LOGIC

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Chapter 1

§ 1 – The Character and Direction of Philosophical Striving

Logic is, one might say, the rudder on a passenger boat that the human mind sails across an endless sea of thoughts, events, and phenomena, toward ever-desirable truth, goodness, and beauty. Our people too have taken to these ideals that humanity strives for as its purpose; since man first became aware of himself, he has found no rest save in that labor set upon him by his striving toward ideals of the spirit. Even after two thousand years, which is how long these conscious efforts can be reckoned, none can hope to fully unveil the mysterious statue of Sais for all minds to cry out in unison: »εὑρήκαμεν«; »we have discovered the whole truth«; yet the efforts do not subside. But why then this eternal aspiration to which there is no end and conclusion? Why mount the search for that wondrous land of ideals of truth, goodness, and beauty on the boat of human thought, when Columbus ventures there not? Such exactly is the composed pride of man to persistently pursue the *whole* truth, though knowing full well that he will not *wholly* seize or grasp it. »The pursuit of truth grant me, o Heavenly Father, the *whole* truth remains but for Thee«, says the world-renowned thinker Lessing, echoing and slightly altering a statement found in a writing by St Augustine, Church Father and erstwhile Neoplatonist philosopher; in a dialogue of Augustine's (see Ueberweg's *History of Philosophy II*, p. 86), Licentius says: »the search for the truth doth itself bring us joy, for the wisdom of man, upon which his happiness is grounded, is not a final *knowing* of truth, but the faithful and tireless *search* for the truth«. St Augustine corrects Licentius' view, teaching that the wisdom and happiness of man requires not merely the search for truth, but the result of that labor, namely the learning of truth. The essence of humanity is thereby stated. Labor, ceaseless labor for the discovery of truth, ceaseless advance toward the truth, such is the life of man; rest, even that of the beatified, lies beyond the *earthly* reach of the human spirit.

Even if philosophy and the sciences failed to reach the *whole* truth, and minds have not hitherto reached agreement so as to proclaim in unison: »*this* is the *truth*, *this* is *good*, *this* is *beautiful*«, much truth has nonetheless been

discovered and the lasting worth of goodness and beauty is made manifest at least in such a glow that the human eye can bear. Who would blind their eyes or not use them because their gaze cannot envelop the entire world, but only a small fragment of the world? Who would not delight in the sky's blueness because its horizon is bounded, and not endless? In like manner, how could we not employ the mind only because it can, through effort, reveal a mere fragment of truth and not the whole truth?

Logical truths, aesthetical truths, ethical truths make up the horizon of human thought, which transcends the merely material, which encompasses all that is valuable and worthy of being and existing; a horizon that stretches higher and wider than the confines of mere physical causality. Thought, feeling, and will are to be governed by independent laws of reason, and not by material force, not by the thrust of physical laws or causes, not by mechanical necessity. The psychic and physical mechanism also produces falsehood (deception), ugliness, and wickedness. All three are fickle, inconsistent, irrational. Inconsistent and false thinking, vile feeling, weak or ill will: this is what permeates and governs a life not inspired by ideal philosophical striving, not guided by logical, aesthetical, ethical truths. These truths are firm bonds, but of reason, not physical or bonds of force, and because they pertain to reason, they are free, or in Kant's sense, »autonomous«. Lawlessness and disorderliness in the realm of the mind – are the most grievous.

Nothing of worth is produced through human labor without lively logical, aesthetical and ethical striving, that is, *without philosophical striving*. Consider those nations – the ancient Greeks, the French, the English, the Germans – that have accomplished the most for philosophy, and we shall observe a connection between their educational, social, and state life and philosophical striving. Behold, amongst the English, the Bacons, the Lockes, the Mills, and then behold their state spread over all five parts of the world. Elsewhere, we observe that a lack of philosophical striving is accompanied by deficiencies in social and state affairs. Against such a connection between philosophical striving and social and state life of a nation, one might object by appealing to what is known of the Romans; namely, that the Romans, unlike the ancient Greeks, did not have an indigenous philosophy, and yet they possessed a powerful global state. But in truth, the case of the Romans does not contradict our assertion. They do not, for an ethical and logical force was for them manifest in jurisprudence: thereupon lies their philosophical striving, the logical and ethical kind at least, in the practical direction of governance. What of the Arabs, the founders of powerful states? And the Ottomans? When the former flourished, there was a great burgeoning of Aristotelian philosophy, and among the latter, like with the former, there reigned for a long time an absolute loyalty to a transcendent principle,

albeit misunderstood; thus, both for a while possessed great state-building and social strength. We may certainly assert that nations are kept alive only by a *lively striving toward ideals*; it is a hearth to millions of souls. The philosophical spirit is a unifier not only of thoughts, but of feelings and deeds. Such is the grand educational significance of philosophy; it is also the significance of the striving of our people, to claim philosophy for itself; this striving is not a mere intellectual task for our people, but also an ethical and national duty.

But if the philosophical spirit unifies the individuals of a nation, it likewise unifies various nations, it is a cosmopolitan force. Granted, with all their philosophy, even the most enlightened nations persist in bickering and fighting; yet all the philosophical champions of all the new nations, moved by the direct or indirect influence of Christian gospel, preach the unity of humanity and the necessity of *concord*, the duty of mutual love among all nations; and though today this is merely a voice of the desperate in the desert, it is a herald of humanity's future, distant though it may be. *Philosophy is the spiritual cosmos* (»world«) *of all nations*. It spreads from nation to nation, and those that have been newcomers in its sanctum two or three centuries ago are now the forebears. The same shall come to pass with our nation, should it persevere. As a newcomer, it enters philosophy's temple, and if our nation perseveres for a century, it too shall become a forebear, a recognized citizen of that spiritual world, and then, and only then, shall it also become a permanent resident in this land, which the grateful call their motherland; you cannot ensure a material motherland if you had not earned a spiritual motherland; only the latter can defend the former.

As all other once-backward peoples have flourished on the philosophy of *others*, so too shall ours; indeed – and this serves as a second justification for the forming of an international philosophical legacy and heritage – some philosophical champions, such as Plato, Aristotle, Bacon, Leibniz, Kant, and others – have already become cosmopolitan; they belong to all nations.

The cosmopolitan character of philosophy affords us the opportunity to avoid subjugation under some foreign philosophical tendency, such as the German, and in this universal world philosophy establish a foothold against the dominion of the German spirit in our country. If our education were to be erected solely on the German ideal, our mere imitation would bring about our extinction, and our own naturally growing, unique seed would wither away. But we should also draw invigorating sustenance from the English and the French, the Italians and the northern Slavs, and above all, the Ancient Greeks, in our pursuit of truth, goodness, and beauty. This is precisely the significance and value of our endeavor to have science in our native tongue, that a needed worldwide perspective thereby becomes permitted and opened to us, that it al-

lows us to turn our attention in our scientific pursuits to the Romance nations, the English, the northern Slavs, whereas some Germans in their philosophical lectures pay little heed to other contemporary nations, and explain matters as if one needn't know about current French and English philosophers. There is naught that we ought to hold so dear, nor regard as a matter of such vital import to our scientific progress, as we should the independent use of works from nations aside from the Germans.

Such use is most beneficial to logic. For logic, as perhaps for no other philosophical discipline, the English in particular have produced notable works, which we had better put to use. Thus, though we may lack our own lasting national tradition in philosophy, we have a universal one at hand, and as we walk in the footsteps of various foreign greats, we shall avoid being bound by anyone's fetters or one-sidedness, and shall in time be able to stand upon our own feet. Even if it is no birthmother, philosophy is a breast feeder that rears a nation and liberates its spirit. And whoever grasps for oneself the logic of thoughts, shall master the logic of deeds. This is what nudges us to dive with all our might into philosophical matters, to put our souls into that long voyage across the sea of thoughts, though our boat is rocked by the waves of political and social misfortunes that now befall all our people; for we, too, wage our struggle for the true, the good, and the beautiful.

§ 2 – The Position of Logic in Philosophy; Particularly and Especially in Greek Philosophy

We cannot commence with a final and complete definition of logic; such a definition would encapsulate, in its core, the entirety of its subject. Were all philosophers to conceive and discuss logic in the same manner, their definition of logic would likewise be one and the same. Yet that is not so; we should thus inquire about the various ways to understand logic and the understanding that we ought to choose and adopt as the best.

It seems beneficial to call to mind *formal* logic, as we know it from school days. Are we to immediately advance from that formal logic? Yet this we cannot do, for it is yet to be resolved whether logic ought to be formal, *merely* formal, or perhaps real.

It is thus necessary to first briefly reflect upon the development of logic and on its various contemporary tendencies.

In approximate terms may we call logic the science that lays down the laws and rules of human thought. Hence, it is natural that logic was chronologically (or in temporal succession) not the first science. *Before* that, there were various thoughts about the world, its origin, and so forth, and only *then*, when thoughts

about the world had already emerged, aiming to grasp truths about the world's being and existence, then did it occur to the human mind to observe its own method of comprehending the world, to discover if there were laws and rules to this method that, if adhered to, would lead the mind to truth. And indeed, Greek philosophy, which sought to understand the being of the world and the essence of matter, had long existed, so there existed that branch of philosophy belonging to metaphysics called philosophy of nature, and thereafter did logic arise, that is, the science that seeks to understand the essence of cognizing, the essence of thought itself. Man first gazed outward and asked, "What is the world?", "Where does it come from?", "What is it like?", and then turned his spiritual gaze inward and asked: "And what am I?", "What is that within me that thinks?", "How do I think, and how am I to think, so that I may think the truth, to learn, that is, to seize in thought the essence of the external world?" After the Ionian, Elean and Pythagorean metaphysicists and after the atomists, there came – as a foothold against the skepticism, the dual-minded, that is, the doubting philosophy of the sophists – Socrates, the founder of logic, with his principle: *know thyself* (γνῶθι σαὐτόν). What did he intend by this principle? Before him, philosophers thought about things, whereas he commenced thinking about thinking – on the nature and the modes and laws of thought – what features it must bear to bring forth a faithful, truthful expression of things. In this way, Socrates made a great turn in Greek philosophy, stirred before him already by the sophists. What lies nearer to the thinking intellect: the external objects, which its thoughts concern, or the thoughts themselves? Surely, the thoughts themselves; for they are within it, and the objects are without; the intellect does not even grasp objects except in thought. Hence, we are to commence with the nearer, not the farther. Since thought may be likened to a hand, by which I, as a man, grasp things, we must first understand this hand, this tool – what it is like and what it can do – and then shall I be able to inquire: what are those external objects, which thought grasps? Are they truly as I think them? Almost since the dawn of time, man has wielded mechanical tools, and with success, but only later did he come to know the *laws of mechanics*. Since then, mechanical tools could be used with greater success, and new, previously unknown and unforeseen tools could be invented. Hence, although in the chronological order (or in temporal succession) metaphysics precedes logic, from the moment it was understood that the thought is nearer to the thinker than the object of thought, we were to commence with logic, which seeks to understand thinking itself.

It was Socrates who laid logic's foundation. He discovered induction, abstraction, and definition, that is to say, he discovered that if we are to know what a particular thing is, we must compare it with similar things, and inquire what it is in all these particular, yet similar things that we take to be their shared

feature. To state the shared feature of all those compared things is to state a truth about them, to state their essence. The essence of things is thus established by that thought which expresses the shared, that is, the group-specific essence of things of the same kind; such a thought is called a concept. Socrates' effort was to establish how the intellect arrives at concepts; as stated, Socrates found that we arrive at concepts through induction, abstraction, and definition. Thus did Socrates direct inquiry toward thinking, toward its modes and processes, without inquiring anything about the material world, how it came to be, what its principles are, and so forth. In doing so, Socrates wrought the most momentous shift in the strivings of Greek philosophy: he, as it were, absolved man from the material world, or rather, the thinking subject from the thought object, which until then had been as though inseparable, as fused. The common man deems that his sensory representation of external things is identical with the things themselves, or at least a perfectly true reflection of theirs; how they truly are in themselves, in their essences, independent from the subject's mind. But that is not so. Hearing, seeing, smelling, touching, and so forth, *all are modes of our sensory* grasp on things, these are our internal, prevailingly mental constructs. Color is our sensation, and thus our representation, a construct of that which is sensing and thinking within us, and not an objective, real property; an external phenomenal object, that is, an external thing that can be sensed is no more than a set of sensory representations. If that is so – and this has been established by all psychology since Locke – then by subtracting from external things our sensory representations, and in general our representations from things, what remains that is objective or real? No thing remains, but some x, some unknowns. How am I to know what external things are, beyond having been sensed and thought by me? That is, what are things in themselves, beyond my senses and representations? This I cannot know, cannot inquire, cannot even conceive. What is evident, then, is the futility of pondering on what things are, what their essence is, where they come from, if I do not come to know first what my thinking is and what it is like, and what conditions must be met for it to be true. The position of pre-Socratic Greek philosophers was unreflective, as that of any common man, who believes that he sees, hears, and generally senses and has the external world represented as the external world is in itself, objectively, and thus that he can inquire and learn all about the external world without asking about himself and the manner and nature of his thinking. A son of a midwife, Socrates playfully referred to himself as a midwife of truth; it may well be said that Socrates was the very midwife who made the newborn, that is, human intellect, independent and severed it from the material world. He separated the subject from the object, thought from thing, coming to realize the

illusion of that bond that supposedly unites thought and thing, and of thought that directly fathoms and penetrates into external stuff and thereby becomes one with it. At once shall we discern the consequence of Socrates' separation of thought from external thing. If one can separate thinking and thoughtness from thingness, so that thought can be contemplated without paying any mind to things, is this not because thinking is entirely independent of things, and that the world of our thoughts, particularly our true thoughts and true concepts, has come into being without the influence of the things around us in this *apparent* world? Indeed, thus taught Plato, the successor of Socrates. He taught that this material, apparent world around us is but a mere sensory illusion, and that our conceptual, non-sensory representations are not stirred or assisted into being by these external things; rather, these thoughts the soul came to harbor within itself, before its earthly existence, from the supraphenomenal world of pure ideas that exist somewhere beyond the heavens as true beings and the memory of which is borne by the human soul into the material world, in the form of its conceptual, non-sensory representations. And so came about the belief that the human soul bears ideas, that is to say, natural and innate concepts (*ideae innatae*), and innate laws of thinking; in the formation of these innate thoughts and laws of thinking, this apparent external world plays no part.

§ 3 – Formal and Real (Objective) Logic; Deductive and Inductive, Rationalist and Empiricist; Indirect Formal-Real Logic; Absolute Logic

What is formal logic in its true and pure (Kantian) sense? If there are laws and modes of thinking innate to the soul, if the external world plays no part in generating our cognitive thoughts, is it then necessary, nay is it even possible to inquire whether our thoughts align with external things? Nay, that inquiry becomes redundant. One may inquire only as to whether and which of our thoughts align with one another and with the laws innate to our thinking reason; which of them are mutually consistent, and which are inconsistent or contradictory. The mind shall cast aside inconsistent, contradictory thoughts, and affirm those that are consistent as true. We speak not, then, of the consistency of our thoughts with the external world, but of the consistency among thoughts themselves: we speak only of a formal validity of our thoughts, within which their real truth is also contained. Pure formal logic cares not about the real world, but is concerned solely with thinking itself, seeks its internal lawfulness and regularity, and therein finds the mark and criterion of truth.

Over the course of the ages, an entire procession of philosophers have sprung from Plato that adhere to a pure formal logic.

But Plato's wisest disciple Aristotle thought otherwise. He once more brought thought and thing, the ideal and the real – closer together. On his view, human thoughts do not arise *without* external things taking part; thus, we ought to acknowledge and observe not just one factor of thought – the spirit – but another – the external real world. Our thoughts, he held, remain forever in a relation (mutual or reciprocal) with external objects; thus, when we examine the nature and laws of our thinking, we cannot confine ourselves to thoughts alone, to their *form*, but must also mind the objective, the side of our thoughts regarding matter and content, the causal relation of our thoughts to external objects. Hence, logic is not to be merely subjective, merely formal; it must also be objective, also real.

Thus far, we have highlighted the two main, mutually opposing schools of logic. One comprises the adherents of pure formal logic. They insist that logic ought to observe bare, or pure, forms of thought, devoid of any real content that concerns the external world: they hold that, by not paying any mind to external objects of thought, logic discovers the laws of thinking. Hence, the adherents of pure formal logic assert that thought and cognition (*penser – connaitre*, *denken – erkennen*) are two distinct operations of the spirit: thinking remains within the thinker, within the subject – it is intrapersonal, whereas cognizing extends from the subject onto the external object – it is transpersonal. On this view, one ought to understand thinking first, that is, to ascertain what forms of thought are possible, and especially which forms of thought are apt for cognizing about the external objective world; only then may we inquire into the content of thought that affords knowledge of that objective world. Hence, adherents of formal logic hold that logic concerns itself only with bare forms of thinking, but not with the objective content of thought, or cognizing the world. The opposing school of logic – the adherents of an objective or real logic – state the following. Thought does not arise within the thinker, the subject, never lacking some farther or nearer stimulus from without, from the object; from subjective thoughts one thereby cannot entirely erase that objective factor, nor can bare and empty forms of thought, devoid of all objective content, ever be discussed. When one then seeks rules and laws of thinking, and the very forms of thought suited to truthful thinking, then one ought to also mind the external objective world, the things that stir in the thinking subject some specific contents and some specific forms of thought, and not separate and utterly disentangle the form of thought from the objective or real content of thought; one ought not utterly disentangle thought from cognition (*penser* from *connaitre*).

There is another distinction in logic, one that corresponds to that between the two aforementioned schools of purely formal and real logic – namely, that between deductive logic and inductive logic.

If logic builds upon and unfolds from the objective, real world, it builds upon observation, that is, upon experiential (empirical) examination of particular things within this real world; we only succumb the external world to cognitive thought through sensory observation of particular things in the external world. Experience (empirics) is of an inductive nature; having observed ten or twenty similar things or phenomena, we direct (or induce) our cognitive reasoning into that essence that is shared by all those similar things, and is therefore universal and essential to them. Objective, real logic shall thus value induction first and foremost. If the human spirit does not develop the shapes (forms) of thought and laws of thinking under the influence of the external world, but possesses them within as a unique innate property, then from these innate laws of thought, as from general principles, can the human spirit derive (deduce) all particular things. Hence, pure and thereby formal logic values only deduction.

We see, then, that real or objective logic is by its nature bound to empiricism, that is, to the principle that experiential observation imparts knowledge to man. If this principle holds, then only the inductive logical procedure, which proceeds from particular things to universal knowledge, is reasonable. Conversely, formal logic, valuing only deduction, is bound to rationalism, or apriorism, that is, to the principle that sensory observation of particular things does not bestow upon the human spirit universal concepts (for instance, the concept of cause), but rather that the spirit possessed these concepts within itself beforehand and in advance (a priori), and that it applies and employs them on the external world, and in this way derives knowledge of it.

Formalism in logic, and the predominance of deduction therein, relates to rationalism as a general philosophical principle; realism (objectivism) in logic, and the predominance of induction therein, relates to empiricism as a general philosophical principle. Aside from determined or strict formalists (and rationalists), and strict realists (and empiricists), there exists a third school. That school endeavors to reconcile formalism with realism, and, more generally in philosophy, rationalism with empiricism, by alleviating the adversity between opposing principles – formalism and realism, rationalism and empiricism.

A fourth direction yet exists in logic and philosophy in general. This direction is called absolute logic, whose principal advocate is the German philosopher Hegel.

Once Socrates had separated reasoning on forms and laws of thought from the cognitive exploration of the real, external world, three distinct views became possible.

The first view argues that thinking, in its forms and laws, is wholly independent of external reality, and external things, that is, external objects thereby exert no influence upon the thinking spirit. Rather, it is the thinking spirit that

imposes its indigenous forms and laws of thought upon external reality. This is the view of some strict formalists, including rationalists, and particularly that of Kant, who claims that the human spirit does not derive laws and forms of thinking from external reality, but, instead, imposes them from itself onto external reality.

The second view argues that, though the essence of external things is not manifest or expressed in the thoughts of the human spirit, thoughts are nonetheless spiritual marks, spiritual symbols of external things. The human spirit and the material world are of different essences, yet thoughts of the spirit come to be influenced by the facts of external reality. The thoughts of the spirit are responsive to the developments of facts within external reality, much like one parallel line is guided in its course by the other parallel line.

The third view argues that Socrates' separation of thought from thing, thoughtness from thingness, must be dismissed, for thoughts and things are in essence one and the same. That is to say, genuine thought – not the particular, sensory, singular, or as some say, concrete thought (and concrete is singular) – but rather universal, non-sensory, conceptual, or abstract thought, which thinks only the enduring, essential, and common property of a particular thing shared with other particular things of the same kind, and does not think its transient, accidental and singular properties – such conceptual thought wholly represents the true essence of an external thing, and is indeed identical with that thing itself, and not only with its essence, but precisely with its being, its existence. An external thing, the third view contends, does not otherwise even obtain, does not exist, except in the conceptual thought of the thinking spirit, which thinks the essential property or essence of the external thing; the thinking spirit and external reality are, thus, completely identical, and in such a way that all external reality is nothing but the thought-up creation of the spirit. Being, existence is possessed either by that which thinks – the spirit – or by that which is thought – external reality. The spirit possesses being because it thinks, and the external material world possesses being, existence, only by the fact that it is thought and how it is thought by the spirit. This is asserted by the view known as absolute logic, most fully developed by Hegel, which pushes idealism to the extreme in that it eradicates being from anything apart from the thinking spirit: being is possessed by nothing other than the thinking spirit.

These are the three distinct directions of logic.

Having characterized them, we ought to consider the reasons favoring the first or the second or the third direction, so that, based on these reasons, we may decide upon one, and then systematically pursue it. In this task, the fol-

lowing principal works of German, English, and French scholars shall serve as our foundation:
Drobisch, *Logic* (4th edition, 1875).
Trendelenburg, *Logical Investigations*, 1870.
Lotze, *Logic*, 1874.
Ueberweg, *System of Logic* (4th edition, 1874).
Tiberghien, *Logic* (Paris, 1865).
A. Bain, *Logic: Deductive and Inductive* (English original from 1871 in London, French translation from 1875 in Paris).
J. S. Mill, *A System of Logic: Deductive or Ratiocinative and Inductive* (English original from 1868 in London; German translation by Schiel from 1868).
Siegwart
Wundt and Höfler.
Rabier
Paul Janet.

Translated by Viktor Ivanković