

## CHAPTER 10

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### Second Epilegomenon: Standpoints

*For even if the practical turns out to be theoretical prior to its being practical, nevertheless a great difference would be found in them.*

Ptolemy

#### § 1. Summary of the Categories of Understanding

By now the reader will not be surprised when I say Ptolemy got his priority reversed in the quote above. In the previous three chapters we have treated the Critical Philosophy's transcendental ontology. Although while in the course of doing so we have seen the introduction of numerous logical divisions in our mental anatomy – such as the process of reflective judgment and the power of speculative Reason – our main focus has been on understanding the *Realdefinitions* of the categories, which are the pure notions constituting the rules for the making of concepts.

In examining the *Realdefinition* of these primitive *a priori* notions, we have called upon each of the four titles of metaphysics proper (Rational Physics, Rational Psychology, Rational Cosmology, and Rational Theology) to provide us with a ground for an exposition of the *use* to which the twelve categories are applied in making combinations of judgment and by which mere mental representations are invested with objective meaning and connected in consciousness. Each of these four branches of metaphysics proper has provided us with what we called a *reflective perspective* of ontology as it must be viewed under the Copernican hypothesis. We called these perspectives logical, transcendental, hypothetical, and empirical, respectively.

Throughout this exposition of the categories of understanding the different viewpoints provided by our four perspectives have had in common what we will call the **theoretical Standpoint**. The subject-matter of this Standpoint is ontology. This is traditionally viewed as the theory of things or of 'being *qua* being', but under the Copernican hypothesis it must be viewed as the theory and critique of objects and Objects. Indeed, the adjective *transcendental* is applied to this transcendental ontology as an explicit reminder that 'knower' and 'known' are fused in the Critical Philosophy, that the distinction between objects and Objects is something quite different from the distinction we commonly make between 'observed' and 'observer', and that the horizon of possible experience is the boundary of objectively valid understanding and speculation, beyond which the categories of understanding can have no empirical real employment.

The theoretical Standpoint is but one of *three* interlocking Standpoints with which we must deal in the Critical Philosophy. We will take up the discussion of this idea of separate Standpoints and of what we mean by the term “Standpoint” beginning in the next section. First, though, it seems worth our while to recapitulate the material of the past three chapters in a concise table of the categories of understanding so order that we may have a summary list. The table below is repeated with additional explanatory footnotes on transcendental Logic in the second appendix. The *Realdefinitions* of the categories are as follows.

### Table of *Realdefinitions* of the Categories of Understanding

#### Quantity:

The category of **unity** (oneness) is:

- from the logical perspective, the notion of the scheme for representing extensive magnitude in a singular judgment;
- from the transcendental perspective, the notion of association in the determination of concepts as the *materia ex qua* of the synthesis of reproduction concordant with an aesthetic Idea insofar as this association pertains to identity in the extensive magnitude of the sphere of a concept;
- from the hypothetical perspective, the notion of the common context in the *Existenz* of all appearances;
- from the empirical perspective, the notion of a determined object.

The category of **plurality** (manyness) is:

- from the logical perspective, the notion of the scheme for representing extensive magnitude in a particular judgment;
- from the transcendental perspective, the notion of association in the determination of concepts as the *materia ex qua* of the synthesis of reproduction concordant with an aesthetic Idea insofar as this association pertains to difference in the extensive magnitude of the sphere of a concept;
- from the hypothetical perspective, the notion of sub-contexts in the form of every context;
- from the empirical perspective, the notion of determined appearances.

The category of **totality** (allness) is:

- from the logical perspective, the notion of the scheme for representing extensive magnitude in a universal judgment;
- from the transcendental perspective, the notion of association in the determination of concepts as the *materia ex qua* of the synthesis of reproduction concordant with an aesthetic Idea insofar as this association pertains to the completion of the extensive magnitude of the sphere of a concept;
- from the hypothetical perspective, the notion of a complete context as the integration of all sub-contexts into one context in the given whole of all appearances;
- from the empirical perspective, the notion of a real Object symbolizing a *res ipsa* (‘thing in fact’) under the principle of the Ideal of an *entis realissimi*.

#### Quality:

The category of **reality** is:

- from the logical perspective, the notion of the scheme for determining the intensive magnitude in an affirmative judgment;
- from the transcendental perspective, the notion of the form of compatibility in the determination of the *materia in qua* of intuition as agreement in the synthesis of comprehension and apprehension;
- from the hypothetical perspective, the notion of the sensible context of the appearance in an

intuition;

- from the empirical perspective, the notion of making a transcendental affirmation of the quality of "being something."

The category of **negation** is:

- from the logical perspective, the notion of the scheme for determining the intensive magnitude in a negative judgment;
- from the transcendental perspective, the notion of the form of compatibility in the determination of the *materia in qua* of intuition as opposition in the synthesis of comprehension and apprehension;
- from the hypothetical perspective, the notion of the intelligible context in the concept of an appearance;
- from the empirical perspective, the notion of making a transcendental denial of the quality of "being something."

The category of **limitation** is

- from the logical perspective, the notion of the scheme for determining the intensive magnitude in an infinite judgment;
- from the transcendental perspective, the notion of the form of compatibility in the determination of the *materia in qua* of intuition as distinction in the synthesis of comprehension and apprehension;
- from the hypothetical perspective, the notion of the real context in a cognition of an appearance;
- from the empirical perspective, the notion of the divided Object in Reality and symbolizing in this Object an *ens priorem* under the principle of the Ideal of an *ens originarium*.

### **Relation:**

The category of **substance and accident** is:

- from the logical perspective, the notion of the scheme for determining the objective form of a categorical judgment;
- from the transcendental perspective, the notion of the *materia circa quam* of transcendental anticipation in the determination of the connection of the concept in inner sense as immanent in the synthesis of reproduction;
- from the hypothetical perspective, the notion of the object as the formal condition of every context;
- from the empirical perspective, the notion of subsistence and inherence at the boundary of experience signifying the *Existenz* in Reality of a *Sache*-thing.

The category of **causality and dependency** is:

- from the logical perspective, the notion of the scheme for determining the objective connection as antecedent and consequent in a hypothetical judgment;
- from the transcendental perspective, the notion of the *materia circa quam* of transcendental anticipation in the determination of the connection of the concept in inner sense as transeunt in the synthesis of reproduction;
- from the hypothetical perspective, the notion of a series of conditions in the appearance of contexts;
- from the empirical perspective, the notion at the boundary of experience signifying the *Existenz* in Reality of an *Unsache*-thing.

The category of **community** is:

- from the logical perspective, the notion of the scheme for determining the objective form of a disjunctive proposition;
- from the transcendental perspective, the notion of the *materia circa quam* of transcendental

anticipation in the determination of the connection of the concept in inner sense as reciprocal in the synthesis of reproduction.

- from the hypothetical perspective, the notion of the World as the formal context of all objects;
- from the empirical perspective, the notion at the boundary of experience signifying *Existenz* in Reality of a state of Nature in the concept of an Object as an *ens superiorem* under the Ideal of *ens summum*.

### Modality:

The category of **possibility and impossibility** is:

- from the logical perspective, the notion of the scheme for determining a problematic proposition solely through the power of spontaneity under the inducement of an aesthetic Idea in the synthesis of comprehension;
- from the transcendental perspective, the notion of the determination of a sign of possible expedience or inexpedience for a purpose in the determined concept that can be made part of the symbolic meaning vested in an intuition in the synthesis of apperception;
- from the hypothetical perspective, the notion of a possible (or impossible) context;
- from the empirical perspective, the notion that predicates the manner of a merely conceptual coherence of the concept in the context of Nature.

The category of ***Dasein* and *Nichtsein*** is:

- from the logical perspective, the notion of the scheme for determining an assertoric proposition through the combined powers of receptivity and spontaneity under the inducement of an aesthetic Idea in the synthesis of apprehension;
- from the transcendental perspective, the notion of the determination of a sign of actual expedience or inexpedience for a purpose in the determined concept that can be made part of the symbolic meaning vested in an intuition in the synthesis of apperception;
- from the hypothetical perspective, the notion of an actual context (or non-context) of real experience;
- from the empirical perspective, the notion that predicates the manner of phenomenal coherence of an object in the context of experience.

The category of **necessity and contingency** is:

- from the logical perspective, the notion of the scheme for determining the marks of the conditions of experience in an apodictic proposition;
- from the transcendental perspective, the notion of the determination of a sign of necessary expedience or inexpedience for a purpose in the determined concept that can be made part of the symbolic meaning vested in an intuition in the synthesis of apperception;
- from the hypothetical perspective, the notion of a context made necessary (or made not necessary) by the condition that the context of every object must be true;
- from the empirical perspective, the notion that predicates the manner of systematic coherence in Reality under the principle of the Ideal of an *ens entium*.

Let us recall from Chapter 8 that these explanations do not define the categories in other terms. Rather, the category is a primitive *exhibiting these attributes in its use*. A *Realdefinition* “contains in itself a clear mark by means of which the object can always be securely recognized and makes the concept to be explained usable in application” [KANT1a: 342 (A: 241-242)]. Put another way, a category is a notion (a representation which itself cannot be exhibited in intuition) and a rule for the construction of concepts. Thus, the *operational characteristics* listed above describe the various manners in which a concept *constructed under the rule of the category* fits in and is

applied in cognition. The situation here is the same as that which we faced when we discussed representation in Chapter 3. A representation is primitive because we can only describe representation by making a representation of it. Likewise for the categories, the four perspectives (logical, transcendental, hypothetical, and empirical) are for the category what Quantity, Quality, Relation, and Modality are for our 2LAR of representation in general. In this sense, the table given above is for each category what the 2LAR is for a representation.

The making of every determinant judgment is the representing of a combination of a subject-concept (the object of which is the focus of attention) with other concepts. The representation made by such a judgment must always be a complete representation in terms of the four titles in a 2LAR and thus must include Quantity, Quality, Relation, and Modality in this combination. Consequently, every determinant judgment must apply one of the categories in *each* of these four titles and therefore always involves *four* categories (e.g. {unity, reality, substance and accident, *Dasein* and *Nichtsein*}). Logically considered, this means we have a suite of 81 distinct types of combination that might be employed in any particular instance where determining judgment combines one concept with another.

## § 2. Standpoints in the Systematic Faculty of Thinking

As the theory of the categories of understanding illustrates, in the Critical Philosophy ontology is conditioned by epistemology. Considered as the doctrine of our faculty of knowledge *a priori* through notions (*Erkenntnißvermögens a priori durch Begriffe*), the *system* of epistemology admits of a three-way logical division of the power of thinking (*Denkungsvermögens*): 1) the capacity for cognition of general rules (understanding); 2) the capacity for the determination of the particular through the general (reasoning); and 3) the capacity for subsumption of particulars under the general (the power of judgment) [KANT5c: 8 (20: 201)]. The systematic doctrine of these three divisions comprises what Kant called the critique of pure reason.

Following Palmquist [PALM1: 55-65], we will call these divisions, respectively, the ***theoretical Standpoint***, the ***practical Standpoint***, and the ***judicial Standpoint***. The difference between these Standpoints lies in the Object with which each deals. We call these Objects the **interests of pure Reason**. In *Critique of Pure Reason* Kant described these interests in terms of three questions:

Every interest of my reason (the speculative as well as the practical) is united in the following three questions;

1. What can I know?
2. What should I do?
3. What may I hope? [KANT1a: 677 (B: 832-833)].

For the theoretical Standpoint, the Object of the first question is nothing less than objective knowledge and the relationship of this knowledge to objects (i.e., truth). As this has been the Object of Chapters 7 through 9, our theory of the pure notions of understanding (the categories) is developed within this theoretical Standpoint.

For the practical Standpoint, the Object of the second question is *conduct* – the determined actuality of *non-autonomic actions* through reasoning. Here we have to draw a distinction between the theory of actions as objects (e.g. the physiology of the motoregulatory system) and the theory of how in the phenomenon of mind one can come to determine, plan, and choose from among the manifold of possible actions within one’s capability to perform. It is with regard to the latter that the Object of the practical Standpoint is concerned. While the theoretical Standpoint is concerned with understanding objects as ‘things’ (*Sache-*, *Unsache-*, and *state-*), the practical Standpoint of our power of thinking is concerned with the possibility of formulating actions. Piaget tells us that the origin of intelligence sprouts from elementary sensorimotor schemes; the critique of pure reason is concerned with how representations of possible voluntary *actions* can come to be in the first place and, once formulated, how we come to select from among them in any given circumstance. This Standpoint is therefore the one in which such things as *motives* and *values* must be considered *insofar* as the possibility for a *practical* Reason to also be a *pure* Reason - that is, to be seen in terms of pure *a priori* elements - is concerned.

As for the judicial Standpoint, the Object of the third question is perhaps the most elusive to pin down and might even be viewed as having a kind of will o’ the wisp character:

For all hoping goes to happiness, and is in intention the very same to the practical and the moral law what Knowledge [*Wissen*] and natural law is with respect to the theoretical knowledge [*Erkenntniß*] of things [KANT1a: 677 (B: 833-834)].

The object of the idea of ‘happiness’ is that of a state-of-being in Nature since the interest in ‘happiness’ is marked by a feeling of *Lust* tied to the Subject’s state of being. All of us are likely to agree that happiness is “a good thing.” Aristotle held that happiness is an *unconditionally good* thing because happiness seems to be something we pursue for its own sake and not for the sake of something else [ARIS10: 1734-1735 (1097<sup>a</sup>15 - 1097<sup>b</sup>21)]. However, we might dispute Aristotle’s claim that happiness is “something final and self-sufficient, and is the end of all actions.” History records many examples of individuals choosing martyrdom or who knowingly sacrifice their own life to save the life of another or to serve a cause. Not many of us are likely to agree that being personally dead is “a good thing.” Those of us who hold a religious faith in an afterlife might (and probably would) say that we hope for happiness as a reward “in the afterlife” and some of us could perhaps self-justify sacrificing our own lives for such an end:

But the true servants of God shall be well provided for, feasting on fruit, and honored in the gardens of delight. Reclining face to face upon soft couches, they shall be served with a goblet filled at a gushing fountain, white, and delicious to those who drink it. It will neither dull their senses nor befuddle them. They shall sit with bashful, dark-eyed virgins, as chaste as the sheltered eggs of ostriches [*The Koran*: 37:40 - 50].

Die, and you win heaven. Conquer, and you enjoy the earth. Stand up now, son of Kunti, and resolve to fight. Realize that pleasure and pain, gain and loss, victory and defeat, are all one and the same: then go into battle. Do this and you cannot commit any sin [*Bhagavad-Gita*].

But still there are other people who appear to sacrifice their lives with no such hope for divine reward standing as the ground for their actions. Suicide to escape pain or sorrow is an example.

There seems to be in this idea of the hope *for* happiness something more than only the satisfaction of physical pleasures. It is perhaps clear from the examples cited above that the Object of the judicial Standpoint has, so to speak, “a foot on each side” in objects of cognition and in actions taken in service of some purpose. We can therefore view happiness as Aristotle’s “final and self-sufficient end” only if we expand upon its definition and make it into something more than merely a state of feeling. However, to do this seems – at least for the present – ill-advised because to do such a thing seems to be a mere word game. However true it may be that all hoping goes to happiness, and however true it may be that we desire to be happy simply for the sake of being happy, we are not ready to regard, much less claim, happiness as an unconditional final end-in-itself.

Thus, neither ‘hope’ nor ‘happiness’ *per se* is the Object of the judicial Standpoint. Rather, we must dig deeper into that phenomenon of mind we call “hoping” to uncover an underlying Object compatible with our Copernican hypothesis. This much seems clear: that the Object of the judicial Standpoint must be, on the one hand, something merely *subjective* and, on the other hand, something capable of bridging the gap between the knowledge of objects and the determination of actions. The character of such an Object is at once both *aesthetical* (related to feelings) and *teleological* (related to actualizing ends and purposes).

Just as we had to deal with the object vs. Object distinction to comprehend the categories of understanding from the theoretical Standpoint, we also have our work cut out for us to identify the object vs. Object distinctions appropriate to the practical and judicial Standpoints. We will undertake this task with due deliberation. However, it is not entirely out of place at this point to compare and contrast what we have said above with the ideas of the so-called “philosopher’s triad” [ADLE (v.2): 112-118]. These ideas are: truth, goodness, and beauty.

Truth, goodness, and beauty form a triad of terms which have been discussed together throughout the tradition of western thought.

They have been called “transcendental” on the ground that everything which *is* is in some measure or manner subject to denomination as true or false, good or evil, beautiful or ugly. But they have also been assigned to special spheres of being or subject matter - the true to thought and logic, the

good to action and morals, the beautiful to enjoyment and aesthetics.

They have been called "the three fundamental values" with the implication that the worth of anything can be exhaustively judged by reference to these three standards - and no others . . .

Truth, goodness, and beauty, singly and together, have been the focus of the age-old controversy concerning the absolute and the relative, the objective and the subjective, the universal and the individual. At certain times it has been thought that the distinction of true from false, good from evil, beautiful from ugly, has its basis and its warranty in the very nature of things, and that a man's judgment of these matters is measured for its soundness or accuracy by its conformity to fact. At other times the opposite position has been dominant. One meaning of the ancient saying that man is the measure of all things applies particularly to the true, good, and beautiful. Man measures truth, goodness, and beauty by the effect things have upon him, according to what they *seem* to him to be. What seems good to one man may seem evil to another. What seems ugly or false may also seem beautiful or true to different men or to the same man at different times [ADLE (v.2): 112].

We have already dealt with 'truth' as this term must be regarded under the Copernican hypothesis. It will, perhaps, not be surprising to us to discover this idea of 'goodness' to have some role to play in the practical Standpoint since it seems to us that whatever voluntary action we undertake is undertaken "because it is good to do so." This forewarns us that we, too, will have to enter in to the age-old controversy concerning what the ideas of 'goodness' and 'the good' must be taken to mean under the Copernican hypothesis.

What about this idea of 'beauty'? I expect that to a person educated and trained in a discipline of science, the idea of 'beauty' or 'the beautiful' is likely to provoke a negative reaction if it tries to gain entrance as a legitimate topic of a *scientific* work. Is not this idea entirely too subjective, soft, and fluffy to claim a place in science? George Santayana wrote:

The philosophy of beauty is a theory of values. It would be easy to find a definition of beauty that should give in a few words a telling paraphrase of the word. We know on excellent authority that beauty is truth, that it is the expression of the ideal, the symbol of divine perfection, and the sensible manifestation of the good. A litany of these titles of honor might easily be compiled, and repeated in praise of our divinity. Such phrases stimulate thought and give us a momentary pleasure, but they hardly bring any permanent enlightenment. A definition that should really define must be nothing less than the exposition of the origin, place, and elements of beauty as an object of human experience. We must learn from it, as far as possible, why, when, and how beauty appears, what conditions an object must fulfill to be beautiful, what elements of our nature make us sensible of beauty, and what the relation is between the constitution of the object and the excitement of our susceptibility. Nothing less will really define beauty or make us understand what aesthetic appreciation is. The definition of beauty in this sense will be the task of this whole book, a task that can be only very imperfectly accomplished within its limits [SANT1: § 1].

But we, - the minds that ask all questions and judge of the validity of all answers, - we are not ourselves independent of this world in which we live. We spring from it, and our relations in it determine all our instincts and satisfactions. This final questioning and sense of mystery is an unsatisfied craving which nature has her way of instilling. If we had no expectations we should have no surprises. And what gives us expectation is the spontaneous direction of our thought, determined by the structure of our brain and the effect of our experience. If our spontaneous thoughts came to run in harmony with the course of nature, if our expectations were continually fulfilled, the sense of mystery would vanish . . .



This satisfaction of our reason, due to the harmony between our nature and our experience, is partially realized already. The sense of beauty is its realization. When our senses and imagination find what they crave, when the world so shapes itself or so molds the mind that the correspondence between them is perfect, the perception is pleasure, and existence needs no apology . . . Beauty therefore seems to be the clearest manifestation of perfection, and the best evidence of its possibility. If perfection is, as it should be, the ultimate justification of being, we may understand the ground of the moral dignity of beauty. Beauty is a pledge of the possible conformity between the soul and nature, and consequently a ground of faith in the supremacy of the good [SANT1: § 67].

In these passages we have Santayana’s first and last words on “the sense of beauty.” Santayana – who elsewhere in his works called himself “the last materialist” – takes “beauty” to be manifested in (or, better, by) our state of being and points to a role for it in reconciling ourselves with the world in which we find ourselves placed. Although we cannot take Santayana’s theory for our own – he denies and violates the Copernican hypothesis – we will find something not altogether dissimilar to his views in our own theory.

In 1764, some seventeen years before the publication of *Critique of Pure Reason* and well before our first hints that Kant had come to formulate his Copernican Perspective, he wrote:

The various sensations of delight or of annoyance rest not so much upon the property of the external things that arouse them as to that every man condescends through his own feelings to be aroused with *Lust* or *Unlust*. From there comes the joy of some people where others have repugnance, the amorous passion so often a puzzle to everybody, or the lively antipathy one feels against that to which another is completely indifferent. The field of observation of these peculiarities of human nature stretches very wide, and still conceals a rich source for discoveries that are just as pleasurable as they are instructive [KANT23: 45 (2: 207)].

Kant called the feelings by which we “condescend” to be moved to feelings of *Lust* or *Unlust*<sup>1</sup> the feelings of the beautiful and the sublime. Twenty-six years later, the “satisfaction<sup>2</sup> in the beautiful and the sublime” would play a prominent role in *Critique of Judgment*, the third and last of Kant’s great critiques.

Despite the differences between Santayana, Kant before *Critique of Pure Reason*, and Kant afterwards, there is a common thread in this idea of ‘beauty’ that is pertinent to the judicial Standpoint – namely, the idea of a measure or awareness which, though entirely subjective, seems to serve as a bridge, via *affective* perceptions, between the objective nature of understanding and

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<sup>1</sup> Recall that *Lust* (pronounced "loost") and *Unlust* are words that do not "travel well" into English. The feeling of *Lust* is expressed in the colloquial phrase "I'm up for that!" and is a feeling of a kind of motivated *wanting*. *Unlust* expresses a kind of antipathy, indifference at the least and even rising to a motivated un-wanting. The usual English translation of these terms - i.e. "pleasure" and "pain" - is as misleading as it is a dainty holdover from the Victorian era.

<sup>2</sup> "Satisfaction" is the usual rendering of Kant's word *Wohlgefallen* but, again, the English word does not quite properly convey its German counterpart. *Wohlgefallen* is an old word not much used anymore. *Gefallen* is "to please" and *Wohl* is a 'positive' term but also has a connotation of something 'negative' in it. The flavor of the word *Wohlgefallen* can be expressed in English by the phrase, "Oh, this is not so bad." Thus, we have to take 'satisfaction' in this limited sense of feeling that something is merely satisfactory, not in the sense of it being a great pleasure or highly fulfilling. (I owe this interpretation of *Wohlgefallen* to my colleague, Professor Boris Bracio).

the practical nature of pure Reason. So it is that we, too, will have to grapple with the “philosopher's triad” of truth, goodness, and beauty from Kant’s Copernican Perspective.

### § 3. Standpoints and the Legislative Faculty of Mind

The phenomenon of *knowledge* is perhaps the premier characteristic of the phenomenon of mind. In the previous section we took a first look at the idea of Standpoints in terms of a logical division of the power to think. We will now look at this idea in terms of the three mental abilities by which we come to have knowledge: understanding, judging, and reasoning. In particular, the doctrine of Standpoints<sup>3</sup> is concerned with the capacity (*Vermögen*) each of these divisions seems to exhibit in *legislating* the form in which the phenomenon of ‘knowledge’ appears to us and the manner in which we appear to obtain it. Even more specifically, the doctrine of Standpoints is concerned with the exposition of *constitutive* and of *regulative* principles *a priori* – that is, with the principles that speak to the “legislation of mind” as this “legislation” concerns the makeup of representations that, collectively, constitute our knowledge.

We give that logical division of our mental abilities concerned with *a priori* constitutive principles of cognition the name *understanding* and distinguish the phenomenon of understanding from that mental process we call determining judgment. The doctrine of determining judgment is concerned with the act of representing cognitions through making combination of concepts. In formulating such combinations, determining judgment calls upon the pure notions of understanding – the categories – as rules for the construction of concepts. The principles that illuminate for us the *meaning* of these categories, on the other hand, belong to the doctrine of understanding as the mental ability that legislates *a priori* how these representations constitute objective knowledge. In this sense, understanding *as an activity of the mind* – and not merely as a state of representation – is regarded *from the theoretical Standpoint* as an ability.

Now the adjective “objective” used in the phrase “objective knowledge” is used to delimit a particular aspect or characteristic of a more general something we call “knowledge in general.” The word “knowledge” is yet another of the many terms we find ourselves having to deal with in

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<sup>3</sup> This treatise adopts the terms “Standpoints” and “perspectives” from the work of Professor Palmquist in *Kant's System of Perspectives* [PALM1]. However, our usage of these terms, while in many ways similar to Palmquist's theory, does differ from this earlier work in some non-trivial ways. Put another way, this treatise is more or less in agreement with Palmquist's theory at the “big picture” level but differs at the level of some important details. Our theory, therefore, should not be taken as representing (nor, for that matter, misrepresenting) Palmquist's views. I will not be discussing the nature of these differences here; such a discussion would be a digression from the subject matter of this treatise and anyone interested in examining this contrast can refer to [PALM1] to find out about my learned friend's theory. Despite the fact that the theory presented here differs in some important ways from Palmquist's formulation, Professor Palmquist's work can rightly claim a place of honor in this treatise because his ideas of standpoints and perspectives brought to me a great enlightenment in some of the darkest regions of Kant's writings.

this treatise which, at first brush, seems to be an idea we clearly understand but which, on closer examination, proves difficult to pin down in a definition. *Objective* knowledge has the character of “being about the things we know” and understanding, viewed as an ability of the mind, is in appearance the phenomenon of “coming to know things objectively.” From the theoretical Standpoint our topic and concern is the *interest* of pure Reason in what we can come to know, and a theory of understanding must address the manner of “coming to know things” through the exercise of our power to think. We shall take a closer look at this interest and the nature of the activity that grounds the objectivity of the *Dasein* of this ability in the next section.

When we say understanding is the legislation of constitutive principles of objective knowledge (knowledge as cognition), this is nonetheless not the only kind of legislation required for the possibility of knowledge. To use an analogy, we can observe how a house is framed and constructed by watching the carpenters at work; but this by itself does not tell us who sent the carpenters to this spot to undertake building *this* house in *this* manner, nor why whoever it was that did so came to do so. Likewise, a theory of understanding by itself does not suffice to explain the whole nature of knowledge and how our knowledge comes into *Existenz*.

In Chapter 9 we saw that the Ideas of speculative Reason act as regulative principles for understanding. Through this regulation the making of concepts is directed towards obtaining a context and coherence with each other in the Objects of Nature and Reality. This regulative legislation of speculative Reason reveals the power of Reason from the theoretical Standpoint. However, these Ideas, from the theoretical Standpoint, are not *constitutive* principles since their relationship to objects of experience is mediate rather than immediate. Behind this regulation by speculative Reason there still lies unexplored a *why?* question: why should Reason direct determining judgment to attend to *this* concept rather than to *that* concept? Why should one object gain the attention of the mind while another object is ignored? It is clearly not within the character of the data of the senses to carry some property that unconditionally commands the attention of the mind; there are far too many cases in common experience that contradict such an hypothesis. Consider, for example, the large number of cases where a person, acting in an emergency, sustains a painful injury yet fails to notice the fact that he has been injured until after the emergency has passed. Nor can we say that “experience commands” the attention of the mind because we experience *only* that to which we attend.

Now we have a word we use to give a name (if not an explanation) to the answer to this *why?*; that word is “will” and we use it both as a noun (to give a name to the phenomenon as an object) and as a verb (to give a description to the appearance of the action):

**will**, *n.* [ME. *wille*; AS. *willa*, will].

1. the act or process of volition; specifically, (a) wish; desire; longing; (b) inclination; disposition; pleasure; (c) [Obs.] appetite; lust.

2. the power of self-direction or self-control; as, he has no strong *will*.
3. the power of conscious and deliberate action or choice; as, freedom of the *will*.
4. strong purpose, intention, or determination; as, where there's a *will* there's a way.

**will**, v.t. [ME. *willen*, from AS. *willan*, *wyllan*, to choose, select, prefer].

1. to form a distinct volition of; to decide upon; to make a choice of.
2. to resolve firmly; to determine; as, he *willed* to survive.
3. to long for; desire [Archaic].

At this point in our treatise we are not yet talking about *free* will. To append the adjective “free” to the word “will” is to attach a putative characteristic to the latter idea before we have even examined it, and to ascribe to it as a characteristic yet another idea – freedom – that is as of yet equally unexamined. The old controversy of which we spoke much earlier in this treatise is not a controversy over “will *per se*” but over the idea of *free will*. No one denies the validity of framing the idea of a will as a phenomenon of mind nor of assigning to this idea the character of a *cause*. The free will controversy concerns merely the debate over whether the will is to be viewed as an efficient (i.e. contingent) cause or as an original cause.

Piaget described ‘will’ as “a regulation of the second order” and more or less stayed aloof from any involvement in the free will controversy. William James regarded the question of free will as “insoluble on strictly psychologic grounds” [JAME2: 822], and confined himself to a pragmatic discussion of the phenomenon of will. “Effort of attention,” he wrote, “is thus the essential phenomenon of will” [JAME2: 816].

In closing in, therefore, after all these preliminaries, upon the more *intimate* nature of the volitional process, we find ourselves driven more and more exclusively to consider the conditions which make ideas prevail in the mind. With the prevalence, once there as a fact, of the motive idea the *psychology* of volition properly stops. The movements which ensue are exclusively physiological phenomena, following according to physiological laws upon the neural events to which the idea corresponds. The *willing* terminates with the prevalence of the idea; and whether the act then follows or not is a matter quite immaterial, so far as the willing itself goes. I will to write, and the act follows. I will to sneeze, and it does not. I will that the distant table slide over the floor towards me; it does not. My willing representation can no more instigate my sneezing-center than it can instigate the table to activity . . .

We thus find that *we reach the heart of our inquiry into volition when we ask by what process it is that the thought of any given object comes to prevail stably in the mind . . .* Already in the chapter on attention we postponed the final consideration of voluntary attention with effort to a later place. We have now brought things to a point at which we see that attention with effort is all that in any case volition implies. *The essential achievement of the will, in short, when it is most "voluntary," is to ATTEND to a difficult object and hold it fast before the mind.* The so-doing is the *fiat*; and it is mere physiological incident that when the object is thus attended to, immediate motor consequences should ensue. A *resolve*, whose contemplated motor consequences are not to ensue until some possibly far distant condition shall have been fulfilled, involves all the psychic elements of a motor fiat except the word "*now*"; and it is the same with many of our purely theoretic beliefs [JAME2: 814-816].

Even if we should concede that the issue of will is to be decided upon the home field of

empirical science (psychology), even if we should prefer the word “volition” to the word “will,” and even if we should regard will as a “regulation of the second order” (with the commitment to figure out later precisely what that description means), the *why?* question framed above remains unaltered. That question illustrates one particular case under the more general case of Kant’s second interest question quoted earlier: *what should I do?* To seek out its answer is the same as to seek out the idea of a *principle* for the determination of all individual (or particular) special interests of Reason in terms of a notion of *the determination of will*. When we turn to the making of a doctrine for the explanation of this subject-matter, we adopt the *practical Standpoint* since our inquiry no longer deals with the cognition of objects but with the phenomenon of practical Reason *as an Object*.

Now, the ideas of understanding (the Object of the theoretical Standpoint) and practical Reason (the Object of the practical Standpoint) do not oppose each other but neither are they connected with each other *from either of these Standpoints*. In making this merely logical division of the mental faculty, we have neatly set each Object up as the legislator of its own private domain. From the theoretical Standpoint we would prefer to regard practical Reason as just another phenomenon *in Nature*. But because the objective validity of the idea of Nature is, from the theoretical Standpoint, obtained merely from our regarding Nature as a “world model” we construct for ourselves, if we subordinate the phenomenon of practical Reason to that of understanding we make for ourselves an irresolvable paradox, namely: if the role of practical Reason contained under understanding is to determine that to which understanding will attend, how does understanding determine to attend to practical Reason? *A parte priori* understanding would be a condition of Reason, and how can the conditioned condition the condition? The question becomes circular in a most vicious sense of that term. On the other hand, if we subordinate understanding to practical Reason (which is blind to objects in Nature), how can we possibly justify regarding Nature as anything except a pure figment of our own thoughts and no less ego-centric than a dream?

It is obvious that these two Objects must cooperate with each other, but neither Object has in its idea anything that determines such cooperation. In the realm of the theoretical, understanding is concerned only with the determination of objects in Nature; in the realm of the practical, Reason’s interests are given solely to the determination of actions. What is required *to complete a system* is some third Object that links the theoretical and practical Standpoints and which contains in its idea the connection between understanding and practical Reason.

Neither the idea of understanding nor that of reasoning has any context outside the Self as an Organized Being, and in making our logical division of the cognitive faculty it is clear that both ideas must be represented in a condition of community within the Organized Being model. As

phenomena, the common point where understanding and practical Reason might be reciprocally joined lies with that phenomenon we call *experience*. If we more closely examine the idea of this phenomenon, we find in it one characteristic that above all others goes at once to both the particular individuality of actions that exhibits practical Reason and the unity of Nature exhibited in cognitive understanding. This is the connection of all objects of experience in the unity of a *system of experience in general*, by which we judge every particular experience as contained under the general idea of a whole of experience *and* subsume this particular under the idea of a Nature.

The idea of a system of experience gives us a regulative principle of *judgmentation*. We have previously made much use of the principle of the synthetic unity of apperception and this unity goes to the matter of conscious representation; however, we have not previously dealt with any idea as to the *form* such unity is to exhibit in the representation of its *Existenz*. The data of the senses are contingent and therefore do not carry with them any rule or principle that necessitates the manner in which, of the many possible forms whereby they *could* be combined, a *particular* combination *is* settled on in the faculty of representations. The notion that particular ‘experiences’ must come together in a *system* of experience is a synthetical notion that brings something new to representation, namely a power to legislate the manner in which multiplicity in representation is to be constituted in a whole of conscious representation in general. This notion is not the notion of an object *of* experience but, rather, the notion of an Object of judgmentation in general.

On its own the power of judgment [*Urtheilskraft*] is such a special faculty of knowledge, not fully self-sufficient, that it gives neither concepts, like understanding, nor Ideas, like reason, of any object at all because it is a capacity merely to subsume under concepts given from elsewhere. Thus if there is to be a notion or rule which springs from the power of judgment, so must it be a notion of things *of nature so far as these are put in order in conformity according to our power of judgment*, and thus a property of nature such that one cannot make any concept of it except that its arrangement conforms to our capacity to subsume particular given laws under generals even though these are not given; in other words, it must be a notion of an expedience [*Zweckmäßigkeit*] of nature on behalf of our capacity to know, so far as to that end it is required that we judge the particular as contained under the general and can subsume it under an idea of a nature.

Such an idea is that of an experience *as a system according to empirical laws*. For although this makes up a system according to *transcendental laws*, which contain the condition of the possibility of experience in general, there is still possible such an *infinite multiplicity* of empirical laws, and such a *great heterogeneity of forms* of nature which would belong to particular experience, that the idea of a system for these (empirical) laws must be entirely alien to understanding, and neither the possibility, let alone the necessity, of such a whole can be grasped [KANT5a: 392-393 (20: 202-203)].

This is a key point in Kant’s Critical Philosophy; the problem he is commenting upon here is nothing less than the problem of how contingently-given representations can possibly be molded into a system of *natural* (or, if one prefers, *empirical*) laws. The mind does not record “images of the world” like a camera taking a photograph; the mind takes the empirically presented data of the

senses and *forges from these coherent laws or 'precepts'* of the natural world and of the Self within this world. It is one thing to cognize, for cognition is nothing other than the conscious representation of an object. It is quite another to weld the multiplicity of cognitions in experience into knowledge and to hold this knowledge together systematically through *the things we learn through experience*. This makes the *power of systematic* judgmentation – the ability for which is exhibited by the process of *reflective judgment* – a unique Object in which we find the special character of the ability to bring together the purposes of practical Reason and the contingent data of empirically presented sensations and the cognitions put together from them.

Knowledge of an experience must always begin with conscious representation, that is, with perception. Sense data is potentially *informative* but does not, by itself, constitute knowledge of any kind. As James might have put it, we perceive only that to which we attend. Now, we have two sorts of perceptions: objective (intuition and concepts) and affective. The power of judgment, as regards the process of reflective judgment, is concerned only with the latter. It is commonplace for us, in discussing knowledge, to give all our emphasis to the cognitive perceptions and to play down or even neglect the role of affective perceptions in the synthesis of knowledge. However, the Critical Philosophy tells us this is an error. Without the reflective judgment of affective perceptions, there is no ground for the *systematic* perception of cognitions.

What do we mean by the term 'affective perception'? This is something we have to explore in greater depth later in this treatise, but it is possible for us to capture some of the flavor of this idea now. Emotion and mood are two terms we use as names for "how we feel" that clearly have some connection to this idea of affective perception (although we cannot say, based on what we have discussed thus far, that emotions and moods *are* affective perceptions, as opposed to being states of a manifold of affective perceptions). Over the latter half of the twentieth century empirical psychology has begun to take the role played by "emotions" and "moods" in the process of cognition very seriously, although no single generally accepted theory of emotions has yet emerged [CARL: 11]. In addition to "emotions" and "moods" we also experience what seem to be other types of affective perceptions – such as "desire", "satisfaction", "confidence", "doubt", "interest", "need", the "feeling of value", and even "hope" – which seem to be obviously tied into the ideas of emotions or moods and yet, in some ways, seem to be not quite the same thing as emotion or mood. Hence we use in this treatise the more general term 'affectivity' rather than "emotion" or "mood". That affective "feelings" play an integral role in the processes of cognition as well as that of behavioral activity is now widely accepted in psychology (see [PIAG16: 26-43]). Piaget goes so far as to say, "All objects are simultaneously cognitive and affective."

In the judicial Standpoint we are concerned with the role of the power of judgment in the synthesis of knowledge insofar as that synthesis involves affective perception and insofar as that

synthesis leads to a system of experience. On the plane of perception, the power of judgment cooperates hand-in-hand (so to speak) with sensibility. On the plane of intellectual processes (reasoning and thinking), it cooperates with and serves the power of Reason. Its role is indispensable in the act of thinking.

The logical act, I *think* (*apperceptio*), is a judgment (*iudicium*), but not yet a proposition (*propositio*), and not yet an act of the faculty of knowing (*facultas cognoscendi*) through which an Object is given but, on the contrary, only is thought in the general. It is, according to its form, a logical act without content (*cogitans sum, me ipsum nondum cognosco*)<sup>4</sup>; even less is it an inference of reason: I think, therefore I am (*ratiocinium*). I make the Subject itself into the Object according to the rule of identity . . . I, the Subject, am an object to myself. This, however, expresses more than self-consciousness.

The principle of the ideality of intuition lies at the ground of all our knowledge of things outside us: i.e., we do not apprehend objects as given in themselves (*apprehensio simplex*) but, rather, the Subject produces (*ingit*) for itself the manifold of the sense-object according to form, and does so, indeed, according to a principle (*iudicium*) prior to all empirical representation with consciousness (perception) – i.e., *a priori* by means of the power of judgment (*iudicium*) into an embodiment (*complexus*), not of a rule-less aggregate but of a system through an inference of reason [KANT10: 194 (22: 95-96)].

In view of what has just been said, how does all this tie back to Kant’s third question in the interests of Reason: *What may I hope?* If we attempt to regard this question objectively (that is, with regard to a specific object from the theoretical Standpoint), we get nothing that pertains to Reason’s *interest in thinking*. If, however, we look at this question from the standpoint of “what is the nature of hoping?” we remain within the Copernican Perspective and the question becomes a legitimate one for our theory. The dictionary defines the noun “hope” as follows:

**hope**, *n.* [ME. *hope*; AS. *hopa*, hope, expectation, from *hoplan*, to hope].

1. a desire for something good, accompanied with at least a slight expectation of obtaining it or the belief that it is obtainable.
  2. the object of this.
  3. confidence in a future event; the highest degree of well-founded expectation of the good.
  4. one who or that which furnishes the ground for hope or expectation; as, the *hope* of the nation is its youth.
  5. trust; reliance [Archaic].
- syn.** - expectation, confidence.

We can see from these definitions that the very idea of ‘hope’ is bound up with “something that hasn’t happened yet but might” and with the idea of an end serving a purpose. These are the characteristics of the idea of ‘hope’ with which our theory of the power of judgment, from the judicial Standpoint, is concerned.

For all three standpoints, our focus has shifted from the possibility of the representation of objects to the possibility of *knowledge*. The distinctions we must draw between ‘knowledge’ and

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<sup>4</sup> “I am thinking, but I do not know myself yet.”



“cognition” come into play at the level of these Kantian standpoints in the organization of our theory.

## § 4. The Theoretical Standpoint

The ability to understand is the phenomenon of mind most closely associated with the idea of knowledge in our everyday usage of such terms as “intelligence” or “learning.” But understanding is also the Object of the theoretical Standpoint and this raises the technical question of what is meant by this term. In our earlier chapters, we described understanding in terms of it being a “state” or a “condition of the mind.” In this Chapter we added to this description by calling understanding both a power of the mind and a mental ability. This reflects a fundamental dichotomy in our modern day usages of this one word, e.g.:

**understand**, *v.t.* [ME. *understanden*; AS. *understandan*; lit. to stand under or among, hence, to comprehend].

1. to apprehend or comprehend; to know or grasp the meaning, import, intention, or motive of; to perceive or discern the meaning of; as, to *understand* a problem.
2. to be informed or receive notice of; to learn.
3. to accept or hold as signifying; to attach or give as a meaning or explanation to; to suppose to mean; to interpret.
4. to take as meant or implied; to infer; to assume.
5. to take as a fact; to accept as a condition.
6. to know thoroughly; to grasp or perceive clearly and fully the nature, character, functioning, etc. of.
7. to stand under [Obs.].

**syn.** - apprehend, comprehend, know, perceive, discern, conceive, learn, recognize, interpret, imply.

**understanding**, *n.*

1. the mental act, quality, or state of one who understands; comprehension; knowledge; discernment.
2. the power or ability to think and learn; intelligence; judgment; sense.
3. a specific interpretation; as, this is my *understanding* of the matter.
4. mutual agreement, especially one which settles differences or is informal and not made public; as, we reached an *understanding* in our relationship.
5. mutual comprehension, as of ideas, intentions, etc.

**syn.** - knowledge, comprehension, apprehension, conception, sense, intellect, faculty, intelligence, ken, reason.

It is clear from these dictionary definitions that our everyday usage of the word “understanding” has become confounded with a number of other words, such as apprehension, for which in this treatise we are assigning specific technical meaning. We must, of course, sort this out if we are to use the term ‘understanding’ in any specific technical sense. We must seek out the defining characteristics by which “understanding” is able to take in so many connotations as we see above.

Definitions (1) and (2) given above convey the senses of “understanding” that are the most clearly appropriate ones for our purposes here. Yet even within these two dictionary definitions we see a plurality of ideas that have different connotations, e.g., understanding as *act*, *state*, *power* or *ability*. Of these four, the *act* is the easiest to separate out from the others and, indeed, we have done so in the earlier chapters by distinguishing the *Verstandes - Actus* (acts of understanding) from the process of determining judgment. In drawing these distinctions we say these acts *serve* understanding but are not by themselves ‘understanding.’

As for the idea of the “quality or “state” of understanding, it is easy to see that this is the idea of an *effect* produced, at least in part, through the forenamed acts. Put in terms of the categories, the idea of the state of understanding is thought under the notion of substance and accident, while the idea of the acts of understanding in relationship to the state are thought under the notion of causality and dependency (and when these acts are viewed as objects – e.g. “the act itself” – they are thought under the notion of substance and accident). It is worthwhile to compare this idea of the state of understanding with our verb *to know* and its associated noun, *knowledge*:

**know**, *v.t.* [ME. *knowen*, *knawen*; AS. *cnawan*, to know, akin to L. *gnoscere*, *noscere*, Gr. *gignoskein*, to know, Sans. root *jna*, to know]

1. to perceive with certainty; to understand clearly; to be sure of or well informed about.
2. to be aware or cognizant of; to have perceived or learned.
3. to have a firm mental grasp of.
4. to have understanding of or skill in as a result of study or experience.
5. to recognize by recollection, remembrance, representation, or description.
6. to recognize as distinct or to distinguish.

**knowledge**, *n.* [ME. *knowlege*, *knowleche*, knowledge; *knowen*, to know, and *-leche*, *-leke*, from Ice. *-leikr*, *-leiki*, a suffix used in forming abstract nouns].

1. a clear and certain perception of something; the act, fact, or state of knowing; understanding.
2. learning; all that has been perceived or grasped by the mind.
3. practical experience; skill; as, a *knowledge* of seamanship.
4. acquaintance or familiarity (with a fact, place, etc.).
5. cognizance; recognition.
6. the body of facts accumulated by mankind.
7. acquaintance with facts; range of awareness or understanding.

Definition (1) of “knowledge” is tied to the idea of the state of understanding as a judgment under the notions {unity, limitation, substance and accident, *Dasein-Nichtsein*}. Definition (2) differs from (1) through the notions {totality, limitation, substance and accident, necessity-contingency} with the last of these categories being a consequence of the principle of the unity of apperception.<sup>1</sup>

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<sup>1</sup> One point these examples illustrate is that although in English we have just one word - knowledge - this word is actually several homonyms standing for several different meanings that we must carefully sort out in terms of the categories of understanding if we are to safely employ the word "knowledge" in a technical

If we now turn to “understanding” as a power or ability, we find ourselves dealing with something quite different in kind from the first sense of this word. The dictionary uses the words “power” and “ability” as synonyms in this context (e.g., it defines “power” as “ability to do; capacity to act”). Long ago, in Chapter 4 (§3), we agreed to specialize the term *power* to mean *ability* in the sense of the matter of an ability. (We then set up *faculty* to refer to ability in the sense of the manner of *Existenz*, i.e. the form, of this ability). Thus the phrase “power of understanding” carries the connotation of an object while the phrase “faculty of understanding” has the connotation of the *appearance* of that object. This is, of course, a convention we have set up in this treatise. Kant used two phrases throughout his works: *Verstand* (understanding) and, much more rarely, *Verstandesvermögens*, which is usually rendered as “faculty of understanding” but could, depending on context, be rendered “(potential) power of understanding” or as “capacity for understanding.” Up to this point, I have usually rendered Kant's various uses of *Vermögen* terminology either as “(potential) power” or as “ability” or as “capacity”, depending on what the context seemed to require in each case. If we are to comprehend the idea of understanding as the Object of the theoretical Standpoint, we must examine with care how we are to “understand understanding” *as an Object*.

In our present scientific but nonetheless un-philosophical era, the question “what is understanding?” is debated only by a relative few, mostly philosophers (i.e., professors of philosophy) and some (but by no means all) researchers in cognitive science. In the latter case, it is usually the practice of researchers in the field of what Jang, et al. call “modern artificial intelligence”<sup>2</sup> to settle on some operational “definition” of understanding (in the rare cases where this is even attempted); these often seems to me more a matter of convenience than a serious probe of the question. In an exception to this practice, Haugeland writes:

No current approach to artificial intelligence takes *understanding* seriously - where understanding itself is understood as distinct from knowledge (in whole or in part) and prerequisite thereto. It seems to me that, taken in this sense, *only people* ever understand anything - no animals and no artifacts (yet) . . .

So, what is it for a system to understand something? Imagine a system that makes or marks a battery of related distinctions in the course of coping with some range of objects . . . Let's say that, for each distinction, the system has a *proto-concept*. Now I suggest that a system *understands* the objects to which it applies its proto-concepts insofar as:

- (1) it takes responsibility for applying the proto-concepts correctly;
- (2) it takes responsibility for the empirical adequacy of the proto-concepts themselves; and
- (3) it takes a firm stand on what can and cannot happen in the world, when grasped in terms of these proto-concepts.

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context. Philosophy is frequently criticized by scientists for failing to give adequate explanations of its terminology and this criticism is, I think, justified.

<sup>2</sup> J.-S. R. Jang, C.-T. Sun, and E. Mizutani, *Neuro-Fuzzy and Soft Computing*, Upper Saddle River, NJ: Prentice-Hall, 1997. These authors cannot be accused of inventing a self-serving definition of “understanding” in their book; they are among the majority who decline to speak to the question altogether. In this they follow the tradition of positivism.

When these conditions are met, moreover, the proto-concepts are not merely *proto*-concepts, but *concepts* in the full and proper sense.

A system that appropriates and takes charge of its own conceptual resources in this way is not merely going through the motions of intelligence, whether evolved, learned, or programmed-in, but rather grasps the point of them itself. It does not merely make discriminations or produce outputs that, when best interpreted by us, come out true. Rather, such a system appreciates for itself the difference between truth and falsity, appreciates that, in these, it must accede to the world, that the world determines which is which - and it *cares*. That, I think, is *understanding*.<sup>3</sup>

It is perhaps self-evident that this definition requires us to know, assume, or define what is to be meant by “taking responsibility for” and “taking a firm stand on” the items in the definition. I think it would be unfair to accuse Haugeland of anthropomorphizing “the system” because the response to being pressed on how to view these seemingly anthropomorphic terms is to define *them* operationally, a move which removes the uncomfortable imputation of “motives” and “intentions” and “personality” – all very *personal* terms – that otherwise seem to get injected into the description. But before buying in to such a series of definitions, we could rightly call for the author of such a set of definitions to convince the rest of us that these definitions must apply to *us* as well as to any machine. This is because the first step in descriptions such as Haugeland’s is to divorce the highly-charged term “understanding” from our own *human* understanding – whatever this latter term is taken to mean – by taking the idea of “understanding” to a higher level of abstraction (as if the level of abstraction were not high enough already).

Could we be so convinced by sound argumentation? This question takes us back to the original question once again: *What is (human) understanding?* Despite a modern tendency to presume the past has nothing to teach the present, there is a long history of debate on this very question – a history which goes back in Western thought to at least medieval times – and it seems worthwhile to make a brief digression and look at some of the answers that have been proposed.

#### § 4.1 Pre-Kantian Ideas Regarding “Understanding”

The re-discovery of Aristotle in the thirteenth century precipitated a number of problems and issues for Scholasticism. As we have already seen, Aristotle re-entered Western thought gradually, beginning with “logic” and only later coming to include the rest of the Aristotelian *corpus*. It was Aristotle’s works on *Metaphysics* and *Physics* that most directly led to the debate which came to take in the “nature of understanding” (or, almost interchangeably, “intellect”) from the thirteenth century onwards. With the coming of the Age of Reason in the sixteenth and seventeenth centuries, and the emergence of modern science in the eighteenth, the issue of ‘understanding’ arose once again as a topic of philosophy.

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<sup>3</sup> *Mind Design II*, (ed.) John Haugeland, Cambridge, MA: The MIT Press, 1997, pp. 27-28.

## Aquinas and Understanding

Scholasticism in its beginnings was Augustinian and Neo-Platonic, and it never completely shed this heritage. Rather than giving way to Aristotle, Scholasticism absorbed Aristotle and in this no one played a larger role than St. Thomas Aquinas. His writings that treat the “intellectual powers” include *De unitate intellectus* (*On the Unity of the Intellect*) and Question 79 of Part I of *Summa Theologica*. In the latter he addresses the question in thirteen parts, of which we will look at only a few of his comments.

In the first Article, Aquinas takes up the question “whether the intellect is a power of the soul or its essence.” After citing four “objections” which argue that “intellect” is the essence of the soul or “the soul itself,” Aquinas replies:

*On the contrary*, The Philosopher<sup>4</sup> assigns the intellect as a power of the soul.

*I answer that*, In accordance with what has been already shown . . . it is necessary to say that the intellect is a power of the soul and not the very essence of the soul. For the essence of that which operates is the immediate principle of operation only when the operation itself is its being; for as power is related to operation as its act, so is essence to being. But the act of understanding is His very Being in God alone. Therefore in God alone is His intellect His essence, while in other intellectual creatures the intellect is a power [AQUI: Pt. I, Q. 79, Art. 1].

To properly follow this argument, we must understand how Aquinas viewed four other ideas: action, power, essence, and being. Earlier (Question 54, art. 1), he states, “For an action is properly the actuality of a power, just as being is the actuality of a substance, or of an essence.” An ‘act of understanding’ is, therefore, the actuality of a power – namely, the intellect. So far, this distinction is in sympathy with the distinction we drew earlier between, on the one hand, the *Verstandes - Actus* and determining judgment, and, on the other, understanding as an ability vs. understanding as a power.

Now let us recall Aristotle’s distinction between potentiality (*dynamis*) and actuality (*enérgeia*). If “the understanding” (intellect) is not “itself” the “actuality” then it seems it must be something connected with the “potentiality” or, in Aquinas’ terminology, be an “agent intellect.”

The necessity for admitting a possible intellect in us is derived from the fact that we understand sometimes only in potency and not in act. Hence there must be some power which, previous to the act of understanding, is in potency to intelligible things, but which is brought into act in their regard when it knows them, and still more when it considers them. This is the power which is called the possible intellect. The necessity for admitting an agent intellect is due to this, that the natures of the material things which we understand do not exist outside the soul as immaterial and actually intelligible, but are only intelligible in potency so long as they are outside the soul. Consequently it is necessary that there should be some power capable of rendering such natures actually intelligible, and this power in us is called the agent intellect [AQUI: Pt. 1, Q. 54, Art. 4].

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<sup>4</sup> "The Philosopher" is, of course, Aristotle.

But is this “agent intellect” something in *us*? To a modern reader, this may seem like the most absurd of questions (if we are willing to go along with the ‘agent intellect’ idea in the first place). But in the history of Western thought, this was by no means a settled issue (as Spinoza’s philosophy would later illustrate once again). Aquinas answers in the affirmative.

According to the opinion of Plato, there is no need for an agent intellect in order to make things actually intelligible, although perhaps in order to provide intellectual light to the intellect, as will be explained further on . . . For Plato supposed that the forms of natural things subsisted apart from matter, and consequently that they are intelligible, since a thing is actually intelligible from the very fact that it is immaterial. And he called such forms “species” or “ideas,” from a participation of which he said that even corporeal matter was formed, in order that individuals might be naturally established in their proper genera and species, and that our intellect was formed from such participation in order to have knowledge of the genera and species of things. But since Aristotle did not allow that forms of natural things subsist apart from matter, as forms existing in matter are not actually intelligible, it follows that the natures or forms of the sensible things which we understand are not actually intelligible. Now nothing is reduced from potency to act except by something in act; just as the senses are made actual by what is actually sensible. We must therefore assign on the part of the intellect some power to make things actually intelligible, by the abstraction of the species from the material conditions. And such is the necessity for positing an agent intellect [AQUI: Pt. I, Q. 79, Art. 3].

Having thus established the necessity for the existence of an agent intellect, Aquinas proceeded to place “it” within the soul.

The agent intellect, of which the Philosopher speaks, is something in the soul. In order to make this evident, we must observe that above the intellectual soul of man we must suppose a superior intellect, from which the soul acquires the power of understanding. For what is such by participation, and what is subject to motion, and what is imperfect always requires the pre-existence of something essentially such, immovable and perfect. Now the human soul is called intellectual by reason of a participation in intellectual power, a sign of which is that it is not wholly intellectual but only in part. Moreover it reaches to the understanding of truth by arguing, with a kind of reasoning and movement. Again it has imperfect understanding, both because it does not understand everything, and because, in those things which it does understand, it passes from potency to act. Therefore there must be some higher intellect, by which the soul is helped to understand.

Therefore some held that this intellect, substantially separate, is the agent intellect, which by lighting up the phantasms as it were, makes them to be actually intelligible. But even supposing the existence of such a separate agent intellect, it would still be necessary to assign to the human soul some power participating in that superior intellect, by which power the human soul makes things actually intelligible. Just as in other perfect natural things, besides the universal active causes, each one is endowed with its proper powers derived from those universal causes . . . Now among those lower things nothing is more perfect than the human soul. Therefore we must say that in the soul is some power derived from a higher intellect, whereby it is able to light up the phantasms [AQUI: Pt. I, Q. 79, Art. 4].

This “agent intellect” plays the role of efficient cause to *acts* of understanding; this may seem a small point, but it is progress in Aquinas’ description because he has finally given us a statement of the character of “the” understanding.

He goes on to dispose of the idea that there might be one agent intellect for all of us (a kind of ‘universal cause’ of understanding belonging to none of us individually but rather to all of us collectively). He also affirms that memory is “in the intellectual part of the soul,” that memory is not a power distinct from “the intellect” but, rather, “the treasury or storehouse of species” (i.e., of things made intelligible), and that *reason* is not a distinct power but, rather, that reason and intellect are one and the same power.

Augustine says . . . that "that in which man excels irrational animals is reason, or mind, or intelligence, or whatever appropriate name we like to give it." Therefore reason, intellect, and mind are one power.

*I answer that*, Reason and intellect in man cannot be distinct powers. We shall understand this clearly if we consider their respective actions. For to understand is simply to apprehend intelligible truth, and to reason is to advance from one thing to another, so as to know an intelligible truth. And therefore angels who, according to their nature, possess perfect knowledge of intelligible truth, have no need to advance from one thing to another but apprehend the truth simply and without mental discursion, as Dionysius says . . . But man arrives at the knowledge of intelligible truth by advancing from one thing to another, and therefore he is called rational. Reasoning, therefore, is compared to understanding as movement is to rest, or acquisition to possession, of which one belongs to the perfect, the other to the imperfect. And since movement always proceeds from something immovable and ends in something at rest, hence it is that human reason, by way of inquiry and discovery, advances from certain things simply understood - namely, the first principles; and, again, by way of judgment returns by analysis to first principles, in the light of which it examines what it has found. Now it is clear that rest and movement are not to be referred to different powers, but to one and the same, even in natural things, since by the same nature a thing is moved towards a certain place, and rests in that place. Much more, therefore, by the same power do we understand and reason. And so it is clear that in man reason and intellect are the same power [AQUI: Pt. I, Q. 79, Art. 8].

We need not continue to belabor the rest St. Thomas’ arguments and answers on the topic of “the intellect” in the remainder of Question 79. He discusses “higher” and “lower” reason, intelligence, and various other topics. “Intelligence,” for instance, he argues to be not a power distinct from intellect but, rather, “the word intelligence properly signifies the intellect’s very act, which is to understand . . . Thus intelligence is not distinct from intellect, as power is from power, but as act is from power” [AQUI: Pt. I, Q. 79, Art. 10]. Apart from a fundamental reliance on the premise of the soul, St. Thomas’ description of “the” understanding is actually rather ‘operational’ in character. Since everything in this description ultimately ties back to the idea of the human soul, there is no problem with imputing the kinds of things that Haugeland might be accused of doing for “systems,” nor would St. Thomas, unlike Haugeland, be obliged to resort to other operational definitions to avoid this issue. On the other hand, the idea of “the soul” is, under the Copernican hypothesis, not something we can view as either a given or as determinable with objective validity. Therefore it cannot be a transcendental object for science but merely the idea of a transcendent thing, an object of faith outside the topic of any possible science.

## Hobbes and Descartes

St. Thomas and his contemporaries lived at a time that has been called the “brief high summer” of scholastic philosophy [KNOW: 265]. After 1277, the scholastic union of theology and philosophy began to fall apart so that by the sixteenth century the old fabric of scholastic philosophy and natural theology had been largely torn asunder, to be replaced by mysticism and rampant superstition. Between St. Thomas and Descartes lies the Protestant Reformation, the Catholic Counter-Reformation, a cycle of religious persecution and counter-persecution that swept western Europe in which whatever religious sect was holding power moved to stamp out or suppress rival sects, a great civil war in England, and the new dawn of Bacon’s call to science and reason. The period following William of Occam (*circa* 1300-1350) up to the time of Descartes (1596-1650) was a philosophical dark age.

The first half of the seventeenth century witnessed the re-emergence of philosophy in the form of two great themes – British empiricism and continental rationalism. The first was heralded by the interesting English thinker, Thomas Hobbes (1588-1679), the second by Descartes (1596-1650). In philosophy these two men could hardly have been more different. Hobbes was a materialist, a naturalist, was branded an atheist by his contemporaries, and serves to this day as a model of the skeptical and pragmatic philosopher. Descartes, as a philosopher, was his antithesis in every important way. It is, consequently, of interest to compare the way in which these two men viewed understanding and the mind.

We have previously seen (Chapter 1) Hobbes’ mechanistic view of the senses and his conclusion that “imagination” is nothing other than “decaying sense.” Hobbes held that memory and imagination were one and the same thing. Experience, he said, is “much memory or the memory of many things” [HOBB: 50 (Pt. I, Ch. 2)]. As for *understanding*,

The imagination that is raised in man (or any other creature endued with the faculty of imagining) by words, or other voluntary signs, is that we generally call *understanding*, and it is common to man and beast . . . That understanding which is peculiar to man is the understanding not only of his will, but his conceptions and thoughts, by the sequel and contexture of the names of things into affirmations, negations, and other forms of speech: and of this kind of understanding I shall speak hereafter [HOBB: 52 (Pt. I, Ch. 2)].

For Hobbes, thinking is *mental discourse*. This mental discourse he describes as a “train of imaginations” in which the “decaying sense” that is imagination – recalling that to Hobbes all sense is mechanical motion of parts of the body – stimulates related motions “by coherence of the matter moved, in such manner as water on a plain table is drawn which way any one part of it is guided by the finger.”



This train of thoughts, or mental discourse, is of two sorts. The first is *unguided*, without design, and inconstant; wherein there is no passionate thought to govern and direct those that follow to itself as the end and scope of some desire, or other passion; in which case the thoughts are said to wander, and seem impertinent one to another, as in a dream . . .

The second is more constant, as being *regulated* by some desire and design. For the impression made by such things as we desire, or fear, is strong and permanent, or (if it cease for a time) of quick return: so strong it is sometimes as to hinder and break our sleep. From desire ariseth the thought of some means we have seen produce the like of that which we aim at; and from the thought of that, the thought of means to that mean; and so continually, till we come to some beginning within our own power . . .

The train of regulated thoughts is of two kinds: one, when of an effect imagined we seek the causes or means to produce it; and this is common to man and beast. The other is, when imagining anything whatsoever, we seek all the possible effects that can by it be produced; that is to say, we imagine what we can do with it when we have it. Of which I have not at any time seen any sign, but in man only . . . In sum, the discourse of the mind, when it is governed by design, is nothing but *seeking*, or the faculty of invention, . . . a hunting out of the causes of some effect, present or past; or of the effects of some present or past cause. Sometimes a man seeks what he hath lost; and from that place, and time, wherein he misses it, his mind runs back, from place to place, and time to time, to find where and when he had it; that is to say, to find some certain and limited time and place in which to begin a method of seeking. Again, from thence, his thoughts run over the same places and times to find what action or other occasion might make him lose it. This we call *remembrance*, or calling to mind [HOBB: 52-53 (Pt. I, Ch. 3)].

As egregiously quaint as Hobbes' theory might strike us today, its 'operational' character is hardly that much different from Haugeland's description we cited earlier. Dress it up with a more modern understanding of biology, smooth out some difficulties regarding "design", "desire" and so on with a few more operational definitions and some dynamical equations, and Hobbes could take his place among modern cognitive scientists of a materialist bent.

The situation could scarcely be any more different than it is in the case of Descartes. For Descartes, as for Hobbes, the body is a machine, an automaton. Its essence is "extension." But the mind is something altogether different and superior. The essence of mind is *thought*, which Descartes viewed as *res cogitans* – something immaterial without any extension whatsoever.

In order to begin this examination, then, I here say, in the first place, that there is a great difference between mind and body, inasmuch as body is by nature always divisible, and the mind is entirely indivisible. For, as a matter of fact, when I consider the mind, that is to say, myself inasmuch as I am only a thinking thing, I cannot distinguish in myself any parts, but apprehend myself to be clearly one and entire; and although the whole mind seems to be united with the whole body, yet if a foot, or an arm, or some other part, is separated from my body, I am aware that nothing has been taken away from my mind. And the faculties of willing, feeling, conceiving, etc. cannot be properly speaking said to be its parts, for it is one and the same mind which employs itself in willing and in feeling and understanding. But it is quite otherwise with corporeal or extended objects, for there is not one of these imaginable by me which my mind cannot easily divide into parts, and which consequently I do not recognize as being divisible; this would be sufficient to teach me that the mind or soul of man is entirely different from the body, if I had not already learned it from other sources [DESC1: 56].

Since Descartes holds that he is a “thinking thing” which is indivisible, he finds it difficult to make *positive* statements about such questions as “what is understanding?”; in *Meditation Two* we find

I am therefore precisely nothing but a thinking thing; that is, a mind, or intellect, or understanding, or reason - words of whose meanings I was previously ignorant. Yet I am a true thing and am truly existing; but what kind of thing? I have said it already: a thinking thing [DESC1: 19].

We can be happy for Descartes that he is no longer “ignorant of the meanings” of his terms. Unfortunately, he makes little effort to enlighten the rest of us – a fault for which Hobbes was only too happy to rip into him. Descartes quotes Hobbes’ “second objection”:

From the fact that I am exercising thought it follows that *I am*, since that which thinks is not nothing. But, where it is added, *this is the mind, the spirit, the understanding, the reason*, a doubt arises. For it does not seem good reasoning to say: *I am exercising thought*, hence, *I am thought*; or *I am using my intellect*, hence *I am intellect*. For in the same way I might say, *I am walking*; hence, *I am the walking*. It is hence an assumption on the part of M. Descartes that that which understands is the same as the exercise of understanding, which is an act of that which understands, or, at least, that that which understands is the same as the understanding, which is a power possessed by that which thinks. Yet all Philosophers distinguish a subject from its faculties and activities, i.e. from its properties and essences; for the *entity* itself is one thing, its *essence* another. Hence it is possible for a thing that thinks to be the subject of the mind, reason, or understanding, and hence to be something corporeal; and the opposite of this has been assumed, not proved. Yet this inference is the basis of the conclusion that M. Descartes seems to wish to establish [DESC4: 134].

Against this objection, Descartes replied:

Where I have said, *this is the mind, the spirit, the intellect, or the reason*, I understood by these names not merely faculties, but rather what is endowed with the faculty of thinking; and this sense the two former terms commonly, and the latter frequently, bear. But I used them in this sense so expressly and in so many places that I cannot see what occasion there was for any doubt about their meaning.

Further, there is no parity between walking and thinking; for walking is usually held to refer only to that action itself, while thinking applies now to the action, now to the faculty of thinking, and again to that in which the faculty exists.

Again, I do not assert that that which understands and the activity of understanding are the same thing, nor indeed do I mean that the thing that understands and the understanding are the same, if the term understanding be taken to refer to the faculty of understanding; they are identical only when the understanding means the thing itself that understands. I also admit quite gladly that, in order to designate that thing or substance, which I wished to strip of everything that did not belong to it, I employed the most highly abstract terms I could; just as, on the contrary, this Philosopher uses terms that are as concrete as possible . . . to signify that which thinks, fearing to let it be sundered from the body [DESC4: 135].

We might think that Hobbes got the better of this exchange, but Descartes goes on to point out that a “substance” is apprehended only by means of its activities rather than “immediately through itself.” Descartes’ method, consequently, is not to try to define what understanding *is* but,

rather, to strip away everything it is not; what is left, consequently, must be understanding. In pursuing this tactic, we can see the same attitude with which Descartes dismissed Aristotle's complicated terminology with his famous "who does not know what motion is?"

V. Everything in which there resides immediately, as in a subject, or by means of which there exists anything that we perceive, i.e. any property, quality, or attribute, of which we have a real idea, is called a *Substance*; neither do we have any other idea of a substance itself, precisely taken, than that it is a thing in which this something we perceive or which is present objectively in some of our ideas, exists formally or eminently. For by means of our natural light we know that a real attribute cannot be an attribute of nothing.

VI. That substance in which thought immediately resides, I call *Mind*. I use the term "mind" here rather than "spirit," as "spirit" is equivocal and is frequently applied to what is corporeal [DESC5: 130].

Among the "faculties" that Descartes banishes from "Mind" are those of imagination and feeling. The latter has, for him, obviously too strong an attachment to the corporeal body; the former, because it can "act on the senses by means of the motor power," is also assigned to the corporeal realm. Furthermore, with regard to imagination and sensation, "I can clearly and distinctly understand myself in my entirety without these faculties, but not vice versa: I cannot understand them clearly and distinctly without me, that is, without a substance endowed with understanding in which they inhere, for they include an act of understanding in their formal concept. Thus I perceive them to be distinguished from me as modes from a thing" [DESC1: 51-52].

Neither Descartes nor Hobbes develop their ideas of "understanding" in sufficient detail to be of much further use to us. For Hobbes, understanding is to be examined, picked apart, and *explained* on purely materialistic grounds *functionally*. For Descartes, "understanding" as an act is something we can (presumably) describe, but "the understanding" – Mind – is a "substance," and an immaterial one at that. The battle lines between empiricism and rationalism have now been neatly drawn, but the war is far from over.

### Locke and Leibniz

The end of the seventeenth and beginning of the eighteenth centuries witnessed two of the most influential thinkers of their time: Locke and Leibniz. Locke is often regarded as the true "father of British empiricism." Leibniz, who is today most remembered for his work in mathematics, was a rationalist philosopher who set the tone for much of continental philosophy up to the time of Kant.

Both men seem to have shared a common view of "the understanding" as something to be

regarded as a “faculty of the soul” or “Mind” and both seem to regard the meaning of this term as more or less self-evident and devote their attention to describing “it” in terms of “powers” (abilities) and characteristics. Beyond this, their positions are as radically different from each others’ as one can imagine. Locke held there is no such thing as an “innate idea or principle” while Leibniz, of course, held just the opposite view. Locke’s philosophy has an Aristotelian flavor about it, while Leibniz openly gives his sympathy to Plato and to the Scholastics.

Locke’s *An Essay Concerning Human Understanding* is primarily devoted to exploring the manner in which human beings come to “have knowledge.” He describes the purpose of this essay as follows:

This, therefore, being my purpose - to inquire into the original, certainty, and extent of *human knowledge*, together with the grounds and degrees of *belief*, *opinion*, and *assent*; - I shall not at present meddle with the physical considerations of the mind; or trouble myself to examine wherein its essence consists; or by what motions of our spirits or alterations of our bodies we come to have any *sensation* by our organs, or any *idea* in our understandings; and whether those ideas do in their formation, any or all of them, depend on matter or not. These are speculations which, however curious and entertaining, I shall decline, as lying out of my way in the design I am now upon. It shall suffice to my present purpose, to consider the discerning faculties of a man, as they are employed about the objects which they have to do with. And I shall imagine I have not wholly misemployed myself in the thoughts I shall have on this occasion, if, in this historical, plain method, I can give any account of the ways whereby our understandings come to attain to those notions of things we have; and can set down any measures of the certainty of our knowledge, or the grounds of those persuasions which are to be found amongst men [LOCK: 93 (Intro. §2)].

Locke likens “the understanding” to a room that is furnished with ideas. He uses this word “idea” in a very broad sense:

But, before I proceed on what I have thought on this subject, I must here in the entrance beg pardon of my readers for the frequent use of the word *idea*, which he will find in the following treatise. It being the term which, I think, serves best to stand for whatsoever is the *object* of the understanding when a man thinks, I have used it to express whatever is meant by *phantasm*, *notion*, *species*, or *whatever it is which the mind can be employed about in thinking*; and I could not avoid frequently using it [LOCK: 95 (Intro. § 7)].

We have previously discussed Locke’s division of “ideas” into “simple ideas” and “complex ideas.” Simple ideas are supposed to be given only through the senses and the mind is supposed to have no power to create or destroy them. In this sense, a simple idea seems to be a kind of ‘atom’ of thought. Of the simple ideas, some are supposed to originate from external things which impress the idea on the senses – Locke calls this *sensation* – while others are due to the “inner sensation” of the “activities” of the mind. The word Locke uses for this second elementary type of perception is *reflection*. With regard to simple ideas, Locke holds “the” understanding to be passive:

I pretend not to teach, but to inquire; and therefore cannot but confess here again, - that external and internal sensation are the only passages I can find of knowledge to the understanding. These alone, as far as I can discover, are the windows by which light is let into this *dark room*. For, methinks, the understanding is not much unlike a closet wholly shut from light, with only some little openings left, to let in visible resemblances, or ideas of things without: would the pictures coming into such a dark room but stay there, and lie so orderly as to be found upon occasion, it would very much resemble the understanding of a man, in reference to all objects of sight, and ideas of them.

These are my guesses concerning the means whereby the understanding comes to have and retain simple ideas, and the modes of them, with some other operations about them [LOCK: 147 (bk. II, chap. XI, § 17)].

Leibniz, who held that the mind *is* in possession of “innate ideas,” responded to Locke’s “dark room” simile with the observation:

In order to render the resemblance [between the understanding and a dark room] greater it would be necessary to suppose that there was in the dark room to receive the images a cloth, which was not smooth, but diversified by folds representing innate knowledge; that, furthermore, this cloth or canvas being stretched had a sort of elasticity or power of acting, and even an action or reaction accommodated as much to past folds as to newly arrived impressions of the images. And this action would consist in certain vibrations or oscillations, such as are seen in a stretched cord when it was touched, of such a kind that it gives forth a sort of musical sound. For not only do we receive images or traces in the brain but we also form them anew when we consider *complex ideas*. Thus the cloth, which represents our brain, must be active and elastic. This comparison would explain tolerably well what takes place in the brain; but as to the soul, which is a simple substance or *monad*, it represents without extension these same varieties of extended masses and has perception of them [LEIB1: 420 (Bk. II, Ch. XII)].

In Leibniz’ view, Locke is not being consistent when he holds both that the mind is like a “blank paper” upon which simple ideas are impressed and also that reflection (the mind sensing its own activity) is a source of simple ideas.

Perhaps our able author will not differ entirely from my opinion. For after having employed the whole of his first book in rejecting innate knowledge, taken in a certain sense, he nevertheless admits at the beginning of the second and in what follows, that the ideas which do not originate in sensation come from reflection. Now reflection is nothing else than attention to what is in us, and the senses do not give that which we already carry with us. This being so, can it be denied that there is much that is innate in our mind, since we are innate, so to say, in ourselves, and since there is in ourselves, being, unity, substance, duration, change, action, perception, pleasure, and a thousand other objects of our intellectual ideas? And these objects being immediate to our understanding and always present (although they cannot be always perceived on account of our distractions and wants), why be astonished that we say that these ideas, with all that depends on them, are innate in us? I have also made use of the comparison of a block of marble which has veins, rather than of a block of marble wholly even, or of blank tablets, that is to say, of what is called among philosophers *tabula rasa*. For if the soul resembled these blank tablets, truths would be in us as the figure of Hercules is in marble when the marble is entirely indifferent toward receiving this figure or some other. But if there were veins in the block which should mark out the figure of Hercules rather than other figures, the block would be more determined thereto, and Hercules would be in it as in some sort innate, although it would be necessary to labor in order to discover these veins and to cleanse them by polishing and by cutting away that which prevents them from appearing. It is thus that ideas and truths are innate in us, as inclinations, dispositions, habits, or natural capacities, and not as

actions; although these capacities are always accompanied by some actions, often insensible, which correspond to them [LEIB1: 372-373].

For Leibniz, innate knowledge exists “potentially” in the mind (rather than in finished form as a clear and distinct idea) much as Hercules “exists potentially” in the outlines given by the veins in his marble block. This innate knowledge is viewed as a kind of “potential energy” for the understanding in the making of complex ideas. Both men agree that the role of the understanding is an *active* one so far as the making of complex ideas is concerned. Locke writes:

But as the mind is wholly passive in the reception of all its simple ideas, so it exerts several acts of its own, whereby out of its simple ideas, as the materials and foundations of the rest, the others are framed. The acts of the mind, wherein it exerts its power over its simple ideas, are chiefly these three: (1) Combining several simple ideas into one compound one; and thus all *complex ideas* are made. (2) The second is bringing two ideas, whether simple or complex, together and setting them by one another, so as to take a view of them at once, without uniting them into one; by which it gets all its ideas of *relations*. (3) The third is separating them from all other ideas that accompany them in their real existence; this is called abstraction: and thus all its *general ideas* are made. This shows man's power, and its ways of operation, to be much the same in the material and the intellectual world [LOCK: 147 (bk. II, Ch. XII, § 1)].

Modern symbolism holds much the same view as this. Along with these “acts” of the mind, Locke tells us of several “faculties” of the mind for which we have simple ideas. These classify along general lines into *perception*, *retention*, and *discernment* [LOCK: 138-147 (bk. II, Ch. IX-XI)]. Perception, Locke tells us, “is the first and simplest idea we have from reflection, and is by some called thinking in general.” The *modes of thinking* include sensation, remembrance, contemplation, reasoning, judging, volition, and so on, in the acts of which the mind shows different degrees of attention and different intentions. The great variety in these ideas leads Locke to suggest, “Hence it is probable that thinking is the action, not the essence, of soul” [LOCK: 176 (bk. II, Ch. XIX, § 4)]. This element of Locke’s theory elicits a number of comments from Leibniz, of which we will look at two. The first has to do with the idea of perception:

I should prefer to distinguish between *perception* and *apperception*. The perception of light or of color, for example, of which we are conscious, is composed of many minute perceptions of which we are not conscious; and a noise of which we have a perception but to which we do not attend, becomes *apperceptible* by a little addition or augmentation. For if what precedes makes no impression on the soul, this small addition would also make none and the whole would make no more [LEIB1: 416 (bk. II, Ch. IX, § 4)].

In Leibniz’ theory of monads, perception is the “transitory state which incorporates and represents a multitude within a unity or within a simple substance . . . which must be carefully distinguished from apperception or consciousness” [LEIB2: 535 (§ 14)]. Leibniz’ point, which he makes in his *Monadology*, is that perception is “inexplicable by mechanical causes” and he cites this as evidencing that monads must be “incorporeal automata.” All monads have perception, but

not all monads are apperceptive. For this reason, he prefers to designate those monads that have only perception as “entelechies” and to reserve the term “soul” for those that have more “distinct” perception accompanied by memory. Although it seems as if Locke would have greatly preferred to avoid having to introduce incorporeal elements into his theory, as we have seen earlier he was forced to back off a bit on this in response to criticism from the Bishop of Worcester. So it is that when Locke hints at the existence of some “agent” – the soul – “for whom” thinking is but an act, Leibniz replies

Undoubtedly thought is an action and could not be an essence; but it is an essential action, and all substances have such. I have shown above, that we always have an infinity of minute perceptions without our being conscious of them. We are never without *perceptions* but it is necessary that we be often without *apperceptions*, namely, when there are no distinct perceptions. It is for want of having considered this important point, that a philosophy, loose, and as little noble as solid, has prevailed among many men of good minds, and that we have hitherto almost ignored whatever is most beautiful in souls. This has also caused men to find so much plausibility in the error that teaches that souls are of a perishable nature [LEIB1: 426 (bk. II, Ch. XIX, § 4)].

In the end, both men leave us with many descriptions of the nature of “the” understanding as revealed through “its acts” but without a clear-cut definition of what “the” understanding “is” outside of the general impression that it is a something and is bound up with a something called “soul.” For empiricism as for rationalism and as for Scholasticism, “the” understanding is a “power” that must have some kind of “substance” behind it. Only Hobbes, the materialist, is left in defiance of this view, ascribing “it” to merely corporeal mechanisms, refusing all but operational descriptions, and with the rather clear anticipation that someday the great puzzle of how material bodies can come to exhibit “perception,” despite the fact that perception is no part of our scientific model of these bodies, will be solved.

#### § 4.2 Understanding from the Theoretical Standpoint

As we have just seen, the historical debate over the nature of understanding has produced views that differ markedly from each other. However, these differences are for the most part differences in how “the” understanding is viewed *as a metaphysical thing*. For the materialist “the” understanding is not a ‘thing’ at all in any material sense; it is merely a phenomenon – an *Unsache*-thing – to be explained in terms of physical laws. For the pre-Kantian empiricists and rationalists, “the” understanding was a “power” or “ability” that had to be viewed as a power or ability *of* something, and this *Sache*-thing typically ended up being identified as the soul. In making this latter identification, it is relatively easy to see that such a conclusion, or one like it, arises from the need to seek a *cause* of a phenomenal *effect*.

Let us focus our attention for a moment on this issue of a cause vs. effect distinction. For the materialist, “understanding” is merely an effect. It is a state of being in the understanding Subject, and so to define “understanding” is to sufficiently describe all the characteristics of this state, including those that address changes in this state (e.g., “learning”). The cause of the occurrence of a particular given state is not “the” understanding but merely empirical laws of physics, biochemistry, biology, and so on that are to explain how such a state comes to exist and how this state changes over time. Thus, for the materialist, “understanding” is something “real,” but it is no *materially* real thing; there is no entity to be called “the” understanding.

The empiricist and the rationalist can accept this idea that “understanding” is a state of being, but where each differs from the materialist is in how we are to view the cause of this state of being. The issue, historically, has turned on the question of how “corporeal matter” – atoms, molecules, cells, etc. – could conceivably be said to possess a power of perception or cognition or whatever names one cares to give the *fact* that each of us, individually, apprehends, thinks, assigns meanings, and so on. Look once again at Haugeland’s description: understanding is something characteristic of “the system” if it: “takes responsibility for applying” its “proto-concepts”; “takes responsibility for” their “empirical adequacy”; “takes a firm stand on what can or cannot happen in the world”; and so on. There is in this description at least the flavor of a teleological component, i.e. the presupposition of something in the nature of a *final cause* that is necessary for us to be able to self-consistently say of the system, “it grasps the point.” In such a view “understanding” in its causal character is an idea that operates at nothing less than the level of the totality of the system and which loses the context of its meaning in scientific reduction. Such is the character of “the” understanding. We could well draw the distinction between the effect and the cause by calling the former “understanding” and the latter “Understanding.”

Now, we are forbidden by the principles of Rational Psychology to ground a theory in the presupposition of the soul as a metaphysical thing. If we are to explore this dual cause - effect character of the phenomenon of understanding, we must do so in terms of an Object, a term that refers to “that in the concept of which the manifold of a given intuition is united.” In *Critique of Pure Reason* Kant provides us with a number of descriptions and explanations of the idea of “understanding.” Let us look carefully at some of these.

*The unity of apperception in regard to the synthesis of imagination is understanding, and this very same unity, relatively to the transcendental synthesis of imagination, is pure understanding.* There is therefore in understanding pure knowledge *a priori* that contains the necessary unity of the pure synthesis of imagination with respect to all possible appearances. These are, however, the *categories*, i.e. pure notions of understanding; hence man's empirical power of cognition necessarily contains an understanding, which relates to all objects of the senses, although only by means of intuition and their synthesis through imagination, under which, therefore, all appearances stand as data to a possible experience [KANT1a: 238 (A: 119)].



Understanding in this context is an Object, the idea of which contains the unity of apperception in regard to cognitions (which are merely conscious objective representations) and their objects. There is in this description no hint that understanding has the character of a *cause*. If anything connected with this explanation might be said to have a causal character, such a character would have to be placed with “man’s empirical power of cognition.” Nor does Kant’s explanation have the connotation of an *effect* for “effect” always implies that something has *changed* – e.g. from one state to another – and understanding is here described as the *unity* of apperception in regard to the synthesis of imagination. Kant does not say that the unity of apperception causes or produces understanding; he says that this unity, so far as it concerns cognition, *is* understanding and, so far as this unity involves the investiture of cognitions with *meanings* (the perception of appearances as phenomena), it *is* pure understanding. The unity of apperception with regard to cognitions is the *I think* inherent in every conscious objective representation, and this *I think* is represented in inner sense under the *modus* of persistence in time. Thus, this first explanation of the idea of “understanding” comes under the notion of substance and accident, not the notion of causality and dependency.

Kant offers many explanations of what is characteristic of understanding.

We have above explained understanding in various ways: through a spontaneity of cognition (in contrast to the receptivity of sensibility), through a capacity to think<sup>1</sup>, or likewise a power of comprehension<sup>2</sup>, or also for judgments - which explanations, if one looks at them properly, amount to the same thing. Now we can characterize it as the *faculty of rules*<sup>3</sup>. This distinguishing mark is more fruitful and comes closer to its essence [KANT1a: 242 (A: 126)].

The phrases “a capacity to think” and “a capacity for concepts” are descriptive enough; but what do we mean by “the faculty of rules”? If this idea “comes closer to the essence” of understanding, it is of obvious importance that we thoroughly examine this Kantian idea of “*das Vermögen der Regeln*.”

We have previously reserved the word “faculty” to designate an ability in terms of *Existenz* in its manner of organization or arrangement, and this connotation for *Vermögen* goes to the heart of the matter in this context. Understanding taken in the context of *being a faculty of rules* is understanding viewed as the ability for making a unity of apperception and cognitions through being conscious of objects under a *system of objective rules* (or ‘laws’). Now, any structure of phenomena viewed as a system of rules must, of course, also be regarded as a system of *empirical* rules or ‘laws’ since all appearances are given originally through the senses. However, the *possibility* of thinking “laws” from appearances necessarily presupposes the ability to *frame* these

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<sup>1</sup> *Vermögen zu denken.*

<sup>2</sup> *Vermögen der Begriffe.*

<sup>3</sup> *das Vermögen der Regeln.*

empirical laws and, because the data of the senses provide no rules for framing such empirical laws, this capacity to construct empirical laws must be grounded in something *a priori* as a *principle of pure understanding*. Put another way, in *appearance* the *phenomenon* of understanding is the appearance of the *inherence* of cognitions *in* a system of rules *legislated a priori*.

The *Existenz* of a substance is subsistence, the *Existenz* of an accident is inherence [KANT19: 328 (28: 563)].

Empirical consciousness is the representation that a representation is in me. In appearance the form of the phenomenon of understanding is represented in consciousness in the form of the *Existenz* of a systematic organization of concepts according to rules. Earlier we described the pure notions of understanding (the categories) as pure rules for the making of concepts. To this idea we must now add the idea of rules for the *making* of empirical rules through which the condition of unity in apperception is enforced during the synthesis of imagination. Kant explained this idea in the following way.

Sensibility gives us forms (of intuition), but understanding gives rules. It is always busy peering through appearances with the aim of finding some sort of rule in them. Rules, so far as they [interpret *Existenz* as necessary]<sup>4</sup> (and thus necessarily pertain to the knowledge of objects), are called laws. Although we learn many laws from experience, these are only particular determinations of yet higher laws, the highest of which (under which all others stand) come *a priori* from understanding itself and are not borrowed from experience, but rather must provide appearances with their lawfulness and by that very means must make experience possible. Understanding is thus not merely a capacity to make rules through the comparison of appearances: it is itself the legislation for nature, i.e. without understanding there would not be given any nature at all . . . [KANT1a: 242 (A: 126-127)].

Here Kant has clearly written of understanding as a ‘substance’ and as an active power of mind that “does something” – namely legislate the form that the manifold of concepts is to be given and the manner in which the appearances thought through this manifold are consciously regarded. Whereas he earlier described understanding without reference to any notion of it being a cause, here a causal character of understanding is explicitly expressed. Do we have a contradiction here between these two explanations or, what would be worse, do we see the shadow of an homunculus in this idea of understanding as a faculty of rules that “comes closer to the essence” of understanding?

No. The image of understanding as something “peering through appearances with the aim of finding some sort of rule in them” is merely a metaphor. If we are to take the first explanation of understanding, as “the unity of apperception in regard to the synthesis of imagination,” we must

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<sup>4</sup> Kant altered the original phrasing of the first edition to the phrase set off here in brackets [AK23: 46].

represent to ourselves what the idea of this unity *means*, which is to ask in what manner the conscious perception of appearances is structured. In representing (to ourselves) “the” understanding as an Object, we must represent this Object in terms of both a matter of representation and a form. When we have done so, what we will see is that the causal character Kant seems to have expressed in his “faculty of rules” description is not really in the character of a “cause” but, rather, it is the character of a “because.”

The matter of understanding (its composition) subsists in the action of making judgments by means of the pure notions of understanding (the categories), which are the *a priori* rules in determinant judgments of concepts and which represent to empirical consciousness the context and coherence of cognitions as the *knowledge of individual phenomena*. The unity of apperception and cognition is the Object of experience.

But we also must have a *systematic* unity that takes in all individual phenomena. Without a systematic *formal structure*, all we have is an aggregation of particular phenomena and not the *phenomenon of Nature*. The categories make possible the thorough-going determination of such a Nature but they do not, by themselves, provide the rules for the systematic determination of the overall structure of Nature. For this we require *global rules of structuring* the sum-total of all our knowledge of phenomena in a single system, and *this* is what Kant means when he says that understanding is “the legislation for Nature.” Like the categories, these global rules must be *a priori* and cannot depend upon the contingent data of the senses; therefore, they also can be nothing other than *formal* rules, i.e. “rules of pure form.” The act of judging according to these rules determines the lawful construction of the manifold of concepts, which constitutes the form (its *nexus*) of understanding. To further understand “understanding” we must understand these global rules.

Now, when we looked at the categories from the dynamical reflective perspectives, we employed the idea of a transcendental Ideal that serves as a “standard gauge for Reason” in determining the direction to be taken in the process of determining judgment. This standard pertained to *objects* of knowledge. For the form of *understanding* we likewise require some Ideal by which an *a priori* standard for *objective knowledge* is established. This Ideal is the exemplar of an idea that once had great currency in philosophy but has, over the last century or so, fallen into disuse. This is the idea of *logical perfection*.

### § 4.3 The Idea of Perfection

The idea of perfection in philosophy is an ancient one, dating back at least to Parmenides. *The Oxford Dictionary of Philosophy* describes “perfection” as “a powerful but difficult tradition in philosophy and theology” which “associates reality, perfection, the absence of change, and self-sufficiency.” In some philosophical traditions, a perfect being would be one that is “most real.”

The idea of something that is “perfect” has always been tightly bound to the idea of being *complete*. Indeed, the Greek adjective *τελειος* translates into English both as “perfect” and as “complete.” This tie is easily seen in the English dictionary definitions of the words “perfect” and “perfection.”

**perfect**, *a.* [L. *perfectus*, pp. of *perficere*, to finish; *per*, through, and *facere*, to do]

1. complete in all respects; without defect or omission; sound; flawless.
2. in a condition of complete excellence, as in skill or quality; faultless; most excellent.
3. completely correct or accurate; exact; precise; as, a *perfect* copy.
4. without reserve or qualification; pure; utter; sheer; complete; as, a *perfect* fool, *perfect* stranger.

**perfection**, *n.* [ME. *perfeccioun*; OFr.; L. *perfectio*]

1. the act or process of perfecting; as, the *perfection* of the machine took many months.
2. the quality or condition of being perfect; the extreme degree of excellence according to a given standard.
3. a person or thing that is the perfect embodiment of some quality.
4. a quality, endowment, or acquirement completely excellent, or of great worth.

Like us, the ancient Greeks associated the idea of excellence with that of perfection. They also, however, have in this idea another connotation, namely that of *τελος* or *end*. Aristotle tells us:

We call perfect (1) that outside of which it is not possible to find even one of the parts proper to it . . . (2) that which in respect of excellence and goodness cannot be excelled in its kind, e.g. a doctor is perfect and a flute-player is perfect when they lack nothing in respect of their proper kind of excellence . . . And virtue is a perfection. For each thing is perfect and every substance is perfect when, in respect of its proper kind of excellence, it lacks no part of its natural magnitude. (3) the things which have attained a good end are called perfect; for things are perfect in virtue of having attained their end [ARIS7: 1613 (1021<sup>b</sup>12 - 25)].

Christian theology has always invariably linked the idea of perfection to that of God. Thus in discussing the perfections of God, St. Thomas Aquinas wrote, “everything in so far as it is perfect is called good,” and, “For we say a thing is perfect if it is completely made” [AQUI v.1: 20 (Pt. 1, Q. 4, Art. 1)]. Leibniz, for whom God played a central role in philosophy, wrote:

It is also necessary to understand what a perfection is. Here is a very reliable indicator: a form or nature which cannot be taken to the highest degree is not a perfection . . . Therefore power and knowledge are perfections, and in so far as they belong to God, they are unbounded [LEIB7a: 54].

Leibniz’ doctrine of perfection, in somewhat modified form, was inherited by Wolff and was used by him in his rational cosmology. For Wolff, “the perfection of the world” consisted in all things existing in a state of perfect “harmony” with each other – which was a central part of the Leibniz doctrine of monads adopted by Wolff [SCHW: 259].

Like the case has been for so many of the other grandiloquent excesses of rationalism and

empiricism, the idea of perfection under the Copernican hypothesis stops us far short of this. The traditional ideas of perfection represented by the selections quoted above all give their focus to the metaphysical thing; this, of course, is precisely what the Copernican hypothesis forbids us to do. Furthermore, despite the many similarities of various positions that have been taken with regard to the idea of perfection, there are also a number of distinctions and differences that separate these ideas. The examination of the idea of perfection must, for the Critical Philosophy, be carried out with the focus set on Objects and objects.

In his early-1790s lectures on metaphysics, Kant presented his students with a discussion of the idea of perfection that is worth quoting again in detail:

There is an old scholastic doctrine: *quodlibet ens est unum, verum, bonum seu perfectum*<sup>5</sup> . . .

The representation of every Object contains:

1. the unity of the determinable;
2. the plurality and harmonization<sup>6</sup> of manifold determinations among one another;
3. the totality of the determinations, insofar as it subsists in that many determinations are taken together in one Object.

Transcendental truth, unlike the logical, subsists in the congruence of the predicates that belong to the essence of a thing with the essence itself . . . Every thing in transcendental understanding is true. Perfection, transcendently considered, is the entirety or completeness of many determinations. Every thing is transcendently perfect.

The criteria of thing and non-thing are:

1. the *unity* of the Object, which is thought in my concept;
2. the transcendental *truth* in the connection of the manifold determinations;
3. completeness or entirety.

Things can be regarded:

1. *physically*, insofar as they are pre-positd through experience;
2. *metaphysically*, insofar as they are pre-positd through pure reason;
3. *transcendentally*, insofar as they are pre-positd through pure reason according to what *necessarily* belongs to their essence.

Physical perfection subsists in sufficiency of empirical representations. Metaphysical perfection subsists in the degree of reality. Transcendental perfection [subsists] in this: that it contains all that the thing requires. One thing is metaphysically more perfect than another . . . But each thing is transcendently perfect [KANT19: 321-322 (28: 555-556)].

Physical perfection, based as it is on contingent experience, is obviously a rather poor brand of perfection since experience can gainsay the perfection of any idea of an object in unpredictable ways. Perfection of this sort is sought after in the empirical sciences, where the objective of the research is to develop robust theories that are not overturned in experience *very often*.

Transcendental perfection is – or should be – the objective of *philosophy*, assuming that the

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<sup>5</sup> "Whithersoever you please, being is one, true, good or perfect."

<sup>6</sup> *Zusammenstimmung*. The word literally means "tuning together."

Copernican hypothesis is correct. Since every proper science must be founded on a proper, that is to say metaphysical, base (in preference to an aggregation of pseudo-metaphysics), the importance of transcendental perfection is quite obvious. However, is not the claim that “every thing is transcendently perfect” something of a rather too audacious boast? It certainly would be if Kant were speaking of *objects* instead of *things*. Here lies a point of particular importance that pays us back for the time and effort we devoted in the previous Chapter on the distinction between Object, object, and thing.

Our knowledge is knowledge of objects, not of the *noumenal* things we must suppose “stand behind the appearances.” The aggregation of objects of experience is tied together through Objects, the representation of which is constrained by the three criteria quoted above. When Kant tells us that every *thing* is transcendently perfect, this means nothing else than that the transcendental perfection of every thing is *a necessary presumption of pure understanding*. We judge the perfection of our knowledge of *objects* through the degree of congruence in our representation of the manifold of concepts under the Object, and by the completeness of this manifold (so far as experience has presented it to us) per the three criteria of thing and non-thing quoted earlier. It is a subtle yet crucial observation that Kant *did not say every object or Object is transcendently perfect*. It is the *making more perfect*, in the transcendental sense, of objects and Objects wherein we find the judicial ground for the form of human understanding.

Perfection is the ground of the greatest objective unity of knowledge. As the good is for Will, so the perfect is for understanding . . . Perfection, insofar as it means a completeness of the whole and mutual harmony and connection of the whole, is transcendental perfection [KANT19: 234 (29: 936-937)].

As for metaphysical perfection, perfection of this type is what the empiricists and rationalists generally meant by the term “perfection.” There is, unfortunately, a great problem that faces anyone seeking to actually achieve such a perfection.

Metaphysical perfection is the degree of reality, and we cannot estimate that because we have no concept of the highest degree of reality [KANT19: 176 (29: 766-767)].

Put quite simply, we have no way to *judge* our progress toward metaphysical perfection. We can perhaps spot *imperfection*, but, to use our earlier metaphor of a standard gauge for Reason, there is no way to measure metaphysical perfection because without a concept of something-in-which the “highest degree of reality” subsists, we have no measure for our progress. All discussions of metaphysical perfection seek the thing-in-itself, but *knowledge* must stop at the horizon of possible experience and there give way to mere *faith*. The idea of metaphysical perfection is, as a consequence of this, of utterly no use to us in making a theory of what is meant by the idea of “understanding.”

So it is that of the three brands of ideas of “perfection” the only one of any use to us here is the idea of transcendental perfection. This idea, in its turn, can be logically divided into sub-species of its own, which we will call the Ideals of perfection. Our next task is to undertake the examination of the first of these.

#### § 4.4 The Ideal of Logical Perfection

Kant’s doctrine of *logical* perfection (which is one of three types of transcendental perfection we must eventually consider) was outlined by Jäsche in his edition of Kant’s *Logik* [KANT8], [KANT8a] as well as in Kant’s lectures known as the Vienna Logic [KANT8a]. We begin with the latter, where Kant provides us with an overview of the landscape of transcendental perfection.

The perfection of knowledge in general is

1. logical;
2. aesthetical;
3. practical perfection.

Logical perfection goes to understanding and is knowledge of objects by way of them. The aesthetical goes to feeling and to the state of our Subject, namely: how we come to be affected by the Object . . . Practical perfection goes to our appetites<sup>7</sup>, through which activity comes to be brought about [KANT8a: 268 (24: 809)].

“Manifoldness and unity,” Kant tells us, “make up every perfection” [KANT8a: 269 (24: 810)]. Insofar as “understanding” is concerned, we can see that this character of perfection speaks to the structure of cognition, thus to the structure of the manifold of concepts, and so to the ‘form’ side of our general ILLAR. With regard to the relationship of perfection and knowledge in general,

Truth is the pre-eminent ground of unity and the most necessary and excellent part. No knowledge takes place at all without truth. In logical perfection it is the positive greatest condition. With aesthetical perfection it is the *conditio sine qua non* and the first and foremost negative condition . . . Logical perfection is the skeleton of our knowledge [KANT8a: 270 (24: 811)].

With regard to the spontaneity of actions by an Organized Being,

Practical perfection is determination of the purposes of human acts [KANT8a: 272 (24: 814)].

Cognitive empirical knowledge is knowledge of objects, and while every *noumenal* thing must be presupposed to be transcendently perfect, this does not mean our knowledge of objects is necessarily perfect.

The imperfection of our knowledge is

1. ignorance, the imperfection of lack, which thus constitutes an empty space.

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<sup>7</sup> *Begierden*. This is traditionally translated as “desires” but, as we will see later, “desire” (*Begehr*) and “appetite” (*Begierde*) denote two very different and important ideas in the Critical Philosophy.

2. error, an imperfection of enlargement, when I have collected Ideas that strive against the truth [KANT8a: 275 (24: 817)].

If we now limit our attention to cognitions – the objective division of knowledge in general – the idea of practical perfection is set aside (since this type of perfection goes to the determination of actions rather than understanding). This leaves us the consideration of logical perfection as well as the consideration of some factors in aesthetical perfection.

All our cognitions are either intuitions or concepts. The faculty of intuition<sup>1</sup> is sensibility. The faculty of concepts<sup>2</sup> is understanding, and to recognize something through concepts is called thinking . . . From another side, sensibility can be explained thus, that it is a receptivity, a capability<sup>3</sup> to come to be affected by objects. Understanding as a spontaneity, a capacity, puts forward things such as they are, not such as they affect us . . . This gives a two-fold perfection of cognitions:

1. perfection according to laws of sensibility, aesthetical.
2. perfection according to laws of understanding, logical.

Logical perfection rests on the agreement of cognition with the Object, aesthetical on agreement with the Subject. The rules of congruence of cognition with the object must be necessary and must hold good for all knowledge and for every understanding, because so long as my cognition should be in agreement with the object, it must also be in agreement with that of others.<sup>4</sup> Aesthetical perfection rests on the particular laws of human sensibility, and therefore is not universal for all creatures. But since objects will have been put forward not only through concepts but also through intuition, there must also be given necessary and general laws of sensibility. Herein lies the idea of the beautiful<sup>5</sup> [KANT8a: 266 (24: 806-807)].

It was stated earlier that the Ideal of logical perfection stands in the role of a standard gauge of Reason (for the form in a 1LAR of the idea of understanding). Speaking more generally, each of the three types of transcendental perfection has its regulative role for the Objects of the three Standpoints. In order to make these ideas useful to us, we must break down and examine the concepts standing under the general ideas of these perfections. These representations we shall call the Ideals of perfection. Because logical, aesthetical, and practical perfection are merely subdivisions of the more general idea of transcendental perfection, we can expect the 2LAR of each to contain something in common. At the same time, because these Ideals are each specialties of transcendental perfection in general, we should also expect to see in their 2LARs specific limitations that distinguish each from the others. Our next task is therefore to examine, first, the

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<sup>1</sup> *das Vermögen der Anschauung*. Sensibility is an organization of sensuous representations.

<sup>2</sup> *das Vermögen der Begriffe*. The manifold of concepts is an organization of cognitions.

<sup>3</sup> *Fähigkeit*.

<sup>4</sup> That is, my conception of an object of experience should agree with your conception of this same object if both are true. This is a presupposition contained in the Ideas of one Nature and one Reality.

<sup>5</sup> "Beauty is in the eye of the beholder." My feeling that an object is beautiful may not agree with your feelings towards this same object, yet we both have, as Santayana put it, a "sense of beauty."



general factors of their structure and then, second, to bore in on our current interest, *logical* perfection.

Kant described the chief moments in the perfection of cognitions as follows:

A cognition is perfect 1) according to Quantity, when it is *universal*; 2) according to Quality, when it is *distinct*; 3) according to Relation, when it is *true*; and finally 4) according to Modality when it is *certain* [KANT8a: 548 (9: 38)].

Extended to perceptions in general these descriptions apply to both logical and to aesthetical perfection. We may note that these four conditions bespeak of a particular finality; perfection is said to be reached *when* all four conditions are met. This character of perfection is remarkably similar to that of the four Ideas of Rational Theology in this respect. Now, these latter Ideas, taken objectively, constituted a transcendental Ideal for which no warrant or guarantee is given that we can ever bring our actual knowledge to this Ideal. This same issue clearly is present, or is at least possibly present, in the Ideal of an absolute perfection of cognition. The issue devolves to one of how it is possible for us to evaluate the *relative* perfection attained in the manifold of cognition in general. With regard to logical perfection,

The logical perfection of cognition rests on its congruence with the Object, hence on *universally valid* laws, and thus likewise suits itself to be judged according to norms *a priori* [KANT8a: 547 (9: 36)].

It is with such *a priori* norms – with, that is, the standard gauge of pure understanding – that we must deal in our examination of the Ideal of logical perfection.

Regarded from the viewpoints indicated, a cognition will thus be logically perfect according to Quantity: when it has objective universality (universality of the concept or of the rule), according to Quality: if it has objective distinctness (distinctness in the concept), according to Relation: if it has objective truth, and finally according to Modality: if it has objective certainty [KANT8a: 548 (9: 38)].

Let us take a look at each of these ideas in turn.

### Quantity in Logical Perfection

A concept has universality, in relationship to some condition, if its scope is complete (i.e. the concept can be predicated of all objects in the scope of that condition [KANT1a: 400 (B: 379)]). Thus, the norm for universality of a concept is tied to an idea of the *magnitude* of the concept. (Recall that a magnitude is a whole which is regarded as being made up of a multiplicity). If we had a concept under which all other concepts stood, or from which all other concepts were or could be derived, this concept would be *absolutely* universal – the ultimate first principle. Consequently, there are two ways to gauge the universality of any concept. The first, which we

can call the measurement of its extensive magnitude, is the *sphere* of the concept. The greater the sphere, the more concepts are contained under it and the closer to ‘perfection’ this concept would come.

The second way is the fecundity or “fruitfulness” of the concept in the making of cognitions. A concept that has been successfully applied many times for the making of new cognitions can be said to be *logically important*. Let us take as an example the idea of ‘energy’ in physics. The principle of conservation of energy is one of the most important concepts in all of physics. From this principle a vast number of phenomena can be explained – so many, in fact, that whenever an experiment or a phenomenon seems to *defy* conservation of energy it is the occasion for strenuous efforts to find an explanation for the phenomenon that remains consistent with the conservation of energy principle. This has, in fact, led more than once to fundamental new discoveries (for instance, the discovery of neutrinos) and even to new “forms” of energy (Einstein’s famous  $E = mc^2$ ). The fecundity or logical importance of a concept speaks not to the existing sphere of the concept but, rather, to its “track record” in deriving other concepts, and therefore to what can be described as the concept’s likely possibility for the making of future cognitions. Furthermore, any concept, within the sphere of a more quantitatively perfect concept, that is used as a rule for the making of a new cognition will place that new cognition in the sphere of the higher concept, and so the fecundity of a concept is an idea that encompasses not just the concept itself but its entire sphere so long as that highest concept stands as a remote mark for the new cognition.

Obviously extensive magnitude and fecundity in the logical perfection of Quantity are entwined with one another. The objective representation of the former idea comes under the notion of plurality since the measure concerns the extent of the sphere. The representation of the latter idea comes under the notion of unity since it speaks to the demonstrated power of the concept to unite diverse appearances under the same concept and is a ground for elevating the concept to the status of a *maxim for reasoning*. On the one hand, a greater sphere proves the importance of a concept; on the other hand, the greater importance attributed to a concept (in its logical perfection) is a ground for employing this concept *in the interest of understanding* toward the further enlargement of its sphere.

In representing the Quantity of logical perfection, the synthesis of these two interdependent ideas of perfection (a synthesis which represents the idea under the notion of totality) can be called the *logical horizon* of the concept.

With enlargement of our cognitions or with perfection of them according to their extensive magnitude, it is good to make an estimate as to how far a cognition is congruent with our purposes and capabilities. This consideration concerns the determination of the *horizon* of our cognitions, under which is understood *the adequacy of the magnitude of the collective cognitions with the capabilities and purposes of the subject* [KANT8a: 550 (9: 40)].

The logical horizon can be determined

according to the capacity or the powers of cognition in reference to the *interest of understanding*. Here we have to pass judgment on: How far we can come in our cognitions, how far we must go, and in how far certain cognitions in logical aim serve as means to this or that main cognition as our ends [KANT8a: 550 (9: 40)].

There is an old saying: *Knowledge is power*. Although in our present context we obviously do not refer here to political power, the idea of logical horizon is nonetheless bound up with the question of what the thinking Subject can *do* with its manifold of concepts, i.e., in what way or manner it serves and promotes learning and reasoning, planning and decision making, and, in general, the entire range of capabilities we call *intelligence*:

**intelligence**, *n.* [L. *intelligentia*, perception, discernment, from *intelligens*, ppr. of *intelligere*, to perceive, to understand].

(a) the ability to learn or understand from experience; ability to acquire and retain knowledge; mental ability; (b) the ability to respond quickly and successfully to a new situation; use of the faculty of reason in solving problems, directing conduct, etc. effectively.

The idea of the logical horizon is an idea that speaks not so much to what we *do* know as it speaks to what we *can* know. Kant commented that what we cannot know is *beyond* our horizon while what we do not *need* to know is *outside* our horizon.

To put this in its proper context, it is worthwhile for us to briefly take a look at some pertinent empirical facts reported by Piaget. Around the age of 8 to 9 months, a child typically begins to exhibit behaviors that Piaget characterized as “the application of familiar schemes to new situations.” He provides us with several detailed observations of this behavior in [PIAG1: 212-225], of which we shall look at two as illustrations.

*Observation 121.* - Here is an analogous example, but easier to interpret. At 0;8 (20) Jacqueline tries to grasp a cigarette case which I present to her. I then slide it between the crossed strings which attach her dolls to the hood. She tries to reach it directly. Not succeeding, she immediately looks for the strings, which are not in her hands and of which she only saw the part in which the cigarette case is entangled. She looks in front of her, grasps the strings, pulls and shakes them, etc. The cigarette case then falls and she grasps it.

Second experiment: same reactions, but without first trying to grasp the object directly.

At 0;9 (2) Jacqueline tries directly to grasp her celluloid duck when I put its head between the strings I have just described. Not succeeding, she grasps both strings, one in each hand, and pulls. She looks at the duck who shakes when she shakes. Then she grasps both strings in one hand and pulls, then grasps them in the other hand a little higher up and pulls harder until the duck falls.

I begin over again, but attach the duck more firmly. She then at once pulls the strings, systematically, until she can touch the duck with her finger, but does not succeed in making it fall. She then gives up although I shake the duck several times, which shows that she tries to grasp the duck and not to swing it.

It may be seen that these behavior patterns differ from those in Observation 113 . . . [In] the present case, [the child] tries to grasp an object and to do so . . . must find the appropriate means. The means to which Jacqueline has recourse is of course borrowed from the schemes of her earlier circular reactions, but the act of intelligence has precisely consisted in finding the right means without limiting herself to repeating that which has already been done.

These behavior patterns must not, however, be overestimated and one must not so soon see in them a utilization of instruments . . . or even a utilization of extensions of the object[.] There could be no question of instruments for several more months[.]

*Observation 121 repeated.* - At 0;9 (8) Jacqueline tries to grasp her parrot, which I placed between the entwined strings (in the same position as the duck in the previous observation). She pulls a string from the lower end of which her doll is hanging. She sees the parrot swing and, instead of trying to grasp it, henceforth she merely tries to shake it. It is then that the behavior pattern we shall emphasize here arises and which constitutes a true act of intelligent adaptation. Jacqueline looks for the doll at the other end of the string, grasps it with one hand and hits its head with the other hand while staring at the parrot. She then does this at regular intervals while alternately looking at the doll and the parrot and each time controlling the result (the parrot swings at each stroke).

Now the genesis of this act is easy to understand. Three days earlier (see Obs. 102) Jacqueline shook her parrot, while holding it, in order to hear the rattle it contains. Hence when she sees the hanging parrot, she wants to grasp it in order to shake it again. Moreover, she knows how to strike objects and, in particular, has constantly struck her parrot during the preceding weeks (see Obs. 103). Thereafter as soon as she discovers that the parrot is connected to the same string as her doll, she uses her doll as a means to shake the parrot. Here again she does not limit herself to applying a gesture which she previously made (as is the case in Obs. 112-118). She really adapts a scheme known earlier to a new situation [PIAG1: 215-216].

The point here is this: The child's behavior is, for the first time, going beyond the mere repetition of schemes accidentally discovered earlier to the purposive adaptation of these schemes to new situations. The child never, in this stage, comes up with entirely new and unforeseen schemes; rather, the child will run through his repertoire of schemes in a new situation. This behavior constitutes the first clear evidence of a separation, in the mind of the child, between schemes as *means* and schemes as *ends* [PIAG1: 225-236]. Going beyond what Piaget will allow himself to commit to, these behaviors appear to illustrate the ability of the child to "go into" his or her manifold of concepts and extract from it *possible rules* to apply to new, although not entirely unfamiliar, situations.

This behavior is utterly absent in the earlier stages of sensorimotor intelligence. Before the child is capable of such behavior, a "storehouse of experience" must be built up, providing the "raw material" that he or she can draw upon in confronting new and more complex situations and use in coming up with more complex interactions and behaviors. *This* is the logical essence and flavor of the idea of the logical horizon.

Before going on to the other titles of Quality, etc., there is one more thing we need to make clear about the three ideas of Quantity in logical perfection. Above we have expressed the representation of these ideas in terms of the notions of plurality, unity, and totality. This does not mean that the Quantity of logical perfection is derived from or vested in or subordinated under these categories. The categories pertain to objects, perfection to the form in making the manifold of concepts. As such, the categories and logical perfection are two quite different representational poles. However, we are making a theory here, and to do so we must represent logical perfection objectively. To do so, we have no choice but to express it under the terms and rules of our

transcendental ontology. It is through the categories that we understand logical perfection objectively.

### Quality in Logical Perfection

Next we take up the Quality (matter of the matter) of logical perfection. We have just seen that the Quantity (form of the matter) of logical perfection is bound up with the combinations of determinant judgments and can, so to speak, be numbered by a measure of connectivity in these connections as well as by a measure of the fecundity of a given concept in the making of other cognitions. With Quality, however, we must consider something very different, namely the “what in” these cognitions that allows us to say that some magnitude of completeness or perfection is “contained in” the manifold of concepts. What then is the gauge of Quality? To use Kant’s expression, the *quantitas qualitatis* (amount of a quality) is its *degree* [KANT19: 192 (29: 834)], and so this question amounts to asking “in what subsists the degree of logical perfection?”

Every cognition has to be considered both with regard to interrelation with an Object and with regard to the Subject’s consciousness of the representation [KANT8a: 265 (24: 805)]. As we noted in Chapter 5, consciousness “accompanies each of our states” and “is, at it were, the view of ourselves<sup>6</sup>.” We call an objective representation of which we are conscious a clear cognition. Thus clarity is the first requirement of being conscious of something, and therefore also speaks to the degree of logical perfection.

All our clear representations can be logically distinguished into distinct and indistinct representations. Indistinct representation is the consciousness of a representation in the whole but without distinguishing this multiplicity which is contained in the whole. Distinctness is clarity that also gets to the parts [KANT8a: 265 (24: 805)].

It is one thing to have made, at some previous time, a determinant judgment of some object; it is something quite different to *re-cognize* (i.e., remake) that cognition at a later time. In discussing the form of the matter of judgments, particularly with respect to concepts as coordinate and subordinate *marks* of the cognition, we can picture the manifold of concepts as if it were a graph in which the concepts are the nodes and the combinations of determining judgment are the arcs. This is the view of the manifold of concepts as regards Quantity. The idea of the association of concepts is likened to the image of one concept “calling forth” the others with which it has been previously connected. However, *nothing* in our previous discussions has said that one concept must *necessarily* summon up the others with which it has been immediately or mediately combined by the process of determining judgment. The categories provide the *possibility* of this,

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<sup>6</sup> KANT8a: 28 (24: 40).

but not the necessity. Likewise, the Quantity of logical perfection speaks to the possibilities opened up by the extensive magnitude of these combinations, but not to the assuredness that these possibilities will be realized in any one circumstance.

All of us know what it is to not be able to remember something that we know we ought to be able to recall. For example, I have difficulty recalling peoples' names if I do not have frequent dealings with them, although I have little or no difficulty recognizing names and remembering the person when I hear others say these names. We are also familiar with the common phenomenon of having, for instance, old school lessons that we knew well at the time but haven't used for many years fade from our recollection. Yet often even a small amount of reviewing the subject matter serves to bring our lessons back to us – sometimes with greater understanding than we had when we were students. All this is to say that in the logical perfection of knowledge there is something more than the mere Quantity of logical perfection going into the manifold of concepts; this something is the *degree of clarity* in our understanding of these concepts.

The first level of perfection of our cognition according to Quality is thus its clarity. A second level, or a higher degree of clarity, is *distinctness*. This subsists in *clarity of marks* [KANT8a: 567 (9: 61-62)].

Kant likened the extensive magnitude of a cognition to a *volume*, whereas he likened the intensive magnitude to a *density* [KANT8a: 85 (24: 110)]. If we use this simile to contrast the Quantity and Quality of logical perfection, we can observe that a golf ball and a whiffle practice ball occupy the same volume, but if I were to be hit by one the impact of the former would be much greater than the impact of the latter. If these are used as metaphors for representing perfections of knowledge, the denser golf ball would have a greater degree of perfection in Quality than the whiffle ball.

In his logic lectures Kant discussed at length the differences between distinctness that arises out of the combination of coordinate marks (extended distinctness) and that which arises out of a series of subordinate marks (deep distinctness). It would be quite easy from reading Kant's remarks to confuse these *forms* of combination with the *matter* of Quality in logical perfection but, of course, to do so would be an error. Were we to try to use the extensive magnitude of combination as the *measure* of distinctness, this would be to make *number* the schema of Quality in logical perfection. But number is the transcendental schema of Quantity.

In grappling with the idea of a gauge for the degree of clarity, we encounter the peculiar but vital issue of what we must understand by the idea of "intensive magnitude." This is an issue we touched upon earlier when we introduced the transcendental schemata and contrasted the extensive magnitude with the intensive. It is an issue that greatly concerned Bergson, as we have mentioned earlier (Chapter 8 §6.3).

The idea of intensity is thus situated at the junction of two streams, one of which brings us the idea of extensive magnitude from without, while the other brings us from within, in fact from the very depths of consciousness, the image of an inner multiplicity. Now, the point is to determine in what the latter image consists, whether it is the same as that of number, or whether it is quite different from it. In the following chapter we shall no longer consider states of consciousness in isolation from one another, but in their concrete multiplicity, in so far as they unfold themselves in pure duration. And, in the same way as we have asked what would be the intensity of a representative sensation if we did not introduce into it the idea of its cause, we shall now have to inquire what the multiplicity of our inner states becomes, what form duration assumes, when the space in which it unfolds is eliminated [BERG1: 73-74].

The question of intensity was an important, albeit not the only, jumping off point for Bergson's own philosophical theory with its Heraclitus-like view of the universe.

It is a question that must concern us as well because the idea of the degree of clarity in cognition *is* an idea of an intensive magnitude, a unity *to which* we *attribute* a multiplicity but which provides us in the idea of the whole no concept of the *measure* we are to apply. Indeed, the idea of a *continuum* (that which has no smallest unit measure) has its roots in this character of intensive magnitude.

Bergson was highly critical of those who "introduce space" (i.e. extension) into the idea of intensity and then attempt to measure intensity as one might measure the volume of water in a glass. The psychophysical approach to cognition in psychology is particularly prone to do this, and Bergson came down especially hard on this approach, persuasively arguing that such reasoning was nothing else than a vicious circle. The problem, of course, is that our objective perceptions (cognitions) *always* must call upon the representation of appearances via intuition, and the pure intuition of (subjective) space (along with the pure intuition of time) is the pure *a priori* form of our empirical intuition under the Copernican hypothesis.<sup>1</sup> The intuition of space is the extensive intuition, and so it is that in trying to understand intensive magnitude we end up with precisely the sort of spatial representation Bergson opposed.

An intensive magnitude is a magnitude that is always apprehended as a unity and in which multiplicity can be apprehended only by approximation to negation (= 0) [KANT1: 160 (B: 210)]. Its multiplicity is always described in terms of 'more' or 'less' in comparison to another intensive magnitude of the same type. Bergson, for instance, offered the comment that "evidently it is more painful to have a tooth yanked out than it is to have a hair yanked out," pain being an affective perception having intensive magnitude or, as he put it, an "intensity."

The property of magnitudes according to which no part of them is the smallest possible (no part is simple) is called their continuity [KANT1a: 292 (B: 211)].

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<sup>1</sup> Bergson was perfectly willing to go along with Kant in regarding "space" as a form of our representations. Where he rebelled against the Copernican hypothesis was in not accepting "time" as likewise a pure form of intuition. Bergson regarded the "flux in pure duration" as a something the existence of which is immediately certain and which has the sort of "reality" we have labeled "metaphysical thinghood."

Mathematics became able to work quantitatively with this idea by inventing the ‘real numbers,’ although it is worth bearing in mind that the “existence” of the “real numbers” was originally established dialectically using ‘more than’ and ‘less than’ arguments.<sup>2</sup> We would like very much to “put a number” on the degree of intensive magnitude, but the problem in doing so lies with the question “what is a number?” This is because “number” (taken in the usual sense that all of us except our modern mathematicians use) is obtained constructively from extensive rather than intensive magnitudes.<sup>3</sup> If we insist on having a “number” for the measure of intensive magnitude, it is going to have to be some other special kind of number we invent specifically for that purpose, and it is going to have to be based on something other than concepts of extensive magnitudes. This puts us for the present once again in the situation of Aristotle’s dictum, where the idea of the degree of clarity is “clearer to us” than it is “by nature.” We must, so to speak, obtain for ourselves a “qualitative understanding” of this idea before attempting a “quantitative understanding” by trying to come up with the numerical invention just mentioned.

Clarity means having conscious knowledge of something; distinctness refers to the degree to which we are conscious *of the details* of that knowledge. In his logic lectures Kant described distinctness in terms of five (the “Wiener logic”), six (the “Blomberg logic”) and even seven (the “Jäsche logic”) degrees of knowledge. These were [KANT8a: 569-570 (9: 64-65), KANT8a: 299-300 (24: 845-846), KANT8a: 105-107 (24: 134-136)]:

1. *repraesentare* [*sich etwas vorstellen*], to represent something to oneself;
2. *percipere* [*wahrnehmen*], to perceive = to represent something with consciousness;
3. *noscere* [*kennen*], to be aware of something = perceive in comparison with other things;
4. *cognoscere* [*erkennen*], to recognize = to be cognizant with consciousness;
5. *intelligere* [*verstehen*], to understand something = to recognize through understanding;
6. *perspicere* [*einsehen*], to see through = to know something through reason;
7. *comprehendere* [*begreifen*], to comprehend = to know sufficiently for our intent.

*Repraesentare* is representation without any degree of consciousness; it is the = 0 compared to which the intensive magnitude of clarity is referred. When we discussed the faculty of pure consciousness in Chapter 5, we examined Freud’s idea of “the unconscious” in Kantian terms and concluded that the idea of representations of which we are not conscious is a legitimate and even necessary part of a theory of the mental power of apperception.

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<sup>2</sup> see Euclid, *Elements* X.

<sup>3</sup> The history of the idea of “number” in mathematics is more than a little interesting. The interested reader can refer to Book IX of Euclid’s *Elements* or, for a less dry treatment, to *Introduction to Arithmetic*, written by Nichomachus of Gerasa around the 1st to 2nd century A.D. Nichomachus’ work is especially interesting, given how we normally think of “numbers” today, for the manner in which numbers were viewed in classical times. For example, Nichomachus distinguishes between “point numbers, line numbers, plane numbers, and surface numbers.” A triangle, he tells us, “is found to be the most original and elementary form of a plane number” [*Introduction to Arithmetic*, Bk II, Chap. vii].



The next level Kant described, *percipere*, is where consciousness “begins.” However, at this level consciousness is *unclear* and *percipere* implies merely sensation that is not yet even an intuition or which is merely an affective perception of sensation. Here we have nothing more than the mere consciousness that we are affected but we do not have even an undetermined appearance of the effect or its source. Bergson seems to have placed great stock in this phenomenon of conscious but unclear perception, and it seems to have been an important factor in his idea of “the flux of pure duration.”

The next two levels, *noscere* and *cognoscere*, illustrate another of Kant’s hair-splitting distinctions of detail in his theory. To be merely aware (*noscere*) is to have more than a simple perception but less than a full cognition. It thus applies to intuitions (and to affective perceptions). With regard to an intuition, this degree of knowledge marks the point where we are aware of an object of a yet undetermined appearance, but we are not yet conscious of this appearance as a *phenomenon*. Accordingly, we cannot yet say that we have achieved *clarity* of objective perception. This clarity is presented at the next level, *cognoscere*, where we have obtained a *concept* to go with the intuition, i.e. have come fully to a *cognition*.

The first four levels are tied to the power of receptivity rather than spontaneity. This is because objective spontaneity always has its source from concepts through the synthesis of reproduction in imagination, and where there is no concept this synthesis cannot begin. The fifth level, *intelligere* or ‘recognition through understanding,’ thus marks the first “point” where the logical perfection of cognitions can be said to come under the ability of mind to act as agent for achieving this level of perfection. Yet here, at this fifth level, we are not asking for much because ‘recognition through understanding’ refers merely to the making of determinant judgments that combine the concept in the manifold of concepts and make the concept available for use in the synthesis of imagination and the acts of understanding (*Verstandes Actus*).

The sixth level, *perspicere* or ‘knowing through reason,’ involves a still higher degree of cognition. At this level, it is not merely the concept that can go into the process of thinking (which, recall, we define as cognition *through* concepts); in addition to the concept this level of knowledge involves cognitive acts in which, so to speak, the concept can “take with it” into the process other concepts with which it has been either immediately or mediately combined by determinant judgments. Here we have something more than mere recognition of the concept in the intuition; we have “insight” – the recognition of relationships between the representations of sensibility and representations in the manifold of concepts that are not themselves presented in the data given in sensibility through sensation or “analytically given” in a concept *per se*. *Perspicere* refers to a greater amount of association of concepts and anticipations that go into the synthesis of imagination in apprehension and comprehension (affinity of concepts).

Finally we come to *comprehendere* – knowing *to a degree sufficient for our intent*. Here is

involved not just the association or anticipation of concepts in the process of thinking, but a purposiveness of pure Reason in terms of what Kant called the *Vernunftmäßigkeit* or “moderation of Reason” [KANT8a:99 (24:127)]. At this degree of distinctness a cognition is no longer merely a rule for the reproduction of intuitions but can also be regarded as a maxim for reasoning by means of this concept.

We can view Kant’s seven-fold distinctions of these degrees of knowledge *extensively*, as each succeeding level<sup>4</sup> draws upon more of the powers and capacities of our mental anatomy (that is, “pulls in more of our mental resources” for involvement in thinking)<sup>5</sup>. However, we must take a care not to lose sight that the Quality of logical perfection inherent in all of this is a trait or a “logical essence” *of the power of apperception*, by which we say the possibility of these increasingly higher degrees of consciousness is grounded. Put another way, an extensive description of the degree of clarity represents the *Existenz* of the *appearance* of the idea of our *experience* of the phenomenon of thinking – an *Existenz* that we regard as grounded in the *Dasein* of this “logical essence of clarity.” This essence has intensive, not extensive, magnitude.

We have described determinant judgments in terms of combinations of concepts formed in the process of determining judgment, and it is convenient and seems natural enough to view this idea of ‘combinations of judgment’ in graphical terms as the arcs connecting nodes in a graph. However, it is obvious that this way of envisioning the idea of combinations of judgment is at best metaphorical. We might also adopt a neurological view and try to envision these combinations in terms of the networks of neurons, dendrites, synapses, etc. that describe the biological structure of the brain. In this case, we might envision the idea of combinations of judgment in terms of the electro-chemical processes of inhibition and excitation that describe neural activity. However, since nothing in our concept of neurons and the neural networks of the brain includes even the idea of perception, it is clear that this model is equally metaphorical. From our discussion of the sensorimotor idea in Chapter 6 we can say that there is a *correspondence* between the neural structure of *soma* and the faculty of representations of *nous*, but we are in no position to assign a one-to-one correspondence between the neural model and the combinations of judgment, and we are forbidden to subordinate the idea of the latter to the former or vice versa. What we *can* say is that such combinations do somehow occur and that numbered among the phenomena of mental activities we find a phenomenon where consciousness of one representation seems to summon into consciousness other representations.

Now consciousness is the representation that a representation is ‘in’ me and is therefore a

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<sup>4</sup> Or rather, as successively higher degrees within each level are achieved. We can not, with objective validity, draw a *crisp* dividing line anywhere within this picture. The division is fuzzy.

<sup>5</sup> Bergson's discussion of the nature of intensity is framed very much in this fashion in Chapter 1 of [BERG1].

representation of the second order. Representation, though, is a primitive term in our theory that we can describe and make exposition of only by making a representation. The idea of the degree of clarity (distinctness) in cognition, as an idea belonging to the logical division of *nous*, is an idea that we must consider ontologically under the notion of the category of limitation – specifically, that some representations within the manifold of representations are made conscious (represented as being ‘activated’ in some way and to some degree) while others remain unconscious (represented as ‘inactive’ or, what is the same, to be of a degree below some “threshold of consciousness”). To give ourselves a sensible image *in concreto* of this idea, we might envision the phenomenon of the degree of clarity as though individual concepts (and other representations) were like light bulbs and the degree of clarity in a cognition would then be like the intensity of light given off, in the activation of those representations of which we are conscious, *and* the hue or color of this light (representing whether the light bulbs are concepts, intuitions, etc.). The logical perfection of distinctness would then be like constructing the wiring of this “cognitive Christmas tree” (through the combinations of determinant judgment) so that our “mental illumination” would “burn the brightest.” To carry the simile a bit further, this crafting involves “lowering the wiring resistance” so that the “bulbs burn brighter” as the “wiring connections can carry more current.” The end towards which this craft labors is not the topology of this “circuit” but the quality of the “illumination” it *provides*.<sup>6</sup>

There is one rather glaring drawback to this simile, namely that it threatens to harbor an homunculus. The doorway through which this spurious and illegitimate idea can enter is obvious: if distinctness is likened to “illumination,” who or what “sees the light”? A little man in the head? Earlier in this treatise I was mildly critical of Damasio’s simile of the mind being like a theater that shows its movie to itself without any audience being present. The same criticism applies to the “Christmas tree lights” simile and, indeed, there seems to me to be little difference between Damasio’s simile and the one just presented.

Let us therefore propose another simile for our idea of the logical perfection of Quality and say that the idea of degree of clarity is like the idea of *energy*. Now this simile is considerably more abstract and since many of the readers of this treatise probably do not have a background in physics (and since the word “energy” is used and misused by so many writers of the pseudo-philosophy known as “new age metaphysics”), let us take a moment to explain the scientific

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<sup>6</sup> There seems to be an obvious similarity between this picture of the idea of degree of clarity and the idea of “illumination” so often written and spoken of by Christian theologians and popularized in so many sermons which talk of “seeing the light.” In describing his own conversion to Christianity, St. Augustine wrote, “for there I had laid the Apostle’s book whenas I rose from thence. I snatched it up, I opened it, and in silence I read that first chapter which I had first cast mine eyes upon . . . No further would I read; nor needed I. For instantly even with the end of this sentence, by a light as it were of serenity infused into my heart, all the darkness of doubting vanished away” [Augustine, *Confessions* 8:xii]. Our simile is much less poetic, but perhaps more amenable to later operational use in analogy.

usage of the word “energy.”

Without doing an injustice to modern science, we can say that the idea of “energy” dates back to Aristotle and his “kinetical” ideas of *dynamis* (‘potentiality’) and *enérgeia* (“action” or “energy”). Roughly speaking, *dynamis* refers to the potential “in” something to “become” something else, i.e. to undergo change (*kinesis*) by either taking on an Aristotelian form in the first place or by changing to a different form. The modern-day inheritor of this idea in physics is called “potential energy.” *Enérgeia*, on the other hand, refers to the actual process by which (or “through which”) an Aristotelian form is realized. Strangely enough, there really is no exact equivalent to this idea in modern day physics, although the idea of kinetic energy (which is said be the “energy of motion”) perhaps comes closest. Physics recognizes a variety of “forms of energy” – a cataloging that bears kinship to a third idea of Aristotle’s, namely *entelechy* (roughly, “final form” or “the actuality of the thing”; literally it means “finished” or “completed”).

The modern idea of “energy” in physics developed slowly over a period of about 150 years.<sup>7</sup> The precursors of this idea were put forward by Leibniz and Huygens at the end of the 17<sup>th</sup> and beginning of the 18<sup>th</sup> centuries in terms of Leibniz’ *vis viva* or “living force.” The word “energy” appears in its current technical sense around 1807. The idea developed in three stages: 1) prior to 1840 in the work of such notables as Lavoisier, Laplace, James Watt, and Count Rumford; 2) in its more or less present form beginning in 1842-1843 in the work of Julius Robert Mayer and James Prescott Joule; and 3) in its widespread acceptance into physics due to the work of its early supporters, principally William Thomson (Lord Kelvin) and Hermann von Helmholtz. Its early roots are in classical mechanics and thermodynamics, but since then the idea has grown to be one of the most important and fundamental in all of physics.

But what, precisely, does this idea of “energy” mean? Roughly speaking, energy is “the capacity to do work,” but “work” in physics means something quite different from how we use that word in everyday life. Indeed, “work” in physics is defined *mathematically*. In simple point of fact, as the idea of energy became more and more useful the meaning behind the idea became more and more abstract to the point where today we can *properly* regard “energy” in no other way than as a Kantian Object. Feynman expressed the situation this way:

There is a fact, or if you wish, a *law*, governing all natural phenomena that are known to date. There is no known exception to this law - it is exact so far as we know. The law is called the *conservation of energy*. It states that there is a certain quantity, which we call energy, that does not change in the manifold changes which nature undergoes. That is a most abstract idea, because it is a mathematical principle; it says there is a numerical quantity which does not change when something happens. It is not a description of a mechanism, or anything concrete; it is just a strange fact that we can calculate some number and when we finish watching nature go through her tricks and calculate

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<sup>7</sup> For a brief history of the development of the idea of energy and the principle of conservation of energy, see Gerald Holton, *Introduction to Concepts and Theories in Physical Science*, Reading, MA: Addison-Wesley, 1952.

the number again, it is the same. (Something like the bishop on a red square, and after a number of moves - details unknown - it is still on some red square. It is a law of nature.) Since it is an abstract idea, we shall illustrate the meaning of it by an analogy [FEYN3: 4-1].

Now, our idea of “degree of clarity” is *unlike* the idea of energy in one very important aspect: we do not say that distinctness is *conserved*. Indeed, the idea of the logical perfection of objective distinctness demands its non-conservation. However, we are dealing with an “open system” here, and the law of conservation of energy only holds for “closed systems”; its conservation principle only applies when we consider “the universe as a whole” because we say “everything” is “contained in” the universe and that the universe is itself a “closed system.”<sup>8</sup>

With this point noted, in appearance the idea of *perspicere* is the phenomenon of one concept seeming to belong to a coalition of concepts in the synthesis of cognition. The idea of the degree of clarity “in a concept” expresses a notion of the “potential” (the *dynamis*, if you like) for that concept to make one conscious of other concepts. The distinctness of this concept is exhibited by the actuality (*enérgeia*) of these other concepts coming to consciousness on the occasion of the first concept’s participation in the process of thinking. Consciousness is “the representation that a representation is in me” and in this sense “degree of clarity” is the magnitude of the capacity subsisting in a concept for “reminding me” of other concepts in the manifold of concepts.

Like the various “forms of energy,” the idea of distinctness admits of exhibition in different forms, and these distinctions can be broadly classified in terms of two types of distinctness – terms Kant used to describe the form of the coalition in the manifold of concepts participating in the process of thinking. *Extended* distinctness is the form in which the coordinate concepts of a concept are summoned to consciousness. Recall that the coordinate concepts are those higher concepts that stand in immediate connection to the concept for which they are coordinate. In graphical terms, this kind of distinctness can be called “horizontal” because the coordinate concepts of a concept “stand at the same level with each other.” *Deep* distinctness is the form in which subordinate concepts – higher concepts that do *not* stand in immediate combination with the first concept but rather are connected to it mediately in a series – are made conscious. Deep distinctness can be called “vertical” because from the first concept we ascend *a parte priori* up the series of combined concepts to reach remote marks and descend *a parte posteriori* to reach lower concepts.

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<sup>8</sup> Some versions of Big Bang theory, by the way, violate this principle in “the instant of creation.” These hold that the universe came into being from nothing because of a “vacuum fluctuation” - an idea that strikes me as a kind of cosmological miracle of the sort Leibniz was obliged to adopt. This miracle is dressed up in erudite (but still, to my thinking, rather vague) mathematical language by the Big Bang theorists, but it is a miracle none the less. It would seem that these theorists do not mind harboring one miracle so long as one is not obliged to posit some god as its source other than the god of probability.

By taking these two similes together – the illumination simile and the energy simile – we obtain a reasonable functional picture of Kant’s idea of clarity and degree of distinctness. The idea of Quality in logical perfection is the idea of *acting to increase* the degree of distinctness made possible by the thinking Subject’s manifold of concepts, whereby from one concept we become conscious of many *higher* concepts in combination. Higher concepts are said to be *contained* in the lower concept and “clarify the picture” of the object of that concept.

These descriptions are of course not sufficient to constitute an applied metaphysic, but it should be appreciated that we are engaged in this treatise in the laying of the groundwork for the development of one (for a science of mental physics). For the applied metaphysic we need an idea of the proper manner of description for the various phenomena that constitute the topic of its science. The rigorous logical and mathematical *formalism* of this or any other science proper should *follow* these first determinations (doctrine of method), not precede them.

### Relation in Logical Perfection

The logical perfection for Relation is perfection of objective truth. Truth is, as Kant put it, the skeleton of all our cognitions. We can call the logical perfection of Relation the compass of truth.

We have discussed the topic of truth earlier in the context of the ontology of determining judgment (Chapter 7 §5.4). Let us recap that discussion by summarizing the three principles of the formal logical criteria of truth: 1) the principle of contradiction and of identity; 2) the principle of sufficient reason; and 3) the principle of the excluded middle between contradictories. To our earlier discussion we may now add, in consequence of our discussion of the ontology of determinant judgments in Chapter 8, a few additional remarks.

First, the principle of contradiction and identity is the principle of the logical *possibility* of a cognition so far as determinant judgments are concerned. This principle is the principle of determination for *problematical* judgments, and thus the principle speaks to the first of the logical momenta in the Modality of judgments. But, as a principle of Relation in logical perfection, it is also a principle of a necessary and fundamental condition by which we can hold that truth *subsists in a judgment* under the notion of subsistence and inherence (category of substance & accident). It is, in this view, a principle of the connection between determinant judgments and apperception. We have earlier seen that the regulation of speculative Reason (with regard to the Cosmological and Theological Ideas) pushes us toward the determination of: 1) the absolute completeness of the origin (cause) of an appearance; and 2) the Ideal of *ens summum*. Since neither of these transcendental Ideas is an object of any possible experience, and therefore requires speculation in reasoning in the pursuit of understanding Nature and Reality, the principle of contradiction and identity stands in the role of a *sine qua non* of Relation in logical perfection.

The principle of sufficient reason is, for determining judgment, the principle of the logical *actuality* of a cognition. It is the criterion of the logical momentum of assertoric judgment and is the principle in the establishment of *grounds*. From the *modus tollens* criterion (which says that one false consequence of a cognition falsifies the cognition) and the *modus ponens* criterion (which says that if all the consequences of a cognition are true then the cognition is also true) we get both a negative and a positive statement of a norm for the establishment of a cognition as a ground for other cognitions. Therefore, *from the Standpoint of understanding*, the principle of sufficient reason provides the norms for the establishment of a means for cognitions to become *maxims of reasoning*. Thus, while the principle of sufficient reason is a logical principle of Modality for determining judgment, it is at the same time a real norm for Relation in the logical perfection of understanding through speculative Reason.

The principle of the excluded middle (the principle that says from the negation of one of a pair of *contradictory opposites* we may infer the truth of the other, and from the positing of the truth of one of a pair of contradictory opposites we may infer the falsity of the other) is the principle of the logical momentum of apodictic judgment for the process of determining judgment. However, from the Standpoint of understanding, it is a principle of community for the Relation of cognitions in the manifold of concepts. In the logical perfection of cognition, the apperception of Objects allows an Object no contradictory opposite; without this criterion, the regulation of speculative Reason is not only in vain but also could have no objective basis to serve even as a direction for possible judgments. Yet the objects contained under an Object may be, and not infrequently are, contradictory opposites with respect to one another. Life and death, for example, are contradictory opposites predicated of a single Object, e.g. a human being. Neither concept contradicts the Object for every man now dead was once living and, so far as we know, every man now living will one day become dead. To be living or to be dead are concepts that speak to the *Existenz*, not the *Dasein*, of the Object “human being.” We may note that in this example we have a reference to the principle of contradiction and identity (i.e. we cannot predicate both *A* and *not A* at the same time), but we also have a reference to the principle of sufficient reason (e.g., the fact that Kant is dead does not prevent us from speaking truthfully of the influence Kant *has* on the modern world). Thus, the principle of the excluded middle is a principle that we must view as a *synthesis* of the other two principles. The synthesis of the notion of substance & accident and the notion of causality & dependency is the notion of community.

This criterion of logical truth is in this way a norm of Relation in logical perfection that underlies the *perfecting* of cognition in terms of completeness of the cognition of objects through the unity of their concepts under an idea of an Object. Here it is not out of place for us to briefly comment on an oft-mentioned precept of the science known as fuzzy logic. Fuzzy logicians, e.g. Dr. Kosko, hold that the principle of the excluded middle is a false principle and accuse it of

painting a black-or-white, true-or-false picture of the world. (Similarly, constructivist mathematicians of the Brouwer school also deny the validity of the principle of the excluded middle). In the case of the fuzzy logicians' argument, I think what we have is best described as a line of argumentation that is at root founded on assertions predicated of *noumena* rather than of Objects. The examples most often cited by fuzzy logicians typically involve setting up pairs of seemingly contradictory opposite objects (e.g. "hot" and "cold") and then arguing that "in the real world" the law of the excluded middle requires us to choose one or the other. However, there is another way to look at the cases so cited and it is this: that the "real world case" to which they refer *transfers* the focus of the argument *from* these objects *to* an Object *under which both cases are understood*. In regard to this Object there is no contradiction in saying that some thing is, for example, "hot *to some degree*" and "cold *to some degree*." In this example, the issue becomes not one of hot vs. cold (as objects divorced from the Object of the argument) but, rather, an issue that involves the idea of an intensive magnitude (degree of 'warmth') which, because in this case this intensive magnitude is an attribute of the Object, a crisp division between "hot" and "cold" lacks objective validity and can have, for a particular observer, only *subjective* validity.

All the counterexamples to the principle of the excluded middle Dr. Kosko cites in his book<sup>1</sup> strike me as being of this flavor. The "philosophy" of Dr. Kosko's thesis he calls "fuzzy logical positivism"; my esteem (or, more accurately, lack of esteem) for positivism in any form is, by now, probably quite clear to the reader of this treatise. When we cease to view our knowledge in terms of metaphysical *things* and regard it properly in terms of Objects and objects, then the arguments of fuzzy logicians attain to objective validity and *from the Copernican perspective* fuzzy logic as a doctrine gains a legitimate place in mathematics because it offers an operational and, with certain restrictions<sup>2</sup>, objectively valid approach to the problem of intensive magnitude. Where care must be exercised is in the manner by which we regard pairs of objects as comprising *contradictory* (as opposed to merely being *contrary*) opposites.

And this brings us to an issue of great significance in our discussion of truth and Relation in logical perfection, namely the phenomenon of *error*. In everyday language we say that a person has committed an "error in judgment" when he judges something to be true when "in reality" it is false. However, determining judgment must be regarded as *incapable of error* because to judge falsely is tantamount to saying that the process of determining judgment *does not follow its own*

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<sup>1</sup> Bart Kosko, *Fuzzy Thinking: The New Science of Fuzzy Logic*, N.Y.: Hyperion, 1993.

<sup>2</sup> This cautious qualification of my statement is due to two factors. First, fuzzy logic often employs the idea of a "cut set" in its methods and a cut set does in fact make a division in the continuity of an intensive magnitude. The validity of doing so must be viewed as an idea under the Modality of logical perfection, which we take up next. Second, we must assign "numbers" (probabilities) to these cut sets and, insofar as number is the schema of Quantity rather than Quality, we must correctly take into account Bergson's objection to assigning ideas of *extensive* magnitudes to ideas of intensive magnitudes.



*rules* or to say that these rules *contain a falsehood*. This latter is, of course, not possible because these rules *determine* what is held-to-be-true. Here we have all the makings of a paradox. How shall we resolve it?

Kant drew a distinction between ignorance – which is lack of knowledge – and error.

The contrary of truth is falsity which, so far as it is held for truth, is called *error*. An erroneous judgment - for error as well as truth is only in judgment - is thus one which exchanges the semblance of truth with truth itself [KANT8a: 560 (9: 53)].

Now what does this phrase, “the semblance of truth,” mean? To understand this, it is important we recall that the *formal conditions* of truth are merely logical conditions as specified in the three principles cited above. We have no objective *material* conditions of truth (as we discussed previously in Chapter 7). The matter of every determinant judgment is a concept and every concept *originates* from intuition via an inference of reflective judgment.

Every cognition always involves both intuition and concepts. But we have seen an intuition is nothing other than a particular state of sensibility marked by reflective judgment at a moment in subjective time. Now, we do not say that the senses err in judgment because sensibility is not a judgment at all. However, *reflective* judgments – which we will later see involve only *affective* perceptions – are *subjective* judgments. Let us recall that two of the *modi* of inferences of judgment are: 1) inference of induction; and 2) inference of analogy. Neither of these modes of inference have an *objective* ground, but only a subjective ground. If the contents of a concept originating from such a judgment cohere with the formal conditions of truth in later *determinant* judgments – that is, if determining judgment does not negate the concept in the course of drawing inferences of understanding or of reason – then the concept is said to bear the semblance of truth. Thus, the source of errors does not lie at all with the process of determining judgment but, rather, in the interplay of the powers of sensibility, reflective judgment, and determining judgment. That one’s *understanding* can come to error is thus a consequence of the drive toward the logical perfection of cognition, which stimulates the spontaneous drive toward ever more general cognitions in pursuit of attaining to the transcendental Ideals of pure speculative Reason. Kant likened this interplay between the cognitive powers to a vector sum of different forces which produce, as in classical mechanics, a “diagonal direction” taken by understanding.

Now sensibility flows into acts of understanding, and from this springs the diagonal direction of understanding, where it sometimes obtains truth, sometimes semblance. Sensibility, and understanding insofar as it passes judgment over it, is the cause of semblance. Sensibility as such is not a source of errors, however, for so far as it aims at its objects, there is congruence with the laws of this power of knowledge. The ground that the senses do not judge erroneously is that they cannot judge at all. For only understanding judges. Error is therefore neither in understanding alone nor in the senses alone, but always lies in the influence of the senses on understanding, when we do not distinguish well the influence of sensibility on understanding [KANT8a: 282 (24: 824-825)].

There is, in all of this, one consolation: even when a determinant judgment is in error, this error is not total and complete for, whatsoever may be the case with the *material* truth in a concept<sup>3</sup>, the *formal* conditions of truth must be and are always complied with. Consequently, there is always the possibility for the later *discovery and correction* of errors.

Every error into which human understanding can fall is however only *partial*, and in every erroneous judgment must always lie something true. For a *total* error would be a complete *opposition* contrary to the laws of understanding and reason . . .

Cognition is *precise* when its own Object is compatible, or when not the slightest error in regard to its Object occurs; it is *rough* when errors can be in it yet without hindering the aim [KANT8a: 561 (9: 54)].

Of course, the mere possibility of discovering and correcting errors does not mean that such errors necessarily *will be* corrected by the thinking Subject. We have all, I presume, met with or know people who staunchly maintain what may seem to us to be the most egregiously absurd opinions on some things, and for whom no amount of evidence ever seems to suffice to lead them to change their opinions. Of such people we use phrases like, “he only hears what he wants to hear,” or “his opinion is set in concrete.” To understand *this* phenomenon, we must look at the matter of the form of logical perfection.

### Modality in Logical Perfection

With regard to Modality, a cognition is perfect when it is *certain*. The German word for certain, *gewiß*, carries the connotation of something that is steady, dependable, and can be relied upon. The idea of certainty with regard to a cognition is therefore an idea that carries more than merely the absence of *doubt*, although the presence of doubt does disestablish certainty. In logical perfection certainty refers to *objective* certainty, and this means one holds that the manner in which the concept is congruent with its object is to be regarded as true *necessarily*. However, if we examine this idea we find that the idea of holding-to-be-true it contains is an idea that we must regard as *subjective* because it is neither the concept nor the object we say is doing the holding but, rather, the thinking Subject.

Truth is the *objective property* of knowledge for the judgment through which something becomes represented as true; the reference to an understanding and so to a particular subject is *subjective holding-to-be-true* [KANT8a: 570 (9: 65-66)].

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<sup>3</sup> That is, with the ability of that concept and the judgments based upon it to withstand contradiction in experience.

As we recall from our earlier discussion of truth, we have formal *a priori* criteria of truth in determinant judgments, but these criteria are silent with regard to the material element of truth. There can be no *objective material* ground for truth and, consequently, the ground for the fact that we do indeed hold some things to be true must be sought within the thinking Subject and its powers of cognition rather than in the object. The objective principles of *formal* truth are those recapitulated above: the principle of identity and contradiction; the principle of sufficient reason; and the principle of the excluded middle. As these address only the formal and not the material aspect of truth, we must look for an additional *subjective* principle as a ground for one's *holding-to-be-true*.

Let us begin by dividing the idea of holding-to-be-true into two cases: the **certain** and the **uncertain**. We say we hold-to-be-true with certainty when we are *conscious of necessity* in the judgment of the cognition. We say that the holding-to-be-true is uncertain when we are *conscious of contingency* in the judgment. Contingency, in turn, means we are conscious of *the possibility that the opposite might be true*. For example, I hold it to be true that the law of conservation of energy in physics is a universal law and that no future empirical experience (experiment) will prove otherwise. However, I am not willing to go to the stake for this conviction because I recognize that some future discovery might possibly be made which bears no explanation other than to posit non-conservation of energy. I think this unlikely in the extreme, but not utterly impossible.<sup>4</sup>

The idea of holding-to-be-true is an idea thought under the notion of necessity & contingency. However, we require a more explicit explanation for this idea. *When* does something come to be held as necessary rather than contingent? To ask this is to ask what criteria *a priori* we must have in order to establish *consciousness of sufficiency* in a cognition for holding it to be necessary or holding it to be contingent. Indeed, these criteria must, at some point, provide us with an operational definition – i.e., a *Realerklärung* – of what is required for the constitution of the logical momenta of problematic, assertoric, and apodictic propositions of judgment. To establish such criteria we must find a *transcendental* principle on which they are grounded.

Here we must consider the idea of consciousness of sufficiency from two sides: the objective and the subjective. The objective side pertains to the judgment of concepts. A concept, we recall,

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<sup>4</sup> One reason for my firm conviction of the truth of conservation of energy is that physics has a track record of inventing (or, if one prefers, discovering) "other forms of energy" that "save" conservation of energy as a law of nature. However, the theory of quantum electrodynamics posits mechanisms such as "virtual photons" that in some sense "violate" conservation of energy, but do so only for so brief a time that this non-conservation falls within the fog of what is known as the "uncertainty principle" - and therefore is regarded in physics as "not being a real violation" of conservation of energy. The QED theory is well established and I have no basic objection to it, but this feature of the theory comes just close enough to sounding like a well-dressed dialectic to present me with the sliver of doubt that prevents my holding conservation of energy to be "true with absolute certainty." Instead I hold-it-to-be-true *in great degree*.

is a general representation or ‘mark’ of its object. Kant defines “sufficiency” and “insufficiency” of marks in the following way:

A mark is sufficient so far as it is adequate to always discriminate the thing from all others; otherwise it is insufficient [KANT8a: 566 (9: 60)].

Having feathers, for instance, is a mark sufficient to distinguish a bird from a bat. A mark is said to be a *necessary* mark if it *must always* be present as an attribute of a thing. Thus, the ability to fly is *not* a necessary mark of a bird, e.g. in the case of an ostrich. A mark may be necessary without being sufficient. For example, female birds lay eggs – a necessary mark of female birds – but so do fish and so does the platypus; hence laying eggs is not a sufficient mark to distinguish female birds from fish or platypuses.

In order for a judgment to be held as objectively certain, that which the judgment predicates must contain marks that are both necessary *and* sufficient. This requires *consciousness* of either: 1) a complete aggregation of higher coordinate marks that, taken collectively into the subject concept, discriminates the object of the subject concept to the exclusion of all others, leaving nothing out that must be a property of that object; or, 2) an aggregate composed of series of connections in Relation, as ground to consequents, all stemming from some higher remote mark to which each of these series is connected *a parte posteriori* as a *first* ground, and in which the whole aggregation of series can terminate in no other consequent than the subject concept (see [KANT19: 160-165, 171-175 (29: 806-810, 817-821)]). This is, of course, nothing other than a logical form that meets the criterion of the principle of sufficient reason. Note, however, that it is not enough that a *nexus* of one or the other of these aggregates is latent in the manifold of concepts constructed through previous judgments; the thinking Subject must also be *conscious* of these judgments – which requires their display in the synthesis of comprehension without contradiction. It is also important to note that we can hold something to be true *without being certain* it is true. Truth and objective certainty are not synonyms. Truth is merely congruence of the concept with its object and such congruence need not be apodictic for the concept to be held-to-be-true.

Furthermore, the objective criterion just given *is not enough* to serve as the sole criterion for the consciousness of necessity. This is because we have no objective criterion for the establishment of the *material truth* of a concept and we do not say we are *certain* of something unless we mean we are certain of both the logical *and* material necessity and sufficiency of that something. Those concepts we call *ideas* originate as inferences of judgment, e.g. through analogy or induction, and for these we can call upon no grounding principle other than the principle of identity and contradiction. Consequently, in addition to the objective criterion for holding-to-be-true, we must have a *subjective* criterion as well.

We have described understanding as a faculty of rules and as a legislation for Nature. It would be miraculous indeed if human understanding were preconfigured to receive from the data of the senses knowledge of “the world as it is” (that is, for understanding to be wholly founded on objective principles of truth). The idea of understanding contains the idea of the unity of apperception with respect to the synthesis of imagination. The subjective principle of understanding is this: that the rules laid down in determining judgment must form a *system* of experience in which experience is presented through *conformity to law in the things of Nature*. Put another way, the subjective principle of holding-to-be-true is the principle of regulation that the manifold of concepts must be structured in such a way that, taken globally, the *nexus* of objective propositions follows a rule of moderation of Reason (*Vernunftmäßigkeit*).

This rule of *Vernunftmäßigkeit* has two aspects. In the first place, we have its strictly formal character in the conformity of determinant judgments with the logical criteria of perfection in regard to truth in Relation (identity and contradiction, sufficient reason, and the excluded middle). In the second place, we have its material character of holding-to-be-true on the basis of inferences of induction and analogy. This we can call judgmentation’s principle of formal objective expedience (*objective Zweckmäßigkeit*) in inferences of judgment. To see what is contained in this principle, let us look once more at inference of induction and of analogy.

An inference of induction is based on a principle of generalization: what appertains to many things of a genus appertains to *all* things of that genus. Argument by induction is a standard tactic in formal mathematics, e.g.: “If a property is true of the number 1, and if it is established that it is true of the number  $n + 1$  provided it is true of  $n$ , it will be true of all whole numbers” [POIN2: 149]. Poincaré held that mathematical induction is “at once necessary to the mathematician and irreducible to logic” in the standard sense of the word “logic.” But if we make an honest appraisal of this principle, even in the case of mathematical induction, what we find is that at root we believe in mathematical induction because we have no reason to think that somewhere “up the line” in the continuation of the induction *process* what has been working will suddenly cease to work in the same way. Mathematical induction is known to work in particular cases, and we are absent of any good reason for thinking that it does not work in other unexamined cases. We anticipate that these unexamined cases, *if they were to be examined*, would be found to be in conformity with the principle of mathematical induction. Nonetheless, and as we will see later, the inference of induction is at root a *subjective* principle of *reflective* judgment.

Inference by analogy is much less well received in science – primarily because we are all familiar with the dialectics of faulty analogy. Inference by analogy is based on a principle of specification: “Things of one genus which we know to agree in much also agree in the remainder as we perceive it in some members of that genus but do not perceive it in others.” As Kant put it,

Induction expands the empirically given from the particular to the general with respect to *many objects*, analogy by comparison expands the *given properties* of a thing to divers [properties] *of the very same thing* [KANT8a: 626 (9: 133)].

We see analogy at work in all similes and metaphors. It helps us find ways to think about objects and suggests to us what we should examine in our objects. If, as a tool, analogy is often like a two-edged razor blade and is prone to egregious abuse, it is nonetheless an indispensable tool of thinking. This is as true for physics as for everyday life:

I want to discuss now the art of guessing nature's laws. It is an art. How is it done? One way you might suggest is to look at history to see how the other guys did it. So we look at history.

We must start with Newton. He had a situation where he had incomplete knowledge, and he was able to guess the laws by putting together ideas which were all relatively close to experiment; there was not a great distance between the observations and the tests. That was the first way, but today it does not work so well.

The next guy who did something great was Maxwell, who obtained the laws of electricity and magnetism. What he did was this. He put together all the laws of electricity, due to Faraday and other people who came before him, and he looked at them and realized they were mathematically inconsistent. In order to straighten it out he had to add one term to an equation. He did this by inventing for himself a model of idler wheels and gears and so on in space. He found what the new law was - but nobody paid much attention because they did not believe in the idler wheels. We do not believe in the idler wheels today, but the equation he obtained was correct. So the logic may be wrong but the answer right [FEYN2: 162].

Formalist mathematicians (a class which takes in almost all of today's mathematicians) rarely admit to a role for analogy in mathematics. Yet, embarrassment though it may be, that role is there:

In mathematics we do exactly the same thing. Of the various elements at our disposal we can form millions of combinations, but any one of these combinations, so long as it is isolated, is absolutely without value; often we have taken great trouble to construct it, but it is of absolutely no use, unless it be, perhaps, to supply a subject for an exercise in secondary schools. It will be quite different as soon as this combination takes its place in a class of analogous combinations whose analogy we have recognized; we shall then be no longer in presence of a fact but of a law. And then the true discoverer will not be the workman who has patiently built up some of these combinations, but the man who has brought out their relation. The former has only seen the bare fact, the latter alone has detected the soul of the fact [POIN2: 28].

Induction and analogy lack the apodictic certainty of the formal criteria of truth<sup>5</sup>, but are nonetheless a part of how we think and provide a rule of *Vernunftmäßigkeit*. This rule is the criterion of subjective sufficiency in holding-to-be-true.

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<sup>5</sup> This may perhaps be less apparent in the case of induction, but anyone who is unfamiliar with *faulty* induction has simply not paid much attention to the process of induction in the examples with which he is familiar. It is no good to say, "well, induction done incorrectly is not really induction," because it *is* induction; in the case of faulty induction, it falls through because other facts become presented to gainsay its inference. Thus we build rules for "how to correctly employ induction" and call these rules "analysis."

We must now look at how the objective principle and subjective rule for consciousness of sufficiency combine with each other in holding-to-be-true. In this, we can identify three *modi*: 1) opining (*Meinen*); 2) believing (*Glauben*); and 3) knowing (*Wissen*).

Opining is holding-to-be-true when we lack both an objectively sufficient and a subjectively sufficient ground of truth. We are in this case conscious of the *contingency* of what we hold-to-be-true and lack the strong affective ‘push’ provided by a subjectively sufficient ground. The proposition of determining judgment is in this case the *problematical* logical momentum of Modality in determinant judgments: *I think x might be y.*" Here we are conscious of the possibility that the contradictory opposite judgment might be true, but the logical perfection of our manifold of cognitions is greater for the proposition we adopt as our opinion than this logical perfection would be if we held the opposite to be true.

Believing is holding-to-be-true when we have satisfied a subjectively sufficient criterion but still lack an objectively sufficient ground that would establish the proposition apodictically. Believing can be divided along lines of objective consciousness as **belief** or **faith**. As we use these terms in this treatise, belief involves an utter *absence of doubt*. When doubt is present, we call the holding-to-be-true *faith*, which differs from opinion due to having a subjectively sufficient ground. The logical momentum of such a proposition is *assertoric*; one declares *I think x is y*. While opining is malleable (i.e., open to accommodation to adapt itself to new facts), believing is made of sterner stuff. Here Reason assimilates a new cognition, accommodating *it* in whatever way may be required to make it *fit* the dogma without accommodating the believing.

Let us look at an example. A dogmatic Christian fundamentalist-creationist holds that every word in the Bible – old testament as well as new – is the revealed word of God and that everything written in the Bible is to be taken simply and literally as true. This includes the pronouncement in *Genesis* that the world was created in six days and that on the seventh day God rested. Furthermore, based on some famous calculations carried out by Archbishop Ussher (1581-1656), the fundamentalist-creationist holds that this creation took place around the year 4000 B.C.<sup>1</sup> He holds these to be “the facts.” How, then, does he confront scientific evidence that estimates the age of the earth at around 4.6 billion years?

He does so by subordinating these scientific findings to a concept born of analogy. Science has erred in the past, he reasons, therefore its methods are not *certain*. Consequently, he will tell

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<sup>1</sup> The Archbishop's work has been abused by fundamentalists for many years. According to Biblical scholars, he did not claim that 4000 B.C. was the date of creation. "His chronological labors were directed towards affecting an idea of the time that elapsed between certain events in recorded history . . . He reckoned as far back as 4,000 years before Christ, and then finding no more available material in the form of history, either written or inscribed, he had necessarily to stop. He did not by any means imply, however, nor are his figures interpreted by Biblical scholars to mean, that he had reached the point of Creation" [*555 Difficult Bible Questions Answered*, NY: The Christian Herald, 1914, pg. 56].

us, the “fact” of the earth’s immense age is nothing of the kind, but merely hypothesis – a *scientific opinion*. By this line of reasoning he holds radio-carbon dating and the other methods of geological investigation to be uncertain and therefore *capable of denial* in the face of his *faith* in a “young earth.” To him science is no less a matter of faith than religion and is a poor substitute.

Believing goes to the holding-to-be-true of the *material* properties of the concept. As has been said, there can be no *a priori* objective criterion of material truth but only a subjective criterion *a priori* of sufficiency for what one will *hold* to be true. There must, of course, be some formal and objective basis for holding-to-be-true, but believing requires only a subjectively sufficient reason and operates *objectively* on merely problematic grounds.

To the doctrine of certainty of our knowledge also belongs the doctrine of the cognition of the probable, which is to be seen as an approximation to certainty.

By probability is to be understood a holding-to-be-true from insufficient grounds which however have a greater relationship to the sufficient than the grounds of the contrary. Through this explanation we distinguish probability (*probabilitas*) from mere likeliness (*versimilitudo*), a holding-to-be-true on insufficient grounds insofar as these are greater than the grounds of the contrary.

. . . With probability, then, the ground of holding-to-be-true is *objectively valid*, while with mere likeliness it is only *subjectively valid* [KANT8a: 583 (9: 81-82)].

Believing (particularly, *faith*), then, rests on likeliness, opining on probability.

Finally, *knowing* is holding-to-be-true on both objectively *and* subjectively sufficient grounds. It rests on neither probability nor likeliness. Objectively, knowing follows from the principle of the excluded middle. Subjectively, it requires sufficiency under a rule of moderation of Reason (*Vernunftmäßigkeit*) arising from the principle of formal expedience of Nature. We can observe here that believing logically precedes knowing since we cannot say we know something if we do not first assert to be true something about that which we claim to know. Here we see a primacy of Reason (*Vernunft*) over understanding; the power of understanding is a power *in the employ* of the power of Reason. A representation that is not expedient for a purpose of pure Reason cannot become a cognition.

Now, what of the principle of *Zweckmäßigkeit*? We are not yet in a position to explain this because we have not yet dealt with the power of pure Reason. What we can say at this point is that the idea of this principle is an idea of a *bond* between understanding and the power of Reason. To explain the principle means, in effect, to explain what is reasonable and what is unreasonable in cognition. Thus, we must leave the theory of understanding and turn to the other divisions of *nous*: pure Reason and the process of reflective judgment.

## § 5. The Practical Standpoint

When we adopt the practical Standpoint, the ‘interest of Reason’ question turns from our



understanding of objects to the determination of our actions as reflected in Kant's second interest question: *What should I do?* Here we enter a territory of exploration wholly different in kind from the theoretical sphere that has so far dominated our discussion. We are now probing to discover the fundamental *a priori* principles that regulate the actions of an Organized Being.

In Chapter 9 we described Reason as the power of *nous* to direct and regulate the spontaneity of an Organized Being insofar as this spontaneity is not autonomic. Practical Reason is described as the logical division of Reason manifested in behaviors for which we must infer the existence (*Dasein*) of spontaneous and unconscious mental acts. To practical Reason thus belongs the description of acts that constitute original conditions of reasoning as an *Unsache*-thing. Yet these mental acts can only be Objects of an intelligible Nature and not objects of any possible sensuous appearance. Thus, we must tread very cautiously upon this strange territory and be constantly on our guard against making transcendent flights of fancy. As always, we must seek out the *objective validity* of our ideas if we are to make a theory by which we come to understand the Objects of the practical Standpoint.<sup>2</sup>

After all that has been said concerning our transcendental Ontology and the restrictions it places on our knowledge – namely, that we can *know* objects only as appearances (phenomena) and that we can never have complete knowledge of the *noumenal* thing “behind” these appearances – it must be quite evident that our investigation must at this point adopt new methods. It is precisely the adoption of such new methods that the idea of a new Standpoint is meant to point out. We will begin in earnest with the exposition of the practical doctrine of method in the next chapter. In this chapter, our goal is more modest: to merely lay out the point of view from which we must proceed. Thus, our treatment of the practical Standpoint (and that of the judicial Standpoint in the next section) will here be more brief than the treatment of the theoretical Standpoint we have just concluded. We will begin by examining some *empirical* facts the practical Standpoint will be called upon to explain.

### § 5.1 The Idea of the Motivational System

Our actions as they are presented to us in appearance, as phenomena of spontaneity, can be called “behaviors” in the usual sense of that word. Psychology and neuroscience are the empirical sciences that seek to understand these behaviors through careful observation and experiment. One of the earliest premises of positivism seeking to come to grips with behavior was the so-called automaton theory: the presupposition that all behaviors could be explained as causal effects of

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<sup>2</sup> Here we are faced with one of the many difficulties that come with mind reflecting *upon itself*. We seek to *understand* the practical Standpoint, but understanding belongs to the *theoretical* Standpoint. This we may do only by careful examination of the Objects that give unity to those behaviors we must necessarily ascribe to the spontaneity of the actions of an Organized Being as these are manifested in appearances. That we can do so at all is owed to the special standing accorded the *I* of transcendental apperception.

biological responses to external stimuli. We looked earlier at James' criticism of this presupposition. To this we will now add a most pertinent observation: we have no direct experimental evidence all behaviors follow stimuli as effect to cause, and we do have experimental facts that appear to be (but are not *proven* to be) contrary to this assumption.

Neuroscience adopts the attitude that eventually, when more facts are known, behaviors will be reducible to cause-and-effect relationships between stimuli and behaviors. This attitude is not wholly improper, for neuroscience must deal with its objects and all its fundamental objects are physical. For such objects of experience there is no causality other than *natural* causality. Ontologically, however, *Nature* is the world model an Organized Being constructs for itself, and so the assumption that eventually all behaviors will be reducible to physical cause and effect relationships evidences nothing except the push toward an ideal we must assign to an applied metaphysic of the science. Perhaps some day this ideal will be reached; perhaps not. For the present, the presupposition of eventual reduction of behavior to physical cause-and-effect relationships is an article of scientific faith. The relevant question in this treatise is this: How do psychology and neuroscience deal with phenomena of behavior *now*?

In both cases, these sciences find themselves forced to call upon an inference, namely the idea of "motivations." Generally, this idea tends to be regarded as something temporary – a blemish that time and the gathering of further knowledge will cure. As an example of how the psychologist views "motivation" and its relationship to behavior, let us look in detail at the explanation provided by Ruch and Zimbardo:

It is because the relationship between the behavior and the stimulus is *not* perfect - is not a completely *dependent* one - that we invoke concepts of "motivation" to take up the "slippage" . . . In inferring internal motivation to explain behavior, we try to simplify the complex web of possible interrelations by postulating a single intermediate, intervening variable linking the various stimulus inputs to the varied response outputs.

The words we use to label inner states behind this observed variability of behavior all share some implication of causal determination: *Purpose, intention, goal-directed, need, want, drive, desire, motive*. Psychologists usually use the label *drive* when the motivation is assumed to be primarily biologically instigated. The labels *motive* and *need* are more often used to refer to psychological and social motivation, which is generally assumed to be at least in part acquired. However, there is a variation in the usage of these concepts among psychologists. Some, for example, prefer to use the term *need* only for biological demands (like the need for oxygen) whether or not they trigger actual behavior.

In its broadest definition, the study of motivation is the search for all the determinants of human and animal activity. Limited to just internal determinants, however, motivation includes: (a) energy arousal, (b) direction of effort toward a particular goal, (c) selective attention to certain stimuli (and decreased sensitivity to others), (d) organization of activity into an integrated pattern, and (e) persistence of this activity until the initiating conditions are changed [RUCH: 274-275].

There is, in other words, "something going on inside" that, at present, we cannot explain. The scientific search is on to find the explanation and remove the "intermediate, intervening variable"

from the realm of *inference* and supplant it in the realm of *fact*.

The neuroscientist, who after all has a rather more concrete object to study – the central nervous system – adopts a viewpoint similar to this one (albeit with a few differences in outlook). In examining the properties and attributes of the central nervous system, neuroscience makes a logical division in which it identifies three “functional systems” – by which is meant three different types of activities that are made manifest in the behavior of the human or animal subject. These are: the functional systems for perception; motor coordination; and motivation. This science defines “motivations” as “those processes responsible for the goal-directed quality of behavior” [VAND: 360]. It is worth noting that the terminology here is “goal-directed *quality* of behavior” rather than “goal-directed behavior.” Neuroscience does not directly impute “goals” to “behavior” as such; it only allows that behaviors *appear* to be “goal-directed.”

This cautionary note is quite easy to appreciate. If behaviors really are goal-directed then this would seem to taint the topic with a *teleological* causality, and the idea of ‘natural’ (i.e. *physical*) causality in the physical sciences can make no such admission.<sup>3</sup> Indeed, the theoretical Standpoint of the Critical Philosophy is in complete agreement with this stance. The transcendental schema of the notion of causality and dependency is succession in (subjective) time and a teleological “final cause” can therefore never find objective validity among objects of sensuous experience. Goal-directed behavior, in the current metaphysic of neuroscience, would have to fall under the shadow of teleological causality, and neuroscience requires all phenomena within its topic to be eventually reducible to physical things answerable to laws of biophysics and therefore obeying no cause other than an efficient cause. In the words of Nobel laureate Eric Kandel,

The central tenet of modern neural science is that all behavior is a reflection of brain function. According to this view, a view that we shall try to document in this text, what we commonly call mind is a range of functions carried out by the brain. The action of the brain underlies not only relatively simple motor behaviors such as walking, breathing, and smiling, but also elaborate affective and cognitive behaviors such as feeling, learning, thinking, and composing a symphony. As a corollary, the disorders of affect (feelings) and cognition (thought) that characterize neurotic and psychotic illness can be seen as disturbances of brain function [KAND: 5].

Neuroscience’s view of the idea of “motivation” is amply summed up by Kupfermann:

Drives or motivational states are inferred mechanisms postulated to explain the intensity and direction of a variety of complex behaviors, such as temperature regulation, feeding, thirst, and sex. Behavioral scientists posit these internal states because observable stimuli in the external environment are not sufficient to predict all aspects of these behaviors [KAND: 750].

By introducing the idea of motivational states the possibility is held out that particular states of the neurological system may come to be identified with “behavioral modes.”

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<sup>3</sup> "Natural" or "physical" causality, whichever term one prefers, is the direct descendent of Aristotle's "prior" cause, later known as the "efficient cause."

But what is meant by ‘state’? The explanation of this idea has become more refined over time. With the development of the science of system theory in the latter half of the twentieth century (a discipline that concerns itself with the correct mathematical description of systems in general) the idea of a ‘state’ was formalized and concisely explained by the following mathematical definition:

The *state* of a system at time  $t_0$  is the amount of information at  $t_0$  that, together with the inputs from time  $t_0$  onward, determines the behavior of the system for all  $t \geq t_0$ .<sup>4</sup>

In the terminology of neuroscience, the “inputs” would be the various stimuli from the organism’s environment. Time, of course, means *objective* time in this definition. This definition of the ‘state’ of a system has been found adequate for the description of every sort of system that has so far been reduced to a mathematical description. Now, biological systems are, at present, not so described (at least in full) and biology is perhaps the least mathematical of the physical sciences. However, the issue here is one of complexity rather than of anything that would constitute a *fundamental* roadblock to the possibility of providing a mathematical description of biological systems. System theory applied to problems of neuroscience is often called *computational* neuroscience, and its objective is the attainment of mathematical descriptions of neural systems.

However, we must take note that within this mathematical definition we have, as a central element, the idea of *information*. Here we have a most interesting issue. One would suppose that the mathematical definition of ‘information’ could be borrowed from the science of information theory. Unfortunately, information theory does *not* provide any such definition in the *material* sense. Its definition is entirely *operational* and is couched in probability theory. The idea of probability, in the mathematical sense, is in turn a supersensible idea that can perhaps best be described as the inference of some underlying ordering mechanism in otherwise random events that explains the *observable* character that these events appear to follow predictable *statistical* distributions.<sup>5</sup>

Now although system theory is a mathematical discipline, it is also a discipline wedded to physical Nature. How, then, can it claim to use a nonphysical idea, information, within its most fundamental of all concepts (i.e., the idea of a state)? The answer to this is found in one of system theory’s most fundamental hypotheses: the state of any system can always be expressed in terms of energy variables – variables that collectively describe the sum total of all ‘energies’ in the

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<sup>4</sup> C.T. Chen, *Introduction to Linear System Theory*, N.Y.: Holt, Rinehard and Winston, 1970, pg. 86.

<sup>5</sup> Mathematical probabilities as such are entirely unobservable. A mathematical probability is a purely intelligible object - i.e. belongs to the world of *noumenon*. A *statistic*, on the other hand, is a measurement. The relationship between a statistic and a mathematical probability is that of appearance to transcendental object.

system and its environment. In practice the state variables of system theory are often transformed into other forms, such as the position and velocity of particles in the case of mechanical systems. These alternative forms, however, can always be traced back to energy variables and any state variable description of a system can always be re-expressed in an energy form. It then becomes a matter of obtaining the correct physics for an energy-based description of the system. Once such an adequate and sufficient description is obtained, the rest of the task of system theory typically devolves to finding mathematical transformations that make the computation of results technically feasible or that yield insights into the ‘nature of the system and its laws.’ Such is system theory’s approach to computational neuroscience.

It is not difficult to spot positivism’s contribution to the mathematical definition of a state. The idea of a state is the idea of a necessary and sufficient “quantity” of information for the laws of transformation (of this information) in a particular system to be understood. Information is defined operationally through measurements. However, when we come to apply this theory to the case of neuroscience, we find ourselves in something of a pickle. If we are to adhere to the meaning of ‘state’ in the phrase “motivational state,” this would seem to irreparably inject “non-causality” – that is, the idea of random chance – into the very heart of the “intermediate, intervening variable” that neuroscience hopes to someday do away with. This is not at all what neuroscience desires or expects as an outcome from the idea of a “motivational state.” But, we could hasten to argue, if it is true that the ‘energy’ of the system provides a sufficient basis for the state-variable description, is this not enough to avoid any causality crisis in neuroscience?

Here we come upon two factors that should trouble us. The first bears a direct connection to the so-called causality crisis physics went through at the start of the twentieth century. If we pursue the energy description far enough we come to quantum mechanics with all of its constructs of probability amplitudes, uncertainty relations, and so on. Taken all the way to this level, the idea of probability and the issue of non-determinism are unavoidable. Physics is no longer uncomfortable with such descriptions (not that physicists have any choice in the matter; those who cannot tolerate the statistical nature of quantum physics leave physics for other fields). Biology and psychology, however, are not yet so sanguine about this.

It is no good, either, to simply invoke Bohr’s famous correspondence principle<sup>6</sup> and say that because neural systems are large scale structures compared to the world of the quantum we will be able to get by with classical-physics-level descriptions and ignore the philosophically troubling aspects of “non-determinism” in quantum physics. Taken in full, neuroscience descends to the molecular level, and there quantum mechanics rules physical science.

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<sup>6</sup> The correspondence principle simply states that at the scale of "large" structures the results of quantum physics converge to those of classical physics and that classical physics is correct as a "practical approximation."

The second factor is of a much more subtle origin. It has to do with the *meaning* of “causality” in physical science. Here we have an issue much debated within physics during the first half of the twentieth century, when the issue of non-determinism commanded the attention of physicists following the breakthrough discoveries of quantum mechanics. This issue went largely ignored by other fields of science (since it seemed of importance only to the physicists), but this issue is of great and fundamental import for our purposes in this treatise. The problem at hand is this: the idea of “physical causality” is not a concept belonging to physical science but, rather, to an applied *metaphysic* of physical science. Put bluntly, most scientists think they know what is meant by the idea of physical causality, but when we come to an examination of the fine details, we find they are often wrong in this opinion.

## § 5.2 Margenau and the Idea of Physical Causality

Before we offer up the Critical Philosophy’s resolution of the causality question, let us examine physical causality as this idea must properly be viewed in the physical sciences. The analysis we present here is that of Henry Margenau, one of the few physicists in the twentieth century who made a careful examination of the whole range of implications that the quantum theory thrust upon our view of science. Margenau proposed an applied metaphysic that might be justly called a “constructivist metaphysic” – recognizing as he did that a *mathematical* science (a trait which is essential for a doctrine to be what Kant called a “science proper”) must pay strict attention to the consistency of its internal structure and the presuppositions that go into the making of this structure. In regard to the idea of causality, he wrote:

We wish to regard causality as a relation between constructs, in particular as a relation between *states*, or conditions, of physical systems. The principle of causality asserts that a given state is invariably followed, in time, by another specifiable state . . .

Causality holds with respects to states defined in terms of significant variables only, and this will here always be understood . . . We see, therefore, that the word condition requires further limitations and careful alignment with the other components of a given discipline [MARG: 95-96].

Physics had found itself faced with the requirement of re-thinking how it viewed the variables and constructs that go into its theories. The “non-determinism” of quantum theory *was* resolvable *if* one took a careful look at what a physical theory is meant to accomplish, that is, what it is that the theory is to explain. It would not be giving too much credit to physics to say that the idea of viewing physical laws as state-variable descriptions first entered science in a *formal* (that is, mathematical) way with modern physics, and it would not be too much to say that the resolution of physics’ “causality crisis” is owed to the state-variable method.

The words *cause* and *effect* are among the most loosely used in our language. Unfortunately, we shall find science of no help [in defining the proper meaning of these words], for cause and effect

are not primarily scientific terms, despite widespread opinion to the contrary. Science uses them with no less a variety of meanings than does common speech, and, it may at once be noted, the more sophisticated mathematical investigations of science do not use them at all. When scientists talk about causality, they do not talk as experts in a technical field, as they do when discussing the meaning of force or energy or enzymes or mutations. The following pages contain ample evidence of this [MARG: 389].

Margenau went on to document a number of examples involving issues and paradoxes arising from a too-casual presupposition of the meanings of “cause” and “effect.” In the most widespread view of causality, science tends to regard cause and effect more or less in the traditional “if *A* then *B*” form. It is correct to do so, Margenau argued, if *and only if* one paid proper attention to the variables of state and employed these ideas always and *only* in terms of *the whole of the system under consideration*. When any part of the system is omitted, what we are left with are merely what he called “partial causes”:

In summary, then, a cause becomes unique when it refers to a stage in a process involving the whole system under consideration. Or, to put it in terms of our previous analysis, it becomes unique when it refers to the entire *state* of a physical *system*.

The reason why the causal assignment of the first examples on our list was somewhat indefinite is that the causes did not embrace a sufficiently large situation. They were what we shall henceforth call *partial causes* [MARG: 393].

The use of the word “causality” as a technical term is more or less meaningless in the physical sciences unless it can be expressed in *mathematical* form. In one of his more brilliant and enlightening arguments, Margenau was able to demonstrate that ‘causality’ in the “if *A* then *B*” signification arises only in those cases where the theory can be expressed in the form of differential equations in which objective time does not appear as a coefficient. He called such equations the “hallmarks of causality” [MARG: 422]. Schrödinger’s equation in quantum theory is an example of such an equation, and “causality” in that case refers to the “if *A* then *B*” character of the physical law expressed in terms of its equation of state (the so-called “wave function”). The concept of causality is misapplied, on the other hand, when one tries to mix in other variables or constructs that are not contained in the expression for the state of the system. He cites as one example the case when the probability laws of statistical mechanics are admixed with the very different laws of thermodynamics.

Physics tends to enjoy situations where the issue of “partial causes” is of minor import and can easily be overlooked in its implications. The situation, Margenau wrote, is very different for biology. His remarks are worth quoting here at length:

A science enjoying the richness of data possessed by biology is likely to show a feature which, although present on the lower plane of physics, did not come into clear focus there. It is the opportunity to represent one given empirical sequence by several different causal chains, and we shall call it the *multiplicity of causal schemes*. One of its simpler instances occurs in the different explanations offered for the same phenomena by thermodynamics and by statistical mechanics . . .

Confusion results only when the two are mixed unwittingly as, for example, when the probability laws regulating the aggregates of statistical mechanics are injected into thermodynamics as though they were propositions concerning thermodynamic experience . . .

In biology, multiplicity of causal schemes is probably important enough to be studied in its own right. It may give rise to levels of explanations, each a causal one, and each at a different stage of organizational integration. Thus there may be encountered a theory framable in terms of molecules and molecular forces, another one in terms of thermodynamic systems, another in which cells and cytological interactions are basic concepts, and perhaps one that speaks of stimuli and responses. If a prognosis can be based on physics, one may judge it to be a very long time before the vertical connections between these schemes are completely understood [MARG: 416-417].

This idea of “the multiplicity of causal schemes” will be of great significance in the next section of this chapter.

Margenau was even able to deal with the idea of “final causes” and how this idea can *legitimately* enter into physical science – although here he assumed a rather cautionary stance, seeming to not quite want to commit himself to a statement as explicit as that I have just made. The form of differential equation noted above as the “hallmark” of (efficient) causality is not the only sort of equation of fundamental importance in science:

But physical science also contains laws which are expressed as integral equations, and these can be regarded as the modern carriers of the Aristotelian final cause, now called purpose. To see this, consider Hamilton's principle . . . [MARG: 422].

Hamilton's principle, sometimes called the principle of least action, involves a particular equation (today usually called Hamilton's first principal function). This principle states that the (objective) time integral of a certain function,  $L$  (known as the “Lagrangian”), of the system's state variables must give as a result the minimum value possible. Whatever objective-time history of the state variables minimizes the outcome of this integration is the time history that these state variables *will actually follow*.

Strange as this law may seem – and many physics students do find it very strange indeed – the principle of least action (Hamilton's principle) is one of the well-established principles of modern physics. Among many other things, it is found embedded at the heart of physics' crown jewel: the theory of quantum electrodynamics. But where is the “teleological” character of causality in this principle? Margenau explains, and then follows this explanation with a brilliant observation (in the second paragraph below) that is well worth our undivided attention:

More briefly put, nature "wants to" conserve its precious  $L$ , and she adjusts the particle's motion with this "end in view." That is indeed the closest contact made anywhere between physical science and purpose. Hence the question of teleology in its most nearly scientific form reduces to this: Are certain aspects of physical nature to be described in terms of integral rather than of differential principles? We believe that this is the form to which the "goal-seeking tendency" must ultimately submit itself.

To gain a partial answer we note what the physicist does when he applies [Hamilton's first principal function]. By means of a trick well known to mathematicians . . . he converts the integral relation into a set of differential equations called Lagrange's equations, and these are of the causal



type. He has thus - this may come as a shock to metaphysicians - *transformed a purpose into a cause* [MARG: 423].

Hamilton's principle does not actually add anything "new" to physics if by "new" we mean new elementary forces, particles, and so on. It *does* provide a new way of *looking* at physical problems, first in classical mechanics and later in the quantum theory. It is when one tries to translate its mathematical language into everyday terms where we run into a philosophical issue, namely that this form of expression seems to represent Nature in the "teleological" terms that Margenau voiced in the previous quote. But, as Margenau has pointed out, "causality" is not truly a construct of physical science, and if we are to draw any connection between physical science and the concept of causality, the only way we can do so is through the *mathematical forms* in which the theories of science are expressed. In doing this there is always an element of analogy involved. This we might have expected on the basis of the transcendental ontology since the notion of causality and dependency belongs to the *dynamical* categories of *nexus* (which speak to the context in and meaningful coherence of Nature), whereas mathematical expressions of form always involve the mathematical categories of Quantity (unity, plurality, totality) and the mathematical logical momenta of propositions (the universal, particular, singular, affirmative, negative, and Kantian infinite momenta).

Margenau came to his conclusions regarding the relationship between mathematical form and the philosophical idea of causality by seeking out the common characteristics that various examples of scientific theories – drawn from a number of scientific fields – exhibit when we come up against the 'paradoxical' questions arising from imputing "causality" from the consequences of physical theories. From the viewpoint of physical science, questions of causality are without technical context or meaning unless the statements made by science have been cast into mathematics *and* given a proper context in terms of the variables that properly describe the state of the system which the theory claims to explain. When we follow this doctrine we come up with the possibility of Margenau's multiplicity of causal schemes, which arises from different ways of looking at the same phenomenon using different state-space descriptions that address different aspects of that phenomenon. No one single field (or sub-field) of physical science has exclusive title to speak with absolute authority on "the meaning of causality" or even the "nature of causality" in science; the discipline to which that title belongs is metaphysics proper. The special sciences obtain context and meaning for "causality" only via the pathway of an applied metaphysic.

### § 5.3 Brain Function and Motivational State in Organized Being

Let us now take another look at the ideas of "motivational state" and "brain function" in the Organized Being. Kandel tells us that the phenomenon of mind is a "reflection of brain function."

This is, in all essentials, nothing else than a statement of causality. Why, we might ask, could we not equally well hold-to-be-true that brain function “is a reflection of mind”? One argument against this latter view is that ‘mind’ is not a *Sache*-thing and any attempt to view it as such must involve the hypothesis of an homunculus. This argument, though, is false since it presumes that the separation of the “mind-body problem” must be represented as a real rather than a merely logical division. We have, I think, already adequately disposed of this Cartesian fallacy.

A second and more well-founded objection to the idea of brain function as a reflection of mind is: if we make such an assertion, we make *soma* subordinate to *nous*; this must necessarily be seen as a Relation under the category of causality & dependency and *this Relation between these two objects is invalid*. The Relation between *soma* and *nous* is not one of causality & dependency but, rather, of the category of *community*. *Soma* and *nous* must be seen as *coordinate*, not relatively subordinate, ideas. For this very same reason we also cannot regard the idea of mind-as-a-mere-reflection-of-brain-function as an idea having objective validity.

What we *can* say with objective validity is that mind function and brain function are *complementary* ideas – the latter (brain function) being the *physical* complement, the former (mind function) being an *intelligible* complement, with *both* holding legitimate standing when viewed in their proper places and as disjunctive concepts under the idea of an Organized Being. In biological terms, mind (and, for that matter, “life”) is comfortably viewed as an emergent property of organism; but an emergent property, as we previously discussed, is an idea that stands under the category of community, not causality & dependency.

To draw an analogy, theories of *soma* and *nous* stand in relationship to each other in a manner not entirely dissimilar to the relationship between thermodynamics and statistical mechanics. Both of these doctrines address the same class of phenomena, but they do so in fundamentally different ways. The fundamental equations of thermodynamics are primitive relations among variables of state, and the theory of thermodynamics is not expressed in terms of differential equations. Statistical mechanics on the other hand *does* employ differential equations and it uses these equations to formulate explanations that are aimed at the same phenomena studied by thermodynamics. However, it is not correct to regard statistical mechanics as if it were merely the addition of mechanics to thermodynamic principles. Statistical mechanics must introduce additional constructs, not found in either thermodynamics or in mechanics; these constructs are statistical constructs through which the observables and state variables of statistical mechanics can be made into “statistical analogues” of the observables and variables of state in thermodynamics. The avowed intent of statistical mechanics is to produce a more “fundamental” explanation of the phenomena addressed by thermodynamics, but it is not valid to say that thermodynamics is “derived from” statistical mechanics. The two doctrines use entirely different state descriptions of the system and “thermodynamic experience” is not the same thing as

“statistical mechanics experience.”

In a similar fashion, we can accept the idea of “brain function” as an approach to the state description of *soma* as this description pertains to the central nervous system and, particularly, the brain. We must however bear in mind that a valid state-variable description of brain function can include only those ontological “matters” that constitute the various elements of this description. These “matters” are physical and, owing to the logical division of *soma* and *nous*, they exclude the very factors that provide the description of what we mean by “functional systems” of the brain. Perception, for example, is not an idea that we find in the physical description of neurons and no one holds that an individual neuron “perceives” anything. Likewise, purpose and intention are no part of the state-variable description of tissues and cells. We can ascribe these ideas to brain function in no way other than by analogy.

It could be argued that if we had a mathematical state-space description of brain function then perhaps phenomena like emotion, purpose, perception, and so on could be formulated as “output variables” (the state-variable method distinguishes between ‘states’ and ‘outputs’ of a system and, in many cases, the outputs are not themselves state variables). However, in the absence of a theory in which ‘perception’, ‘motivation’, ‘purpose’, and so on are mathematically described in terms of their *own proper state variables*, calling them “outputs” (or “outcomes”) of brain function can at best be hypothetical and at worst be seen as nothing other than equation by fiat.

The “mind as a reflection of brain function” argument would be strengthened if we could discover a “center” in the brain that “handled” or “was uniquely responsible for” the large scale behaviors we observe and describe in the subjective terms purpose, intention, etc. For a long time neuroscientists fully expected to be able to localize these functions. However, efforts to do so have yielded quite the opposite result:

Until relatively recently, it was thought that most complex mental acts are handled almost exclusively by specific limited regions of the cerebral cortex. Now it is understood that mental tasks are the result of synchronized activity in vast neuronal networks made up of many functional regions of the cerebral cortex, subcortical nuclei, and the brainstem. Also important are the pathways that reciprocally connect these sites and orchestrate their performance during specific tasks. In fact, the nervous system is so abundantly interconnected that it is difficult to know where any particular subsystem begins or ends [VAND: 370].

Why does neuroscience say that “complex mental acts” are the “result of synchronized activity” in the brain? One reason, of course, is the heritage of positivism playing out from the fallacy of Descartes’ improper mind-body division. A more substantial reason is that we know damage suffered within this “vast neuronal network” – either from injury or disease – can dramatically affect the subject’s capability to perform these mental tasks or can drastically alter the subject’s “personality” and even his very “sense of self” at fundamental levels. Dr. Damasio describes a

chilling example of this in one of his patients:

Thirty-two years ago, a man sat across from me in a strange, entirely circular, gray-painted room. The afternoon sun was shining on us through a skylight as we talked quietly. Suddenly the man stopped, in midsentence, and his face lost animation; his mouth froze, still open, and his eyes became vacuously fixed on some point on the wall behind me. For a few seconds he remained motionless. I spoke his name but there was no reply. Then he began to move a little, he smacked his lips, his eyes shifted to the table between us, he seemed to see a cup of coffee and a small metal vase of flowers; he must have, because he picked up the cup and drank from it. I spoke to him again and again he did not reply. He touched the vase. I asked him what was going on, and he did not reply, his face had no expression. Now he rose to his feet and I was nervous; I did not know what to expect. I called his name and he did not reply. When would this end? Now he turned and walked slowly to the door. I got up and called his name again. He stopped, he looked at me, and some expression returned to his face - he looked perplexed. I called him again, and he said, "What?"

For a brief period, which seemed like ages, this man suffered from an impairment of consciousness. Neurologically speaking, he had an absence seizure followed by an absence automatism, two among the many manifestations of epilepsy, a condition caused by brain disfunction . . . The man had not collapsed on the floor, comatose, and had not gone to sleep, either. He was both there and not there, certainly awake, attentive in part, behaving for sure, bodily present but personally unaccounted for, absent without leave [DAMA1: 5-6].

Did this man suffer an impairment of brain function? Yes, of course. Did he suffer an impairment of mental function? Yes, of course. Does this prove that mental functions are the result of brain function? Not at all, if by “result of” we mean the *effect* of a *cause* in a schema of succession in time. The divisions of an Organized Being – *nous*, *soma*, and *psyche* – are bound together in a Relation of community and this Relation means that each *is determined by and reciprocally determines* the others. It is not objectively valid to say that the disease disrupted brain function *and then* the brain function disrupted mental function. What *is* objectively valid is to say that the disease disrupted *both* functions at once. The physical state and the mental state must be described in terms of *different* state-variable models, and where such a difference exists we cannot project a causality relationship, in the everyday sense of that word, from the one model to the other with *scientific validity* because one model by itself can give us only Margenau’s “partial causes” picture. What we *can* do with scientific validity is to try to establish what the Relation of community is between the two models *since both are logically disjunctive representations of the same Object*, namely the Organized Being, and, hence, must be viewed as coexisting (in the *Existenz* sense) in subjective time. We must, in other words, view the phenomenon in full and make account of both the physical and the intelligible state variables in play.

What is called for here is not a difference in the methods of neuroscience but a difference in the *attitude* of neuroscience. The holding-to-be-true that we must find an exclusively physical causality for mental function is a model left over from the influence of positivism, which was an objectively insufficient prejudice, originating in the mechanistic adolescence of science, that none but “material things” must enter into scientific theory as foundational elements. (Ask yourself, how “material” is a probability amplitude?). Seen in this way, the task of a science of mental

physics is to develop a state-variable model of *nous* and the ‘animating principles’ of *psyche* that connect mental phenomena with physical phenomena. Put another way, the task of a science of mental physics is to bring us to an understanding of what it is we are actually talking about when we employ such presently vague ideas as that of the “motivational state” of an Organized Being. Brain function belongs legitimately to the realm of *soma*; mental function and motivational state belong to *nous*.

#### § 5.4 Practical Causality and the Idea of Freedom

We saw earlier that the idea of a motivational state includes, as part of the idea of a ‘state’, the idea of ‘information.’ Although this term is a primitive for the science of information theory, when we discussed the transcendental sensorimotor idea in Chapter 6 the idea of information was shown to be an idea of Relation in the 2LAR of the general sensorimotor idea. In particular, it is an idea thought under the category of substance and accident and represents the Object in which the “signaling data” of *soma* and the representations of *nous* subsist. In appearance, and from the hypothetical and the empirical reflective perspectives, the accidents of information when thought under the notion of reality are “signals” of one sort or another in the representation of *soma*. (Recall that from these perspectives the category of reality is: 1) the notion of the sensible context of the appearance in intuition; and 2) the notion of making a transcendental affirmation of the quality of ‘being something’). Viewed from these same perspectives but thought under the notion of negation, the accidents of information are representations of *nous*. (Negation from these perspectives is: 1) the notion of the intelligible context in the concept of an appearance; and 2) the notion of making a transcendental denial of the quality of ‘being something,’ i.e. of being a *Sache*-thing). As a substance-object, information is thought under the notion of limitation (again from the hypothetical and empirical perspectives) in terms of: 1) a notion of the real context in a cognition of an appearance; and 2) a notion of the divided Object in Reality and symbolizing in this Object an *ens priorem* under the principle of the Ideal of *ens originarium*. This explanation can serve for now to provide us with some context for the idea of information in the mathematical definition of a ‘state’.

Now, the idea of the “motivational state” is an idea thought under the category of causality and dependency. Psychology and neuroscience were forced to infer the motivational state as a “mechanism” for explaining behaviors that do not follow the “if *A* then *B*” type of causality relationship between stimuli *A* and behavior *B*. This is as much as to say that the environmental stimuli constitute merely “partial causes” of behavior in the Margenau sense. Presumably the *somatic* state is to account for the “missing” partial causes. However, we should expect from the community between *soma* and *nous* that we should also be able to account for such a causality relationship in terms of the faculty of representations in *nous*.

Such a causality relationship cannot be based on the idea of physical causality. This is because processes belonging to *nous* are intelligible objects. Therefore if we are to take this approach to the problem of a “motivational state” we must first grasp what we are up against when we speak of a “non-physical causality.”

The key difference here is that physical causality is an idea we must apply to physical objects of sensible Nature. Put another way, physical causality applies to appearances regarded as phenomena. But when we turn our attention to an idea of causality pertaining to intelligible objects, this causality does not attach to appearances as phenomena but, rather, to *noumena*. This type of causality idea is *subjective* rather than *objective* because the objectively valid employment of the categories of understanding does not extend beyond the horizon of sensible appearances. This at once raises an important issue: if ‘non-physical causality’ – which we are about to name *practical* causality – is subjective, can its introduction have, in any possible way, objective validity *for appearances*? If the answer to this question is no, then we need follow this trail no farther.

If we compare the psychologist’s description of motivation with that of the neuroscientist, we can see that the former takes a somewhat broader view of motivation than does the latter. The psychological study of motivation is “the search for all the determinants of human activity.” Let us start with this broader viewpoint since, if necessary later, we can always rein in our scope. The “determinants of human activity” would seem to take in the idea of something that brings such activity into actuality. That is, after all, what the idea of the motivational system represents in neuroscience. Kant’s name for this is *Begehrungsvermögen* (appetitive power):

**Appetitive power** is [a being’s] *capacity through its representations to be the cause of the actuality of the objects of these representations* [KANT4: 8 (5: 9 fn)].

No one doubts that he indeed possesses the ability to affect the world around himself, and part of this capacity includes the ability, in many circumstances, to bring about things as we wish them to be. This alone is sufficient for us to necessarily infer that somehow each of us possesses the power to be a causal agent; thus the *Dasein* of one’s personal power of causality, as a property attaching to the *I* of transcendental apperception, is established. What remains to be determined is the character of this property. If some part of it is a non-physical (practical) causality, then such a practical causality could have only a *practical objective validity* because appetitive power is an inner agency for making actual the objects of one’s own representations, be these objects mental or physical. In *sensible* Nature, these outcomes *must* be thought as dependent upon some prior state (category of causality and dependency), and the actuality of sensible objects is in this case the objectively sufficient reason for holding-to-be-true the *Dasein* of their cause.<sup>1</sup>

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<sup>1</sup> It is worth reminding ourselves that the objective validity of the *Dasein* of an object does not determine its *Existenz*.

Thus *if* there is a practical causality in the character of an Organized Being, such a causality could have only a practical objective validity because it is seen as the condition for making actual the merely possible objects of one's own representations in the cases of objects of appearance for which one holds one's own Self to be their efficient cause. This does not, of course, determine the *Existenz* of this causality as a sensuous appearance, and this is why we must carefully say that the objective validity of a practical causality is a *practical* objective validity. This is precisely the same situation as we find with the *I* of transcendental apperception. This *I* we know as *Dasein* without a representation of its *Existenz*, and so the objective validity of the *I* of transcendental apperception is a practical, not theoretical, objective validity.

Here it is worth making note that to say something has “only” practical objective validity is not to degrade the reality of that something. In the case of the transcendental *I*, there is nothing whatsoever that is more real for each of us, as an individual, than this original apperception of one's own *Dasein*. We are each of us, privately for ourselves, our own “ultimate reality,” and the transcendental *I* is the one and the only *noumenon* for which each of us *absolutely* holds-as-true its reality and existence (*Dasein*) in the most fundamental signification of the verb *to know*. Applying scientific reduction here is a transcendent exercise. Any theory that would hold out to us that the transcendental *I* is an illusion or is reducible to other terms says in effect, “*You* do not really exist. What you call ‘yourself’ is just the result of this *x* and that *y*.” A sophisticated enough argument for this thesis might dazzle us (and might even convince some of us that “this may be true of that other fellow”), but no one truly believes any such argument when it comes down to his or her own personal *Dasein*.<sup>2</sup> ***Practical objective validity is the most powerful form of objective validity.***

Regarding the idea of a practical causality, we still have the word “if” standing large in front of it. What we must next determine is whether or not this idea contains any fundamental contradiction within it. In other words, we will have to show that practical causality is *possible* under transcendental ontology, and this means we shall have to prove this *idea* does not contradict the laws of sensibility and understanding. Kant undertook this proof in *Critique of Pure Reason* [KANT1a: 535-537 (B: 566-569)]. Rather than quote him directly – because we have already covered many of the ideas and arguments he uses in this deduction – I will merely paraphrase what is left to be said from that section of the *Critique*.

A *Sache*-thing – let us say, for instance, an Organized Being – must be regarded through its appearances as a phenomenon in sensible Nature. Suppose this Organized Being has within itself

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<sup>2</sup> An engineering student once came to me on the very first day of classes to tell me he was dropping his philosophy course. When I asked him why he said, “The first thing the teacher said was, ‘How do you know you really exist?’ I don't have time for crap like that.” His professor should have asked, “How do you define what is ‘you’ and what is ‘not-you’?” That question goes to *Existenz* of the Self rather than the *Dasein* of the *I*, and asking it might have engaged the student rather than convince him professors are fools.

a capacity or power that:

1. is not itself an object of possible sensuous experience; and
2. makes it possible for this being to be the cause of appearances in sensible Nature.

If we posit the *Dasein* of such a capacity (*Vermögen*), we can regard the causality of the Organized Being in two different ways. First, we can think of the cause as *intelligible* in its *acts*. This is cause as a *noumenon*. Second, we can think its causality as *sensible* in the *effects* of its actions, these effects being appearances in sensible Nature. Here we need to point out that it is only from this second point of view that we can *establish* the practical *Dasein* of the cause in the *first* point of view. The practical objective validity of the *Dasein* of any *noumenon* (excepting only the transcendental *I*) is grounded in a determinant judgment of a connection of causality and dependency in sensible appearances.

Thus, we *think* the causality of the Organized Being through both an *empirical* concept (through the appearances of its effects) and a problematical intelligible idea. In order to have practical objective validity in the latter, *both* concepts must apply to the *same* effects registered as appearances and do so *at the same time*. We are not allowed to think ‘empirical causality now’ and ‘intelligible causality later’, i.e. in two different sensible effects. These two concepts must conform in the same effect or the intelligible idea is without a ground of objective validity. This is the first logical condition of non-contradiction for the intelligible idea.

Now, the empirical concept pertains to sensible Nature and must stand under the conditions of sensibility in general and under the laws of understanding in terms of the categories. This means that the empirical concept of causality must stand connected in a *series* (in connections of determinant judgments) under the *modus* of succession in time. The empirical concept is thus one and the same with Margenau’s term “physical causality.” (Kant preferred the term “natural causality”). The objective validity of this empirical concept is one of *theoretical* objective validity and it belongs to understanding and the theoretical Standpoint.

However, the situation is quite different for the intelligible idea. In this idea, we think the Being’s agency as a *noumenon* – a determination by a supersensible object. As such, the intelligible idea is not the idea of an object of any possible sensuous experience, and therefore the object *does not come under the conditions of sensible appearances*. Among these conditions we have subjective *time* as the pure form of intuition in the representation of appearances in inner sense. The intelligible object is not bound by the conditions of appearances and this means it is an object *free from the conditions of the transcendental schemata of time*. It does *not* stand necessarily as an appearance in a series of succession in time, and it consequently does *not* require as its condition that another thing stand in Relation to it as *its* cause. Put another way, the



intelligible idea of the Organized Being's agency is not wholly unlike Aristotle's "prime mover" – the original cause which itself is not subject to any other "mover." It is likewise not bound to submit itself to the succession of appearances in time, and in this it is not unlike Aristotle's "final cause." The intelligible idea of causality can thus be regarded as that of a teleological causality owed to an efficient cause *without contradicting Critical ontology*.

Now this seems a strange idea indeed, does it not? Yet there is no logical contradiction between the intelligible idea and the empirical one. Appearances are not things-in-themselves. The conditions of the empirical concept are those of appearances and these are grounded in a transcendental object determined only in its mere representations. While we must, of course, attribute to such a transcendental object those properties that are represented in its appearances, this does not prevent us from *thinking* this transcendental object as having additional properties that are *not* possible appearances. If we do so, then this object has both an empirical and an intelligible *character*.

Science, in fact, posits such transcendental objects all the time. To take one example, 'mathematical probability' is a pure *noumenon* that is regarded as the (intelligible) *cause* of *statistical* distributions. No one has ever, and no one will ever, experience a mathematical probability as an agent of a sensuous effect. If we object to intelligible causality simply because it is so strange an idea, then we must equally object to statistical mechanics. The same argument, with suitable additions, applies equally to the quantum theory and the very foundations of modern physics. This need not trouble us because the idea of intelligible causality comes with a safety net; it is *required* to accord with the empirical idea of causality *in the same sensible effect* (as appearance) in every case. This is because *both* ideas subsist in the *same* transcendental object. Let us recall Margenau's discussion of Hamilton's principle and his observation that the integral form of this principle (which is "like a purpose," i.e. a teleological cause) can be transformed into a differential equation form that meets the requirements of *empirical* causality. When we reach the point where we can express a science in the language of mathematics (which is a requirement for any science proper), the mathematical form of an intelligible cause *must* be capable of transformation into the mathematical form of an empirical cause or the idea of the intelligible cause is *objectively invalid*. **This requirement is the fundamental acroam of the condition for objective validity in all practical causes.** It is a corollary of the acroam of objective validity. Quantum electrodynamics, as one example, meets this requirement inasmuch as the probability amplitudes it invokes can also be represented (through the famous Feynman diagrams) in terms of empirical causality (appropriately expressed in terms of the state-variables of this system).<sup>3</sup>

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<sup>3</sup> I cannot resist noting that in Feynman's representation of this theory a great deal of violence is done to the everyday concept of objective time. In QED, photons (light "particles") can move either faster or slower than the speed of light and can even move "backwards" through time. Feynman's genius shines through in that he was able to bring all these strange ideas into accord with sensible experience. But the intelligible character of his theory is certainly evident with regard to how it treats objective time.

As for the intelligible character of the causality of this Organized Being, we must now note something else regarding its complete independence from the conditions of sensible experience. The intelligible causality of this Organized Being is not *merely* thought as independent of sensible conditions, but *must* be thought in these terms if it is to be posited at all. Its ground in a transcendental object is nothing short of the *I* of transcendental apperception. It is not some ghostly homunculus sitting alone in the “control room” of my brain to which I ascribe the intelligible causality of my own spontaneity; I ground this intelligible causality in the *Dasein* of the *I* of my transcendental apperception (which I hold-to-be-certain). The character of intelligible causality adheres to this *Dasein* but not to my *Existenz*, through the representation of which I come to apperception and knowledge of my Self *as an appearance* through experience and as an object among objects in Nature. (Self is the phenomenon; *I* am the *noumenon*). The independence of the intelligible character of the Organized Being’s causality from all sensible conditions of appearances suggests at once the *name* for this practical causality: *the causality of freedom*.

### § 5.5 Practical Reason and the Practical Standpoint

We are now in a position to appreciate the type of problems and issues that are dealt with by the practical Standpoint. As the power to regulate the spontaneity of an Organized Being, the idea of a power of *pure* Reason is faced with the question: Can pure Reason be *practical*? To ask this question is to inquire into the character of appetitive power and the determinants of those actions we say an Organized Being undertakes through this power of its own spontaneity. Going deeper into this, it is to inquire into whether Reason possesses *a priori* laws and principles that contain the grounds for all behaviors and, if so, what these laws and principles may be.

There is a theory – the automaton theory – which holds that all one’s actions are, in the final analysis, determined through physical causality and supposes that if only we had complete knowledge of the neurological state of the human being every action and behavior could be predicted in advance. This argument calls to mind Laplace’s opinion that the whole of the universe is deterministic and a great enough computing device could chart the course not only of all of history but of the entire future as well. William James described the reasoning leading to the automaton theory in the following way:

Suppose we restrict our view to facts of one and the same plane, and let that be the bodily plane: cannot all the outward phenomena of intelligence still be exhaustively described? Those mental images, those "considerations," whereof we spoke - presumably they do not arise without neural processes arising simultaneously with them, and presumably each consideration corresponds to a process *sui generis*, and unlike all the rest. In other words, however numerous and delicately differentiated the train of ideas may be, the train of brain-events that runs alongside of it must in both respects be exactly its match, and we must postulate a neural machinery that offers a living counterpart for every shading, however fine, of the history of its owner's mind. Whatever degree of complication the latter may reach, the complication of the machinery must be quite as extreme, otherwise we should have to admit that there may be mental events to which no brain-event

corresponds. But such an admission as this the physiologist is reluctant to make. It would violate all his beliefs. "No psychosis without neurosis" is one form which the principle of continuity takes in his mind.

But this principle forces the physiologist to make still another step. If neural action is as complicated as the mind; and if in the sympathetic system and lower spinal cord we see what, so far as we know, is unconscious neural action executing deeds that to all outward intent may be called intelligent; what is there to hinder us from supposing that even where we know consciousness to be there, the still more complicated neural action which we believe to be its inseparable companion is alone and of itself the real agent of whatever intelligent deeds may appear? "As actions of a certain degree of complexity are brought about by mere mechanism, why may not actions of a still greater degree of complexity be the result of a more refined mechanism?" The conception of reflex action is surely one of the best conquests of physiological theory; why not be radical with it? Why not say that just as the spinal cord is a machine with few reflexes, so the hemispheres [of the brain] are a machine with many, and that that is all the difference? The principle of continuity would press us to accept this view.

But what on this view could be the action of the consciousness itself? *Mechanical* function it would have none. The sense-organs would awaken the brain-cells; these would awaken each other in rational and orderly sequence, until the time for action came; and then the last brain-vibration would discharge downward into the motor tracts. But this would be a quite autonomous chain of occurrences, and whatever mind went with it would be there only as an "epiphenomenon," an inert spectator, a sort of "foam, aura, or melody" as Mr. Hodgson says, whose opposition or whose furtherance would be alike powerless over the occurrences themselves. When talking some time ago, we ought not, accordingly, *as physiologists*, to have said anything about "considerations" as guiding the animal. We ought to have said, "paths left in the hemispherical cortex by former currents," and nothing more [JAME2: 84-85].

Why not indeed "be radical with it" and cast away the insubstantial encumbrance of "mind ideas," retaining just the physiological picture? The argument is very persuasive and present day neuroscience embraces it whole-heartedly. James goes on to cite the reasons in favor of the automaton hypothesis, and they are good reasons. Still, they do not constitute a *proof* of the hypothesis and James is quite well aware of this:

There remains a sort of philosophic faith, bred like most faiths from an aesthetic demand. Mental and physical events are, on all hands, admitted to present the strongest contrast in the entire field of being. The chasm which yawns between them is less easily bridged over by the mind than any interval we know. Why, then, not call it an absolute chasm, and say not only that the two worlds are different, but that they are independent? This gives us the comfort of all simple and absolute formulas, and it makes each chain homogeneous to our considerations . . . The desire of men educated in laboratories not to have their physical reasonings mixed up with such incommensurable factors as feelings is certainly very strong. I have heard a most intelligent biologist say: "It is high time for scientific men to protest against the recognition of any such thing as consciousness in a scientific investigation." [JAME2: 88].

On the other hand, there are reasons that argue against the automaton theory as well. On the more philosophical side of the issue, there is the recognition that "making the chasm absolute," as James phrased it, is not a scientific judgment on evidence but, rather, a maxim for making the analysis of the problem more simple. I think it is not an abuse of history to characterize the rise of the automaton theory as a two-step process: First accept Descartes' real division between mind and body, then throw away the mind part. The latter step is justified, at least in part, by the fact

that, once severed, the ‘mind part’ has no conceivable way to affect the body part after the cord has been cut. But merely because we have a problem conceiving such a connection afterwards does not mean this reductionist process must be correct and on solid ground (especially if the error was Descartes’ in the first place). Here it is worthwhile to recall James’ quote that we cited in Chapter 1, and which we expand upon here:

However inadequate our ideas of causal efficacy may be, they are less wide of the mark when we say that our ideas and feelings have it, than the Automatists are when they say they haven't it. As in the night all cats are gray, so in the darkness of metaphysical criticism all causes are obscure. But no one has the right to pull the pall over the psychic half of the subject only, as the Automatists do, and to say that *that* causation is unintelligible, whilst in the same breath one dogmatizes about *material* causation as if Hume, Kant, and Lotze had never been born. One cannot blow hot and cold. One must be impartially *naif* or impartially critical. If the latter, the reconstruction must be thorough-going or "metaphysical," and will probably preserve the common-sense view that ideas are forces, in some translated form. But Psychology is a mere natural science, accepting certain terms uncritically as her data, and stopping short of metaphysical reconstruction. Like physics, she must be *naive*; and if she finds that in her very peculiar field of study ideas *seem* to be causes, she had better continue to talk of them as such . . . If feelings are causes, of course their effects must be furtherances and checkings of internal cerebral motions, of which in themselves we are entirely without knowledge. It is probable that for years to come we shall have to infer what happens in the brain either from our feelings or from motor effects which we observe. The organ will be for us a sort of vat in which feelings and motions somehow go on stewing together, and in which innumerable things happen of which we catch but the statistical result [JAME2: 90].

We need not, I think, belabor the “much more positive reasons” against the automaton theory James cites in [JAME2: 90-94], especially since the trouble was started by a Cartesian assumption we have long discarded in this treatise. James’ pragmatic view in essence boils down to the observation that the *noumenal* ideas of what we here call *nous* are *useful* in the study of psychology. He does not say the automaton theory is wrong, but he does say

Thus, then, from every point of view the circumstantial evidence against that theory is strong. A *priori* analysis of both brain-action and conscious action shows us that if the latter were efficacious it would, by its selective emphasis, make amends for the indeterminateness of the former; whilst the study *a posteriori* of the *distribution* of consciousness shows it to be exactly such as we might expect in an organ added for the sake of steering a nervous system grown too complex to regulate itself. The conclusion that it is useful is, after all this, quite justifiable. But, if it is useful, it must be so through its causal efficaciousness, and the automaton-theory must succumb to the theory of common sense [JAME2: 90].

James expressed the hope that some day the ‘philosophical’ problems of causality would be resolved and, after his health forced him to give up his psychological research in favor of philosophy, he put some effort into this arena. This work is known today as American Pragmatism. However, as we have seen above, there is no basic contradiction between physical causality and the practical postulate of the causality of freedom provided that the latter is so posited as to meet the condition of conformity with the former in experience. These two types of causality do not conflict because, in mathematical language, they pertain to different state-

variable representations of the system and there must exist, for a valid postulate of a practical causality, a transformation that maps the latter to the former.

The theory of *nous* from the practical Standpoint thus comes down to this: the examination of the laws and principles of the causality of freedom and the consequences of these laws and principles. The power of pure Reason, from the cognitive side, pertains to the *regulation* of the spontaneity of thinking. From the practical side, it pertains to what we have called appetitive power and to principles that are fundamental to the representation of *maxims of action*. That this is the proper way to view the idea of Reason seems self-evident from the uses we make of that word in common language – e.g. as the *cause for*, or the *justification of*, or the *purpose behind* something.

We have had a hint that we were coming to this point. The hint was our discussion of the four transcendental Ideas as the regulators of the *employment* of the capacity for understanding by speculative Reason. But from the practical Standpoint our concern is not with these Ideas from the theoretical Standpoint of speculative Reason but in the context of *practical* Reason. We must decide if pure Reason *can be* practical and, if so, we should expect to be required to find what the practical counterpart of the categories of understanding may be and what the practical counterpart to logical perfection may be. We must *make a theory* and this theory must possess *practical* objective validity. We will take the first steps in this effort in Chapter 11 and finish the task in the later chapters (from Chapter 19 onward).

## § 6. The Judicial Standpoint

The third interest of reason is reflected in Kant’s “What may I hope?” question. Understanding, as the Object of the theoretical Standpoint, is a ‘faculty of rules’ and pertains to our objective knowledge. Reasoning, as the Object of the practical Standpoint, is concerned with *actions* and, in its practical character, with the grounds for determining those actions. Now, between these two Standpoints there lies a gulf – James’ “chasm” between *noumenal* mental acts and physical appearances. We have pointed to one ‘bridge’ between them, namely the requirement placed on any hypothesis of the practical causality of freedom that it conform with physical causality in appearances (which stands under the notion of causality and dependency in determinant judgments). However, by itself this one bridge cannot carry all the traffic between these two realms nor close the loop in the cycle of thought we depicted in Figure 9.3.1. This is at once evident if we recall that, on the one hand, the considerations of understanding are limited to *objective* perceptions (cognitions), which are always representable in sensibility, and, on the other hand, that the causality of freedom can admit no *sensuous* part. This is one gap with which we must deal.

The second place where the bipartite logical division of *nous* into understanding and Reason shows itself to be incomplete lies with those perceptions that are *not* objective (what we have called the affective perceptions). Affective perceptions are, to be sure, *sensuous*, and we are conscious of them (otherwise they would not be perceptions). We will use the term *feelings* to designate the matter in affective perceptions and to distinguish these from *sensation* – a term we reserve for the matter in an intuition. Like cognition, the term affective perception is used here as the general name for the entire class of non-objective yet conscious representations of *nous*.

What have affective perceptions to do with the ‘chasm’ between understanding and Reason or between cognitions and maxims of action? Because affective perceptions are sensuous, they clearly do not enter in to the causality of freedom as such because that practical causality must be, as we have seen, thought as something entirely outside the sensuous. They are thus not to be taken as an element in *pure* practical Reason (if, indeed, pure Reason *can be* practical). This does not mean that affective perception is necessarily excluded from *empirical* reasoning – a term by which we mean the regulating of the discursive spontaneity of an Organized Being as this spontaneity might be affected by the senses. Such reasoning would not be pure in the Kantian sense of the word ‘pure’; Kant preferred the terms ‘technical’ and ‘pragmatic’ to describe reasoning of the empirical sort. However, a division into speculative and practical ‘reasons’ can be viewed as nothing other than a logical division in one Object (reasoning) and so if affective perception does enter in to empirical reasoning, *ipso facto* it enters into the process of judgmentation (*Beurtheilung*) in general.

Nor are we wholly in a position to say that affective perceptions must be understood entirely and only in terms of sensuous feelings. When we looked at cognitions we saw that we could indeed have non-sensible elements – the pure notions of understanding – entering in with regard to the *form* of cognitions. We have, as of yet, said nothing about the form of affective perceptions insofar as constitutive principles of this form are concerned. Determining judgment employs the pure notions of understanding as rules for the construction of intuitions, and these categories speak to the manner of or interrelationship between cognitions and consciousness. Affective perceptions, on the other hand, do not lie within the province of the process of determining judgment but rather with that of the process of *reflective* judgment. We might, on this basis, suspect we shall need something like the categories of understanding as rules for the construction of affective perceptions since we reject the copy of reality hypothesis (*soma* belongs to the same division of the Organized Being model as the external environment insofar as perception is concerned) and therefore cannot simply assume that affective perceptions “put themselves together” in an act of pure receptivity driven solely by the senses.

All of this seems to point to a power of judgment – specifically the process of reflective judgment – as a mediator between the objective outcomes of understanding and the practical

legislation of Reason. This is indeed the viewpoint taken from the judicial Standpoint:

Now if on the one hand understanding gives *a priori* laws of nature, but on the other hand reason gives laws of freedom, then it is in accordance to analogy to expect: that the power of judgment, which mediates the context between the two capacities, would likewise hand over its own special principles *a priori* and perhaps come to lay down the ground for a special part of philosophy, notwithstanding that as a system this [philosophy] is bipartite<sup>1</sup> [KANT5c: 8 (20: 202)].

If understanding is the “faculty of rules” in cognition, and Reason that of rules governing appetitive power, we regard the power of reflective judgment in terms of the idea of the affective perception of *Lust* and *Unlust*. We have earlier discussed the peculiar difficulties of translating these terms into English. *Lust* and *Unlust* do *not* mean (as most translations have rendered them) “pleasure and pain.” Rather, the proper flavor of *Lust* can be described as a kind of “motivated wanting” (a sort of subjective expression of “I’m up for that!” without specifying the ‘that’) while that of *Unlust* is the opposite. By *Lust* we do not quite mean desire, for “desire” can suggest an *objective* content and affective perception has none. Nor do we mean by either term the word “emotion” because, as most psychologists would agree, ‘emotion’ is a term about which there is a rather pronounced lack of agreement as to its meaning. Some of the “definitions” (truly, descriptions) offered for the term “emotion” are [CARL: 4-7]:

1. A genetic and acquired motivational predisposition to respond experientially, physiologically, and behaviorally to certain internal and external variables (Carlson and Hatfield, 1992);
2. A complex feeling-state involving conscious experience and internal and overt physical responses that tend to facilitate or inhibit motivated behavior (Dworetsky, 1985);
3. [Something] defined in terms of subjective experiences or feelings, goal-directed behavior (attack, flight), expressive behavior (smiling, snarling), and physiological arousal (heart rate increases, sweating, defecation) (Hothersall, 1985);
4. Organized, meaningful, generally adaptive action schemes [which are] complex functional wholes including appraisals, appreciations, patterned physiological processes, action tendencies, subjective feelings, expressions, and instrumental behaviors . . . None of these features is necessary for a particular instance of emotions (Fischer, Shaver, Carnochan, 1990);
5. An inferred complex sequence of reactions to a stimulus and includes cognitive evaluations, subjective changes, autonomic and neural arousal, impulses to action, and behavior designed to have an effect upon the stimulus that initiated the complex sequence (Plutchik, 1984).

It is rather obvious from these descriptions why *Lust* and *Unlust* fall rather short of the complex of phenomena that, collectively, get called “emotions.” We will return to this topic in Chapter 15.

## § 6.1 The Two Sides of Reflective Judgment

As the Object of the judicial Standpoint, judgmentation must take in two very different characteristics. We have discussed earlier the role we assign to reflective judgment in the making of cognitions. In the synthesis of apprehension/comprehension, we do not achieve an intuition until the representation of sensibility receives a ‘mark’ from reflective judgment. This mark we

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<sup>1</sup> The two (analytical) parts of philosophy to which Kant refers are the theoretical and the practical parts.

called a *moment in subjective time*. It bears emphasizing here that in saying this we do not imply that, so to speak, reflective judgment “knows what it has marked” (that is, that it judges the object). Here we will go further and state, as a preliminary to what will follow later, that reflective judgment neither ‘knows’ nor ‘cares’ *what* the intuition it has marked represents. To hold otherwise would be to say that reflective judgment deals with cognitions rather than with merely affective perceptions. It is determining judgment that employs objective rules (the categories). The rules of reflective judgment so far as sensibility is concerned must, consequently, be *subjective* rules.

To put this another way, this aspect of judgmentation is a character that pertains to **aesthetic** rather than logic. By this word aesthetic we mean **a doctrine of the laws of sensibility**, a usage that differs from the normal practice but which conforms to Kant’s terminology [KANT1a: 156 (B: 35-36)]. As a process, aesthetical reflective judgment must have its set of rules, in the form of regulative principles, for the making of aesthetical judgments and, since acts of reflexion are clearly made *a priori* (they are necessary for the possibility of experience), these rules must be, like the categories, *a priori* rules. But, unlike the categories, they must be subjective rather than objective rules.

That there should be a tie between aesthetical reflective judgment and understanding is clear from this. We as much as alluded to such a tie earlier in this treatise when we spoke of aesthetic Ideas – representations that do not represent objects but, rather, present a correlate by which determining judgment can orient its use of the categories. This aesthetical character of reflective judgment constitutes one aspect of judgmentation in general.

But there must also be a second aspect to judgmentation and that aspect must concern its tie with Reason. As the regulator of spontaneity Reason is concerned with the employment of the capacity for understanding, but Reason does not have a direct concern with the objects of understanding that this employment produces. This is clear when we consider that all cognitions are sensible but the causality of freedom is called ‘free’ because it is free of determination *by* any sensuous element. Yet, at the same time, Reason *does* pertain to the ability of the Organized Being, through its representations, to be the cause of the *actuality* of the objects of those representations. Now this obviously requires some tie between Reason and objects, even if that tie can never be immediate. It is not understanding that provides this tie because the capacity for understanding is in the employ of Reason rather than the other way around. That leaves only the process of reflective judgment as the tie-point in this context.

Thus, we must have in the character of reflective judgment something that makes possible the linkage between Reason and objects of understanding, but which at the same time does not represent objects in reflective judgment. Reflective judgment, like Reason, is not concerned with the specific objects of understanding but instead with the conformity of understanding with the



regulations of Reason. What, though, constitutes such conformity? We spoke to this earlier in this Chapter: the idea of experience *as a system* in accordance with empirical laws. This idea of a system of experience is not the idea of an object *per se* but the idea of a principle we can call a *purpose of pure Reason*. The character of the second aspect of reflective judgment is clear from this at once: it is the character of a *teleological power of judgment*. This character of reflective judgment is at once at home with the causality of freedom because, as we saw earlier, the practical postulate of freedom has itself a timeless character and therefore a teleological flavor.

## § 6.2 The Principle of *Zweckmäßigkeit*

In healthy individuals<sup>2</sup> we do not know experience as an aggregate of unrelated events and perceptions. Rather, all the particular incidents that make up what we call one's personal experience are welded together to make a whole of experience. Were this not so, could we "experience puzzlement" when two 'facts' fail to "add up" or "square with each other"? We can, of course, compartmentalize our personal experience in terms of specific events and things, but for all that there is still the common interconnection of these, namely "these are parts of *my* experience."

This psychic fact, readily apparent to most of us, would hardly be worth mentioning (other than to point out that we have been silently invoking it whenever we have talked about the unity of apperception) if imaging studies of the brain showed that the neurological signaling activity in the brain was more or less identical for each of us. If this were the case, we could rather easily posit that the unity of experience was simply a consequence of the way are brains are "wired up." However, brain imaging studies actually show something quite different, namely that brain activity varies greatly from person to person in response to the same stimuli. We know, for instance, that the brain's somatotopic map (basically, a picture of signaling activity in the brain) is dynamically organized and that this organization differs from one individual to the next. Kandel writes:

The cortical maps of an adult are subject to constant modification on the basis of use or activity of the peripheral sensory pathways. Since all of us are brought up in somewhat different environments, are exposed to different combinations of stimuli, and are likely to exercise our motor skills in different ways, the architecture of each brain will be modified in special ways. This distinctive modification of brain architecture, along with a distinctive genetic make up, constitutes the biological basis for the expression of individuality [KAND: 1026].

When we find physical evidence of *differences* in brain structure and activity, it is not difficult to see in these a physical basis for individuality. But what of the common factors?

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<sup>2</sup> For the present we will set aside the case of individuals suffering from one or another form of neurosis such as we discussed in Chapter 5. We will discuss this in Chapter 22.

There are, of course, many biological commonalties people share in the general organization of brain structure. But the fact that we can measure many functional commonalties, that appear to be present in how our brains work above the cell level, would seem on the basis of any statistical analysis to fly in the face of what James called the accidental caprice made possible by brain complexity (see Chapter 1 §4.3 or [JAME2: 91-92]). This is what James was getting at when he wrote that consciousness was efficacious. If we are to understand the appearance of psychic functional invariants – such as the essential unity of our individual experiences in *one* integrated system of experience – in the face of what appear to be significant differences in brain activity, we must look away from the neurological ‘machinery’ and try to find something like a “software system” (sometimes called “the wet-ware of the brain” by computer-analogy-oriented cognitive scientists) that can bring to light the function as distinct from the appearance. That, of course, is where an investigation of the mental physics of the phenomenon of mind comes in.

The determining power of judgment subsumes particular concepts under given universal rules (the categories of understanding). However, there are a great many logically possible ways in which empirically given concepts could be combined under these rules. It follows from this that there are a great many logically permissible forms that could be applied to concepts of Nature under these rules. The categories do not contain, and theory of understanding does not provide, any *a priori* rules that determine *which* form, out of this multitude of possibilities, is the one that is actually employed in a specific instance. Yet, individual differences notwithstanding, healthy persons seem to have much more in common in how we think Nature than we have differences. How could this be possible? Kant saw in this the evidence of a transcendental principle.

Now this principle can be nothing other than: that, since general laws of nature have their ground in our understanding that prescribes them to nature (though only according to the general idea of it as nature), particular empirical laws must be regarded, in respect of that which is left undetermined in them by the former<sup>3</sup>, according to such a unity as they would have if an understanding (although not like ours) had given them for the benefit of our faculty of knowledge, so as to make possible a system of experience according to particular natural laws [KANT5b: 19 (5: 180)].

What Kant means when he writes of “an understanding although not like ours” is that the primitive notions of understanding (the categories) do not contain ontological primitives that could dictate a system of experience. We can express this by saying these rules are constitutive of experience ‘in the small.’ A *system* of experience, on the other hand, is experience ‘writ large’ in one’s mind, an idea rather like the idea expressed in Hamilton’s principle.<sup>4</sup> The system of experience, as a phenomenon, is owed to reasoning rather than to understanding. Reasoning is an

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<sup>3</sup> i.e., the categories of understanding.

<sup>4</sup> Another way to phrase Hamilton's principle is this: Of the paths that a moving particle might take from a given starting point to a given final position, the particle will travel along that path which minimizes the action. (Action is one name given to Hamilton's integral equation).

act of regulation of understanding. One metaphorical way to view this reasoning is to imagine that it has a ‘greater kind of understanding’ that knows how to think about the variety in the empirically given so that a system of experience results. But such a ‘greater understanding’ is not what we mean by *our own* power of understanding; it is merely a way to imagine the idea of the ability to reason.

Now, the ‘system of experience’ is an Object and the idea of this Object includes or contains the idea quoted above of how we must regard it. This ‘idea within the idea’ is a prescription for speaking to the actuality of experience as a system. If we limit our idea of this Object to just those concepts that represent the relationship between the ground and the actuality of the Object, this representation (which expresses a ‘because’) is called a *purpose*.

Now because the idea of an Object, so far as at the same time it contains the ground of the actuality of this Object, is called the *purpose*, and the congruence of a thing with that property of things that is only possible in accordance with purposes is called the *Zweckmäßigkeit* of its form: thus the principle of the power of judgment in regard to the form of the things of nature under empirical laws generally is the *Zweckmäßigkeit of nature* in its diversity [KANT5b: 19 (5: 180)].

We have previously touched upon the English rendering of this word *Zweckmäßigkeit*. The German word *Zweck* means *end* or *purpose*. Among the possible English renderings of the word *Zweckmäßigkeit* we have *appropriateness*, *expedience*, *advisability*, *functionalism*, and *functionality*. Let us look at the context in which we find this technical term in the quote given above. Our Object is the system of experience and, under the Copernican hypothesis, we can only regard this system in terms of the *nexus* of the concepts that represent Nature. But, as we have just argued, the ground for this *nexus* taking on the character of a system of experience is an idea we must ascribe to the process of reasoning and, therefore, this ground is an idea we hold regarding the nature of the process of Reason in the employment of understanding. Reason, we say, regulates understanding in such a way as to *produce* a system of experience and thus we can call this regulation a *purpose of pure Reason*.

But the empirically given data of the senses “has something to say” about the contents of the concepts that are spun from this data. Taken in the whole, the judgment of concepts of one thing are constrained in reasoning such that the concepts of all things must universally and necessarily be made to conform with this idea of a system of experience. This conformity in the *nexus* of concepts – unity within the variety of the empirical laws of Nature – can be called the *expedience of the nexus for a purpose of Reason*. This is what we take the term *Zweckmäßigkeit* of form to mean. In this treatise we usually abbreviate this somewhat bulky phrase to the “expedience” of representations.

The usual English translations of Kant typically render *Zweckmäßigkeit* as “purposiveness” or as “finality.” Purposiveness, if we take the word “purpose” in the narrow technical context

discussed above, cannot really be objected to except from the point of view that “purposiveness” is a rather ugly and uncommon word which, I think, tends to obscure the context of the idea that mental representations are constrained to be expedient for the idea of a system of experience. Finality, on the contrary, summons up visions of the Aristotelian ideas of entelechy (final form) and teleological causality (“that for the sake of which something happens”) in too much of the spirit of metaphysical thinghood. The principle of the expedience of form is not a principle of metaphysical thinghood but, rather, is a transcendental principle. (The difference being that metaphysical thinghood speaks to ‘the nature of things’ while transcendental principles speak to that which is *a priori* necessary for the possibility of experience). This is why, in this treatise, I break from the usual conventions in the translation of *Critique of Judgment*.

The principle of *Zweckmäßigkeit* speaks only to the form (*nexus*) of the manifold of representations. Its sole concern is that sensible representations be put together in such a fashion as to be formally congruent within a system of experience. But the idea of a system of experience, viewed as a purpose of Reason, is a *practical*, not theoretical, idea. Thus, *judgment* is called upon to unite *sensible* representation with a *supersensible* practical idea. Note, too, that the system of experience is *not* formally given *a priori* as a constitutive principle. It is, rather, a *regulative* principle. As such, it is not up to the process of determining judgment to rule on the system of experience because determining judgment subsumes undetermined particulars under *given* universal rules. In judging the *Zweckmäßigkeit* of form we are given the *particulars* in sensible representation and must judge the general. This is the function we have assigned to what we call the process of *reflective* judgment. Thus, the principle of *Zweckmäßigkeit* is the principle peculiar to the process of reflective judgment in its role in judgmentation as the bridge between the sensible understanding of objects and Reason.

### § 6.3 Reflective Judgment and the Judicial Standpoint

Determining judgment is objective. Its judgments combine concepts and these combinations represent objects (although we can only, from the theoretical Standpoint, regard these objects as phenomena in appearances). A purpose of Reason, on the other hand, is both subjective and practical; its Objects must be viewed, from the theoretical Standpoint, merely as *noumena* and, from the practical Standpoint, as possible determinables of appetitive power. Reflective judgment must mediate between these opposing extremes yet can do so only *subjectively* and only by means of representations that are not cognitions but, rather, affective perceptions. The phenomenon of mind from the judicial Standpoint thus comes down to the question of how it is possible that mere representations of affection (which are always and only subjective) can provide the link between reasoning and the representation of objects.

To appreciate this issue and systematic judgmentation as the Object of the judicial Standpoint, we need to take a closer look at this idea of subjective affectivity and its relationship to behaviors we call cognitive. From the viewpoint of empirical behavioral science, affectivity was described by Piaget in the following way:

The term affectivity includes feelings, properly so-called, as well as the various drives or tendencies including "higher tendencies" such as the will. Some authors, it is true, distinguish between affective factors such as emotions or feelings and conative factors such as drives or will. We shall not do so, however, because the difference between the affective and conative appears to be only a matter of degree. This may be illustrated by considering Pierre Janet's definition of feelings. He based his definition on the economy of behavior and defined feelings as regulations of the force an individual has at his disposal. From the same point of view, the will would only be a regulation of the elementary regulations constituted by feelings [PIAG16: 2].

Our view of affectivity in this treatise is quite similar to this description, although we will not regard "will" as affectivity *per se* because "will" is not something we will find represented as an affective perception. Rather, "will" is a practical Object and, as a pure *noumenon*, does not admit of any *sensuous* representation whatsoever. (Piaget makes a twofold logical division into affective and cognitive behaviors; our division is threefold, as understanding, reasoning, and judgmentation).

It is generally accepted by modern psychology that cognitive and affective behaviors are thoroughly linked up with each other. From his own researches, and from those of other noted psychologists, Piaget concluded that

It is impossible to find behavior arising alone without any cognitive elements. It is equally impossible to find behavior composed only of cognitive elements. Nevertheless, cognitive functions, from perception<sup>1</sup> and sensorimotor schemes up to abstract intelligence with formal operations, will be distinguished from affective functions. This seems necessary because, although cognitive and affective factors are indissociable in an individual's concrete behavior, they appear to be different in nature. The following considerations make this clear.

Regarding the assertion that there is no cognitive mechanism without affective elements, it is obvious that affective factors are involved even in the most abstract forms of intelligence. For a student to solve an algebra problem or a mathematician to discover a theorem, there must be intrinsic interest, extrinsic interest, or a need at the beginning. While working, states of pleasure, disappointment, eagerness, as well as feelings of fatigue, effort, boredom, etc., come into play. At the end of the work, feelings of success or failure may occur; and finally, the student may experience aesthetic feelings<sup>2</sup> stemming from the coherence of his solution. In ordinary acts of practical intelligence, the lack of dissociation between cognitive and affective mechanisms is even more evident. Perceptual activity, too, involves affective factors such as perceptual choice, pleasant or unpleasant feelings, the affective tonality of indifference, and aesthetic feelings.

Regarding the opposite situation, it is also obvious that there is no such thing as a purely affective

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<sup>1</sup> Recall that Piaget uses the word "perception" to mean something different from our technical use of that term in this treatise.

<sup>2</sup> Piaget uses "aesthetic" in the more usual sense of that word, e.g. such as the physicist who describes a theory as "beautiful" or the engineer who describes a design as "Rube Goldberg."

state devoid of cognitive elements. Konrad Lorenz, studying the instincts of birds, established the existence of very precisely determined perceptual configurations that are innate and specific . . . In ducklings, for example, certain movements peculiar to the mother's gait release the drive to follow her. Another illustration would be the sexual instinct of certain species of parrots. In these species, the sexual behavior of the male is triggered by perception of light blue color. Instincts are not, therefore, set off by affective factors alone; their release also requires specific perceptual stimulations. By artificially reproducing these stimulations, Lorenz was easily able to deceive animals. Inversely, the slightest modification of perceptual configurations can prevent release of drives.

Emotion, too, involves perceptual discriminations. For example, Wallon has demonstrated that fear in infants is originally linked to a proprioceptive sensation of loss of balance. It is also known that fear of darkness in infancy and conditioned fears of every sort occur in response to perceptual stimulations. Cognitive factors play a role, therefore, in elementary feelings and are even more apparent in complex feelings where intellectual elements are increasingly included [PIAG16: 2-3].

The judicial Standpoint has for its focus this phenomenon of the interplay between affective and objective perception. Our distinction of a special Standpoint for these considerations is, in no small way, mirrored by a logical division made in neuroscience that distinguishes one part of the neural anatomy – namely the limbic system – as playing a central (although not exclusive) role in emotion, memory, attentiveness to stimuli, and learning. The major structures of the limbic system include:

- 1) parts of the hypothalamus;
- 2) a part of the basal ganglia known as the nucleus accumbens;
- 3) certain areas of the neocortex, such as the orbitofrontal cortex and the inferior temporal area;
- 4) the limbic lobe, which consists of the parahippocampal formation, the cingulate gyrus, and the subcallosal gyrus; and,
- 5) the amygdala.

The limbic system serves as the route by which emotional meaning is attached to external stimuli and by which this emotional context, including information from memory and understanding, is passed to the hypothalamus (where physiological manifestations of emotion are controlled). The limbic system, particularly the amygdala, is thought to be involved with the process of learning and with the association of a stimulus with an affective response. It also coordinates visceral responses (such as blood pressure, heart rate, and pupillary size) with the Subject's motivational state and it regulates the release of hypothalamic hormones – which lets the limbic system exercise a major control over the endocrine system. Although there is much we do not yet understand about the limbic system, its role is sufficiently well established by neural research to bring us to the point where a number of “neural circuit models for emotion” have been proposed. One such model, the Papez-MacLean model [KANDa: 986-995], is illustrated below in Figure 10.6.1.

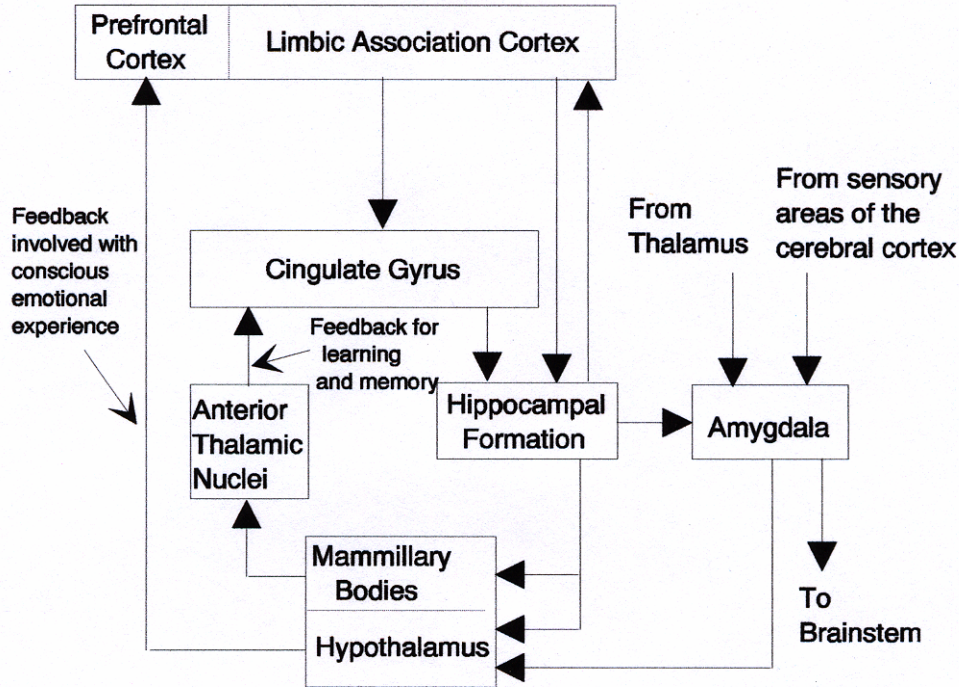


Figure 10.6.1: A "neural circuit" model for emotions

The currently prevailing view of neuroscience is that although the limbic system is not itself responsible for cognitive perception and other “higher” processes of intelligence, it does play an indispensable role in regulating those brain structures where these functions are largely “localized.” It therefore appears that our Critical picture of reflective judgment described above finds some empirical support from our understanding of neurobiology.

When later in this treatise we examine the phenomenon of mind from the judicial Standpoint we will face the necessity of coming up with the proper representation of the faculty of reflective judgment. Since, again, we will be building a theory, this will mean investigating the matter and form of reflective judgment (in a ILAR) and, further, breaking down this representation in terms of factors that: 1) will play a role analogous to that of the categories in determining judgment; and 2) speak to formal structuring principles of *aesthetical* perfection. Because the function of reflective judgment is to act as the ‘bridge’ between the practical Objects of Reason and the cognitive objects of understanding, we must postpone further discussion of the judicial Standpoint until we have carried out our contextual investigation of the “practical side of the riverbank.” We have already addressed the theoretical Standpoint in the previous chapters; we now turn to the practical Standpoint.