

Chapter 2

Representation and Representations**§ 1. Primitives**

We use the word "representation" in two related but still quite different technical ways. That we have such a homonymous situation for the English language goes back a long time in the etymology of the word. It comes to us from the Latin word *repraesentatio*, which had four homonymous usages.¹ One of these is "the act of bringing before the mind" and this is our first connotation of representation. In this connotation, representation is a primitive *act* of mind. It is "something mind does" and is the distinctive mark of the logical division of mind in the Organized Being model (and the most basic function of *nous*).

The second connotation of *repraesentatio* is "a re-embodiment, an image." In this connotation a representation is the outcome of the act called representation.² It is "what is in me that refers to something else." In discourse we distinguish between these two connotations from the context of what is being said, and in most cases this presents us with no particular difficulty. In English articles such as "the" and "a" or "an" signify something particular and this is usually enough to alert us that "representation" is being used in the second context. For those cases where there is an ambiguity, a situation that sometimes arises in technical language, this book will try to clear this up by using phrases such as "act of representation" or "the representing³."

The reason for stressing these semantic issues is precisely because representation is a primitive and the primitives a science uses should always command the greatest care in their explanation. *By definition* something is a primitive if there is no explaining or defining it in terms of something else regarded as being in some way more fundamental or more "primary." Science books usually skirt the issue of primitives with remarks such as "this term being well known to all" and scientific papers take the use of a science's primitives for granted. Primitives are supposed (by those who use them) to be "self evident." The history of science has demonstrated time and time again that primitives are not as "self evident" as we hope and assume they are. The Critical epistemology requires for each primitive a *Realdefinition* ("real definition") and a *Real-definition* is always practical – which means it defines in terms of how a primitive is *usable in its application* and how a primitive object is to be recognized and understood. Primitives *never* have ontological definitions or explanations because no such definition or explanation can have any

¹ Source: *Oxford Latin Dictionary*, P.G.W. Glare (ed.), Oxford, UK: Clarendon Press, 1997.

² The remaining connotations of *repraesentatio* were: (1) payment in ready money and (2) immediate execution of a trust. These usages did not travel over into English in our word "representation."

³ In Latin the suffix *-tio* denotes an action in process, e.g., *venari* (to hunt) vs. *venatio* (hunting).

theoretical or speculative objective validity.

A good example of the sort of trouble the non-Critical use of primitives can cause is provided by the history of biology. Biology used to be known as "the science of life" and here "life" was taken as a primitive. The trouble this caused was roundly criticized by Claude Bernard in his great and seminal work, *An Introduction to the Study of Experimental Medicine*. Speaking of the common practice of vitalist thinking prevalent in his day, Bernard wrote,

When an obscure or inexplicable phenomenon presents itself, instead of saying "I do not know," as every scientific man should do, physicians are in the habit of saying, "This is life"; apparently without the least idea that they are explaining darkness by still greater darkness. We must therefore get used to the idea that science implies merely determining the conditions of phenomena; and we must always seek to exclude life entirely from our explanations of physiological phenomena as a whole. Life is nothing but a word that means ignorance, and when we characterize a phenomenon as vital, it amounts to saying that we do not know its immediate cause or its conditions. Science should always explain obscurity and complexity by clearer and simpler ideas. Now since nothing is more obscure, life can never explain anything. . . In a word, physiologists and physicians must seek to reduce vital properties to physico-chemical properties, and not physico-chemical properties to vital properties.

Bernard's work fundamentally changed the practice of medical research. Today the official definition of "life" in biology is quite objective and in this definition "life" is not even a primitive term but, rather, a label denoting the *Existenz* of a particular set of conditions (see "biological life" in the Glossary). Psychology came to follow his example as well, although the American behaviorists of the early twentieth century committed an error of over-enthusiasm by outright banning of the use of the term "mind" in psychology. (Bernard never banned the use of the word "life" nor relegated it to a shadowy Neverland by calling it an epiphenomenon; he merely insisted it not be used *as* an explanation). Biology and neuroscience today continue the tradition of over-generalizing Bernard's dictum by subordinating "mind" to "brain" – which, as *CPPM* explained, lacks objective validity and makes this idea of "mind" a transcendental illusion. Mind is not a primitive of mental physics; it is a part of the phenomenon of being human we seek to *explain*, and this is perfectly congruent with Bernard's dictum.

§ 2. The Practical Analysis of Representation

Representation, however, *is* a primitive of mental physics and now we must deal with it. As an Object, representation is an intelligible Object and our only recourse for explaining it is a practical recourse. As Kant put it, representation "cannot be explained at all. For one must always perpetually explain anew *what is representation?* by another representation." By "cannot be explained at all," he means representation cannot be explained by any more primitive Object, i.e., representation is primitive. It is characteristic of *noumenal* Objects that their explanation is

always practical and never ontological.

How we must treat and use representation was deduced and developed in Chapter 3 of *CPPM* and we will not repeat that labor here. Instead we give our attention to the outcome of that work and explain the structures of representing and how we interpret these structures. As we do so, it is essential for the reader to understand that what follows is the beginnings of mathematical representation theory, that what you are about to see are Slepian secondary quantities, that the explanations are functional, and that these secondary quantities do not make ontological pronouncements or stand in immediate relationship to facet A of Slepian's model.

We begin with the analysis of representation structure. We will find that this structure analysis can be extended to successively higher and higher levels and in principle there is no upper limit to how many levels of represented structure *a* representation can be given. We will find later that the basics of mental physics in most cases call for no more than first-, second-, or third-level analytic representations of representation structure. We name these 1LARs, 2LARs, and 3LARs, respectively; the names stand for first-level analytic representation, etc. [PALM].

At the first level (the 1LAR), a representation must represent both a "what" and a "how." The "what" representation corresponds to the object being represented and is called the **matter of the representation**. The "how" representation represents how the matter is placed with regard to other representations and is bound to these other representations. It is by means of this binding that the *context* of the representation is determined. This "how" representation is called the **form of the representation**. Thus, a 1LAR is a basic matter-and-form representation for that-which-is-being-represented. The act of representing the matter of the representation is called **composition** (from the Latin *compositio*, a composing, composition). The act of representing the form of the representation is called **nexus** (which is Latin for "something that fastens, a bond, joint, etc."). The overall act of representing is called **combination** (from the Latin *conjunctio*, a combining, conjunction).

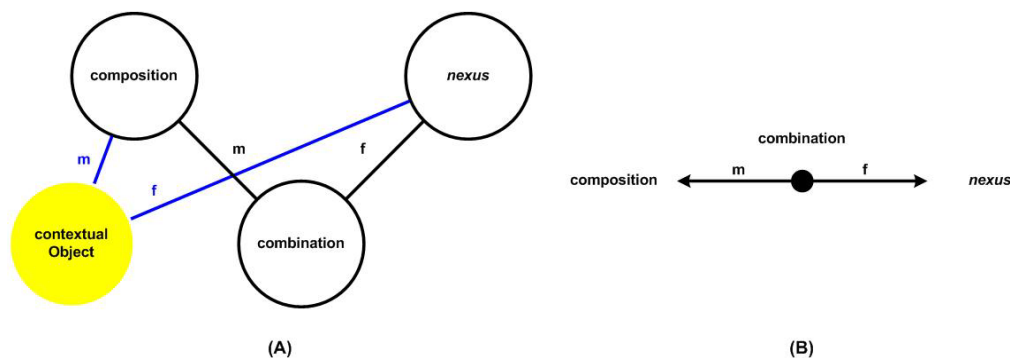


Figure 2.2.1: Depictions of 1LAR structures. (A) the 1LAR as a concept structure; (B) the 1LAR as a dimensional structure; m is matter, f is form. The contextual Object in facet A is the thing represented.

Figure 2.2.1 illustrates two ways of depicting the ILAR structure. Figure 2.2.1(A) depicts a representation as a concept structure. Composition and *nexus* (connection) are shown as coordinate concepts that understand the overall concept of combination. Combination is the conjunction (*conjunctio*) of these two higher concepts of matter and form. Higher concepts are always abstracted from lower concepts and are marks of something common in two or more lower concepts. In the case of Figure 2.2.1(A), the second lower concept is labeled the contextual Object. A representation is "something in me that refers to something else," and this "something else" is the Object the representation is representing. The contextual Object is depicted using an appearance different from the other three symbols to denote that this Object is obtained from some source different in kind from the representations combination, composition, and *nexus*. For example, if the three representation elements are concepts in the manifold of concepts of determining judgment then the contextual Object might be a re-cognized intuition. If the representation is an intuition, the contextual Object is the transcendental object as an undetermined appearance standing as cause of the pre-conscious *materia ex qua* in the synthesis of apprehension (from which the *materia in qua* of the represented intuition is obtained).

The contextual Object symbol is included in the figure to specifically denote that the representation (that is, the combination) must have something to which it refers and that this something is not merely an object (the object of the representation) but an object *in a context*. The contextual Object depicted in the figure is not part of the representation itself but is necessary for the possibility of *making* the representation.⁴ Every representation is an item of knowledge in the wide sense of that word⁵ and the contextual Object is presented in the figure as a reminder that representations represent something, which is to say representations have or contribute to some real meaning of something. Ultimately, this knowledge refers to something in facet A of Nature or is deduced as a speculation from representations of experience with facet A. This is what was implied by the "theoretical context" symbol in Figure 1.4.2 of Chapter 1.

Figure 2.2.1(B) is a simpler mathematical depiction of a ILAR representation. Here we do not explicitly present the role of a contextual Object, holding it to be understood that the representation has some Object to which it refers. This figure explicitly illustrates the division of the combination (represented by the black dot) into the dimensions of matter (composition) and form (*nexus*). Composition and *nexus* are regarded as being extracted from the combination, and this is why this type of diagram is called an *analytic* representation.⁶

⁴ For this reason, the contextual Object is also called the **transcendental Object**.

⁵ In the wide sense, **knowledge** (*Erkenntnis*) is any conscious representation or capacity for making such a representation by or through which meanings are determined.

⁶ Analysis begins with a given representation (e.g. combination) and makes what it contains more distinct.

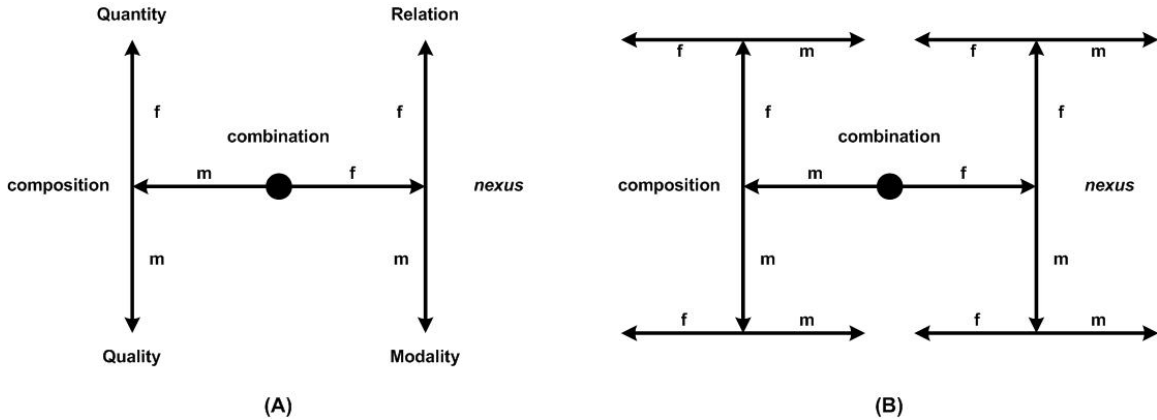


Figure 2.2.2: Higher level analytic representations. (A) 2LAR; (B) 3LAR.

The analytic division of a representation can be continued to produce higher levels of analytic representations. Figure 2.2.2 illustrates this for the 2LAR and 3LAR. In a 1LAR the combination is given a more distinct representation by introducing the composition and the *nexus*. However, this leaves both what is represented by the composition and what is represented by the *nexus* indistinct. These terms are made more distinct by continuing the matter-form division to produce a 2LAR. The 2LAR structure is especially important in the theory of mental physics so the "poles" of this structure are therefore given technical names and the first letter in each name is capitalized to explicitly denote them as technical terms.

Quantity is the form of a composition and, more generally, *the form of the matter of a combination*. **Quality** is the matter of a composition and, more generally, *the matter of the matter of a combination*. **Relation** is *the form of the form of a combination* (the form of the *nexus*). **Modality** is *the matter of the form of a combination* (the matter of the *nexus*). These definitions are distinctly different from how these terms are used in ontology-centered theories and this difference is another result of moving to an epistemology-centered system. Quantity, Quality, Relation, and Modality are key elements in our general theory and are used in the explanation and exposition of most of our fundamental principles and laws.

Representation as an *act* is a synthesis and in this synthesis composition is the synthesis of a manifold of *homogeneous constituents that do not necessarily belong to each other* by virtue of the nature of parts being combined. Quantity is a synthesis of **aggregation** (the successive addition of homogeneous units in combination to produce a set). It makes a representation of what we will be calling an *extensive* magnitude in representation. Quality is a synthesis of **coalition** (the melding or coalescing of particular homogeneous parts to form a union in representation). Coalition "makes one thing" out of the aggregated form of composition. It makes a representation of what we will be calling an *intensive* magnitude. Metaphorically, it is an act of welding the composite pieces together in the matter of combination.

Nexus is a synthesis of non-homogeneous parts to form a manifold insofar as these parts are *necessarily* connected. Examples include such ideas as cause-and-effect (we cannot regard something as a cause unless there is an effect for which it is the cause; we cannot regard something as an effect unless we say it is the effect of some cause). Relation pertains to what we will call the **physical combination** of compositions in the greater manifold from which these compositions draw their general context. Modality pertains to what we will call the **metaphysical combination** of compositions in the greater manifold and its role is to establish the relationship of the manifold representation to the Subject who represents this manifold (the Organized Being). Relation goes to the representation of connections among things, Modality to the connection between this representation and the subjective regard the Organized Being holds for this representation (roughly, "what this manifold means to the Organized Being who represents it to himself").

An example will help to clarify these ideas of Relation and Modality. Consider two predications represented by the Organized Being: (1) x is y ; and (2) x might-be y . Here "is" and "might-be" are copulas in the representation and these copulas are instantiations of connection in the manifold of terms (i.e., they are representations of *nexus*). Now, our theory is epistemologically-centered and this means that these two traditional logical propositions as stated are not really complete. The *complete* predications are: (1) I think x is y ; and (2) I think x might-be y . It is the Organized Being who represents and we cannot leave the Organized Being out of the picture of representation. In the first proposition the Organized Being is making a categorical assertion in a form that declares the Organized Being holds this assertion to be undoubtedly true. In the second proposition, we again have a categorical proposition but this time the Organized Being holds the proposition to merely possibly be true and is conscious of uncertainty in his proposition.

The physical *nexus* is the same in both cases (both predications are categorical). The metaphysical *nexus* is quite different for the two cases. This difference has nothing to do with the objects represented by x and y nor with the physical connection between them. It is a difference "in the mind of the Organized Being," and this is why we call the matter of the form of combination the metaphysical combination. We call the form of the form "physical" because it pertains to objects x and y and not to the relationship of these objects to the subjectivity of the Organized Being who makes the representation. Traditional forms of logic, such as predicate logic or symbolic (mathematical) logic, remove the Organized Being by abstraction and, as a result, are inherently ontology-centered systems. The epistemology-centered system we are using is an essentially different form of logic, which Kant named **transcendental Logic**.

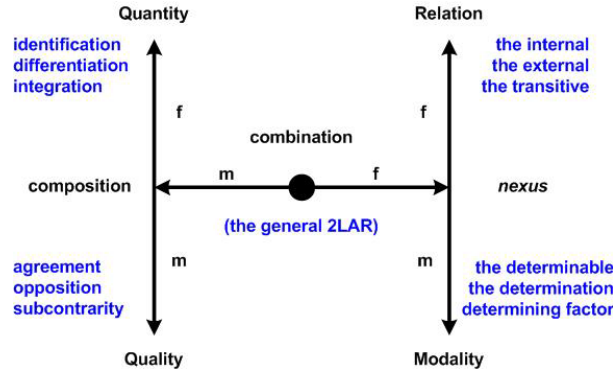


Figure 2.3.1: The general ideas of synthetical functions for terminating representation at a 2LAR.

§ 3. The Practical Synthesis of Representation

There is no *a priori* limitation pre-set for how many levels we use in dividing a representation. If we wish to do so, we can make a 4LAR, a 5LAR, a 100LAR, or any other level of analysis. However, it is quite evident that at some point any actual analysis (by a theoretician) will come to a final division with a finite number of levels of analysis. When one comes to that point, one also comes up against a new requirement and it is this: The analysis must be reversible by synthesis. A correct NLAR analysis must be such that the NLAR could be given to another theoretician who could then work his or her way back to the original combination and understand what the analysis is saying about that combination. If this is not the case, then the original analysis was uninformative and quite devoid of practical meaning. This reversal, in which one begins with the outermost points of representation and returns to the original representation of combination, is an example of **synthesis**: the act of combining diverse representations in a unity of representation. The act of synthesis requires rules of determination for the synthesis, and we designate such rules by the generic term *momenta* ("moments").

It is the general nature of synthesis that a complete set of rules for this act always involves precisely three *momenta* for each beginning point (e.g., a 2LAR has four "endpoints" and each requires three *momenta*, making a total of twelve for making our way back to the combination). This is a consequence of the fact that a synthesis always involves three terms, the two terms being combined in the synthesis plus the outcome of that synthesis. For example, consider a synthesis of determination. This involves: (1) something that is determinable; (2) something that stands as a rule of determination; and (3) the determined outcome. In making a synthesis, we must be able to start with any two of these and produce the third, e.g. (1) + (2) → (3) or (1) + (3) → (2) or, finally, (2) + (3) → (1). Each of these acts is distinguishable, hence three *momenta* are required to cover the three possibilities.

The *momenta* of a 2LAR are particularly important in our theory. Figure 2.3.1 illustrates a

general 2LAR with its twelve general ideas of *momenta*. Here again we remind ourselves that a representation represents something and so, as synthetical functions of representation, *momenta* are required to convey to us the meaning of what it is we are representing. The twelve synthetical functions in Figure 2.3.1, which were deduced in Chapter 3 of *CPPM*, are generic *functional* ideas of synthesis for each of the four titles of Quantity, Quality, Relation, and Modality. *These ideas are not primitive*. They are theoretical ideas deduced *from* what representation does. They speak to how any representation is used in general and, accordingly, they are *practical* ideas of representation-in-general. They belong to the methodology of the theory (facet B) rather than to the ontology of objects being represented. A formal mathematical analysis for each of these ideas would be ultimately based on and grounded in primitives of the theory of mental physics, and these primitives are nothing other than what we earlier called the categories of understanding.

Nonetheless, we can explain these ideas now without waiting for full coverage of the theory of the categories because these ideas pertain to *end results* (what the synthetic act does) rather than to the analytic deduction of these ideas. This explanation comprises what Kant called the **transcendental topic** of representation-in-general as a general act of the Organized Being.

Quantity is form of aggregation in composition and there are three ways in which the outcome of a synthesis of aggregation can be viewed by the Organized Being. **Identification**, as the name implies, *identifies* the aggregate as the form of composition of a singular object. Its outcome, in a manner of speaking, gives the Organized Being an *id* ("it") of combination. **Differentiation** stands as the contrary of identification. The outcome of a differentiation synthesis views the aggregate *as* an aggregate, as the members *in* a set rather than as an individual "it," i.e., as a composition of parts. **Integration**, as the name implies, gives as an outcome a totality viewed as a composite, i.e. "the whole of the parts." In a manner of speaking, integration is an "it" regarded as the uniting of a multitude of "these." Borrowing from the poetic language of a by-gone philosophy, integration gives us "the Many in the One." To use an example from the mathematics of set theory, when we write a set formula, $A = \{a, b, c, d\}$, and our focus is fixed on A we have an outcome of identification; when our focus is $a, b, c,$ and d we have an outcome of differentiation (form of differences); and when it is on $\{a, b, c, d\}$ it is an outcome of integration with the differentiated particulars ($a,$ etc.) seen as belonging to or with each other.

Quality is the matter of coalition in composition. The matter terms, Quality and Modality, in a 2LAR tend to be less easy to grasp than the two form terms (Quantity and Relation) because they are, in a manner of speaking, the ideas of the "essence" of composition and connection (*nexus*) and tend to be ideas of accidents bearing upon meanings by which we understand the Nature of the *Dasein* of objects. In contrast, Quantity and Relation are accidents more aligned with the

Existenz of an object as an object among other objects, and because of this have more evident meanings than ideas of Quality or Modality. The ideas of Quality are ideas concerning fundamental attributes specific to the *Existenz* of the object as Object rather than to the object as an object among objects. Put another way, ideas of Quality are ideas specific to "this object" rather than to "the natural context of this object" in Nature.⁷

Since we are not yet concerned with the representation of some specific thing – a bird, a word, a thought, a feeling – we cannot view Quality in such specific terms as color, or hardness, or etc. Instead we must ask: What are the most basic attributions that go into the composition of the representation of an object *as* Object? If we have some specific representation, e.g. the color red, as a "quality" of the object, what are the most basic attributions that pertain to whether or not this "quality" belongs to the object?

Put in this light, this question becomes easy to answer. For any specific attribute, such as "redness," the most obvious basic attributions we can apply in representing the object are that "redness" either is or is-not an attribute ("quality") of the object. The basis of such a predication lies *in the determination* that this specific attribute of representation is in **agreement** with the *Existenz* of the object ("it is true of the object") or it is in **opposition** to the *Existenz* of the object ("it is not true of the object"). These are ideas pertaining to *material truth* about its *Existenz* (and, hence, Quality is *matter* of composition).

But agreement and opposition do not constitute the full set of *momenta* of Quality. Suppose I make the predication "*Y* is *not in opposition* to the *Existenz* of *X*." This is not the same thing as making the predication "*X* is *Y*." For example, "being male" is not in opposition to being a human being, but "human beings are male" is not a generally true statement. The ideas of agreement and opposition are not contradictory ideas; they are contrary ideas. Two concepts, *X* and *Y* are contradictory if both cannot be held to be true at the same time and if one or the other *must* always be held to be true and the other necessarily held to be false. If *X* and *Y* are contradictory, then asserting "*Z* is-not *X*" necessarily implies "*Z* is *Y*."

When *X* and *Y* are merely contrary, "*Z* is-not *X*" does not necessarily imply "*Z* is *Y*." In classical logic this is illustrated by the propositions "some *z* are *x*" and "some *z* are not *x*." These propositions are contraries but not contradictories since it is possible for both predications to be true at the same time. The proposition "some *z* are *x* AND some *z* are not *x*" is called a *subcontrary proposition*. The third general idea of Quality is **subcontrarity**. The synthesis of

⁷ All ideas of 2LAR representation pertain to *Existenz*. Only the basic notions of Modality in the categories of understanding *point* directly at and concern the *Dasein* of an object (i.e., the "there be" declaration of an object as possible-impossible, actual or non-actual, or necessary vs. contingent). But even these modal notions still go only to *Existenz* because all objects are real in some contexts and unreal in others.

subcontrarity in representation is a synthesis converting contradictories into contraries in the representation of an object.

Relation is the form of the form of combination. In some ways Relation is similar to Quantity. Both are ideas of form. Relation, however, deals with placing the Object *in* Nature (*Existenz* in Nature) rather than *Existenz* in aggregate composition. One way of representing *Existenz* in Nature is when we view the manifold in Nature as connection of representations *in* an Object. This is not the same thing as aggregation because here we are speaking of combination of non-homogeneous representations in an Object *with* this connection viewed as necessary *a priori* (that is, the connection is due to "the nature of Nature" and not "the nature of the Object"). Quantity, on the other hand, is a composition of homogeneous factors, the combination of which is not a necessary attribute of "the nature of Nature" but only a contingent attribute of "the nature of *this* Object." A Relation of this sort, e.g. substance-and-accident, is called an **internal Relation**.

The second way of viewing connection in Nature is as a connection between *different* Objects. In this case, the physical *nexus* is regarded in terms of the Objects being bound together by something not contained *in* either Object as such but nonetheless necessary "from the nature of Nature." For example, if I say "these shoes hurt my feet," the concept of "hurt" is not contained in either the concept of "these shoes" or the concept of "my feet." Rather, the concept of "hurt" is an **external Relation** binding "these shoe" and "my feet" in a physical *nexus*. We see here a classical agent-patient relationship, i.e., "my feet hurt and these shoes caused it."

The external Relation regards the connecting factor as being something not contained in the concept of either of the Objects being connected. The third general idea of Relation regards the connecting factor as something that *is* contained *in both* Objects *at the same moment in time*. This is the idea of the **transitive Relation**. It is an idea of reciprocal Relations. For example, suppose I say "the ceiling is over my head." When I make this determination I also make, at the same time, the co-determination "my head is under the ceiling." The concept of "being over" is not contained in the concept of "the ceiling" and the concept of "being under" is not contained in the concept of "my head" yet in this connection there is "something contained" in the relationship of each concept such that it is co-determined that "the ceiling is over my head AND my head is under the ceiling."

As a second example, suppose I predicate "the table is heavy." I could also, and at the same time, say "the desk is heavy." Here "being heavy" is a concept regarded as being contained in the concept of "the table." But this same concept of "being heavy" is also, and at the same time, contained in the concept of "the desk." By virtue of this co-containment, both Objects share a common external relationship, namely the relationship of standing under the concept "things that

are heavy." But higher concepts are regarded as concepts contained in their lower concepts, and so again we have "something" contained in "the desk" and "the table" that is not part of their composition but is part of their *nexus* in the manifold of Nature. "Being heavy" belongs to both and so, in a sense, *also* belongs to neither. If "this heavy object is the desk" then it is *not* "the table" even though "the table is heavy." We can see in this the logical construction of a disjunction relationship and all disjunction relationships are co-determining for the objects making up the members of the disjunction.⁸

The idea of Modality can seem a peculiar and even difficult concept. Modality is the matter of the form of composition, and what is it that goes into the makeup of a form of connection? The source of Modality's peculiarity is that Modality is not an idea of the Object being represented but instead is the idea of the relationship of the representation itself to the representing Subject (the Organized Being). If the representation is a judgment, Modality is a judgment of the judgment.

To illustrate what Modality does, consider the predication "the apple is red." In the concept of "apple" and the concept of "red," there is nothing contained in the concept of either object that would seem to forbid the predication "the red is apple." Yet this second predication is nonsensical in English. The relationships "the-apple-is-red" and "the-red-is-apple" are both valid forms so far as Relation is concerned, and the particular Quantities (forms) "the-apple" and "the-red" are also valid forms of composition. So what is it that makes "the-apple-is-red" make sense and "the-red-is-apple" nonsense?

Perhaps this example strikes you as contrived. If so, let us consider the following pairs of predications:

time flies like an arrow;
fruit flies like a banana.

Each of these predications is sensible but look at how "flies" and "like" differ in the two. In the first statement, "like" is an adverb; in the second it is a verb. In the first, "flies" is a verb; in the second it is a noun. We can also make the second predication nonsensical if we say "fruit" is the

⁸ The idea of the transitive Relation is badly underemployed in the sciences. The famous "two-slit paradox" in quantum mechanics is a good example of this. In this paradox a beam of electrons falling on a screen placed behind a barrier with two slits in it produces a diffraction pattern. Even if we fire the electrons one at a time, when the two-slit barrier is present a diffraction pattern eventually forms. But if we fire the electrons one at a time while alternately covering first one slit and then the other, the diffraction pattern disappears! It seems as if one single electron somehow goes through both slits at once but this is absurd! In quantum mechanics this is resolved by saying "the electron has wave properties." But this is nothing else than replacing external Relation (the electron particle and the barrier) by transitive Relation (the electron wave and the barrier). In the technical language of Critical epistemology, physics has here replaced the notion of a Relation of causality & dependency (the primitive category of external Relation) with the notion of a Relation of community (the primitive category of transitive Relation) but does not realize it has done so. Under Critical epistemology, the two-slit paradox is not a paradox at all.

noun (instead of an adjective) and "flies" is a verb. We cannot sort through to the meaning of the predication on the basis of mere form alone. That is one thing that makes computer-generated natural language and computer-aided interpretation of natural language such a challenging problem in computer science. This problem has been extensively studied for quite a long time by linguists, computer scientists, neural network theorists, and others. One finding coming out of all this effort was summarized by noted linguist Noam Chomsky as follows:

Assuming the set of grammatical sentences of English to be given, we now ask what sort of device can produce this set (equivalently, what sort of theory gives an adequate account of the structure of this set of utterances). We can think of each sentence of this set as a sequence of phonemes of finite length. A language is an enormously involved system, and it is quite obvious that any attempt to present directly the set of grammatical phoneme sequences would lead to a grammar so complex that it would be practically useless. . .

Let us now consider various ways of describing the morphemic structure of sentences. We ask what sort of grammar is necessary to generate all the sequences of morphemes (or words) that constitute grammatical English sentences, and only these.

One requirement that a grammar must certainly meet is that it be finite. Hence the grammar cannot simply be a list of all morpheme (or word) sequences, since there are infinitely many of these. A familiar communication theoretic model for language suggests a way out of this difficulty. Suppose we have a machine that can be in any one of a finite number of different internal states, and suppose that this machine switches from one state to another by producing a certain symbol (let us say, an English word). One of these states is an *initial state*; another is a *final state*. Suppose the machine begins in the initial state, runs through a sequence of states (producing a word with each transition), and ends in the final state. Then we call the sequence of words that has been produced a "sentence". Each such machine thus defines a certain language; namely, the set of sentences that can be produced in this way. Any language that can be produced by a machine of this sort we call a *finite state language*; and we can call the machine itself a *finite state grammar*. . . The machines that produce languages in this manner are known mathematically as "finite state Markov processes." . . .

This conception of language is an extremely powerful and general one. If we can adopt it, we can view the speaker as being essentially a machine of the type considered. In producing a sentence, the speaker begins in the initial state, produces the first word of the sentence, thereby switching into a second state which limits the choice of the second word, etc. Each state through which he passes represents the grammatical restrictions that limit the choice of the next word at this point in the utterance.

In view of the generality of this conception of language, and its utility in such related disciplines as communication theory, it is important to inquire into the consequences of adopting this point of view in the syntactic study of some language such as English or a formalized system of mathematics. Any attempt to construct a finite state grammar for English runs into serious difficulties and complications at the very outset, as the reader can easily convince himself. However, it is unnecessary to attempt to show this by example in view of the following more general remark about English: English is not a finite state language. That is, it is *impossible*, not just difficult, to construct a device of the type described above which will produce all and only the grammatical sentences of English. . . Hence it seems quite clear that no theory of linguistic structure based exclusively on Markov process models and the like will be able to explain or account for the ability of a speaker of English to produce and understand new utterances, while he rejects other new sequences as not belonging to the language. [CHOM: 18-23]

Machines such as those Chomsky describes above have been built for artificial languages, e.g. various computer languages such as BASIC, C, FORTRAN, and so on, and so on, and so on; compiler theory in computer science concerns itself with such things. But it proves to be impossible for a finite state Markov process machine to produce a natural language and an infinite state Markov process cannot be built. Taking an information theorist's viewpoint for a moment, the operations such a machine is capable of performing obtain all their information exclusively from the sequence of objects (the partial sentence as it stands at any particular point in the process); this is to say *the mathematical and logical structure of the machine is wholly objective in its nature*. Put another way, *it lacks the synthesizing function of Modality*. It "makes no judgments about its judgments" (metaphorically speaking; at present machines do not judge at all under the mental physics definition of "judgment"). Augmenting the logic structure of such a machine by employing what logicians and computer scientists call "modal logic" does not help the situation because all existing modal logics are objective structures incapable of referring a representation to the Subject (because in these systems there is no Subject; he has been abstracted away). These logics are, one and all, ontology-centered and, as well, they are incapable of that factor in human understanding we call *Meaning*.

We will later see that Meaning is an idea of Modality (it is part of the 2LAR of the synthesis in continuity in *psyche*). Under the general title of Modality we find three *momenta*. The first is called **the determinable**. The matter connected in the *nexus* is made up of compositions and the form of *nexus* deals with connections among this *materia*. But prior to the synthesis of connection this *materia* has no form of combination (only a form of composition) and is thus said to be undetermined in regard to combination. The synthesis makes **the determination**. Consider a predication structure of the form

_____ is _____.

The blanks are to be filled in by the determinables during the synthesis of combination, and when they are the end result is the determination.

But these two functions by themselves are not enough. What is still missing is the connection of the physical *nexus* in relationship to the Organized Being. Furthermore, it is the Organized Being who performs this synthesis. Because this is an act of spontaneity, something must determine what this spontaneous act is to be and how it is to be carried out. Put more simply, "there has to be a reason" the Organized Being acts in the way it does. This Self-determination of the Organized Being (under rules of judgmentation and action regulated by practical Reason) is called **the determining factor**, and this is the third idea of Modality in general.

The act of representation is an act of combination and at the 2LAR level of our theory every such act requires one of the synthesizing functions be employed from each of the four "corners" of Quantity, Quality, Relation, and Modality. Thus, for example, one type of combination carried out by the representative capacity of the Organized Being might turn out to be

$$C = \{integration, agreement, the\ external, the\ determinable\}$$

where the terms inside the braces are what a mathematician would call an "ordered 4-tuple." Thus, at the level of analysis presented by Figure 2.3.1, we have 81 distinct "formal species" of combination describable at the level of this 2LAR. We will see later that the full act of representation by an Organized Being involves many acts of sub-combinations by the different processes depicted in Figure 1.5.1 and this greatly multiplies the number of distinguishable formal species of representation (although this number is still finite). On top of all this, the representation structure *overall* is an open system and specific representing states in the Organized Being also depend on the *materia* of representation (e.g. contributions by sensation). This results in an overall number of possible representative states so sublimely large this number defies comprehension (and, presently, is quite indeterminable because it depends on empirical factors placed with *soma* for which science presently has no exhaustive catalog).

We close this section with one final remark. As said earlier, the twelve general *momenta* of Figure 2.3.1 *are not primitive*. What we have seen in this section is the exposition and explanation of these general ideas. What we have not yet seen is the substratum upon which these ideas are built. The exposition of this full substratum will take us quite awhile to get through.

§ 4. Standpoints and the Synthesis of Judgmentation

In the previous section it was said that an act of synthesis always involves three terms and that three synthesizing functions (*momenta*) are required because there are three inequivalent ways to carry out a synthesis. This is illustrated in Figure 2.4.1 below. A synthesis always involves three terms, e.g., a conditioned, a condition, and a unification. When we are speaking of a synthesis of concepts, the three types of synthesis are called: (a) **synthesis of coordination**, $(1) + (2) \rightarrow (3)$; (b) **synthesis *a parte posteriori*** $(1) + (3) \rightarrow (2)$; and (c) **synthesis *a parte priori*** $(2) + (3) \rightarrow (1)$. The order of terms on the left-hand side does not matter in this notation. The synthesis of coordination places two (or more) lower concepts (the coordinated) under a higher concept (the coordinate) that is now said to *understand* them. The higher concept is common to the two lower concepts, each of which is regarded as being determined with respect to this as a *mark*, to *contain* this mark as part of each lower concept, and to be *contained* under the higher concept.

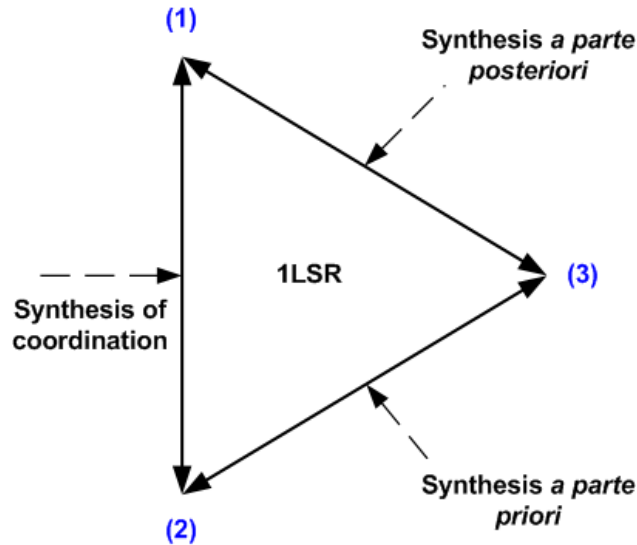


Figure 2.4.1: First-level synthetic representation (1LSR).

A coordinate mark is an immediately higher concept with respect to the lower concepts of which it is a mark. In graph theory terms, it is a vertex and the edges consist of the combinations connecting the mark to the lower concepts. In a *synthesis a parte post* the *condition* is regarded as being connected to the *conditioned* as a connection *in a series* and it is the conditioned concept that is being determined. This is what occurs in determining judgment when the higher concept (the condition) is given and the particular concept to be subsumed under it must be found. The direction of the synthesis moves from higher to lower concept, and this is called a **progressive synthesis**. The act of representation itself is called an **episylogism**. This structure (and the next) is illustrated in Figure 2.4.2.

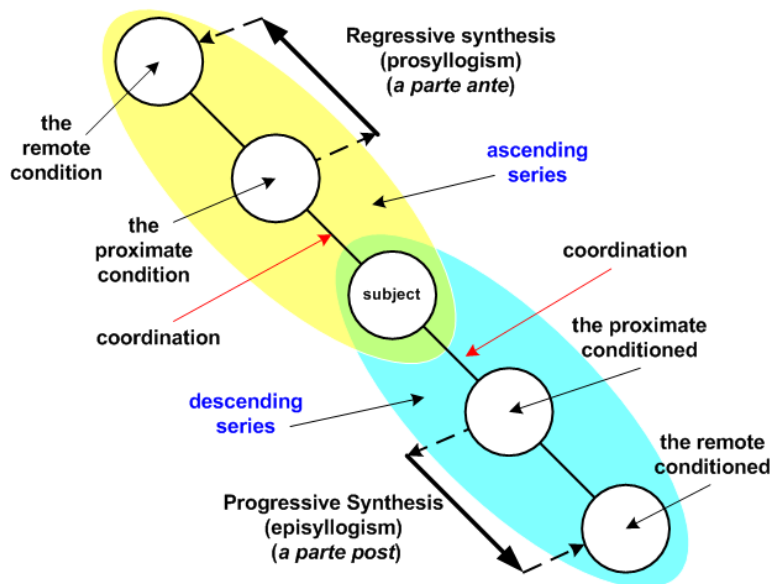


Figure 2.4.2: Illustration of structures for the episylogism and the prosylogism.

Synthesis *a parte ante* is the mirror of this. Here the lower concept (conditioned) is given and a higher concept that understands it is to be found as its condition. This kind of synthesis of a series is called a **regressive synthesis** and the act of representation is called a **prosyllogism**. In both cases, we must not confuse the epi- or the prosyllogism with the term "syllogism" used in classical logic. The classical syllogism is quite another thing altogether and has no bearing on our discussion here. The epi- and prosyllogisms are species of what is called a polysyllogism.

The examples we have just been looking at are examples of synthesis on a local level in representation. We must also consider synthesis in the large. In Chapter 1 the three processes of judgment in the Organized Being were identified. These were: (1) determining judgment; (2) reflective judgment; and (3) practical judgment. All three lie within the division of *nous* as logical subdivisions. Just as *nous* and *soma* must be held to be co-determining as merely logical divisions of the Organized Being, so also the three judgment processes are necessarily co-determining in the overall process of representation involved in the outer loop shown in Figure 1.5.1: sensibility → reflective judgment → Reason → determining judgment → sensibility. We call this overall process **judgmentation**. (Note: "Judgmentation" renders Kant's technical word, *Beurtheilung*).

Each particular capacity for judgment has its particular role and interest within judgmentation. These particular interests can be regarded as specific **perspectives** of judgment and we will call these high-level perspectives **Standpoints**. Just as we represented local synthesis using a first-level synthetic representation, or 1LSR, in Figure 2.4.1, so also we represent the synthesis of judgmentation using the 1LSR diagram of Figure 2.4.3 below. This is quite a busy diagram and we must discuss it.

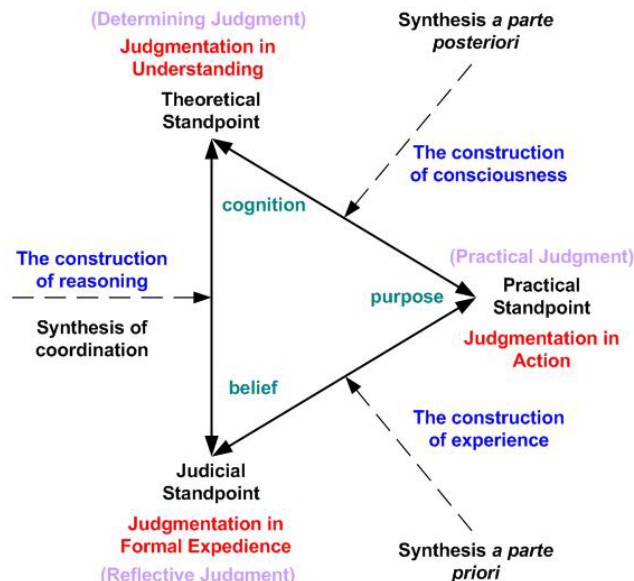


Figure 2.4.3: The synthesis of the Standpoints in judgmentation.

We will begin with the three Standpoints: (1) the theoretical Standpoint; (2) the practical Standpoint; and (3) the judicial Standpoint. The term "standpoint" was introduced by Palmquist:

[A perspective is] a way of thinking about or considering something or a set of assumptions from which any object can be viewed. Knowing which perspective is assumed is important because the same question can have different answers if different perspectives are assumed. Kant himself does not use this word, but he uses a number of other expressions (such as standpoint, way of thinking, employment of understanding, etc.) in precisely this way. The main Critical perspectives are the transcendental, empirical, logical, and hypothetical.

[A standpoint is] the special type of perspective which determines the point of view from which a whole system of perspectives is viewed. The main Critical standpoints are the theoretical, practical and judicial. [PALM: 458-459]

Critical epistemology, as Palmquist was the first to point out, can be regarded as a system of perspectives. In this system, the Standpoints are the global *synthetic* perspectives from which we view the higher mental capacities of the phenomenon of mind. The theoretical perspective is that from which we evaluate the power of understanding and is the root perspective for Critical ontology. The capacity within judgmentation for this evaluation is determining judgment, which is the judicial capacity that structures the understanding of concepts. The practical Standpoint evaluates from the point of view of practical Reason and the appetitive power of the Organized Being. It is the root perspective for evaluating the Organized Being's power to act spontaneously as an agent. The capacity within judgmentation for this evaluation is practical judgment. The judicial Standpoint evaluates with regard to judgmentation in general and is the root perspective for the Organized Being's power of self-organization in harmonizing objective and subjective knowledge, i.e. for *organizing experience*. The capacity within judgmentation for this evaluation is reflective judgment, which is the bridge from sensibility to practical Reason and motoregulatory expression.

Viewed in the wide sense, human **knowledge** is any conscious representation or capacity for making such a representation by or through which meanings are determined. This is a practical definition (a definition in terms of "what 'knowledge' does"), which is the only kind of definition we can make for the object ('knowledge') of an idea. (As an Object, knowledge is a *noumenon*). Under the genus of 'knowledge' we distinguish two species of knowledge. **Knowledge a posteriori** is empirical knowledge – that is, it is the knowledge we call **experience** (the structured system of cognitions and practical maxims and laws). However, the possibility of knowledge *a posteriori* necessarily presumes the Organized Being has the power and capacity to *produce and present* the representations for which this knowledge is the Object. This is called **knowledge a priori** – knowledge prior to experience and necessary for the possibility of experience itself – and is best thought of as "know how" knowledge. The Standpoints seen in this context are the three

synthetic "poles" by which we understand representation in terms of representation being a presentation of knowledge.

Each Standpoint, and the primary process of judgment for it, can be regarded as being aimed at a particular type of knowledge. For determining judgment and the theoretical Standpoint this is *knowledge representation as cognition*. For practical judgment and the practical Standpoint this is *knowledge of purpose in actions*. In objective terms, a **purpose** is the object of a concept so far as the concept is taken as the real ground (cause) by which the *Dasein* of that object is made possible through the actions taken by the Organized Being. For reflective judgment and the judicial Standpoint, we have *knowledge of belief*. **Belief** is unquestioned holding-to-be-true-and-binding, on the basis of a merely subjective sufficient reason, and held *without doubt* at the moment of its representation.⁹ In this context, every intuition can be called a *belief of the moment* because a representation of sensibility is judged to be an objective perception by an act of reflective judgment marking that representation at a moment in time.

Just as the processes of judgment are co-determining, epistemology theory itself must be regarded as co-determinations of the three Standpoints. The synthesis of the theoretical and judicial Objects to produce knowledge of purpose is a **synthesis of coordination** and is called the **construction of reasoning**. The synthesis of the theoretical and practical Objects to produce knowledge of belief is a synthesis *a parte posteriori* and is called the **construction of consciousness**. The synthesis of the practical and judicial Objects to produce knowledge of cognition is a synthesis *a parte priori* and is called the **construction of experience**.

One thing remains in Figure 2.4.3 for us to discuss. Under the judicial Standpoint is listed the notation that this Standpoint concerns judgmentation in formal expedience. What is expedience? **Expedience is any property of representation regarded as only possible with respect to some purpose from the practical Standpoint**. The expedience of something is the congruence of that something with that property of things that is possible only in accordance with purposes. A representation is expedient only if by making its object actual a practical purpose of Reason will be satisfied. Recall that reflective judgment deals only in affective perceptions (as the matter of these judgments) and its special principle is the principle of formal expedience. At the very

⁹ A belief representation is not necessarily a representation of a *permanent* holding-to-be-true-and-binding. Reflective judgment also contains a capacity to *question beliefs* through the acts of aesthetical reflective judgment. A belief once questioned yet afterwards still assertorically held-to-be-true on subjectively sufficient grounds (but with consciousness of the lack of an objectively sufficient ground for holding-to-be-true) is called a **faith**. A belief questioned and afterward still held-to-be-true but with consciousness that this holding-to-be-true is now merely problematical, i.e. the ground for holding-to-be-true is neither subjectively nor objectively sufficient, is called an **opinion**. All human objective knowledge *a posteriori* begins as belief from the judicial Standpoint.

beginning of life a human infant has no experiences and, therefore, has no objective knowledge *a posteriori*. How, then, is it possible for human beings *to obtain any* knowledge *a posteriori* whatsoever if we have no initial concepts to build upon? Absent of some fictitious "copy of reality" mechanism¹⁰ by which "reality" somehow "impresses itself on the mind," all that is left to the Organized Being is non-objective affective perceptions, which collectively are technically called **feelings of Lust or Unlust**. In a manner of speaking, affective perceptions of *Lust* and *Unlust* function as a kind of measurement of what we might call "the present quality of life." Acts of reflective judgment serve the purposes of pure practical Reason under the regulation of the formula we call the categorical imperative. In a manner of speaking, what this formula dictates in the self-determination of the actions of the Organized Being is the perfection of the "entire quality of life."¹¹ Cognitive beliefs are synthesized by-products (of judgmentation) originally made possible by judgments of formal expedience, and they are original sources for concepts of objective knowledge *a posteriori*. The theory of Critical epistemology tells us Santayana was right when he wrote,

Knowledge accordingly is belief: belief in a world of events, and especially of those parts of it which are near the self, tempting or threatening it. . . This belief . . . precedes all deliberate use of intuitions as signs or descriptions of things; as I turn my head to see who is there before I see who it is. Furthermore, knowledge is true belief. It is such an enlightening of the self by intuitions arising there, that what the self imagines and asserts of the collateral thing, with which it wrestles in action, is actually true of that thing. Truth in such presumptions or conceptions does not imply adequacy nor a pictorial identity between the essence in intuition and the constitution of the object. . . The images in sense . . . are the babble of our innocent organs under the stimulus of things . . . The mind notices and intends; it cannot incorporate or reproduce anything not an intention or an intuition. [SANT1: 179]

Pragmatically, that which is not-incongruent with the uncompromising dictates of this formula is formally expedient.¹² Intuitions are representations of sensibility that have been marked by reflective judgment as being formally expedient for *practical* Reason and its practical system of regulatory rules. Here let us recall that acts of practical Reason in spontaneity have the flavor of a "free won't" rather than a "free will." In English the word "expedience" often has a somewhat

¹⁰ All ontology-centered systems are eventually forced to call upon some copy-of-reality mechanism because such systems are object-centered; therefore the mind must somehow be "impressed by" objects if *knowledge* of objects is to be possible (epistemology is subordinate to ontology in an ontology-centered system of metaphysics). But the copy-of-reality hypothesis has real consequences that can be tested, and when experiments testing for these consequences are carried out, what we find is that human beings possess no such copy-of-reality mechanism. The copy-of-reality hypothesis is provably false and Critical epistemology utterly rejects it.

¹¹ We will, of course, make this rather vague idea of "the quality of life" technical and specific later in this book. But for our present purposes the subjective flavor of this idea will do for now.

¹² Expedience is our technical rendering of Kant's technical term *Zweckmäßigkeit*. Connotations of this term include practicality, suitability, serviceability, and appropriateness. "Expedience" is, of course, an English equivalent of this word.

negative or mediocre connotation, a kind of "well, I guess that will do," rather than the more "positive" and rather assertive character of a word like "purposiveness." Expedience is a word well suited to the "free won't" character of pure practical Reason in its regulation of the non-autonomic actions of an Organized Being. Even so, through Reason we strive to ascend the ladder to the ideal of perfection from such humble and mediocre beginnings.

§ 5. The Transcendental Ideas

We have spoken of Reason as the regulating executive of *nous*. What is the character of this regulation? Understanding this is fundamental both for understanding the Critical epistemology and for understanding the principles of mental physics. The name we give to the system of basic regulations is **the transcendental Ideas**. Note well that we write this name as Idea, not idea. An idea is a concept having for its object a supersensible *noumenon*. The word "idea" translates Kant's word *Begriff* (in one very specific context¹³). The word "Idea" translates Kant's word *Idee* and when we view "Idea" from the theoretical Standpoint an Idea is a pure concept made up entirely of notions, the Object of which is beyond the possibility of actual experience *as an object of experience*. Therefore, this Object can have only practical objective validity *as a regulative principle of actions*. Yet, although the Object of a transcendental Idea cannot be presented in any sensuous experience, *as a principle* it is *necessary for the possibility of experience* and this is why it is called a *transcendental* Idea.

Our *understanding* of the transcendental Ideas is the product of theory and a representation of their *Existenz*, but the ground of their *Dasein* lies entirely in the practical Standpoint. As was explained in the *CPPM*, we are able to deduce and provide a *Realdefinition* of the transcendental Ideas precisely and only because they *are* the fundamental regulative principles of *nous*, the *a priori* "know how" of pure reasoning and judgmentation. There are four transcendental Ideas, each of which must be understood from each of our three Standpoints. They are called: the psychological Idea, the cosmological Idea, the theological Idea, and the principles of Rational Physics. As regulative principles, they are principles of general synthesis and their arrangement in 2LAR form is:

| | | |
|----------|---|-------------------------------------|
| Quantity | = | the principles of Rational Physics; |
| Quality | = | the psychological Idea; |
| Relation | = | the cosmological Idea; |
| Modality | = | the theological Idea. |

¹³ In other contexts, the word *Begriff* translates as concept or as notion. A pure notion is an *a priori* rule (a rule necessary for and necessarily prior to experience). The notions of understanding (called the categories of understanding) are rules for the construction of concepts. The notions of practical Reason (called the categories of freedom) are rules for the construction of the manifold of practical rules. A concept is a rule for the reproduction (or an original imaginative production) of an intuition.

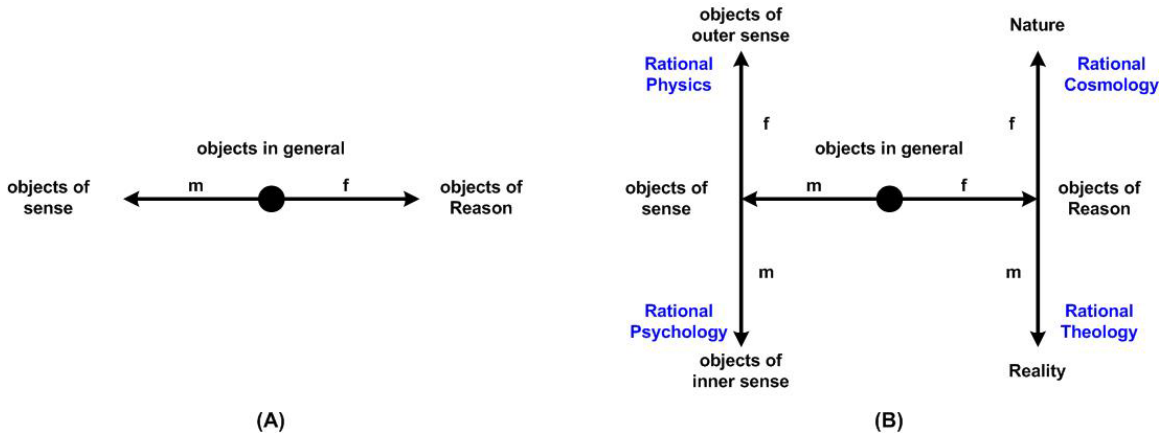


Figure 2.5.1: The division of object types in metaphysics proper. (A) 1LAR division into objects of sense and objects of Reason; (B) 2LAR division with the metaphysic of each type of object.

Collectively and in this 2LAR form, our understanding of these Ideas in epistemology is called Critical **metaphysics proper**. Their deduction is found in the *CPPM*. In this Chapter they will simply be introduced and stated in their general forms. How we use them will be discussed as we make our way through this book and at their points of application in mental physics.

Figure 2.5.1 illustrates the organization of metaphysics proper and the objects for each of the four branches. In the Kantian system, the metaphysics of epistemology is called **transcendental metaphysics** because it is concerned with those primitive *a priori* notions necessary for the possibility of experience as human beings come to know experience. From this epistemology-centered system, we then turn to the application of Critical epistemology to the knowledge of objects in general and this is what we call metaphysics proper. The first division of objects in general is into objects of sense (objects that can be objects of possible sensuous experience) and objects of Reason (ideas of *noumenal* objects that cannot themselves be objects of experience but are nonetheless necessary for the possibility of *understanding* objects in general).

The objects of sense are further divided into objects of outer sense and objects of inner sense. The objects of outer sense are those objects we usually call physical objects. They include *soma* and the objects in the environment studied by physics, chemistry, biology, and the other physical sciences. Our knowledge of these objects is and can never be more than knowledge of their *Existenz* and we understand them from their appearances in experience. The metaphysic proper of objects of outer sense is therefore called **Rational Physics**.

The objects of inner sense are what we call psychological objects and are the objects studied by empirical psychology. These are the objects we might call the objects of the thinking nature of human beings, although they also include the subject matter of such phenomena as emotions, motivations, interests, values, and so on. They likewise include the objects of such concepts as thinking, perception, sensation, etc. Our knowledge of these objects is again only knowledge of

their *Existenz*, but these objects are of a significantly "more personal nature" than the objects of outer sense. The metaphysic proper of objects of inner sense is called **Rational Psychology**.

All objects of sense are objects among other objects in *one* Nature, and all objects are held to be real in some contexts and to be unreal in other contexts. But what are these overarching containers we call Nature and Reality? This is what the metaphysics proper of objects of Reason is concerned with.

Nature is accurately and correctly understood to be the "world model" each person constructs for him- or herself from one's personal experiences in life. The object of Nature is commonly called "the world" or "the universe." Furthermore, all of us hold there to be one and only one universe in the *proper* meaning of that word.¹⁴ Now, we *never* have *any* direct experience of encounters with "the universe itself." All our experiences are with "things *in* the universe." Yet we all respond to an irresistible conviction that the parts are part of a whole, that things are "natural," and that somehow "all this stuff" ties together somewhere and some way. Science itself is the pursuit of knowledge of ever-more-fundamental laws of ever-greater explanatory power and the logical endpoint of this pursuit would have to be called a "theory of everything." This pursuit would be irrational were it not for the conviction that all things *must* have a *systematic* explanation.¹⁵ This is why it is oftentimes said the object of science is "the understanding of nature." Nature is an object of Reason (specifically, the form of the form of the totality of objects in general) and the metaphysic proper of Nature is **Rational Cosmology**.

Indissolvably linked to the Idea of Nature is the Idea of Reality. "Reality" does not exist because "real things" are added up to comprise it. Rather "things are real" *because* they "are part of Reality" or "exist *in* Reality." The Idea of Reality is the Idea of a substratum for all concepts and ideas of "real things." We can very correctly say that Reality is the matter of that for which Nature is the form. When we say something is "unreal" we mean that this thing "is not part of Nature" or "is unnatural" in the specific context of the statement. The metaphysic proper of Reality is, somewhat disingenuously, called **Rational Theology**.

I call this "disingenuous" because the use of the word "theology" in its title tends to provoke

¹⁴ Lately there has been a great deal of speculative chatter in the physics community about the idea of so-called "parallel universes" and a great deal of money is being invested in experiments that, among other things, might establish the "reality" of these parallel universes. However, if one reads what these scientists write about these "parallel universes" one finds that they are always embedded in a bigger "universe" (which, I suppose, could be called "the multi-verse") rather like raisins in a loaf of raisin bread. "Parallel universes" is a term that is, in a very fundamental way, an oxymoron. Over the past three decades science has become very sloppy with its terminology and this will eventually hurt us.

¹⁵ Even non-scientists feel this conviction. A great many people satisfy the urgings of this conviction through religion and, for them, God (or gods) supplies this ultimate "explanation." Often this explanation is placed "beyond this world" or "beyond this life," and for that reason such ideas are called supernatural and hyperphysical.

the suspicion that there is something religious or supernatural creeping into the picture at this point. There is not; Rational Theology has nothing to do with religious theology, nothing to do with God or gods, and indeed utterly excludes these ideas from its topic. The name is merely historical and can be traced all the way back to Aristotle, the father of science, for whom "theology" was "the science of being *qua* being and capable of existing apart."¹⁶ Although he said of "the substance" of such a science that if it exists "here must surely be the divine, and this must be the first and most important principle," when we look at how he treated this "substance" it was always as a "prime mover that is itself unmoved" – which is to say that it was whatever it is that "moves everything else," i.e., something "absolutely primary."

What exactly Aristotle meant by his "unmoved substance" that "exists apart" and "moves everything else" has been a point of contentious debate among Aristotle scholars for a very long time. (A penetrating analysis of this question has been provided by Barnes¹⁷). Whatever Aristotle meant – and his idea of "the gods" was certainly not how most of us think of "gods"; he called Zeus and Athena, the chief deities of Athens, "myths" – in Kant's day the Wolffian school of rationalist philosophers spent a great deal of effort trying to prove God exists and they called this part of their philosophy "rational theology." Kant kept this name even while debunking their philosophy.¹⁸ In *Critical metaphysics* proper, the object of Rational Theology is Reality, not God, and Rational Theology is the epistemology of Reality as this Idea is applied to objects of Reason.¹⁹

Each of the transcendental Ideas is analyzed into the four heads of Quantity, Quality, Relation, and Modality since each expresses a fundamental principle of Knowledge.²⁰ Furthermore, since these fundamental acroams are at the same time principles for the synthesis of knowledge, each is also expressed in terms of the three Standpoints in what Palmquist has named Kant's system of perspectives. Each Standpoint provides us with the explanation of how the principles are applied in regard to the synthetical contributions of determining judgment, reflective judgment, and

¹⁶ Aristotle, *Metaphysics*, Book XI.

¹⁷ Jonathan Barnes, "Metaphysics," in *The Cambridge Companion to Aristotle*, J. Barnes (ed.), Cambridge, UK, The Cambridge University Press, 1995, pp. 101-108.

¹⁸ Kant's writings on the subject of religion got him into a great deal of trouble with the King of Prussia, who ordered Kant to cease writing or lecturing on this topic and promised that if he did not he could "certainly expect consequences unpleasant to yourself."

¹⁹ Kant tried very hard throughout his long life to find a way to make the idea of God as a supreme being fit somewhere within metaphysics, and perhaps this is why he retained the use of the term Rational Theology. But he never succeeded in this and the theological Idea in no way depends on the *Dasein* of a supernatural being.

²⁰ I use the capitalized form Knowledge to correspond to the German word *Wissen*; **Knowledge** is the systematic and inalterable assertion of truth with consciousness that holding-to-be-true is grounded in judgments that have apodictic modality with both objectively and subjectively sufficient grounds in understanding.

practical Reason in the general synthesis of judgmentation. The division of the transcendental Ideas into 2LAR form thus extends the representation of objects in general in Figure 1.5.1(B) out into a 4LAR form and the three Standpoints then provide the principles of synthesis we also require.

§ 5.1 The Fundamental Principles of Rational Physics

Kant did not explicitly set down the general principle of Rational Physics for which the four divisions of Quantity, Quality, etc. express the context of the principle in 2LAR form. However, he said enough in *Critique of Pure Reason* for us to identify this principle without much difficulty. There we find,

The *possibility of experience* is therefore that which gives all our cognitions *a priori* objective reality. . . Experience therefore has principles of its form which ground it *a priori*, namely general rules of unity in the synthesis of appearances, whose objective reality as necessary conditions, indeed in its possibility, can always be shown in experience. [KANT1: B195-196]

The *Dasein* of experience is a clear, unmistakable, and fundamental mental phenomenon. It is part of the very essence of what it is to be a human being. As the metaphysic proper of physical objects, the general principle of Rational Physics is a principle of real experience in terms of how the *Existenz* of experience is known to us. Kant called Rational Physics **the system of the fundamental principles of pure understanding** [KANT1: B197]. He went on to write,

That fundamental principles occur anywhere at all is exclusively attributed to pure understanding, which is not only the capacity for rules in regard to that which happens, but is rather itself the source of fundamental principles in accordance with which everything (that can come before us as an object) necessarily stands under rules, since, without such rules, appearances could never amount to cognition of an object corresponding to them. Even natural laws, if they are to be regarded as fundamental principles of the empirical use of understanding, at the same time carry with them an expression of necessity, thus at least the presumption of a determination by grounds that are *a priori* and valid prior to all experience. But without exception all laws of nature stand under higher fundamental principles of understanding, as they only apply the latter to particular cases of appearance. Thus these higher principles alone provide the idea, which contains the condition and as it were the exponents for a rule in general, while experience provides the case which stands under the rule. [KANT1: B197-198]

Human beings do not come endowed with any copy-of-reality mechanism by which something outside of us stamps its impress into our brains or our minds. A human being as a physical being is affected by and in turn affects his environment; this is what is studied by physics, chemistry, and physiology. That same human being, as an intellectual being, *develops an understanding* in reciprocal correspondence to the effects registered in his *soma*, and we call the development and determination of that understanding by the name 'experience.' It is not within the power of a human being to "step outside of himself" and gaze upon the "essence of the universe" like some

Platonic soul revisiting a mythical "world of what is" where Plato said the Platonic Ideas reside as an "ultimate reality." All that we come to know, or to think we know, we know through the development and construction of one's understanding. The raw materials of *objective* human understanding are conscious representations (perceptions), and the presentation of objective perception (intuition) presents only appearances.

But human understanding is *systematic*, and this means the phenomenon of understanding is not haphazard, not some heap of disjointed appearances thrown together with neither rhyme nor reason. The phenomenon of understanding requires *rules* for its construction. These rules are *necessary for the possibility* of the phenomenon of experience, hence are rules in place prior to the acquisition of experience, and therefore are rules *a priori*. As such, these rules belong to that class of knowledge we call knowledge *a priori* – "know how" knowledge.

Natural laws – e.g. the laws of physics – are part of one's understanding of the world. Therefore *we come to know these laws by the same process we come to know everything else*, and therefore the very natural laws we obtain through the efforts of science *must themselves be subject to the rules of the system of fundamental principles of pure understanding*. The character of human experience exhibits as the synthesis of divers appearances into the *systematic* cognition of objects, and this synthesis has the peculiar property that the outcome of this synthesis *makes a unified system of understanding*.²¹ **The transcendental Idea of Rational Physics is: Unity in the synthesis of appearances.** The four titles into which this principle divides make specific the character of this synthesis of unity.

The four titles of the 2LAR of Rational Physics are: (1) Axioms of Intuitions; (2) Anticipations of Perception; (3) Analogies of Experience; and (4) Postulates of Empirical Thinking in General. These principles under the general Idea are as follows.

Quantity (Axioms of Intuition)

Theoretical Standpoint – As regards their intuition, all appearances are extensive magnitudes.

²¹ This does not mean that every person's understanding of the world is entitled to be granted equal weight and authority, and it certainly does not mean crackpot theories or various superstitions have equal call to be taken seriously and to be regarded on equal footing with science. We will see that this process of synthesis calls upon reflective judgment in the judgmentation of experience, and that acts of reflective judgment are subjectively grounded. This subjectivity, we will see, is a source of *errors*; that is, they can and do lead to cognitions and ideas that can be demonstrated to be contrary to actual experience obtained, for instance, through scientific experiments. We will also see that these same affective judgments can combine with the manifold of practical tenets (constructed in practical judgment) to produce closed-minded and even absurd models of Nature. Determining judgment is not the arbitrator of what one *chooses to believe* and that is why science is important. Crackpots and superstitious mystics usually do not *experience* scientific experiments firsthand and weigh their opinions on the basis of abstract speculations; they are, in a manner of speaking, *irrational rationalists* (rationalizers).

Judicial Standpoint – All intuitions are extensive magnitudes.

Practical Standpoint – The extensive magnitude in an intuition is the aggregation of effects in sense of those practical acts of appetitive expression that are validated under the manifold of rules.

Quality (Anticipations of Perception)

Theoretical Standpoint – In all appearances the sensation, and the real which corresponds to it in an object, has intensive magnitude.

Judicial Standpoint (feeling of closure in the structure of sensibility) – The intensive magnitude (degree) of sensation presents the complete condition for marking sensibility at a moment in time.

Practical Standpoint – The degree of perception is a consequence of the regulation of sensibility through validation of acts of reflective judgment.

Relation (Analogies of Experience)

Theoretical Standpoint – As regards to their *Dasein*, all appearances stand *a priori* under rules of the determination of their relationship to each other in one time.

Judicial Standpoint – Experience is possible only through the representation of a necessary connection of perceptions.

Practical Standpoint – The rule of determination of relationships in perception is the enforcement of continuity in *Self-Existenz* by acts of validation in practical Reason.

First Analogy

Theoretical Standpoint – All appearances contain the persistent (substance) as the object itself, and the changeable as its mere determination (the way in which the object exists).

Judicial Standpoint – Motoregulatory expression persists through a determination of the appetitive power of Reason.

Practical Standpoint – All non-autonomic actions contain an appetite as the persistent in the changeable appearances of the action.

Second Analogy

Theoretical Standpoint – Everything that happens (begins to be) presupposes something that it follows in accordance with a rule.

Judicial Standpoint – All actions of an Organized Being follow a principle of acting to extinguish the intensive magnitude of *Lust per se*.

Practical Standpoint – Every non-autonomic action is connected in a series in subordination to the practical unconditioned rule of acting to negate the degree of *Lust per se*.

Third Analogy

Theoretical Standpoint – All substances insofar as they are coexistent stand in thorough-

going community.

Judicial Standpoint – Motivation is cause of an effect in appetite, and appetite is at the same time cause of an effect in motivation.

Practical Standpoint – All actions of equilibration involving multiple differentiable schemes are conditioned and co-determined by structures of coordinations in the manifold of practical rules.

Modality (Postulates of Empirical Thinking in General)

First Postulate

Theoretical Standpoint – What agrees with the formal conditions of experience is possible.

Judicial Standpoint – The representations in sensibility and the motor faculties of the Organized Being are such that the former can be joined to specific capacities for actions in the latter.

Practical Standpoint – Those acts that cannot be validated under the conditions of the manifold of rules are impossible.

Second Postulate

Theoretical Standpoint – What coheres with the material conditions of experience (sensation) is actual.

Judicial Standpoint – That which coheres with the material conditions of meanings (somatic motoregulatory expression) is actual.

Practical Standpoint – The act of reflective judgment that coheres with the conditions of the manifold of rules becomes an action.

Third Postulate

Theoretical Standpoint – That whose context with the actual is determined in accordance with the general condition of experience is necessary (exists).

Judicial Standpoint – Necessity takes its *Realerklärung* from regulation by practical Reason which enforces coherence in Meaning.

Practical Standpoint – That whose context with the actual is determined in accordance with general conditions of valuation is made necessary (necessitated).

A quick examination of this list shows an interesting peculiarity. The Ideas of composition (Axioms of Intuition and Anticipations of Perception) state only one principle as this principle is seen from the three Standpoints. The Ideas of connection (*nexus*), on the other hand, are each further subdivided into statements of three synthetic principles. This asymmetry in Kant's table of principles has bedeviled Kant scholars for more than two centuries. Why are the Ideas of Quantity and Quality not also so divided? The answer to this is that the Ideas of composition each pertain

to the synthesis of homogeneous factors not necessarily belonging to each other *a priori*. These factors enter into experience through receptivity and the synthesis of apprehension (Chapter 1) and so the Ideas of Quantity and Quality are exhibited in the exposition of the interacting processes by which intuitions are produced. Kant called these Ideas *mathematical* and what we might call "the essence of these Ideas" gets its objective ground from *how they work*.

The Ideas of Relation and Modality, on the other hand, are Ideas of the synthesis of a manifold of non-homogeneous factors *necessarily regarded as belonging to each other*. Kant called these Ideas *dynamical* and their "essence" is *practical* and understood on the objective basis of *what they accomplish* in making the unity of understanding. The synthetic sub-statements of the Analogies of Experience and the Postulates of Empirical Thinking in General state explicitly *what these accomplishments are*.

§ 5.2 The Fundamental Principles of Rational Psychology

Rational Physics deals with objects of outer sense, that is, with physical objects in what one might call the ectypal world (world as it appears). Rational Psychology, on the other hand, deals with objects of inner sense. Objects of inner sense are psychological in character and go to the relationship between representations and the subjectivity of the Organized Being. It is not enough to pay attention only to the unity in appearances in understanding because experience as human beings come to know it also exhibits another prime characteristic. This is the thorough-going unity of the Organized Being itself in its *subjective* character. We might call the objects of Rational Psychology the fundamental objects of an archetypal world because these objects address the intellectual character of the human being. Rational Psychology is well named.

For reasons fully known only to Kant, his writings and lectures on Rational Psychology poured the great majority of his time and effort into refuting the rational psychology doctrine of the Wolffian rationalists of his day. The Wolffian doctrine was a doctrine of "soul" in a quite religious sense of that word; Kant devoted so much effort to showing that such a doctrine was not possible as a science that most psychologists today think it was Kant's position that psychology itself is not a possible science. (Kant has not been very popular with psychologists and it is not difficult to see why). When Kant finally did get around to talking or writing about Rational Psychology, his Critical doctrine almost seemed like *en passant* comments and the by-then-weary reader or listener can be excused for not noticing the piecemeal presentation of this doctrine amidst the thunder and roar of Kant's cannon barrage on the Wolffian position.

The General Idea of Rational Psychology is: **Absolute unity of the thinking Subject**. The thinking Subject is, of course, the Organized Being. I am to myself at every conscious moment

one being, *one* unified Self. The white-bearded, gray-haired *me* who types this sentence is *to me the same me* as the little straw-haired boy who started school during the Eisenhower administration, all changes in physical appearances notwithstanding. That is a fundamental psychological fact of experience; Rational Psychology deals with the fundamental principles necessary for the possibility of this phenomenal fact. In 2LAR form the psychological Idea divides out as follows.

Quantity

Theoretical Standpoint – Unconditioned unity in the multiplicity in time.

Judicial Standpoint – Unconditioned functional unity of affective and objective perception in sensibility.

Practical Standpoint – Unconditioned unity of the rules of action in the multiplicity in subjective time.

Quality

Theoretical Standpoint – Unconditioned unity of Quality in experience (knowledge can have no objective validity unless all objects of experience are regarded as appearances).

Judicial Standpoint – Unconditioned unity in compatibility (the division between objective and affective perception is a merely logical division; affective and objective perception in combination make up the complete state of conscious representation).

Practical Standpoint – Unconditioned unity of value (compatibility of desires and the rule structure).

Relation

Theoretical Standpoint – Unconditioned unity of all relationships.

Judicial Standpoint – Unconditioned unity of all relationships is grounded in the *a priori* anticipation of the form of connection of perceptions in time according to the *modi* of persistence, succession, and coexistence.

Practical Standpoint – Unconditioned unity of all three-way relationships of interest, valuation, and cognition.

Modality

Theoretical Standpoint – Unconditioned unity of *Dasein* in space.

Judicial Standpoint – Unconditioned unity in apperception of all perceptions in the interrelationships of meaning.

Practical Standpoint – Unconditioned unity in the apperception of coherence in the Ideal of *summum bonum*.

A number of technical terms we have not yet discussed are used in these statements of the

psychological Idea. Therefore these statements at this point in this book will still seem vague and, to a degree likely to be greater than smaller, somewhat meaningless to the reader. Be assured: the meaning of the psychological Idea will become clearer as we clear up the terminological obscurities later in this book. You should at present try to "get the feel" of the Idea and if you understand the 2LAR principles of the Idea as explanations of *necessary conditions* required to say "the Subject experiences himself as a singular being," that will be enough for awhile. Rational Psychology is the matter of the matter of Critical metaphysics proper and understanding Quality is among the greater challenges in understanding the theory of mental physics.

§ 5.3 The Fundamental Principles of Rational Cosmology

The object of the cosmological Idea is Nature and Nature is one's "world model" for understanding "everything" in a general and unified *context*. Here, and for the other transcendental Ideas as well, it is crucially important to bear in mind that the transcendental Ideas *are exhibited* in no way other than as *regulative* rules of judgmentation and actions. This is what we can justly call *the real essence* of the transcendental Ideas and were it not for this *practical standing* in the phenomenon of mind, we could have no objectively valid *theoretical* understanding of the transcendental Ideas at all. The cosmological Idea is the Idea underlying what is necessary in the *form* of connection (*nexus*) of objects to make the idea of context-in-general meaningful. Understood in this way, the cosmological Idea deals with how *Existenz* must necessarily be represented in order for **universal context** in understanding to be possible.

The General Idea is: **Absolute completion in the series of conditions**. Here we must understand the idea of "absolute completion" in a practical rather than a theoretical Standpoint. In empirical experience the series of empirical conditions in appearances is theoretically unlimited and so, from the theoretical Standpoint, the idea of "absolute completion" is merely an idea of an Ideal of pure Reason. One might be reminded of the old poem, "A man's reach should exceed his grasp, Or what's a heaven for?"²² Absolute completion is a Sisyphean task for speculative Reason but an aim for practical Reason, and one which does have a purely practical, if temporary and non-robust, satisfaction (as we will later see). In 2LAR form, analysis of the cosmological Idea gives us the following.

Quantity

Theoretical Standpoint – Absolute completeness of the composition of the given whole of all appearances.

Judicial Standpoint – Absolutely complete equilibrium in judgmentation through the

²² Robert Browning, *Andrea del Sarto*, line 97.

suppression or equilibration of innovations.

Practical Standpoint – Absolute completeness in the composition of all wants.

Quality

Theoretical Standpoint – Absolute completeness in the division of a given whole in an appearance.

Judicial Standpoint – Absolute completeness in a common ground of beliefs in all reflective judgments.

Practical Standpoint – Absolute value in the division of a given whole of *Existenz*.

Relation

Theoretical Standpoint – Absolute completeness in the origin (beginning) of an appearance generally.

Judicial Standpoint – The causality of freedom is the absolute beginning of all appearances.

Practical Standpoint – The origin of appearances through conformity with an equilibrated structure of practical rules.

Modality

Theoretical Standpoint – Absolute completeness as regards the dependence of the *Dasein* of what is changeable in appearance.

Judicial Standpoint – The *I* of transcendental apperception *is* the unconditioned condition for thinking the *Dasein* of any object.

Practical Standpoint – Absolute completeness of the changeable in appearances is sought through apperception of *Existenz* in relationship to the transcendental Ideal of the *summum bonum*.

§ 5.4 The Fundamental Principles of Rational Theology

As well-camouflaged as Kant managed to make the presentation of his doctrine of Rational Psychology, his presentation of the doctrine of Rational Theology in his writings and lectures was so scattered, unorganized, and intermingled with his attempts to produce a philosophy of religion that in comparison the ancient secret society of the Assassins looks like a gathering of celebrities on Oscar night in Hollywood. Some scholars see only Kant's discussions of religion; some see beyond this and find a linkage between the religion discussions and Kant's applied metaphysics of morals. Some, like Santayana, discovered only a sinister intent:

Kant, like Berkeley, had a private mysticism in reserve to raise upon the ruins of science and common-sense. Knowledge was to be removed to make way for faith. This

task is ambiguous, and the equivocation involved in it is perhaps the deepest of those confusions with which German metaphysics has since struggled, and which have made it waver between the deepest introspection and the dreariest mythology. . .

Had Kant proposed to humble and concentrate into a practical faith *the same natural ideas* which had previously been taken for absolute knowledge, his intention would have been innocent, his conclusions wise, and his analysis free from venom. . . . Had Kant's criticism amounted simply to such a confession of the tentative, practical, and hypothetical nature of human reason, it would have been wholly acceptable to the wise; and its appeal to faith would have been nothing but an expression of natural vitality and courage, just as its criticism of knowledge would have been nothing but a better acquaintance with self. . . Faith would have meant faith in the intellect, a faith naturally expressing man's practical and ideal nature, and the only faith yet sanctioned by its fruits.

Side by side with this reinstatement of reason, however, which was not absent from Kant's system in its critical phase and in its application to science, there lurked in his substitution of faith for knowledge another and sinister intent. He wished to blast as insignificant, because "subjective," the whole structure of human intelligence, with all its lessons of experience and all the triumphs of human skill, and to attach absolute validity instead to certain echoes of his rigoristic religious education. . . The "categorical imperative" was a shadow of the ten commandments; the postulates of practical reason were the minimal tenets of the most abstract Protestantism. These fossils, found unaccountably imbedded in the old man's mind, he regarded as the evidence of an inward but supernatural revelation. [SANT2: 94-97]

Santayana took Kant's word "critique" to literally mean "criticism" and, like many scholars, did not understand *Kritik* to mean "epistemology." If he had, perhaps he would have found some "accountability" in what Kant was trying to say, and perhaps Kant would have seemed less like Nietzsche to him.

The object of Rational Theology is Reality. Its transcendental Idea is the Idea of how human beings come to regard something as "real" or "unreal." Although we must make some allowance for the rather grandiloquent names Kant gave the four titles of Quantity, etc. in the 2LAR of the theological Idea, the General Idea is: **Absolute unity of the condition of all objects of thinking in general.** Division of this Idea into 2LAR form gives us the following.

Quantity (*entis realissimi*)

Theoretical Standpoint – Synthesis of all possible predicates in one Object.

Judicial Standpoint – Synthesis of all possible aesthetic predicates of expedience for happiness.

Practical Standpoint – synthesis of all practical perfections in one Object, namely *universal law* subsisting in a manifold of rules.

Quality (*ens originarium*)

Theoretical Standpoint – The Quality of thing-hood requires that the representation of a thing contain a fundamental notion of the real in appearance standing in agreement with the notion of the oneness of a thing.

Judicial Standpoint – Happiness is the original Quality in the affective state of being from

which all desires are derivative as limitations.

Practical Standpoint – The regulative principle of good choice under an original Ideal of absolute goodness (Ideal of *summum bonum*).

Relation (*ens summum*)

Theoretical Standpoint – The representation of a thing in Reality must contain a notion of substance and accident and be connected in a series of conditioned to condition.

Judicial Standpoint – Aesthetic context in the presentation of Reality is connection of desire in a manifold of Desires.

Practical Standpoint – Structuring the context of actions in the manifold of rules in Relation to a transcendental Ideal of *summum bonum*.

Modality (*ens entium*)

Theoretical Standpoint – The reality vested in all things through their concepts is a held-to-be-necessary reality.

Judicial Standpoint – Perfection of the judicial Ideal of happiness is the coherence of satisfaction, expedience, desire, and the binding of these in the Ideal.

Practical Standpoint – Coherence of all actions with the Ideal of *summum bonum*.

The regulative principle of the theological Idea is a goal-seeking regulation and is manifested in two practical aims it is important to point out now in order to have some context for the terms perfection and Ideal that appear above. The first of these aims is practical and is called the Ideal of *summum bonum* ("highest good"). The second of these is an Ideal for understanding. An **Ideal** is an Object by which the Organized Being understands an Idea not merely *in concreto* but rather as *a determinable thing determinable through the Idea alone*. We can say it has the role of being the most perfect exhibition of an Idea. We require a Critical explanation of the Ideal of *summum bonum* and the Ideal for understanding of their roles in **the standard gauge of practical judgment** in the judgmentation of how *Existenz* in Reality is structured.

Summum bonum is the Ideal serving as the standard gauge for evaluation of all acts of practical Reason. The Ideal for understanding is represented in its 2LAR division as the practical standard for determining when the representation of an object satisfies the *a priori* condition for thinking that object as being a *real* object. The Ideals are as follows.

Summum bonum: The Ideal of a perfect realization of the conditions demanded under the categorical imperative of pure practical Reason.

Ideal for understanding:

entis realissimi – a real object is (has) one-ness (unity; *einheit*);

ens originarium – the *Existenz* of an object is predicated from grounds;

ens summum – all real things have a context within All-of-Reality;
ens entium – all real things are necessarily coherent in Reality.

With this we conclude our discussion of the theory of representation and representations.
From here we will move on to putting Critical representation theory to work.