow heavily from Kemp Smith (London: Macmillan, 1929), Guyer and Wood (Cambridge: Cambridge University Press, 1998), and Pluhar (Indianapolis: Hackett, 1996).

<sup>2</sup> Hegel, G.W.F. "Introduction" to the Wissenschaft der Logik, translated by A.V. Miller (London: Allan & Unwin, 1969), p. 51; Peirce, C.S. Elements of Logic §39; in Hartshorne, C. and Weiss, P. (eds.), Collected Papers of Charles Sanders Peirce, vol. II (Cambridge: Harvard University Press, 1931); Strawson, P.F. The Bounds of Sense (London: Methuen, 1966); Beth, E.W. "Hundred Years of Symbolic Logic" Dialectica 1 (1947) p. 332; Kneale, W. and Kneale, M., The Development of Logic (Oxford: Clarendon Press, 1962), p. 355.

<sup>3</sup> Carboncini, S. and Finster, R. "Das Begriffspaar Kanon-Organon," Archiv für Begriffsgeschichte 26 (1982), p. 29. Informally, one might think of general logic as a "filter," through which any judgement must pass in order to be evaluated as true or false; at that stage, a syntactically ill-formed judgement would be eliminated as a candidate. Transcendental analytic would function as a second filter, in terms of evaluating a judgement of possible experience as true or false. In this sense, then, general logic is the logic of thinking in general; transcendental logic is the logic of thinking about objects. (Without arguing for it here, I believe that the strictures of the categorical imperative in Kant's practical philosophy function in a similar fashion.) The fundamental point here is to see that while a given judgement may well "pass" through such a preliminary process, that leaves us quite far from determining whether that judgement is in fact true (or false), and that Kant's conception of logic seeks to establish precisely this result. Similarly, a moral judgement that does not violate the categorical imperative is not ipso facto the thing to do. In short, we should not expect a set of rules—whether of general logic, transcendental logic, or practical philosophy—to establish more than it is in a position to do qua a set of rules. I owe this way of formulating this aspect of the relation between the theoretical and practical philosophy to Daniel Farrell.

<sup>4</sup> Keeping in mind, of course, that thought—one might say here "propositional content"—is expressed by means of judgement, and that judgement itself must be expressed linguistically. As Beatrice Longuenesse has noted, "no judgement (as psychological activity) can take place without linguistic expression." Kant and the Capacity to Judge (Charles T. Wolfe, trans.) (Princeton: Princeton University Press, 1998), p. 100 n. 47.

<sup>5</sup> As Manley Thompson observes, there is an important distinction to be drawn here, relative to "thinking a contradiction." "We think a contradiction only when we think it as such, as thought that cancels itself. In thinking a contradiction without thinking it as such, we fail to think anything at all—we are illogical." "On A Priori Truth," The Journal of Philosophy 78 (1981), p. 471 n.8. For an extended discussion of Kant's notion of contradiction, from a much different perspective, see Michael Wolff, "Der Begriff des Widerspruchs in der 'Kritik der reinen Vernunft,'" in Tuschling, B. (ed.) Probleme der 'Kritik der reinen Vernunft' (Berlin: De Gruyter, 1984), pp. 178-202.

<sup>6</sup> This claim rests on Kant's contention that we can determine in an analytic judgement whether or not the predicate is "contained" in the subject. L.W. Beck, in "Can Kant's Synthetic Judgements Be Made Analytic?" (in Wolff, R.P. (ed.), Kant: A Collection of Critical Essays (New York: Doubleday, 1967), pp.

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3-22) helpfully distinguishes between a "logical" and a "phenomenological" criterion for determining the analyticity of a judgement; only the former seems able to withstand the consistent criticism, first systematically treated by Eberhard, that the analytic-synthetic distinction is variable, dependent upon how much one knows at a given time. The phenomenological criterion does seem vulnerable to this charge; as Beck recognizes, "Kant was not free from a psychologizing introspective tendency in his decisions on what is analytic and what is synthetic" (9).

<sup>7</sup> Junguis, J. Logica Hamburgensis, ed. and translated (into German) by R.W. Meyer (Hamburg: Augustin, 1957), p. 1; the original reads "Logica est ars mentis nostrae operationes dirigens ad verum à falso discernendum." Kant would challenge the notion that a scientific logic ultimately is an "ars."

<sup>8</sup> In "Zum Wahrheitsbegriff bei Kant" (Kant Studien 60 (1969), pp. 166-182), Prauss gives a detailed analysis of A57ff–B82ff, beginning with the ambiguity of Kant's statement (translated by Kemp Smith as "For if a question is absurd in itself . . .") "Denn, wenn die Frage an sich ungereimt ist . . ." The ambiguity is whether this statement should be taken as (in Prauss's reformulation) "die Frage als solche ist ungereimt" or "die Frage ist eigentlich (an sich) ungereimt"; that is, whether the question in itself is absurd, or the question is absurd in itself. Prauss argues that the former paints a history of philosophy in which all philosophers—before, after, and including Kant—are posing a question that as such is absurd, and thus suggests the latter reading, in which the question is absurd as posed by, or to, general logic. It should also be noted that Kemp Smith translates here "die Frage" as "a question"; the correct "the question" shows more clearly what Kant is getting at, and would seem to support Prauss's interpretation. Guyer and Wood, and Pluhar, both translate the claim as "the question."

<sup>9</sup> Good, Thomas. A Brief English Tract of Logick (Oxford: L Litchfield, 1677).

<sup>10</sup> I take it as obvious that one who had zero beliefs would not qualify as an agent; while, technically, one who had exactly one belief would not be in jeopardy of being inconsistent, it is not clear that such a being would qualify as an "agent" (except, perhaps, in some metaphorical or idealized Kierkegaardian sense). Indeed, the more interesting constraint may well come from the other direction: Christopher Cherniak has pointed out that even for a physically idealized computer, the "supercycle" of which is approximately  $2.9 \times 10^{-23}$  seconds, to use a truth-table to evaluate a set of 138 distinct beliefs could not be done "during the entire history of the universe." Minimal Rationality (Cambridge: MIT Press, 1986), p. 143, n. 3. As Cherniak observes, a set of 138 atomic beliefs might well be too "small-minded" to be possessed by "anything we could call a full-fledged agent," p. 94.

<sup>11</sup> The contrast employed here is an old one, developed as an Aristotelian-inspired distinction between logica utens and logica docens. This terminology can be found, among other places, in Aquinas, Zabarella, Wolff, and Meier's Vernunftlehre; later, it is employed by Peirce: "Every reasoner, then, has some general idea of what good reasoning is. This constitutes a theory of logic: the scholastics called it the reasoner's logica utens;" in contrast with the "scientific study" of logic. (It is worth noting that Peirce also remarks "There are certain parts of your logica utens which nobody really doubts." Peirce, op. cit., §§ 186, 188, 204-205; §192.) R. Pozzo notes that "This traditional distinction is found seldom [actually, only once, R. 1671, Ak. XVI, 72] in Kant, probably because he held it to be superfluous. Yet it is fundamental, implicitly, in his conception of logic"; Kant und das Problem einer Einleitung in die Logik (Frankfurt a.M.: Lang, 1989), p. 170. A logica docens presents a systematically developed, rigorous, and in some sense complete account of the rules for possible judgement, a logica artificialis that can yield a logic as a science.

<sup>12</sup> Thompson, op. cit., p. 472.

<sup>13</sup> Körner, S. Kant (Middlesex: Penguin, 1955), p. 26. Körner never really elaborates on his qualification of "in a sense" relative to traditional logic.

<sup>14</sup> Kneale and Kneale, op. cit., p. 358.

<sup>15</sup> Locke, John. An Essay Concerning Human Understanding, edited with an introduction by P. Nidditch (Oxford: Clarendon Press, 1975), 671 (Book IV, Chap. XVII, §4). As Kant notes in the Blomberg Logic, "Locke's book de intellectu humano is the ground of all true logica"; Ak. XXIV.1.37. The point is also made by Frege (The Foundations of Arithmetic, trans. by J. Austin [Oxford: Blackwell, 1978, p. III]): Thought is in essentials the same everywhere: it is not true that there are different kinds of laws of thought to suit different kinds of objects thought about."

<sup>16</sup> As one example, note Michael Friedman's suggestion that we take Kant's conception of logic as amenable to "at most, monadic quantification theory plus identity" in his Kant and the Exact Sciences (Cambridge: Harvard University Press, 1992), p. 63 n. 9, while rejecting Thompson's claim "The general logic required by Kant's transcendental logic is thus at least first-order logic plus identity," a claim

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Thompson subsequently revised in arguing that predicating in terms of "Fx" (in contrast to Aristotelian "S-P" judgement-forms) would be a general logic developed from Kant's transcendental logic. See Thompson, M. "Singular Terms and Intuitions," p. 334, and the postscript added in Posy, C. (ed.) Kant's Philosophy of Mathematics : Modern Essays (Dordrecht: Kluwer, 1992). The point is that if Kant's general logic is as "flexible" as Friedman and Thompson (and others) indicate, then it makes little sense to restrict Kant's conception of general logic to Aristotelian syllogistic.

<sup>17</sup> A formal system is "weakly complete" if and only if all logically true well-formed formulas are theorems of the system; a formal system is "strongly complete" if no contradiction results from the addition to the system of an independent axiom.

<sup>18</sup> Tonelli, G. Kant's Critique of Pure Reason Within the Tradition of Modern Logic, ed. D. Chandler (Hildesheim: Olms, 1994, pp. 2-3.

<sup>19</sup> Strawson, P.F. "Sensibility, Understanding and the Doctrine of Synthesis: Comments on Henrich and Guyer" in Förster, E. (ed.) Kant's Transcendental Deductions (Stanford: Stanford University Press, 1989), p. 71.

<sup>20</sup> At least twice—precisely where he begins to introduce the table of judgments and the "Metaphysical" Deduction—Kant characterizes the "completeness" of a science as an Idee (namely A64-65=B89, and A65=B89-90); the latter passage specifies that the sum of cognition produced by the understanding "constitutes a system, comprehended and determined by one idea [Idee]." Kemp Smith inconsistently capitalizes German nouns in his translation, although all German nouns are capitalized; this may, in part, explain why Kant's completeness claim about the table of judgments has been regarded as a constitutive, rather than a regulative, claim. I believe a similar argument can be applied to the Table of Categories as well, insofar as "completeness" there also plays only a regulative, not a constitutive, role, qua Idea.