

TRANSCENDENTAL AND FORMAL LOGIC IN KANT'S ANALYTIC

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ÖZET

Bu metinde Kant'ın metni dikkatli bir okumaya tabi tutulduğunda (1) transendental mantığın formel mantığın olanağı için bir koşul oluşturduğunu ve (2) imgelemin üretici sentezinin ise transendental mantığın olanağı için bir koşul olduğunu göstermeye çalışacağım. Buna bağlı olarak, formel mantık imgelemin üretici sentezine dayanır ve bu bakımdan belki de kökeninde akılsal olanla ilgili olmaktan çok, kökeninde estetikle ilgili görülebilir.

Anahtar sözcükler: Kant, imgelem, mantık, transendental mantık, formel mantık

ABSTRACT

In this paper, I attempt to show that according to Kant's text read rigorously (1) transcendental logic is the condition for the possibility of formal logic and (2) the productive synthesis of imagination is the condition for the possibility of transcendental logic. Accordingly, formal logic depends upon the productive synthesis of imagination--and may be regarded as fundamentally aesthetic rather than fundamentally rational.

Keywords: Kant, imagination, logic, transcendental logic, formal logic

Placing the word "transcendental" before the word "formal" in my title is no arbitrary choice, but rather foreshadows the position that I will maintain in this paper. In general, this position can be characterized by the following philosophical insights that I locate in the Kantian text. (1) Formal logic is itself inconceivable without the presupposition (at least tacit) of transcendental logic. (2) This is because synthesis must precede all analysis, and transcendental logic

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is a logic of synthesis while formal logic is a logic of analysis by its very nature. (3) Thought in general is always synthesis. (4) The propositions that represent thought in general are the Principles (*Grundsätze*) of the Pure Understanding.

The principal conclusion from this train of reasoning is a surprising one. Given all of the above, *formal logic has a very small role to play in Kant's theoretical philosophy*. Formal logic's only function is negative: it rules out any self-contradictory judgments from the possibility of experience, as such propositions are simply false.¹ But formal logic has no other bearing there. It cannot even rule out the most far-fetched causal claims, such as a connection between the position of the stars and one's success at a card game, so long as these claims do not take the form of "p & ~p." Kant's doctrine of logic is therefore far more radical than is often supposed. Even this principal conclusion sheds further revealing light upon the nature of formal logic.

The doctrine of logic must be carefully distinguished from the order of its presentation in the *Critique of Pure Reason*. Its order of presentation is ascending, from intuitions, through concepts, through schemata to principles. However, its doctrine is descending, from principles through schemata to concepts to intuitions. In the presentation, the much-maligned Table of Judgments of formal (or what Kant calls *general*) logic is presented in the ascent as the clue or guide (*Leitfaden*) to the discovery of the Categories of Transcendental Logic (A 70/B 95). The Table of Categories can in no sense be said to be or even inferred from the Table of Judgments,² for there is not only *more* in each of the categories than there is in its corresponding judgment, but this "more" is *other* than the material contained in the judgment: this *more* is called *synthesis*. In this brief paper, I will employ the B edition Transcendental Deduction as my point of departure. By its means I will exhibit (1) above, namely how for Kant genuine logic must be transcendental, i.e. synthetic, before it can possibly be formal, i.e. merely analytic.³ With the former as its premise I propose to show (2) above, namely how all thought in general must be synthetic. I will then demonstrate (3) how the Principles of the Pure Understanding, as the exhaustive syntheses of pure concepts, pure schemata and

¹ It will have a role in the practical philosophy.

² Here Paton's suggestion retains its force. Although Kant refers to this section in the second edition as the "metaphysical deduction," this cannot possibly be regarded as a deductive argument. In *Kant's Transcendental Deductions*

³ The "before," of course, is not temporal but epistemological.

pure intuition, are the originary judgments that (1) and (2) above presuppose. Between (2) and (3) I will present a brief excursus on the nature of synthesis.

Finally, I will present my conclusion: given the central role of transcendental logic as the thought that makes experience possible at all, and given the parasitic status of formal logic together with its minor role as the “gatekeeper” that prevents the unwary among us from supposing that a self-contradictory judgment can refer to a possible experience, formal logic has little to offer to the theoretical employment of reason.

I

“The synthetic unity of apperception is therefore that highest point, to which we must ascribe all employment of the understanding, *even the whole of logic*, and conformably therewith, transcendental philosophy” (134n). This remark occurs in the context of Kant’s discussion of transcendental apperception, the “I think” that must be capable of accompanying all of my representations (B 132), in #16 of the Transcendental Deduction. Even thoughts that seem analytic, such as the thought of red in general as the analytic unity of all “reds,” require a prior act of combination. Hence “only by means of a presupposed synthetic unity can I represent to myself the analytic unity” (B 133n).

What about formal logic, regarded in light of the foregoing? In a positive sense, it contains “the necessary rules of thought without which there could be no employment whatsoever of understanding” (A 52/B 76). Adumbrating its negative sense, Kant says that formal logic “abstracts from all content...and deals with nothing but the mere form of thought” (A 54/B 78). Thus it is only a *canon of what is formal*, and does not touch the material of experience at all.⁴

Is general logic, then, possible *by itself*? In other words, can human thought think mere form without presupposing a prior form/content synthesis? Kant’s answer in the B Deduction and elsewhere is clearly *no*. The ascent in presentation masks a descent in the doctrine. In Section II of the Transcendental Logic, it appears that Kant is *adding* a condition to formal logic, namely a connection to pure intuition that would change the characterization of logic

⁴ “...as regards *content* no concepts can first arise by way of analysis. Synthesis of a manifold (being given empirically or *a priori*, is what first gives rise to knowledge” (A 77/B 103).

from “pure thought” to “pure thought of an object” (A 55/B 80). But doctrinally the move is precisely the opposite. From pure thought of an object (involving synthesis), Kant is *subtracting* the relation to pure intuition. Thus, logic must be transcendental before it can be formal.

II

Can there be, for Kant, thought that is entirely synthesis-free? It is clear, once again, that the answer must be “no,” since the synthetic unity of apperception is the necessary precondition of all thought. Formal logic draws its existence from the originary syntheses of transcendental logic. More particularly, the *judgments* on the Table of Judgments of formal logic, which disappear from consideration after their service as a clue or guide, can be seen as (to speak metaphorically) impoverishments of their counterparts on the Table of Categories of Transcendental Logic, or (more prosaically) as abstractions of their merest form from them. For Categories of Transcendental Logic themselves belong to the form of experience.

Thus, referring to the crucial categories of Relation as compared with their merely formal-logical counterparts, we see the following: the category of substance, according to which “In all change of appearances substance is permanent; its quantum in nature is neither increased nor diminished” (B 182) becomes the Aristotelian categorical judgment “All A is B.” The category of causality, according to which “All alterations take place in conformity with the law of the connection of cause and effect” becomes the Aristotelian “If A, then B.” The category of community, according to which “All substances, insofar as they can be conceived to exist in space, are in thoroughgoing reciprocity” becomes “A or B, etc.” These logical judgments and any inferences connected with them, of course, concern only the relation of truth-values to one another, and have no connection to actual or possible experience. This is why, in #19 of the B Deduction, Kant rejects the logicians’ interpretation of judgment in general as “the representation if a relation between two concepts,” (B 140) and replaces it with the following: “a judgment is nothing but the manner in which given modes of knowledge (*Erkenntnisse*) are brought to the objective unity of

apperception” (B 141). Thus, since all thought for Kant is judgment,⁵ the “I think” provides the synthetic origin of all thought.

In the Preface to the B Edition, Kant draws upon the Copernican Revolution in which the movements of the spectator were regarded as primary and the stars were regarded as at rest. Analogously, Kant proposes to reverse the procedure “hitherto” in metaphysics, which assumed that our knowledge must conform to objects, and proceed instead as if the objects must conform to our knowledge (Bxvi). This reversal is precisely what is occurring in his treatment of logic. In order to know objects, the human subject must first combine, i.e. synthesize the conditions for the possibility of the experience of objects. The logic by which these conditions are originally synthesized is transcendental logic. So, since (a) “the science of the rules of the understanding” is “logic,” (A 52/B 76); (b) the genuine logic of the understanding is transcendental logic; (c) transcendental logic is the logic of synthesis, and (d) by contrast with sensibility, which *intuits*, it is the task of understanding to *think* (A 50ff/B 74ff), it follows clearly that all thought is synthesis.

Brief Excursus on Synthesis

In its First Division, Kant says of the Transcendental Analytic that it “consists in the dissection of all our a priori knowledge into the elements that pure understanding yields,” (A 64/B 89) and at the outset of Book I he declares that Analytic of Concepts to be the “*dissection of the faculty of the understanding itself*” (A 65/B 90). In Book II of the Transcendental Analytic, he calls the Analytic of Principles “a canon for *judgment*, instructing it how to apply to appearances the concepts of understanding, which contain the condition for *a priori* rules” (A 132/B 172). However, in both Books I and II Kant presents an element that is clearly not present in the understanding, nor can it be regarded as a subordinate part of it. Its function is completely different. Its nature is completely other. Even more surprisingly, it takes over the task of synthesis—or has already taken over—the task of synthesis that seemed, and occasionally even seems, to belong to understanding.

“Synthesis in general, as we shall hereafter see, is the mere result of the power of imagination, a blind but indispensable function of the soul, without

⁵ “...The only use which the understanding can make of these concepts is to judge by means of them.” (A 68/B 93)

which we would have no knowledge whatsoever, but of which we are scarcely ever conscious. To bring this synthesis *to concepts* is a function which belongs to the understanding, and it is through this function of the understanding that we first gain knowledge so called” (A 78/ B 103). This clear division of functions between imagination and understanding recurs crucially in the section on the Schematism in Book II, the Analytic of Principles, as will be shown. However, compare this passage from Book I with an earlier one from the Preface to the A Deduction: “In this field nothing can escape us. What reason produces entirely out of itself cannot be concealed, but is brought to light by reason *immediately* when the common principle is discovered”⁶ (A xx—emphasis mine).

How could imagination be so discovered? How could it be especially so discovered when it is not produced by reason out of itself? What principle, common or otherwise, could possibly lead to the *immediate* discovery of imagination? And finally, how can it be said that reason brings imagination to light and also that imagination, the function of all synthesis, operates in the dark?

The task of Book II, once again, is for the Analytic of Principles to show how the pure concepts of understanding apply to the appearances. The problem, simply stated: the appearances come to us via sensation (receptivity), the concepts come to us via understanding (spontaneity). Given their heterogeneous natures, how can they be brought together? Once again, Kant is ascending. Their synthesis has always already occurred, but Kant is moving slowly upward from the elements as separate to their synthesized togetherness. The *schemata*, transcendental time-determinations that have both sensible and intellectual qualities, make the transition possible. In a paper of this length (and probably in any case) it is not necessary to present the details of the Schematism. It is essential to note that *imagination* is responsible for the Schematism, and that Kant speaks of the schemata, by whose means alone the categories have “significance,” (A 146/B 185) in the same way that he speaks of imagination. “This schematism of our understanding [i.e. by imagination],⁷ in its application to appearances and their mere form, is an art concealed in the depths of the human soul, whose real modes of activity nature is hardly likely ever to allow us to discover, and to have open to our gaze” (A 141-42/B 180-81).

⁶ There is nothing in the B Edition that claims anything different.

⁷ The understanding is *schematized*; imagination is *schematizing* the understanding so that it can connect with pure intuition, the form of all appearances. “The schema is in itself always the product of imagination.” (A 140/B 179)

As we will soon see, the principles collect the categories, the schemata, and pure intuition into those ordinary judgments that make both experience and the objects of experience possible. And at the heart of these principles lies the source of synthesis, imagination, which cannot be accounted for in the sublime transcendental logic it has played such a central role in generating. After the principles are treated, these reflections will find their way into the conclusion on the role of formal logic in Kant's theoretical philosophy.

III

Until now, in order to establish the fundamental thesis of this paper, the argument has kept its distance from a key element in the Kantian ascent/descent. In order not to allow "synthesis" itself to function in a purely formal-logical sense (i.e. merely as "non-analysis" or as "putting-together" in some non-specific way, *pure intuition* must be treated. Since all of our actual intuitions are sensible [A 19ff/B 33ff]), since pure intuition is the pure *form* of all intuition, and since all experience "for us humans at least" requires a connection of pure concepts and pure intuition. The principles (*Grundsatz*) are those synthetic *a priori* judgments that, in uniting pure concepts and pure intuitions, make experience possible. They are the ultimate judgments of transcendental logic, and so of all logic.

While space and time are the two forms of intuition, "Time is the formal *a priori* condition of all appearances whatsoever" (A 34/B 50). This is so because while space is the form of all outer intuitions, these latter intuitions all belong to "our inner state," of which time is the form. As time moves more and more to the center of the problematic of the *Critique of Pure Reason*, the radicality of Kant's doctrine of logic will come more and more to the surface.

As suggested in the excursus, imagination knits together the category and pure intuition by means of the schemata. Looking once again at the key categories of relation, their schemata correspond to the three modes of time, namely duration, succession and simultaneity. The schema of substance accordingly is permanence of the real in time, i.e. as that which remains as "abiding when all else changes" (A 143/B 183); of causality, it is "the real upon which, whenever posited, something else always follows" (A 144/B 183); of

community “the coexistence of the one substance with that of the other”⁸ (A 144/B 183-84). “Permanence” phenomenally instantiates duration, “following” does the same for succession, and “coexistence” does the same for simultaneity. At this point it becomes clear why the excursus was necessary: without imagination as function of synthesis and source of the schema could the gap between “blind” intuitions and “empty” concepts be bridged. Of course this bridge is already in place in every judgment made by us humans.

By virtue of the schema alone, as has been shown, the category has significance. Also by virtue of the schema and its connection to pure intuition, the applicability of the category is limited to what is given through sensibility, i.e. to objects as they appear in pure intuition (time). Thus, the Principles of the Pure Understanding, as both the conditions of the possibility of experience and of objects of experience, always contain the Schemata as their center. The elements of each are category, pure schema and pure intuition. The category supplies the *rule*; the schema functions as *ruling*; pure intuition is the *ruled*.

Turning once again to the Principles of the categories of relation (Analogies of Experience), I will attempt to illustrate this. In the First Analogy, “In all change of appearances substance is permanent; its quantum in nature is neither increased nor diminished” (B 224), the *rule* is “substance,” “ruling” occurs through “permanence,” appearances are “ruled.” In the Second Analogy, “All alterations take place in conformity with the law of cause and effect” (B 232), “cause and effect” is the rule, ruling occurs through “alterations” or succession,⁹ appearances are ruled. In the Third Analogy, “All substances, insofar as they can be perceived to coexist in space, are in thoroughgoing reciprocity,” “reciprocity” (or “community”) is the rule, ruling occurs through “coexistence (simultaneity),” appearances are ruled.

These principles belong to the Analytic division of *Transcendental Logic*. As Logic is the science of thought, and there are no higher principles than these, these principles are the principles of pure thought. As such thought is necessary for experience, these are the ultimate conditions for experience’s possibility. As any object, in order for it to be an object *for us*, must conform to these

⁸ At the end of this sentence (in the middle in Kemp Smith’s translation) are the words “nach einen allgemeinen Regel” (according to a universal rule). This belongs not, strictly speaking to the schema but to the category. Kant keeps this distinction in the first two schemata by not mentioning the “universal rule.” As there is no reason to suppose that the third is any different, I choose to omit it from the schema of community.

⁹ “...a successive being and not-being of the determination of substance which abides.” (B 232)

principles, they are also the conditions for the possibility of the objects of experience. The Doctrine of Elements, then, is indeed a “dissection.” In the *Critique of Pure Reason* the ascent to the highest principles from their elements could not occur unless the principles were present all along.

IV

Is the Analytic of Concepts truly a dissection of the understanding? Is the Analytic of Principles truly concerned only with instructing the understanding how to apply its concepts to appearances? The answer to the first is “no,” but the answer to the second is “yes,” both for the same reason. The differing functions of understanding and imagination prove that the Analytic of Concepts is more—far more—than a mere taking apart of the understanding. In the Analytic of Concepts, imagination is assigned the central role of *synthesis*, as was shown above, which fell to understanding merely to bring the synthesis of imagination to concepts. However, the Analytic of Principles was indeed concerned with “instructing” the understanding on how to apply its concepts to appearances: it can do so only by means of the schema, the “representation of a universal procedure of imagination in providing an image for a concept” (A 140/B 179-80).

In light of the above, one must conclude that transcendental logic *includes imagination at its very heart*. Given that both imagination and its schemata are non-conceptual and almost entirely concealed from our inspection, one must also conclude that a consistent reading almost entails the further conclusion that there resides something dark, something that escapes logic in any usual sense of the word, in Kant’s transcendental logic. The consequences for formal logic of these conclusions are far reaching, and can only be suggested here:

(1) Although Kant uses formal logic frequently as an example of a complete science (he does the same with geometry), it is clear that it cannot be brought to bear on judgments concerning objects of experience, except on those rare and extreme occasions when a judgment contains a self-contradiction (e.g. “This bachelor is married). Formal logic can then be employed with confidence to declare its falsehood. Otherwise, it is useless to the theoretical employment of reason.

(2) Though this matter is too complex to do more than gesture in its direction, formal logic does have an important role in the generation of the *practical* employment of reason. Kant's argument in the Third Antinomy in the Second Division of Transcendental Logic, Transcendental Dialectic, rests entirely upon the insight that natural causality and spontaneous causality (causality through freedom) are not contradictories. His claim from this conclusion is modest: "What we have alone been able to show, is that this antinomy rests on a sheer illusion, and that causality through freedom is at least *not incompatible with nature*" (A 558/B 586). This small opening, of course, will unfold into the *Critique of Practical Reason* in which, among other things, practical reason will be given primacy over theoretical reason. This apparently small, modest but also earth-shaking role played by formal logic in the Dialectic plays a major and indispensable role in the Kantian philosophy as a whole.

(3) Finally, what can be said about formal logic itself? What sort of pursuit is formal logic? For Kant, it served as an example of a complete *a priori* science of thought, and so could be used as a clue or guide, or as evidence that such a complete *a priori* science of metaphysics might be possible. For us, Aristotelian formal logic can hardly be called the complete science of thought (any more than Euclidean geometry can be called the complete science of space). New systems and new insights abound, and journals are dedicated to its study and furtherance.

In conclusion, however, I would like to suggest that a close reading of the Kantian text on transcendental logic sheds a different light and perhaps even more dignified regard of formal logic than it had previously enjoyed and still, to some degree, continues to enjoy. Since all analysis requires the presupposition of a priori synthesis, and synthesis is the work of imagination, then logical analysis takes place under the sway of imagination. (This is true even of Aristotelian logic, despite its relatively easy mastery). In this sense, the talented logician of today proceeds a great deal like a talented fine artist does, discerning interesting connections and letting the analyses "flow" from them. Thus the formal logician as formal logician has very little to contribute to the theoretical employment of reason. Only formal logic's most fundamental principle, the principle of non-contradiction, figures into the small but major opening onto the realm of practical reason. But as creative participant under the sway of imagination, the formal logician's status as artist cannot be gainsaid. Formal logic is, in this regard, aesthetic before it can be intellectual.