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PROBLEM

SCIENCE { FUNCTION } ANALYSIS

FORMULA

SCIENCE { } ANALYSIS

SCIENCE { X } ANALYSIS

SCIENCE { $\begin{matrix} \text{INDIVIDUAL} \\ \text{GENERAL} \\ \text{UNIVERSAL} \end{matrix}$ } ANALYSIS

BY

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SCIENCE { FUNCTION } ANALYSIS

Man gewinnt dadurch schon sehr viel, wenn man eine Menge von Untersuchungen unter die Formel einer einzigen Aufgabe bringen kann. Denn dadurch erleichtert man sich nicht allein selbst sein eigenes Geschäft, indem man es sich genau bestimmt, sondern auch jedem anderen, der es prüfen will, das Urtheil, ob wir unserem Vorhaben ein Genüge gethan haben oder nicht.—*Kant.*

Philos.
Logic.
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SCIENCE {FUNCTION} ANALYSIS

SCIENCE { } ANALYSIS

SCIENCE { X } ANALYSIS

SCIENCE $\left\{ \begin{array}{c} \text{INDIVIDUAL} \\ \text{GENERAL} \\ \text{UNIVERSAL} \end{array} \right\}$ ANALYSIS

DEDUCTION OF PROBLEM AND FORMULA

DEFINITION

Science = necessary { cognition } universal = the resolution of all cases of a general problem = Analysis.

Hence

Science { function } Analysis

Hence

Science { } Analysis

Science { x } Analysis

Science $\left\{ \begin{array}{c} \text{individual} \\ \text{general} \\ \text{universal} \end{array} \right\}$ Analysis

which satisfies the definition whether by resolving the problem into the singular case marked by the only imaginary differential coefficient { } and the general case marked by any real differential coefficient { x } where x is individual general universal through all moments of the logical determination

real $\left\{ \begin{array}{c} \text{individual} \\ \text{general} \\ \text{universal} \end{array} \right\} x$

or by determining the problem in relation to all moments of a single necessary { cognition } universal according to Kant's classic enumeration of them in their proper order

and connection ; for the only three fundamentally distinct moments of the formula differ whether as intuition concept idea according to the rule ideal—or as synthesis analysis dialectic according to the rule method—of Science { function } Analysis.

Thus the formula lays down the Science as well as the Analysis of my original problem in the shape of a series of derivative problems, the demanded resolution of which, in the order and connection prescribed by the formula, is developed in the sequel into an organon, yet to be a complete system, of Science { universal } Analysis.

NOTE. The isolated variety

$$\left\{ \begin{array}{c} \{ \quad \} \\ \{ \text{ x } \} \\ \text{individual} \\ \text{general} \\ \text{universal} \end{array} \right\}$$

is necessary and sufficient to integrate or satisfy the isolated differential equation

$$\text{ideal} \left\{ \begin{array}{c} \text{intuition} \\ \text{concept} \\ \text{idea} \end{array} \right\} \qquad \left\{ \begin{array}{c} \text{synthesis} \\ \text{analysis} \\ \text{dialectic} \end{array} \right\} \text{method}$$

to which Kant's enumeration leads through the recognition of the enumeration in two equivalent formulas. Witness my

$$\text{ideal} \left\{ \begin{array}{c} \text{intuition} \\ \text{concept} \\ \text{idea} \end{array} \right\} \left\{ \begin{array}{c} \{ \quad \} \\ \{ \text{ x } \} \\ \left\{ \begin{array}{c} \text{individual} \\ \text{general} \\ \text{universal} \end{array} \right\} \end{array} \right\} \left\{ \begin{array}{c} \text{synthesis} \\ \text{analysis} \\ \text{dialectic} \end{array} \right\} \text{method}$$

problem in question. The mere thought of real as variable facilitates and even demands the recognition of the successive moments of the logical determination of real. For real referred to variable is individual because it is in itself a single real variable; general because it comprehends under itself every other real variable; universal because it either is in itself or comprehends under itself every real variable. The imagined vanishing of all moments of the logical determination of real leads to the invention or discovery of the logical determination of imaginary

imaginary {

Since there are no real differential elements in the logical determination of imaginary, it is impossible to enumerate more than one imaginary variable, namely which is therefore the only as well as any imaginary variable.

USE

Because the present problem is the highest or most general of all possible general problems, the presented resolution demonstrates the universality of every single analytical principle that can be abstracted from it, for instance, the principle that there exists a differential coefficient for a given function.

Because all that can ever be known is unknown function, the presented and explained development of function into the sequence and x , and of x into the series individual general universal, proves the universal validity of Kant's theory that knowledge begins in intuition and advances in concept and ends in idea, by making function by degrees completely known according to that theory.

Because the problem which I have elsewhere reduced to the analytical expression Science { function } Analysis requires first of all to be completely determined by means of the thorough development of function in that place, this thorough development of function in the abstract is propædæutic to the consideration of that analytical expression.

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PROPÆDEUTIC TO SCIENCE {FUNCTION} ANALYSIS

Resolution of all cases of the hitherto unrecognized general problem, variable=coefficient=function.

EXPLANATION

The imagined vanishing of any real variable x leads to the invention or discovery of any imaginary variable conveniently read blank. Any imaginary variable and any real variable x are evidently functions which determine the rule function in the same manner as imaginary and real determine the rule variable, that is, universally through the sequence whether of the singular and the general case, or of the only two "different successive values" that can ever be recognized as original and necessary under the classic mathematical definition of the rule. Consequently the apposition of the successive moments of the one determination to the corresponding moments of the other, not directly but through their common apposition to only an empty compartment marked coefficient

constitutes a differential equation the integration of which by means of the logical determination of imaginary and real is necessary and sufficient to resolve all cases of the general

DEDUCTION OF WORK DEMANDED BY FORMULA

POSTULATE

I

= a plane equilateral triangle the internal determination of which is only imaginary = the geometrical construction whether of the concept Science or of the concept Analysis referred to the vacant place of any correlative concept = the solution of one case of the general problem, Science { } Analysis ;

II

= a plane equilateral triangle the internal determination of which is real in respect of only the middle point of the altitude = the geometrical construction whether of the concept Science or of the concept Analysis referred to the concept individual = the solution of one case of the general problem, Science {individual} Analysis.

III

Resolution of all cases of Science {individual} Analysis = solution of one case of Science {general} Analysis.

IV

Resolution of all cases of Science {general} Analysis = solution of one case of Science {universal} Analysis.

HENCE

the work by corresponding stages, as follows.

NOTE. **2** arises from distinction of successive stages in the reproduction of **1** by degrees according to a constant rule referred to Science { } Analysis in relation to which the whole of **1** was postulated. Thus the stages in question given Kant's terminology, are found to differ whether as intuition concept idea according to the rule ideal — or as synthesis analysis dialectic according to the rule method — of Science { } Analysis.

3 arises from reference, in one to one correspondence, of the successive moments of two equivalent formulas obtained from **2** to the same whole of possible Science { } Analysis, which is thereby perfectly differentiated a priori; followed by the integration of the resulting differential equation. The second moment of the integral represents the necessary identity in all the variety presented by the first moment. For the first moment may be conceived to undergo a gradual shortening of unit line until all difference in the variety line angle surface vanishes, and nothing is left but the identity in the same, in the image of a point. So conceived the first moment stands to the second in the relation of variable to limit. The third moment of the integral represents the necessary reference of all the variety presented by the first moment, to the representation whether of the variable or limit in question.

II Resolution of all cases of Science {individual} Analysis achieved in and through the integration of a simple differential equation derived from the solution of one case.

1

/.

intuition

∠.

concept

△.

idea

}

ideal

2

of Science {individual} Analysis

/.

synthesis

∠.

analysis

△.

dialectic

}

method

3

ideal

of individual Science

intuition

concept

idea

△.

C

D

A

B

AB

×

CD

||

ABC·D

synthesis

analysis

dialectic

}

method of individual Analysis

III Resolution of all cases of Science { general } Analysis achieved in and through the integration of a complex differential equation derived from the solution of one case.

NOTE. The complex form of the differential equation in **3** is rendered necessary by the specialty of the particular Science { x } Analysis in question. Only through the *cross* reference of the two equivalent formulas obtained from **2** could the same whole of possible Science { *general* } Analysis be perfectly differentiated a priori.

IV a Derivation from the solution of one case, of a compound differential equation demanding the resolution of all cases, of Science { universal } Analysis.

1	AB	base	multiplicand	base	= area ÷ ½	altitude
	×	×	×	×	×	×
	CD	½ altitude	multiplier	½ altitude	= area ÷	base
	ABC·D	area	product	area	= area² ÷	area

single	manifold	restrictive	intuition	} ideal
definite	definable	definitive	concept	
individual	general	universal	idea	
2	of Science { universal } Analysis			
synthetical	analytical	dialectical	synthesis	} method
“	“	“	analysis	
“	“	“	dialectic	

3 Here belong the empty tables A B C which follow. They perfectly differentiate the whole of possible Science { universal } Analysis, and constitute a compound differential equation demanding the resolution of all cases of that problem.

TABLE A				SINGLE	MANIFOLD	RESTRICTIVE	INTUITION OF UNIVERSAL SCIENCE

TABLE B	CONCEPT OF UNIVERSAL SCIENCE			
	DEFINITE	DEFINABLE	DEFINITIVE	
n. an. dia. synth.				
syn. an. dia. anal.				
syn. an. dia. dial.				

TABLE C	INDIVIDUAL	GENERAL	UNIVERSAL	IDEA OF UNIVERSAL SCIENCE
	m. an. dia. synth.	syn. an. dia. anal.		

IV b Essay to refer recognized moments of the demanded resolution of all cases of Science {universal} Analysis each to its proper place in the formula demanding the resolution.

On the supposition that pure reason, constant as the faculty of Science {function} Analysis in all rationals of all times, but varied through all moments of a maximum differentiation and integration of that function in different rationals of different times, has somewhere in some context already cognized every step in the solution of every case of Science {universal} Analysis, but has not yet recognized every step in the solution of every case in its proper place in the resolution of all cases ; I propose to search out all and only the cognitions that are the content of that resolution, and arrange them each in that proper place as fixed for it a priori by Tables A B C. To be sure the task is not for only one rational, but for every one interested in the development as much as possible in himself of the same faculty that aforetime made the cognitions, and is now in his person called upon to recognize what it has itself in other persons already produced according to a fixed and ascertained formula. My own discovery of the required cognitions and reference of them to this or that place in the formula is sure and complete as regards the solution of only one case of the general problem in question ; but all that is wanting to the perfection of the demanded resolution will undoubtedly be found, if able men, and such as are acquainted with what is classic in the use of pure reason, will endeavor to recognize the missing cognitions by the general but sufficient marks that relegate them to one or another place in the formula in correlation with one or another moment of the singular solution.

TABLE A	INTUITION OF UNIVERSAL SCIENCE			
	SINGLE	MANIFOLD	RESTRICTIVE	
dial.	$\begin{aligned} \text{base} &= \text{area} \div \frac{1}{2} \text{altitude} \\ &\times \times \\ \frac{1}{2} \text{altitude} &= \text{area} \div \text{base} \\ &\parallel \parallel \\ \text{area} &= \text{area}^2 \div \text{area} \end{aligned}$			
dia.	<p>multiplicand $\times$ multiplier = pr.</p>			
an.	<p>base $\times \frac{1}{2}$ altitude = area</p>			
syn.	<p>$AB \times CD = ABC \cdot D$</p>			
anal.	$\begin{aligned} &^zZ \\ &D \\ &xX \ yY \\ &Z \\ &D \\ &X \ Y \\ &z \\ &D \\ &x \ y \\ &C \\ &D \\ &A \ B \end{aligned}$			
synth.
dia.
an.
syn.

TABLE B		DEFINITE	DEFINABLE	DEFINITIVE	CONCEPT OF UNIVERSAL SCIENCE
syn.	an.				
	dia. dial.				
syn.	an.				
	anal.				
syn.	an.				
	dia.				
syn.	an.				
	synth.				
an.	dia.	intuition } ideal concept } idea }	synthesis } method analysis } dialectic }	negation } quality reality } limitation }	science } analysis science } x } analysis science } individual } analysis science } general } universal }
	syn.	number } limit function } extension }	discrete } magnitude discursive } continuous }	unity } quantity plurality } totality }	science { function } analysis science { calculus } integral arithmetic { algebra { geometry }