

Chapter 16

The Teleological Function

We must explain first why nature belongs to causes which act for the sake of something.

Aristotle

§ 1. Teleology and Science

The word teleology derives from the Greek *telos*, which means “end” or “coming to pass” or “consummation.” That people make teleological pronouncements is an easily observed fact. That many such pronouncements are specious or absurd is perhaps less immediately obvious but is nonetheless also a fact that can be established without great difficulty. A teleological proposition is a proposition in which the cause of something has the character of a *final* cause. This more or less means that something happens *so that* something else may come to pass, and this something else is regarded as the cause of what happens. Teleological pronouncements presume some purpose or “reason why” that gives events which lead up to the consummation of an end what we commonly call a “unity of purpose.” Most teleological pronouncements contain at least the flavor of events happening *by design*. Some are explicit.

But for those who practice violence and cruel deeds far-seeing Zeus, the son of Cronos, ordains a punishment. Often even a whole city suffers for a bad man who sins and devises presumptuous deeds, and the son of Cronos lays great trouble upon the people, famine and plague together, so that the men perish away, and their women do not bear children, and their houses become few, through the contriving of Olympian Zeus. And again, at another time, the son of Cronos either destroys their wide army, or their walls, or else makes an end of their ships at sea.¹

The history of science contains a number of examples of theories, seriously proposed and defended, that are teleological inasmuch as it is the end result that the theory posits. One example of this is Hamilton’s principle, which we discussed earlier. Hamilton’s principle did not come into being overnight; Fermat had proposed in the seventeenth century his “principle of least time” as a description of the physics of light. Perhaps one of the most historically important of the teleological theories was that proposed by Maupertuis in the mid-eighteenth century and called “the law of least action.”

¹ Hesiod, *Works and Days*.

In Kant's day, Maupertuis' principle was less than fifty years old and the calculus of variations (the mathematical trick alluded to earlier by Margenau which "transforms a purpose into a cause") was in its infancy. Maupertuis' principle stated, "If there occurs some change in nature, the amount of action necessary for this change must be as small as possible." (The "action" in this principle is defined as the energy involved in making the change multiplied by the time over which the change takes place). Owing to the fame of Maupertuis², his principle attracted a great deal of attention and its refinement led eventually to the formulation of Newtonian physics in terms of what are now known as variational principles. Maupertuis called his law "the grand scheme of the universe." As he stated it, this "law" was somewhat vaguely expressed, and its formalization attracted the attention of the best mathematicians of the time, most notably Euler and Lagrange.

The law of least action is oftentimes described as an economics principle for nature. Whatever happens in nature "economizes" – uses the least amount of – "action." Maupertuis saw in his principle physical evidence for the existence of God. He wrote, "What satisfaction for the human spirit that, in contemplating these laws which contain the principle of motion and of rest for all bodies in the universe, he finds the proof of existence of Him who governs the world." In writing *Critique of the Teleological Power of Judgment*, Kant set out to debunk this and other similarly specious applications of teleology in science.

When one thus introduces into the context of natural science the idea of God in order to make expedience in nature explicable, and subsequently uses this expedience in turn to prove that there is a God, then there is no intrinsic understanding of both sciences, and a deceptive *diallelus*³ brings each into uncertainty by way of letting their boundaries overlap [KANT5c: 253 (5: 381)].

Present day physics, of course, agrees with this statement and does so to such a complete degree that the subject is largely regarded as not even worth mentioning. The modern day heir to Maupertuis' principle is Hamilton's principle in its various formulations (among which is one form still known as the principle of least action). As one graduate level physics textbook notes,

The principle of least action is commonly associated with the name of Maupertuis, and some authors call the integral involved the *Maupertuis action*. However, the original statement of the principle by Maupertuis was vaguely teleological and could hardly pass muster today. The objective statement of the principle we owe to Euler and Lagrange.⁴

² In the beginning of the eighteenth century, Newtonian physics was not yet universally accepted in continental Europe, where its chief competitor was a theory put forth by Descartes. It was Maupertuis' expedition to the Arctic Circle in the far north of Sweden, which determined that the earth was flattened at the poles (as predicted by Newton), that finally decided the issue between Newtonian physics and Cartesian physics in favor of Newton. Maupertuis, as leader of this expedition, became famous as a result.

³ A *diallelus* is a circular explanation. It proves nothing.

⁴ Herbert Goldstein, *Classical Mechanics*, 2nd ed., Reading, MA: Addison-Wesley, 1980, pg. 368fn.

Hamilton's principle is one of two principles regarded by modern day physics as being at or very near to the most fundamental of all physical explanations. Feynman remarked:

. . . [In] Einstein's generalization of gravitation Newton's method of describing physics is hopelessly inadequate and enormously complicated, whereas the field method is neat and simple, and so is the minimum principle.⁵ We have not decided between the last two yet.

In fact it turns out that in quantum mechanics neither is right in exactly the way I have stated them, but the fact that a minimum principle exists turns out to be a consequence of the fact that on a small scale particles obey quantum mechanics. The best law, as presently understood, is really a combination of the two in which we use the minimum principle plus local laws. At present we believe the laws of physics have to have the local character and also the minimum principle, but we do not really know . . .

One of the amazing characteristics of nature is the variety of interpretational schemes which is possible. It turns out that it is only possible because the laws are just so, special and delicate. For instance, that the law is the inverse square is what permits it to be local; if it were the inverse cube it could not be done that way. At the other end of the equation, the fact that the force is related to the rate of change of velocity is what permits the minimum principle way of writing the laws. If, for instance, the force were proportional to the rate of change of position instead of velocity, then you could not write it in that way. If you modify the laws much you find that you can only write them in fewer ways. I always find that mysterious, and I do not understand the reason why it is that the correct laws of physics seem to be expressible in such a tremendous variety of ways. They seem to get through several wickets at the same time [FEYN2: 54-55].

Although Maupertuis, as he himself said, came to his principle through “metaphysical” considerations, and despite his more or less explicit teleological pronouncement of this principle (which implied, as he intended it should, a “designer of nature”), physics can accept Hamilton's principle because it has equivalent expression in terms of the kind of equations that prescribe physical causality in the Margenau sense. So long as we simply do the math and do not worry about what kind of physical picture the mathematical equations seem to be presenting, there is no problem. Nonetheless, physicists *do* like to re-express the mathematics in terms of a physical picture, and when we do so the haunting teleological character of the minimum principle is still with us. This is because when we leave the pure mathematics and worry about the picture in this way, it inevitably seems as if the particles must somehow “know where to go” and “know what to do.” No physicist whom I know takes this “philosophical mystery” very seriously (or, at least, none admit to taking the question very seriously), but I have heard enough of them bring it up often enough to be satisfied that they would prefer to have the “mystery” explained in some more acceptable way. Because our understanding of the physics *is* mathematical and, in the end, involves carrying out some rather complicated calculations, some of my friends in physics have quipped, purely in jest, that “the particles must have to perform a lot of calculations in order to know where to go and what to do.”

⁵ i.e., Hamilton's principle.

It always bothers me that, according to the laws as we understand them today, it takes a computing machine an infinite number of logical operations to figure out what goes on in no matter how tiny a region of space, and no matter how tiny a region of time. How can all that be going on in that tiny space? Why should it take an infinite amount of logic to figure out what one tiny piece of space/time is going to do? So I have often made the hypothesis that ultimately physics will not require a mathematical statement, that in the end the machinery will be revealed, and the laws will turn out to be simple, like the checker board with all its apparent complexities. But this speculation is of the same nature as those other people make - 'I like it', 'I don't like it', - and it is not good to be too prejudiced about these things [FEYN2: 57-58].

Of course physicists do carry out calculations to “figure out what goes on” and they do not in fact do an infinite number of calculations. The “infinity” to which Feynman refers is a kind of formal infinity that *in principle* would be required to obtain an “exact” answer. Modern physics employs its own peculiar method for getting an answer that is in some sense close enough and which does not take an infinite number of calculations to obtain. However, there is something that seems arbitrary about the method, and the method itself cannot call upon more fundamental mathematical principles for its formal justification.⁶ Wolfgang Pauli once humorously referred to this sort of methodology as “*Die Abschneidungsphysik*” (the Cut-off Physics); Feynman often described it using such phrases as “a shell game”, “hocus-pocus”, and “this dippy process.”⁷ This seems to be the source of what bothers Feynman in the quote above.

From considering what we are required to do to solve these physics problems mathematically, it is only a short step via analogy to imagine nature and its constituents as in some mysterious fashion having to do the same thing in order to “obey” the laws of physics. Now Feynman most emphatically does *not* take such a transcendent step, and neither do my physicist friends mentioned earlier. To think of “nature” (that is, “the world” or “the universe”) in such a way is to regard nature teleologically. The speciousness of regarding “particles” as if they were conscientious citizens concerned with “obeying the law” is so apparent that a modern scientist finds the entire idea merely humorous. Nonetheless, teleological judgments in the general or *Beurteilung* sense⁸ are often useful in science in that they can and do play a part in helping us to examine natural phenomena, even though the teleology is itself expunged from the final solution. For example, when we start with some known fact or phenomenon and then try to figure out the cause of this fact under circumstances in which we find we must speculate upon events in the

⁶ For a more complete description of the methodology being discussed here see [FEYN1: 124-130].

⁷ Feynman himself, along with Schwinger and Tomonaga, is one of the inventors of “this dippy process” and for this work these men won the Nobel Prize.

⁸ Judgment in the *Beurteilung* sense does not refer to our processes of determining, reflective, or practical judgment. It refers instead to both the entire cycle of thought and reasoning and to the objective pronouncements that are outcomes of this process. In this Chapter, when we mean “judgment” in the *Beurteilung* sense, we shall use the German word in place of “judgment” to help avoid confusion over what kind of “judgment” we are talking about. We will thereby denote the important distinction between teleological *Beurteilung* (judgmentation) and the process of teleological judgment, which is the form of reflective judgment in the Organized Being model (aesthetical judgment being the matter in its ILAR).

distant past that we have no way of examining firsthand, then it is a teleological principle that guides us. We are, in effect, asking, “What had to be so and what had to happen to bring us to the situation as we find it now?” Here it is the *end result* that guides and orients our search for an explanation of the *Existenz* of this cause. The search is constrained by the requirement that at every step in the process the known laws of science must be followed and no miracles can take place. (The intervention of miracles is why so-called “intelligent design theory” is not science).

You will notice, I hope, that Kant’s methodology of back-tracing to the transcendental factors in the theory (the transcendental elements) is of precisely this same character, not from the respect of events in the distant past but, instead, with respect to notions and Ideas that we have no possibility of experiencing directly in and of themselves. The observable end result serves us as a standard for *Beurtheilung*, and the desire for explanation of the *Existenz* of the cause is, for us, the “final cause” (i.e. the *goal*) of our efforts. When once we have obtained a satisfactory explanation, the teleological character of *the line of reasoning* that brought us to this explanation does not itself enter in to the explanation (or, at least, does not do so in anything that can legitimately be called *science*). In simple terms, the explanation attempts to address the question of “How?” But if we put the teleology in the answer, we are no longer asking “How?” but rather “Why?” To ask the “How?” question is to seek the efficient (i.e. physical) cause; to ask “Why?” is to seek for an explanation in terms of final cause. If we think of physical cause as something that, so to speak, “pushes events along” in time, a final cause would have to be thought of as something that “pulls events along behind it” in *objective* time.⁹

Science takes care to confine itself to the “How?” question. As one example among many, we can consider the study of evolution and its causal underpinnings in genetics. In the twentieth century we have learned much about the molecular underpinnings of biodiversity and, in particular, about the existence and organization of chromosomes and their building blocks, the genes. A gene is a linear array of nucleotides (molecules from which DNA and RNA molecules are constructed) and a chromosome is a complex structure of DNA molecules associated with proteins. Within a chromosome the genes are now known to be the hereditary units – that is, they are what is in a chromosome that is known to account for the biological structure and features inherited by offspring from their parents. We also know that even within members of the same race¹⁰ there is a great deal of diversity in the genes from one individual to another. Many of these differences seem to have no particular affect on evolution (e.g. those responsible for the uniqueness of fingerprints in human beings), and these are called neutral variations. Other genetic

⁹ We cannot at all posit with objective validity any cause that “pulls things along” in *subjective* time. The category of causality and dependency does not establish any such Relation. We can think objectively of final causes (as a merely problematic form of judgment) only with respect to objective time, and this is permissible only because objective time is itself the supersensible object of an idea.

¹⁰ A race is a subset of a species.

variations, however, are great enough to alter the function of protein molecules, and these variations are regarded as the genetic basis for evolution.

A mutation that alters a protein enough to affect its function is more often harmful than beneficial. Organisms are the refined products of thousands of generations of past selection, and a random change is not likely to improve the genome any more than blindly firing a gunshot through the hood of a car is likely to improve engine performance. On rare occasions, however, a mutant allele may actually fit its bearer to the environment better and enhance the reproductive success of the individual. This is not especially likely in a stable environment but becomes more probable when the environment is changing and mutations that were once selected against are now favorable under the new conditions. For example, some mutations that happen to endow houseflies with resistance to DDT also reduce growth rate. Before DDT was introduced, such mutations were harmful. But once DDT was part of the environment, the mutant alleles were favored, and natural selection increased their frequency in fly populations.¹¹

Although this example speaks only to variations within a species¹², speciation appears to be a phenomenon that follows more or less precisely the same sort of process. Biology has a number of ways of studying the origin of species, two of which are comparative embryology and molecular biology.

Closely related organisms go through similar stages in their embryonic development. For example, all vertebrate embryos go through a stage in which they have gill pouches on the sides of their throats . . . Indeed, at this stage of development, similarities between fishes, frogs, snakes, birds, humans, and all other vertebrates are much more apparent than differences. As development progresses, the various vertebrates diverge more and more, taking on the distinctive characteristics of their classes. In fish, for example, the gill pouches develop into gills; in terrestrial vertebrates, these embryonic structures become modified for other functions such as the Eustachian tubes that connect the middle ear with the throat in humans. Comparative embryology often establishes homology among structures, such as the gill pouches, that become so altered in later development that their common origin is not apparent by comparing their fully developed forms.

. . . Evolutionary relationships among species are reflected in their DNA and proteins - in their genes and gene products. If two species have libraries of genes and proteins with sequences of monomers that match closely, the sequences must have been copied from a common ancestor. If two long paragraphs are identical except for the substitution of a letter here and there, we would surely attribute them both to a single source.

A common genetic code is overwhelming evidence that all life is related. Evidently, the language of the genetic code has been passed along through all branches of the tree of life ever since the code's inception in an early life form. Molecular biology has thus added the latest chapter to the evidence that evolution is the basis for the unity and diversity of life.¹³

There is no one smoking gun, no one single piece of scientific evidence, that explains evolution

¹¹ Neil A. Campbell, Jane B. Reece, and Lawrence G. Mitchell, *Biology*, 5th ed., Menlo Park, CA: Addison-Wesley, 1999, pg. 437.

¹² But this example, all by itself, should serve to refute the ignorant claim of some creationists that "all mutations create monsters" and either kill the individual outright or prevent its sexual reproduction.

¹³ *ibid.*, pp. 424-425.

all by itself. But when the great number of different phenomena are taken together *as a system*, the case for the genetic explanation of evolution is very, very strong. This seems to be something that the more ignorant opponents of evolution manage to ignore.

Evolution is not a matter of faith; it is a matter of fact. But how does science figure out what to look at and what questions to ask? We have one hint of this from the second paragraph quoted above, in the phrase “must have been.” Hypothesis points the way to *follow-up research*:

Diversification of isolated populations occurs gradually over thousands or hundreds of thousands of years. In addition, the geographic changes that paralleled this divergence may be complex or unknown. In most cases, therefore, the formation of species is an historical event, and biologists studying this process must rely on the present-day distribution of races, sub-species, and sibling species to reconstruct stages in the evolutionary process.

To study speciation, biologists must find examples in nature where all or most of the stages of race formation and speciation can be documented. The intensive studies carried out on natural populations of *Drosophila* provide a good example of the stages involved in **allotropic speciation**.¹⁴

Klug and Cummings describe in detail the above-mentioned research on *Drosophila* (a name that designates a genus of several different species of fruit flies; *Drosophila* are perhaps the most fully described of all creatures insofar as genetics is concerned). Among other things, the studies have established that only a very few variations in the genetics of a species are needed to produce speciation. The guiding thread in these studies is that described above, namely the phenomenon of diversification of populations in race formations and speciations. This *fact* is that which is to be explained, and the scientific trail leads where so ever we find other facts that tie in or relate to the phenomenon. But nowhere in genetic and evolutionary theory do we find any statement that these genetic factors happen *for the sake of* speciation.

All the same, teleological *Beurtheilung* [judgmentation] is rightly drawn into nature research, at least problematically, but only in order to bring it under principles of observation and investigation in accordance to analogy with causality according to ends, without presuming to explain it thereby [KANT5c: 234 (5: 360)].

We will come back to this use for teleological *Beurtheilung* later. What we want to examine next is the question of how teleological thinking stands in empirical relationship to the overall phenomenon of human thinking.

§ 2. Is Teleological Thinking Innate or Habitual?

Some scientist-friends of mine regard any and all teleological thinking as nothing more than a bad

¹⁴ William S. Klug and Michael R. Cummings, *Concepts of Genetics*, 5th ed., Upper Saddle River, NJ: Prentice-Hall, 1997, pg. 691.

habit to be gotten rid of just as one might quit smoking or learn to control one's temper. If teleological thinking really is nothing more than a learned habit, it might then perhaps be possible to learn to do without it. But is this all there is to it?

The psychological evidence appears to indicate that it is not. In Chapter 11 (§3.3) we discussed five principal "adherences" of childish thought that Piaget found to be present in the mental evolution of childish reality and causality. These were:

- 1) Participation – the child's world is filled with tendencies and intentions that are in participation with his own tendencies and intentions;
- 2) Animism – things are endowed with consciousness and life;
- 3) Artificialism – the child views everything as willed, intentional, and organized for the good of humanity;
- 4) Finalism – the things in the world have a role that they fulfill; Piaget called finalism the starting point and residuum of both animism and artificialism;
- 5) Force – the child thinks that the things in his world make efforts, and their powers imply an internal and substantial "energy" analogous to our own.

Most of Piaget's young test subjects were age 5 to 11 years. This was because the younger children were not yet capable of understanding the questions put to them. However, this does not mean that he ignored these younger children.

The animism of younger children is much more implicit and unformulated. They do not question whether things know what they are doing, nor whether things are alive or dead, since on no point has their animism yet been shaken. They simply talk about things in the terms used for human beings, thus endowing them with will, desire, and conscious activity. But the important question in each case is to know just up to what point they really believe in these expressions or to what extent they are merely a matter of words. But it is impossible to question them on this. The only method of gaining insight is careful observation, both of the child's behavior and of his words. The following, for example, is the case of a little girl who one morning found the eyes of her doll had disappeared (fallen into the inside of the head). Despair and tears! She was then promised that the doll should be taken back to the shop to be mended, and for the next three days she was continually asking with the most obvious anxiety whether the doll was still bad and if it had hurt her to be mended.

But in the majority of these cases, the child's behavior is not nearly so instructive. The best method when a particular expression appears to be prompted by animism, is to study, by comparison with other remarks of the same child, the exact use it makes of this expression [PIAG24: 210-211].

Piaget studied children as young as less than 2 years of age, a lower limit imposed by the obvious need that the child must know how to talk in order for this type of study to be carried out. Commenting on the results of this study, he remarked, "moving bodies inspire innumerable animistic expressions in very young children, the cumulative effect of which is certainly to suggest a tendency of mind rather than a mere metaphorical manner of speaking" [PIAG24: 212].

Some of the examples cited in *The Child's Conception of the World* were as follows:

CLI (3;9) speaking of a motor in a garage: "*The motor's gone to bye-byes. It doesn't go out because of the rain.*"

BAD (3): "*The bells have woken up, haven't they?*"

NEL (2;9) seeing a hollow chestnut tree: "*Didn't it cry when the hole was made?*" . . . Nel, after throwing a stone onto a sloping bank, watching the stone rolling down said: "*Look at the stone. It's afraid of the grass.*"

Nel scratched herself against a wall. Looking at her hand: "*Who made that mark? . . . It hurts where the wall hit me.*"

DAR (1;8 to 2;5) bringing his toy motor to the window: "*Motor see the snow.*" One evening a picture (of some people he knew) fell to the ground. Dar stood up in bed, crying and calling out: "*The mummies (the ladies) all on the ground, hurt!*" . . . On a morning in winter when the sun shone into the room: "*Oh, good! the sun's come to make the radiator warm*" [PIAG24: 212].

Where intention is invoked in a *Beurtheilung* there is teleology at work. No one of these examples is sufficient by itself to support a conclusion, but the number and consistency of occurrences of this sort of expression adds up. Piaget summarized as follows:

Each of these examples is obviously debatable. But the constancy of the style proves at any rate how little these children are concerned to distinguish things from living beings. Anything that moves is described as if it were conscious and every event as if it were purposive. "The wall who hit me" thus signifies the child's tendency to regard all resistance as intentional. The difficulties involved in the direct analysis of such expressions are evident. Nevertheless, and this seems the most convincing argument, these expressions do really seem to arise from a latent animism since it is not until the ages of 5-7 that children start asking questions as to how far things are alive and conscious, while before this age they appear entirely untroubled by such questions as if their solution was too obvious to present any problem.

To conclude, we noted two periods in the spontaneous animism of children. The first, lasting until the ages of 4-5, is characterized by an animism which is both integral and implicit; anything may be endowed with both purpose and conscious activity, according to the occasional effects on the child's mind of such occurrences as a stone which refuses to be thrown on to a bank, a wall which can hurt the hand, etc. But this animism sets no problem to the child. It is taken for granted. After the ages of 4-6, however, questions are asked on the subject, showing that this implicit animism is about to disappear and consequently that an intellectual systematization is about to take place. It is now that it becomes possible to question the child [PIAG24: 213].

It seems clear enough that it would be "natural" for a child who can draw from only a limited base of experience to explain things and events in terms of what he or she knows best – that is, to reason by analogy with the child's own conception of his or her Self. This would be enough to offer a very good possible explanation of the specific forms of animistic reasoning that the child exhibits. However, for this explanation to stand we must also presuppose the *ability* to make such judgments *and* the predisposition to reasoning *in this fashion*. To put it another way, teleological *Beurtheilung* may be a functional ability that *makes learning possible* rather than merely being the *result of* a learned habit.

The examples and remarks just quoted were aimed at animism, but *The Child's Conception*

of the World and Piaget's other works tend to come to the same findings for the other childish adherences. For example, young children seem to first use the idea of "life" as an idea that provides a vast number of particular events with a unifying context. We provided one example of this in Chapter 11. Here is another:

TANN (8): "Is a window-pane alive?" - *It's as if it was alive, but it's not like us. The pane stops the air coming in, but it can't move.* - Is it alive or not? - *It's alive . . .* . . . "Which is more alive, a stone or a lizard? - *A lizard, because a stone can't move.* - The sun or a stone? - *The sun because it does something, but a stone isn't much use.* . . . What is an animal? - *Something that's not like us. It's useful. A horse is useful. It can't go to school. It isn't like us.* - Which is more alive, rain or fire? - *Rain.* - Why? - *Rain is stronger than fire, because it can put out fire, but fire can't light rain*" [PIAG24: 196-197].

As Piaget noted, "It is evident what meaning these children give to the word 'alive.' It means 'to do something,' or for choice 'to be able to move.'" And running throughout these childish adherences we find instance after instance of teleological thinking.

Some of these children give life the same significance as consciousness . . . Others, however, give life a much wider meaning . . .

Despite these differences, however, the answers of this first stage have all a common basis which lies in asserting the idea of a fundamental final cause in nature and a *continuum* of forces destined to bring about these ends. This idea is certainly not peculiar to the answers obtained by means of the present technique, but appears to be one of the most fundamental ideas in child thought. This first stage lasts in fact up to the age of 6 or 7, and it is well known that at this age the nature of children's definitions bears out in a striking manner what we have just found. According to Binet and many others, children of about the age of 6 define an object by "its use" and not by genus and the specific difference between one genus and another . . . That this notion of a final cause implies a creator who has fashioned everything for a determined end will be shown in what follows later and does not immediately concern us. But the idea of so complete a determinism implies that every object is endowed with a particular activity and force destined to enable it to fulfill its rôle . . . Final cause implies an efficient cause in the form of a force immanent in the object and directing it towards its destined end. To the child's mind the idea of "life" fulfills this function [PIAG24: 197-198].

This persistent character of childish thought and childish causality seems to run throughout the child's view of the world. Does this represent a learned habit of thinking? Perhaps, but the breadth and amount of evidence would seem to make this unlikely. Piaget wrote,

Is such an idea [of "life"] primitive or derived? In other words is it already present in children of 3 or 4, that is to say in children too young to be able to answer our questions, since not yet knowing the word "life"? It seems that it is. At least this is what a study of the language and behavior of children of this age seems to suggest. At all events, everything appears to suggest that as soon as the appearance of the word "life" gives rise to a systematization of the corresponding concept, the form of this concept is from the first that which was found in the stage studied above [PIAG24: 198-199].

Here it is worth reminding ourselves that Piaget generally takes the position that rationalist innate ideas do not exist in young children. This makes his "it seems that it is" remark above curious.

But we may also note that it is not necessary for the child to possess a pre-formed idea of "life" (or of any of the other adherences) if the manner and character of the child's *thought process* is productive of a *Beurtheilung* possessing this sort of character.

We have noted earlier in this treatise that childish thought is also characterized by an attitude of moral realism. Although it seems as clear as it can be that the specific instances and situations the child casts in a moral light are themselves learned, behind this is the question of what sort of judgmental underpinnings and functions so universally lead childish thinking along this pathway. Even the child's conception of physical determinism at very young ages endows what we as adults see in terms of physical causality with what Piaget calls *moral necessity*.

As we saw in Chapter V, there are two uses to which a child may put animistic conceptions of nature. These are to explain the fortuitous and to explain the regularity of things. Now to explain away the chance occurrence means to exclude it and to seek to bring everything within definite laws. But what are these laws? As Sully has shown and as we have ourselves been able to verify (*Language and Thought*, Chapter V) they are moral and social laws rather than physical laws. They are the *decus est*. The key to childish animism is this, that natural beings are conscious according as they have a part to play in the economy of things.

This characteristic explains both the rôle and the limits of childish animism. We have already stated many times that the child is not so anthropomorphic as is usually supposed. He only endows things with consciousness when it is strictly necessary in order that they may fulfill their respective functions. Thus a child of 7 will refuse to admit that the sun can see one in a room or that it knows one's name but will maintain that it can go with us when we are walking because it has to accompany us "to make us warm," etc. The water in a river cannot see its banks, it knows nothing of pleasure or pain; but it knows that it is moving and it knows when it needs to get up speed in order to overcome some obstacle. For the river moves "so as to give us water," etc. [PIAG24: 222-223].

These answers, therefore, confront us with the problem inevitable to the study of child animism - as to what "nature" means to the child. Is it a collection of physical laws? Or a well-regulated society? Or a compromise between the two? . . . We shall work on the hypothesis, based on the facts collected in the previous chapters, that the child endows things with consciousness principally in order to explain their obedience to a hierarchy. It credits things with a moral nature rather than with a psychology.

How can this hypothesis be verified? The whole study of the child's ideas of dynamics and physics which we have attempted elsewhere urges us to adopt it. But, in the meanwhile we can simply ask children whether things do what they want and if not, why not.

This procedure furnished us with very clear results. Up to the ages of 7-8, children refused to admit that things could act as they wanted, not because they lacked the will to do so, but because their will is compelled by a moral law, whose purpose is to regulate everything towards the greatest good of man. The few exceptions we found certainly confirm this interpretation: when a child of this age regards a certain object as lacking in all moral obligation, he regards it therefore as free to act as it wishes and free because no one is compelling it. Will is thus present in things, but in the great majority of cases this will is controlled by duty [PIAG24: 223-224].

Again we must emphasize that Piaget finds against the hypothesis that the child is in possession of any innate ideas of the rationalist sort. His overall position is that, lacking such innate concepts, there must instead be something in the childish thought process that leads to these results.

§ 3. The Systematizing Function of Teleological Judgment

If we confine ourselves to considerations of the mental evolution of that world model we call Nature, we come very quickly to a function required in judgment for its construction in the manner in which this world model appears for human beings. The *Dasein* of this function is grounded on the one side by the requirement of unity in consciousness of the manifold of concepts and, on the other side, from the absence of any copy-of-reality mechanism in the appearance of human thought processes. This is the *systematizing function* of teleological judgment.

Kant tells us that *experience* is nothing other than the *system* of possible empirical cognitions [KANT5c: 13 (20: 208)]. Experience *per se* is understood as a unity and, strictly speaking, we should not talk about “experiences” in the plural. However, since all we mean by “experiences” is to refer to some particular matter in the manifold of experience, we can safely use “experiences” in the plural if we bear this in mind. In the theoretical Standpoint we discussed those transcendental factors necessary for the possibility of experience as we know it. The theory of determining judgment describes the making of cognitions through concepts as acts of judgment. In these acts the categories of understanding constitute the rules for the making of empirical concepts and for the referral of these concepts to consciousness.

Now, the process of determining judgment by itself is not sufficient to explain the phenomenon of experience. Its judgments are judgments in the particular inasmuch as the rules of the categories serve merely as constitutive rules of combination in specific determinant judgments. But judgment in the wider sense is the subsumption of the particular under the general. In doing this, either the general is given beforehand and the particular is judged under it, or else specific particulars are given beforehand and the general concept that unites them must be found. In the first case, the judgment is said *to determine* and so this act is an act of determining judgment. The product of this act we are calling a determinant judgment. In the second case, where the general concept is to be found, we have an act of the process of reflective judgment.

In our theory, the power of judgment in general (*Urtheilskraft*) is tasked with subsuming the matter of experience under the form of a *system* of empirical laws. In one sense of the word, every determined concept is an empirical law of some sort *in the particular*. However, a mere collection of such empirical “laws” is only an aggregate and not a system. The categories of understanding do not provide regulations for any *necessary* synthesis of such an aggregate into a unified system because these notions are constitutive only for the making of specific concepts and for the manner of their connection in the manifold of concepts. In these notions we do not find any explicit rule that *designates* “where” in the manifold of concepts this connection is to take place. If we are to attain to understanding as a system of empirical laws, we therefore require some principle not given in or by the categories [KANT5c: 9 (20: 203), (20: 204fn)].

Now the categories, as rules of determining judgment, are the only *objective* rules of

cognition, yet the principle we require must also be a principle of cognition since it is a principle for understanding. If this principle is nowhere to be found within the constitutive principles of the pure categories, then it follows that this principle cannot be a constitutive objective principle. Rather, it must be merely a *subjective* principle for cognition and, accordingly, be a principle that is *regulative* rather than constitutive. We call this principle the **principle of reflection**.

Reflecting (consideration) . . . is: to compare and to hold together given representations either with each other or with one's faculty of knowledge, in reference to a thereby possible concept. The reflecting power of judgment is that which one names the faculty of judgment¹.

The principle of reflection on given objects of nature is: that to all natural things empirically determined concepts can be found [KANT5c: 15 (20: 211)].

Stated in this way, the principle of reflection seems to be rather circular. Kant recognized this and commented further:

This principle at first sight has not at all the look of a synthetic and transcendental proposition, but seems on the contrary to be tautological and to belong to mere logic. For this [logic] teaches how one compares a given representation with another and that thereby one can make a concept of those by extracting as a mark of their general use what, with their differing, they have in common. Yet it teaches nothing of whether for each Object nature has many others that have much in common with it to put up as objects of comparison; rather, this requisite of the possibility of the application of logic to nature is a principle of the representation of nature as a system for our power of judgment, in which the manifold, divided into genus and species, makes it possible to bring all occurring natural forms through comparison to concepts (of greater or lesser generality). Now to be sure, pure understanding (also through synthetic first principles) already teaches how to think of all things of nature as contained in a transcendental system according to *a priori* notions (the categories); only the (reflecting) power of judgment, which also seeks concepts for empirical representations as such, must still moreover adopt for this end that nature in its boundless manifold has hit upon such a division of itself into genera and species that makes it possible for our power of judgment to find unanimity in the comparison of natural forms, and to arrive at empirical concepts and their contexts with one another through ascent to more general but still empirical concepts; i.e., the power of judgment erects even in advance a system of nature according to empirical laws, and this *a priori*, therefore through a transcendental principle [KANT5c: 15-16fn (20: 211-212fn)].

Let us see if we can untie the knots in this particular bulrush. Kant observes that we can and do apply logical reasoning to understand Nature. In doing so, we find that by comparing different objects of appearances we are able to extract marks they have in common despite their differences. It is from these common attributes that we construct more general empirical laws and relationships. But then he raises a key issue, and one we usually take for granted: Empirical appearances are *contingent*; upon what grounds are we justified in supposing that the laws and general concepts we build through such comparison have any objective validity whatsoever?

To make an empirical law or empirical relationship, we must first presuppose that such laws

¹ *Beurtheilungsvermögen*, the organization of the capacity for judging in the general.

or relationships *exist in Nature*. Appearances do not tell us that such is the case; appearances do not even carry any suggestion or impetus that could explain any basis *for even attempting to make such a judgment*. Yet, on the other hand, we know for a fact that we *do make* these judgments and, most importantly, that the making of these judgments is a *spontaneous act of judging*. But if there is nothing in raw appearances to either justify or even instigate the making of such judgments, we can only look to a transcendental principle that says: 1) we *will make* judgments of this sort; and 2) *we will believe these empirical judgments to be true*.

Believing a judgment to be true and knowing that this judgment has objective validity and is not a transcendent illusion are two quite different things. Since we have no copy-of-reality and since nothing in an appearance carries necessity (including a necessity for combining one appearance with some other particular appearance), the *fact* that we nonetheless make sense out of appearances through combining concepts with one another requires a transcendental principle of construction “in the large.” We make a system (Nature) out of our empirical representations and the only way we can explain this phenomenon to ourselves is to *presume* that our constructions are “right.” This presumption, however, is predicated on a *subjective* ground and not on any sufficient *objective* ground. If the principle were a sufficient and objectively *constitutive* principle, we could never err in our construction of natural ideas. One can say that reflective judgment has the ability to judge determining judgment’s outcomes. The process of reflective judgment has no objective memory. It merely requires comprehensive unity from the manifold of concepts at every moment in time by ruling cognitive dissonance to be inexpedient.

The way Kant expresses this idea is by saying the power of reflective judgment contains as a transcendental principle **the presupposition of Nature as a system**. In one way, this is to say nothing more than that judgment will judge appearances *in the form of a system*. Why should the world so conveniently arrange itself so that our judgments come out this way? Kant answers that we have no objectively valid ground whatsoever for saying it does. But Nature is something else entirely. Nature is one’s world *model* **and here the power of judgment has jurisdiction**. The principle of reflective judgment says: ***we understand the world in the form of a system, but we make this form and we make it to be expedient for pure Reason.***

Let us not sugarcoat this: *This principle is purely teleological* because our only justification of it is: 1) based on a *practical*, not ontological, ground for judging; and 2) this practical ground is none other than *it is practically necessary for us to judge appearances in this way for the sole purpose of making our judgment of Nature possible*. We can find in physical causality no objectively valid universal and necessary ground for why Nature appears to us to be organized as a system because such a ground could only lie with the *noumenal* world *per se* as something in its essence. Any idea we could form regarding this natural essence of the world *per se* would go beyond the horizon of possible experience and would be transcendent, not transcendental.

The strongest argument in favor of a copy-of-reality hypothesis is the fact that most of us come to regard the world more or less according to the same model. For all of us things fall down and not up; the sun rises in the east and sets in the west; sunburns hurt; hunger is satisfied by eating; carrots taste better than dirt; etc. However, this vast horizon of “samenesses” is just as explainable (and, if we trust psychology, better explained) by the Copernican hypothesis plus the empirical observation that we, as human beings, are more similar than we are different. One of the strongest arguments against the copy-of-reality hypothesis is the fact that we do not all automatically perceive everything in the same way. For example:

The tropical forests in which the BaMbuti Pygmies live are so dense that the natives can rarely see for more than a few yards in any direction. Under such circumstances they have come to rely largely upon sound cues to guide their hunting. Rarely is it necessary to make perceptual judgments based upon visual cues of distance or depth discrimination. One of the remarkable consequences of this "natural" experiment is reported in the observations of an anthropologist, Colin Turnbull (1961). When one of the Pygmies, Kenge by name, traveled with Turnbull to an open plain where the view was unobstructed, nature (or nurture?) suddenly began playing tricks on him. Turnbull reports:

"Kenge looked over the plains and down to where a herd of about a hundred buffalo were grazing some miles away. He asked me what kind of *insects* they were, and I told him they were buffalo, twice as big as the forest buffalo known to him. He laughed loudly and told me not to tell such stupid stories, and asked me again what kind of insects they were. He then talked to himself, for want of more intelligent company, and tried to liken the buffalo to various beetles and ants with which he was familiar.

"He was still doing this when we got into the car and drove down to where the animals were grazing. He watched them getting larger and larger, and though he was as courageous as any Pygmy, he moved over and sat close to me and muttered that it was witchcraft. . . . Finally, when he realized that they were real buffalo he was no longer afraid, but what puzzled him still was why they had been so small, and whether they *really* had been small and had so suddenly grown larger, or whether it had been some kind of trickery." (p. 305) [RUCH: 239]

Piaget concluded from empirical evidence that teleological *Beurtheilung* is innate in young children. Kant concluded from Critical grounds that teleological *Beurtheilung* is innate in all of us, and remains so all our lives. We have said that all appearances are contingent; the principle merely acknowledges this since if it were possible to obtain from physical causality the necessity of Nature structured as a *system* then appearances would not *be* contingent upon *experience*.

The peculiar principle of the power of judgment is thus: *Nature specifies its general laws into empiricals, conformable to the form of a logical system on behalf of the power of judgment.*

Now here originates the idea of an *expedience* of nature and indeed as a peculiar idea of the reflecting power of judgment, not of reason; for the purpose is not at all in the Object, but rather exclusively in the Subject and indeed is set in its mere capacity to reflect [KANT5c: 19 (20: 216)].

This principle, stated in the form of an idea here, is a law for reflective judgment, not for the world *per se*. This principle of judgment is an *a priori* **maxim of reflection**.

We can call this principle a principle of the presumption of logical expedience of natural

forms. As such, it is a transcendental principle that addresses nothing other than the manner by which Nature is judged. This principle is the condition for the possibility of applying logic to Nature and for representing Nature as a system. As Kant put it, the reflecting power of judgment “seeks concepts for empirical representations” and reflexion “has its direction in the idea of a nature in general”; the role it plays is therefore schematic, i.e. reflective judgment schematizes Nature [KANT5c: 16 (20: 212)]. Mere comparison is sufficient when concepts suitable for systematic schematization are already present in the manifold of concepts, but a special principle of judgment *is* required when an entirely new concept must be *found* in the first place. The presupposition of economical and suitable limited *forms* of natural laws is, Kant says, a principle *a priori* that must *precede* all comparison [KANT5c: 17 (20: 213)].

The judgment about the expedience in things of nature which is regarded as a ground of the possibility of the same (as natural purpose) is called a teleological judgment . . . Nature harmonizes necessarily not merely in regard to our understanding with its transcendental laws, but rather also with the power of judgment in its empirical laws and its capacity of the presentation of the same in an empirical apprehension of its forms through the power of imagination . . . On its own, as Object of a teleological *Beurtheilung*, it [Nature] is also to be thought congruently, in its causality, with *reason* according to that idea that it makes of a purpose [KANT5c: 34 (20: 232-233)].

Determining judgment has its laws (the categories), and so judges appearances objectively. Teleological reflective judgment, on the other hand, formulates empirical laws, and this in accordance with a merely subjective principle of logical expedience it endows to the empirical form of Nature. To the extent we call the representations arising through teleological reflective judgment “purposive” this purposiveness is mere expedience for judging and reasoning. Thus we say that the expedience of Nature serves a purpose (cognition of Nature), but not that the Object of Nature (the natural world) *has* a purpose. The role of the process of teleological reflective judgment is that of the systematizing function of representations, i.e. **its function is to make a system of Nature.**

§ 4. Belief

We call holding-to-be-true that is based on merely subjectively sufficient grounds, without also having a basis in an objectively sufficient ground, a **belief**. Now, the systematizing function of the process of teleological reflective judgment leads to the making of general yet still empirical concepts in the synthesis of the cycle of thought. However, as we have just seen, the fundamental principle of teleological reflective judgment is merely subjective; it is a principle for judging only, and not a principle that holds for the objects *per se*. At the same time, the connection of the concepts that arise through this process to consciousness is one such that these general concepts

are held-to-be-true without an objectively sufficient reason. Therefore, the empirical concepts and laws that constitute our *most basic* knowledge of Nature are held merely as beliefs.

Knowledge in the *Wissen* sense (what we usually call “certain knowledge”) requires *both* subjectively sufficient and objectively sufficient grounds. We are now in a position to see that our empirical laws and general concepts of Nature *as a system* not only lack the objectively sufficient ground required for “certain knowledge” but, also, that such Knowledge of the world *per se* in its general laws is beyond real possibility. This is why we say our knowledge of Nature is contingent, and this is why all sciences must admit of dubitability.

Here, however, we should draw an important distinction. We have seen that children begin life as uncritical realists. This means that the beliefs they hold regarding the Nature of the world in which they find themselves are held *without question*. In non-technical language we are prone to use the word “belief” to mean “something I think is true but of which I am not completely certain.” Put another way, when we say we “believe something” instead of saying we “know something,” we are making the acknowledgment, “I could be wrong, but I don’t think so.” In common speech, confessing a belief is confessing awareness that our experience does not provide us with objectively sufficient support for that which we believe and, consequently, confessing that it is possible to “question our beliefs.”

This is not the sort of belief we mean here in a technical sense. Although the Critical Philosophy teaches us that our empirical knowledge of Nature cannot be held-to-be-true to an absolute certainty, a teleological judgment confesses no “question” about what is judged. **Belief here is unquestioning holding-to-be-true** and only the growth of experience leads to the *necessitation* of questioning beliefs earlier held. This arises when experience gainsays concepts we have previously held-to-be-true without question. The sort of “belief” we speak of in our everyday usage of the word is more properly called **faith** because **faith is the holding-to-be-true of something with consciousness of a lack of sufficient objective grounds of proof**.

Very young children do not act on faith; they act on belief. Piaget often commented with an air of marvelous wonder at the amusing idiosyncrasies of childish logic, where the child could draw the most absurd and contradictory views (from the perspective of an adult) and yet simply fail to recognize the contradiction: Sparrows are birds, and robins are birds, yet the child does not know if there are more birds than there are sparrows “because I haven’t counted them.” Before one calls into action one’s powers of logical reasoning, there must first be a reason to do so. This reason to do so is nothing else than a disturbance in the cognitive structure of Nature, where conceptual judgments are perceived to be in logical contradiction with each other. This is a mental disturbance in the Piagetian sense of that word, a crack in the unity of Nature. Reflective judgment in its *teleological* function produces beliefs, but in its *aesthetical* function it also produces the ground of the possibility of *questions* by means of the feeling of *Unlust*.

The phenomenon of *questioning* has not received a great deal of attention from either psychology or philosophy. Those few AI researchers who claim that machines already think also seem to ignore this phenomenon completely. When we question something there is, in most cases, a conscious dissonance to some degree. This subjective state may be acute, as in the case of Kenge watching the buffalo get larger and larger, or it may be very mild, e.g., “Oh, that’s odd.” I would have to say that one ability a so-called artificial intellect lacks, at least so far, is the ability to *ask itself* a question. To question is an action on the noetic plane and this action is one taken as a step to restore equilibrium in the Subject’s state of understanding. The representation of the subjective *need* to question is a feeling of *Unlust*, and such a representation has its seat in the process of aesthetical reflective judgment. To *answer* a question is to achieve a re-equilibration in the Subject’s state of understanding, and although the synthesis of an answer calls into play the Subject’s entire capacity for thinking, the judgment of whether or not this equilibrium is achieved is placed in the hands of reflective, not determining, judgment. Questioning transforms what was the representation of a belief into the representation of a faith when the general concept is otherwise unaltered. The concept of an answer might be specious (e.g. witchcraft), or it might be learned (e.g. psychological mechanisms of depth perception and image perspective), but in either case, in so far as the *Beurtheilung* is objective, it is adjudicated by a teleological reflective judgment of logical expedience.

Kant has sometimes been criticized for his famous statement in *Critique of Pure Reason*, “I must set aside Knowledge [*Wissen*] in order to obtain room for faith” [KANT1a: 117 (B: xxx)].² Some, like Santayana, saw in this some sinister intent to overthrow science with religion. This is an absurd misrepresentation of Kant’s theory. One of the most obvious characteristics of human thought is that we *ask* questions. But this fact must have its Critical underpinnings in abilities necessary for the possibility of questioning. We find this ability in the process of reflective judgment where, first, unquestioned beliefs can arise through teleological reflective judgment, and, second, the disturbance of belief can arise through the process of aesthetical reflective judgment.

The determination of the object in the overall act of *Beurtheilung* is, of course, determined by the process of determining judgment. Teleological judgments are objective only insofar as the process of teleological reflective judgment participates in the overall cycle of thought. But we

² In most English translations of Kant this famous phrase is rendered, “Thus I had to deny knowledge to make room for faith.” This is, I think, an almost harmless deviation from Kant’s words, but there is a difference between “denying knowledge” - casting it all into some metaphorical black pit - and “setting it aside” to make room *alongside it* for faith as we have described it above. People do hold-in-faith a great many things besides God; for example, I have faith that I can lead most of my students to an understanding of the topic in my courses. But the phenomenon of holding-in-faith, like the other phenomena of mind, requires for its possibility a transcendental ground, and we find this in the process of reflective judgment.

must bear in mind that what is judged in teleological reflective judgment is merely logical expedience in the intuition, while that which is judged in aesthetical reflective judgment is the subjective expedience of this representation. As an example, note Kenge's initial explanation of what he was seeing as the buffalo became larger: Witchcraft. Here is the idea of a *cause*. In Kenge's world witches are "known" to cause things to happen. This is, on the one hand, a physical cause (the witch did it); but on the other hand it is a teleological cause because the manifestation of the witchcraft is by *design* (the witch must have *decided* to exercise her/his power of witchcraft for some sinister purpose).

This two-pronged causality is characteristic of most teleological *Beurtheilungen*.³ Laws of Nature can be known only through experience and here the power of judgment must serve up a principle for the *investigation* of Nature. However, because the principle of reflection is a merely subjective principle, it contains no *a priori* constitutive rule of objectivity and is only a regulation of the cycle of thought. The two-pronged causality inherent in a teleological *Beurtheilung* points to two maxims of judging at work in this process. From them arises what Kant called a *natural dialectic* of judgment in general:

The *first maxim* [of the power of judgment] is the *thesis*: All generation of material things and their forms must be judged as possible according to merely mechanical laws.

The *second maxim* is the *antithesis*: Some products of material nature can not be judged as possible according to merely mechanical laws (their *Beurtheilung* requires an entirely different law of causality, namely that of final cause). [KANT5c: 258-259 (5: 387)].

The mechanical law is, of course, causality as judged in the process of determining judgment and is what in this treatise we call physical causality. The final cause is merely the objective representation arising as a consequence of the teleological judgment of logical expedience. These two maxims do not make statements about the material things in Nature regarded as they are in themselves. They are merely regulative, and their opposition is subcontrary, not contradictory. It is only if we were to express these maxims as *constitutive* principles that they would be contradictory. Note well that Kant said "X is *judged* as" and not "X *is*" in the statement of these maxims.

We cannot judge any cause as a physical cause if we do not first have a concept of an object represented as the cause. The category of causality and dependency points us to the *Dasein* of an object (the cause), but it does not supply the representation of the *Existenz* of that object. The latter representation begins with a reflective judgment – what Palmquist likes to call a "non-cognitive cognition" and what I prefer to call "non-cognitive knowledge." In this case, this is the

³ When I speak of a *Beurtheilung* rather than a judgment, I am referring to the interplay of all the processes of judgment in our Organized Being model. Thus, a *Beurtheilung* involves determining, reflective, and practical processes of judgment all working in concert, i.e., it is a judgmentation.

knowledge subsisting in a judgment of expedience.

I understand . . . under an absolute expedience of natural forms that outer *Gestalt* or likewise inner structure of the same that are so constituted that their possibility must be fitted to the ground of an Idea of them in our power of judgment. For expedience is a lawfulness of the contingent as such. Nature proceeds with respect to its products as aggregates *mechanically, as mere nature*; but with respect to the same as systems . . . *technically*, i.e. at the same time as an *art*. The distinction between these two ways to judge natural beings is made merely through the *reflecting* power of judgment, which can perfectly well and perhaps even must allow to happen what the determining (under principles of reason) would not concede in regard to the possibility of Objects themselves, and which would perhaps even be inclined to knowing everything to be led back to a mechanical sort of explanation [KANT5c: 20-21 (20: 217-218)].

This statement is, of course, objectively valid only for Nature regarded as the Subject's world model and not for "nature herself" regarded as the *noumenal* world *per se*.

§ 5. The Transcendental Function of Teleological Reflective Judgment

Kant's *Critique of Teleological Judgment* contains the most brief treatment of any major topic found in the three great *Critiques*. In it Kant focused almost all his attention on teleological *Beurtheilung* rather than on a doctrine of elements and a doctrine of method for the process of teleological reflective judgment. Compared to the first two *Critiques*, the treatment given in the third is, as Palmquist has commented, "generally unsystematic" and it is left to us to root out the system that underlies teleological reflective judgment.

By "transcendental function of teleological reflective judgment" we mean the role played by the process of teleological judgment in Kant's system and the outcomes it produces insofar as these outcomes are necessary for the possibility of the unity of the phenomenon of mind in an Organized Being. We have been building up to this exposition for quite some time now, and the previous chapters of this treatise have contained a number of comments and observations relating to teleological reflective judgment in relationship to other parts of the system. The time has now come when we must begin to make all of this systematic and bring to light the general principles of organization that bring to a unity the major parts of the system.

To do so, we must examine *what* teleological judgment must accomplish and *how* it accomplishes it. The first requires a look at the matter of reflective judgment, the latter at its form. Our first concern will be with the matter of this process of judgment since it is clear that no fruitful speculation upon the form of reflective judgment can be undertaken without a clear picture of the matter contained in the manifold of the idea of this sort of judgment. Two judicial outcomes we must examine are immediately apparent: 1) making perceptions *objective*; and 2) the orienting of Reason in its regulative acts.

§ 5.1 Objectivity

Intuitions and concepts are the two types of objective perceptions with which we have been dealing throughout this treatise. Cognitions are representations in which these two are united in the process of thinking. We have also seen that intuitions arise in sensibility and do so as an outcome of the process of reflective judgment when a mere representation of sensibility is marked at a moment in time. Appearance, the undetermined object of an intuition, has been said to be referenced by every intuition, but the appearance is not *in* the intuition because an intuition is only the representation of the appearance. What we must now ask is: How does the property of **objectivity** come to be vested in a merely sensible representation?

The governing *a priori* law of all reflective judgments is the principle of the formal expedience of Nature. Because Nature is nothing other than the Subject's world model, this principle provides for Nature nothing other than a law for subjective judgments in the making of perceptions. What is there in the power of reflective judgment, then, by which subjective representations gain objectivity? In asking this question, we are not asking about constitutive details of objectivity; these details belong to the categories of understanding. Rather, we are inquiring into the Idea of objectivity *per se* – i.e. what it means for a representation to possess an objective character. We have no copy-of-reality upon which to pin the objectivity of perceptions, and so if perceptions are objective we have no recourse under the Copernican hypothesis other than to say that perceptions must be *made objective*, and this by some process of synthesis.

For a perception to be objective it must have an object. Now we have previously seen how subtle this idea turns out to be. We first encountered it, in the context of cognitions, in Chapter 3 (§§2.1 and 5.1) and elaborated upon this idea in Chapter 9 (§4.1). This led us to make a distinction between the terms Object and object. William James was led to make a similar distinction, and it will do no harm to repeat here what we have quoted before:

We have been using the word Object. Something now must be said about the proper use of the term Object in Psychology.

In popular parlance the word object is commonly taken without reference to the act of knowledge, and treated as synonymous with the individual subject of existence . . . It is at most your "fractional object"; or you may call it the topic of your thought, or the "subject of your discourse." But the *Object* of your thought is really its entire content or deliverance, neither more nor less [JAME2: 178].

In Chapter 9 we described Object as that in the concept of which the manifold of a given intuition is united. We said that the idea of an Object contains both the mental representation and "what" is being represented. This is the Critical viewpoint of an issue that has troubled philosophy since the time of Hobbes and Descartes, namely the riddle posed by the fact that we regard the object as something separate from its concept (i.e. object as *thing*) and by the seeming dualism that arises

from this when idealism trumps uncritical realism (as it does for both the empiricists and the rationalists). An Object is that which has no opposite; representation and object of representation are disjunctive opposites, and Object is their unity called for by the little word “of.”

To be an Object is to be both representation and what is represented¹. The “what” is the object. Appearance is the manner in which an Object conforms to our cognitions in accordance with the Copernican hypothesis. But in order to award an object with the title of being a somewhat, we must be able to *think* of the object as a some-*thing*. The difference between object as appearance and object as a thing is the difference brought out when we think of the object in terms of it having an *Existenz* independent of its mental representation.

Now here we come to the heart of what is required for a judicial representation to provide for the characteristic of objectivity. It must first be possible for a mere representation to acquire the character of having a subject-matter, a what-it-is-about. It must secondly be possible for the form of the Object (representation) to be combined with other representations in such a way as to make possible the thinking of its matter (the object) in terms of representation of its *Existenz* as separate from the thinking Subject. We have seen that all concepts in understanding first arise as an inference of judgment, and that such inferences fall to reflective, not determining, synthesis. This means that the ground for concepts lies with a regulative, not constitutive, principle of judgment and is thus beyond the power of the process of determining judgment. The objectivity of original concepts is therefore not objectivity from the theoretical Standpoint but, rather, objectivity from the *practical* Standpoint. Reflective judgment does not introduce any new kind of objectivity but merely serves as the bridge between practical objectivity and theoretical understanding by way of which *it is possible for practical objectivity to become theoretically objective*.

There can be no representation of the *Existenz* of an object (as transcendental subject-matter of cognition) by determining judgment unless there is first a concept of the *Dasein* of the object. In the theoretical Standpoint there is only one objectively valid ground for the determination of the *Dasein* of an object, and this is determinant judgment under the category of causality and dependency. But before determining judgment can apply this notion to concepts, there must first be an inference suitably marked in subjective time. Reflective judgment follows principles that are merely regulative, not constitutive, and so for the ground of the possibility of concepts *suitable* for determinant judgments under causality and dependency we must look to **regulative principles of expedience for practical causality**, and in such a principle we must find judicial grounds for the **orientation of speculative Reason** in employment of determining judgment for the making of such a determination.

¹ Hence, Object *qua* object is a *noumenon*. Kant called the idea of a *noumenon* a “boundary idea” that stands at the edge of our horizon of possible experience [KANT1a: 362 (B: 310-311)]. When we arrive at it, we can go no farther with objective validity.

We have called Reason the power to direct and regulate the spontaneity of an Organized Being insofar as this spontaneity is not autonomic. To find a regulative principle by which practical causality can lead to a determined representation as theoretical (physical) causality (which is the only kind of causality and dependency judged through the category of understanding), it must also be possible for perceptions to somehow combine with *actions* because the idea of a practical causality can be held objectively valid in our understanding only by means of actions giving rise to experience. In all the ideas we have thus far considered in this treatise, there is only one idea in which we find contained the seeds of such a regulative principle capable of joining together the subjectively practical and the theoretically objective. The object of an Object is the matter of the Object. Perception provides one with conscious representation, thus with only half of what is required for an Object, namely a form. A mere perception is united with an object when and only when that perception is given a **meaning**.

The Psychological *Realerklärung* of Empirical Meanings

This brings us face to face with that thorniest of questions that has appeared explicitly or implicitly throughout this treatise: What does “meaning” mean? In confronting this question the first thing we need to do is to distinguish between Meaning as an Object and what Piaget called “meanings”, which we shall here regard as the matter of composition for a manifold. The unity of this manifold is the *nexus* for our *Realerklärung* of Meaning, for which we require a *function* of connection.

That such a distinction between Meaning and meanings is necessary for our exposition finds support from at least two sources. In the first place it seems abundantly clear that any attempt to address the question runs the risk of becoming viciously circular if we do not draw such a distinction. In the second place it is easy enough to visualize the distinction of Meaning and meanings as the distinction between a logical genus and its species. Piaget seems to have taken this point of view:

As for the meaning of meanings, it is that they are the only instruments for understanding, in contrast with mere observations which, before being endowed with meanings, can only provide extensions devoid of any intelligibility [PIAG12: 120].

Toward the end of his life Piaget saw the possibility of bringing together the findings of his sixty years of research in an epistemological unification under the title of the logic of meanings. In the preface of his last book Piaget’s long-time collaborator, Bärbel Inhelder, writes:

Piaget intended to bring to light the very roots of logic by going back to implications between sensorimotor actions. Such a logic could only be a logic of meanings where implications are not restricted to statements: in the subject's view, every action or operation is endowed with meanings;

therefore, one may deal with systems of implications among the meanings of actions, and then among the meanings of operations. Provided that the meaning of actions and the causality of actions are carefully distinguished, the subject's expectations and anticipations about the chaining of actions bear witness to the existence of early inferences. Hence a privileged form of inference is the action implication, which is an implication between the meanings of actions. Piaget was thus initiating research on a "protologic" in which forms and contents are less differentiated than in operatory systems [PIAG12: vii-viii].

Piaget's research found that "meanings" at the earliest stages of life are always tied to actions of some kind and, in addition, always involve an implication of some sort (a "meaning implication"). A consequence of this is that, during the child's mental development, we can distinguish a variety of different kinds of meanings. Piaget writes:

As a conclusion, we shall classify the various forms of meanings and meaning implications. To begin with, the simplest are the meanings of predicates. They may be defined as the similarities and differences between one property observed in an object and other predicates that are recorded simultaneously or already known.

It follows that an object is a set of conjoined predicates and its meaning amounts to "what can be done" with it, and is thus an assimilation to an action scheme (whether the action is overt or mental). As for actions themselves, their meaning is defined by "what they lead to" according to the transformation they produce in the object or in the situations to which they are applied. Whether we are dealing with predicates, objects, or actions, their meanings always implicate the subject's activities, which interact either with an external physical reality, or with elements that were previously generated by the subject [PIAG12: 119-120].

We may note in the phrases "what can be done with it" and "what they lead to" a strongly teleological character in this idea of "meanings." Although Piaget died before the completion of *Toward a Logic of Meanings*, his collaborator on this project, Rolando Garcia, summarized his definition of "meanings" in the following fashion:

Meanings result from an attribution of assimilation schemes to objects, the properties of which are not "pure" observables but always involve an *interpretation* of the "data." In accordance with the classical definition of schemes ("a scheme is what can be repeated and generalized in an action"), we shall say that the meaning of an object is "what can be done" with the object, and this definition applies not only to the sensorimotor level but to the pre-operatory level starting with the semiotic function. However, meanings are also what can be said of objects, i.e., descriptions, as well as what can be thought of them, when classifying or relating them and so on.

As for actions themselves, their meaning is "what they lead to" according to the transformations they produce in the objects or the situations on which they bear [PIAG12: 159-160].

Piaget came to this conclusion from studies involving children as young as age thirteen months. Let us note Piaget's definition of an "object" as "a set of conjoined predicates" along with the corresponding definition of a "predicate" as "the similarities and differences between one property observed in an object and other predicates that are recorded simultaneously or already known." These definitions are not circular. The *meaning of* a Piagetian object subsists in the action schemes in which the "object" has been assimilated; in all cases the word "object" is

object-as-viewed-by-the-psychologist-observer. If we were to ask what defines an “object” from the viewpoint of the child, this definition could be nothing else than what Piaget has called “the meanings of the object.”

To help clarify this, let us recall from Chapter 9 Piaget’s models of the interaction structures. In the first stage of sensorimotor development, every observation of infantile behavior points to the child’s perceptual world as one consisting of an undifferentiated totality of innate schemes and the Piagetian objects that serve as aliments to these schemes. At this level there is no action-object distinction, a situation that Piaget denotes with his *Obs.OS*. The *S* part of *Obs.OS* is to be regarded as the totality of sensations arising from sense feedback from muscular, postural, and other data of the body-system. The *O* part we regard as sense-data that the psychologist-observer would say is determined by the peculiar characteristics of the Piagetian object – e.g. the taste of the thumb or finger *vs.* the taste of a blanket in two different instances of the sucking reflex. The scheme is not an observable (to the infant) in this model at this stage of sensorimotor intelligence.

Now let us suppose there is some particular Piagetian object that has been assimilated into two of the child’s elementary action schemes. We will represent this situation symbolically as

$$\begin{aligned} \text{innate scheme 1} &\Leftrightarrow \text{Obs. } O_1 S_1 \\ \text{innate scheme 2} &\Leftrightarrow \text{Obs. } O_1 S_2 \end{aligned}$$

At this first stage there is no coordination between the schemes and no object-action distinction made by the child. Now let us say that at a later stage these two schemes come to be coordinated (e.g. let us say scheme 1 is the grasping reflex and scheme 2 is the sucking reflex; coordination might involve, say, sucking the object that the child has grasped²). We represent this symbolically as:

$$\text{Coord. schemes } 1+2 \Leftrightarrow \text{Obs. } O_1 S_{1+2}.$$

The “point of intersection” of the two original schemes is the Piagetian object. At the level depicted above, there is still no distinction made by the child between the Piagetian object and the schemes for which it serves as an aliment. However, Piaget tells us, it is precisely this intersection in the coordinated schemes (the *S* parts of which are contained within the totality of the *Obs.OS* and which are presented together to the infant in the coordinated scheme) that leads to the major intellectual step of the child’s forming an objective distinction in a type I interaction at the next level, e.g.

² This example is something of a simplification. In fact there would be a third "scheme" involved in this, namely, the scheme of bringing the hand to the mouth (as in the acquired habit of thumb sucking).

$$Obs.S_1 \Leftrightarrow Obs.O_1$$

$$Obs.S_2 \Leftrightarrow Obs.O_1$$

(In this representation I have simplified the Type I interaction diagram by omitting the awareness and anticipatory observables, function *a* and function *b*, of Chapter 9). At this level, the meaning of object *Obs.O₁* is vested in the scheme observables, *Obs.S₁* and *Obs.S₂*, and, presumably, the subjective observables (feelings) that accompany the execution of these schemes acting on *Obs.O₁*. (Piaget's diagrams do not explicitly place these subjective factors, although his discussions of the theory implicitly acknowledge the presence of affectivity elements – “It is impossible to find behavior arising from affectivity alone without any cognitive elements. It is equally impossible to find behavior composed only of cognitive elements” [PIAG16: 2]).

To put things into the language of this treatise, meanings require *context*, and for the infant this context is possible only on the plane of his actions and their perceptual consequences. Thus, the meaning of, say, a rattle is that it is something to grasp, something to shake, something to suck, etc. Empirically, it is from such humble beginnings that logic takes its start.

I can almost see professional logicians bristling at this statement. However, the history of logic, leading up to and including symbolic logic, does not gainsay this finding. Piaget notes:

The mathematician, Pasch, has argued that the procedures of formalization run counter to the spontaneous tendencies of natural thought. He is clearly right if we accept a definition of natural thought in terms of the contents of the subject's consciousness: ordinary thought tends to be forward-looking, whereas formalization is retrospective - it aims at determining the necessary and sufficient conditions of all assertions and at making explicit all intermediate steps and consequences. On the other hand, if we consider the development and progressive elaboration of structures independently of the subject's awareness of them, then it seems that this elaboration consists in the separation of form from content, and in the creation of new forms by reflective abstraction starting from those of a lower level. In this respect the logician's formalization appears rather as the extension on a higher level of a unified process than as a reversal . . .

. . . But the genetic approach, reinforced by the conclusions of Chomsky's linguistics, shows that intelligence precedes language and that this pre-verbal intelligence already comprises a logic, namely one concerned with the co-ordination of schemes of action (unions, inclusions, order, correspondences, etc.). Second, one of our Center's 'Etudes' (vol. IV) has confirmed genetically the well-foundedness of W. Quine's criticisms of what he called one of the 'dogmas' of logical empiricism: the radical distinction between analytic and synthetic judgments. In reality, one finds intermediaries between them, and all relationships begin by being synthetic, becoming analytic in certain cases depending on their intensions (meanings attributed by the subject to concepts or operations which he uses, for example, the + in $2+3 = 3+2$) . . .

If logic is more than the axiomatization of a language, must we then conclude that it formalizes natural 'thought'? This is surely not so if, by natural 'thought', we mean the conscious thought of the subject, with his intuitions and his experiences of self-evidence; for these vary during the course of history (Bernays) and of development, and are no adequate 'foundation' for logic. On the other hand, we may go beyond the observable, and try to construct structures, not from what the subject says or thinks consciously, but from what he 'does' through his operations when solving what for him are new problems . . . Aristotelian logic provides an example - and an extremely informative example - of these links between natural structures and formalizing reconstruction, since it shows that the Stagirite was not aware of all the possibilities offered by these initial structures: he was unaware of the existence of the logic of relations and of set-structures. The reflective abstraction necessary for

formalization, and even for that example of intuitive semi-formalization known as the syllogistic, proceeds therefore by reconstructions with time-lags and hence stage by stage; and it is this procedure which makes possible all subsequent completions [PIAG27: 63-67].

Modern symbolic logic is a science (or, if one prefers, a mathematic) but it is not a fundamental science. The Logic of meanings has its foundations laid at a deeper level.

Apperception and The Judicial Idea

Piaget distinguishes between “the meaning of an object” and the Piagetian object. The latter he views from the perspective of his normative convention, and the Piagetian object therefore seems little different from our term “thing.” But he also concluded, “an object is a set of conjoined predicates,” a characterization seemingly at odds with his normative convention and which sounds rather like what we refer to as a Critical Object. Is “Object” then synonymous with “the meanings of an object” (“meanings” being taken in a Piagetian sense of “all can be done” with the Piagetian object)? Is this a correct Critical interpretation for the idea of an “Object”?

A Piagetian meaning, viewed under the Copernican hypothesis, is a combination made up of cognitions, possible actions (mental as well as physical), and purposes. Cognitions are perceptions made objective and so it would seem that to perceive an object is to know a meaning, but to know a meaning first requires an object to which the meaning applies. Does this constitute a vicious circle in reasoning, a chicken-and-egg paradox? If so, how can such a circle be broken or at least made not-vicious? If it does not, why would it not?

To find our way through this requires us to take the judicial Standpoint. Let us recall that this Standpoint is the one from which we consider the third of Kant’s questions that express the interests of Reason, namely, “What may I hope?” The judicial Standpoint is the Standpoint that considers the union of sensibility and actions, with the latter tied to the principle of expedience (i.e., regarded as possible only through reference to purposes). Accordingly, the judicial Standpoint takes for its topic the fundamental unity of sensibility, pure Reason, and the psychic Idea of *Lust per se*. As we said earlier (Chapter 10), the judicial Standpoint is the Standpoint concerned with the role of the power of judgment in the synthesis of knowledge insofar as that synthesis involves affective perceptions and insofar as that synthesis produces a *system* of experience.

The brief quotes of Piaget’s conclusions cited above show the term “empirical meanings” to have a variety of connotations. These include: 1) “what can be done” with a Piagetian object; 2) “what can be said or thought” of a Piagetian object (descriptions); and, in the context of actions, 3) “what is led to” by an action. These various connotations contain possibilities (the “what-can-be”) and are “future-directed.” The Piagetian object is known as “a set of conjoined predicates” and this “set of predicates” is said to “have a meaning” *when assimilated to* action schemes.

We may also note that Piagetian meanings function as “instruments for understanding” by which it becomes possible for “mere observation” to become “intelligible.” Now useful as these descriptions are, they also fall somewhat short of serving as a complete definition of meanings or Meaning. To better understand the significance of Piaget’s empirical meanings we may examine them in context with the stages of development of sensorimotor intelligence. First, in the earliest stage of life we find a combining of sensuously-given stimuli and innate reflexes. Not every sensuous representation with which the infant is presented can always be said to be so-joined, but some particular stimuli seem to be strongly joined to apparently innate behaviors. We see this in the sucking reflex, the looking reflex, the listening reflex, the phonation reflex, and the grasping reflex.

Second, within the first few weeks of life these earliest innate responses develop into habits. The primary circular reactions of sensorimotor Stage II function principally as recognitory assimilations. In this way a process of specification – that is, a process of elementary classifications at the sensorimotor level – comes to be realized. Third, prior to the formation of type I interactions the behavior of the infant implies that recognition at this stage is recognition only of a kind of global state-of-being (*Obs.OS*). It appears to be the case that the subjective (i.e., affective perception) grounds the activities of the infant. Yet at the same time it seems to be clear that the groundwork for objectivity is being laid through the connection of sensuous representations to action schemes. It is not unlikely that objectivity here is syncretic and corresponds most closely to what James called the transitive part of thought, with James’ substantive part of thought being in evidence only in the totality of the infant’s circular reactions. If this is so, then it suggests that the unification of stimuli and actions proceeds through the aesthetic Idea. Yet by itself the aesthetic Idea – which in our theory contains no behavioral action-expression – is not enough. Consequently, in addition to the aesthetic Idea and the aesthetical reflective judgment that gives rise to elementary perceptions we must have something else, *viz.* a **judicial Idea**.

What we require for an idea of transcendental Meaning is a principle of this unification. A principle for transcendental Meaning must accomplish all of the following: 1) Sensuous representation must be joined with activities, both physical and mental; 2) Objectivity requires that the intuition must eventually be able to be seen (by the Subject) as the ground for the activity; this is, after all, why we call a meaning “objective”; 3) The joining of sensuous representation to activity must be such as to permit accommodation; 4) The joining must take place in such a way as to leave open the possibility of the development of appetites of inclination and the possibility of making choices; 5) The joining must have a relationship with *Lust per se* (the *Kraft* of the adaptive *psyche*); 6) Transcendental meanings must lead to a *Realerklärung* of appearances in sense and objects in a logical structure; 7) The joining of sensuous stimuli with activities must also contain a representation in consciousness (apperception), but must not do so in such a way that the Subject’s motoregulatory acts have conscious representation (because we are *not*

conscious of any representation of our motor acts themselves but only of the sensuous feedback arising from actions); 8) Finally, the joining of sensuous stimuli with activities must be made in such a way as to make possible the systematic development of Piagetian structures.

Now so far as meanings and objectivity are concerned, these outcomes are clearly linked up with the idea of *consciousness* since we cannot hold a representation to have either object or meaning where consciousness is absent. Objectivity is indeed one of the principal characteristic marks of the phenomenon of consciousness. James wrote:

Looking back, then, over this review, we see that the mind is at every stage a theater of simultaneous possibilities. Consciousness consists in the comparison of these with each other, the selection of some, and the suppression of the rest by the reinforcing and inhibiting agency of attention. The highest and most elaborated mental products are filtered from the data chosen by the faculty next beneath, out of the mass offered by the faculty below that, which mass in turn was sifted from a still larger amount of yet simpler material, and so on. The mind, in short, works on the data it receives very much as a sculptor works on his block of stone . . . Just so the world of each of us, howsoever different our several views of it may be, all lay embedded in the primordial chaos of sensations, which gave the mere *matter* to the thought of all of us indifferently. We may, if we like, by our reasonings unwind things back to that black and jointless continuity of space and moving clouds of atoms which science calls the only real world. But all the while the world *we* feel and live in will be that which our ancestors and we, by slowly cumulative strokes of choice, have extricated out of this, like sculptors, by simply rejecting certain portions of the given stuff . . .

But in my mind and your mind the rejected portions and the selected portions of the original world-stuff are to a great extent the same. The human race as a whole largely agrees as to what it shall notice and name, and what not. And among the noticed parts we select in much the same way for accentuation and preference or subordination and dislike. There is, however, one entirely extraordinary case in which no two men ever are known to choose alike. One great splitting of the whole universe into two halves is made by each of us; and for each of us almost all the interest attaches to one of the two halves; but we all draw the line of division between them in a different place. When I say that we all call the two halves by the same names, and that those names are "*me*" and "*not-me*" respectively, it will be seen at once what I mean. The altogether unique kind of interest which each human mind feels in those parts of creation which it can call *me* or *mine* may be a moral riddle, but it is a fundamental psychological fact [JAME2: 187].

This "fundamental psychological fact" points us to the principle in which all of the diversity we discussed above shares a common point, and this principle is none other than the principle of the unity in apperception. To explore objectivity and transcendental Meaning we must explore, from the Copernican Perspective, the full import of this basic acroam of the phenomenon of mind.

The principle of unity in apperception does not stop short of the totality of perception-giving *processes*. Indeed, if we were to hold that its boundary is confined to conscious representation alone we would be ignoring the role of what Freud call "the unconscious" in mental life. The representations we call perceptions properly are tied to moments in subjective time, but these moments are mere boundary markers and do not constitute that pure intuition we call time. As we have noted before, one moment in time "grows out of" the previous moment and we cannot with objective validity divide up time into simple parts. Another of the fundamental marks of

consciousness is that it is, as James said, sensibly *continuous*:

I can only define "continuous" as that which is without breach, crack, or division . . . The only breaches that can well be conceived to occur within the limits of a single mind would either be *interruptions, time-gaps* during which the consciousness went out altogether to come into existence again at a later moment; or they would be breaks in the *quality*, or content, of the thought, so abrupt that the segment that followed had no connection whatever with the one that went before. The proposition that within each personal consciousness thought feels continuous means two things:

1. That even when there is a time-gap the consciousness after it feels as if it belonged together with the consciousness that went before it, as another part of the same self;
2. That the changes from one moment to another in the quality of the consciousness are never absolutely abrupt.

Consciousness, then, does not appear to itself chopped up into bits. Such words as "chain" or "train" do not describe it fitly as it presents itself in the first instance. It is nothing jointed; it flows. A "river" or "stream" is the metaphor by which it is most naturally described. *In talking of it hereafter, let us call it the stream of thought, of consciousness, or of subjective life* [JAME2: 154-155].

Now, the aesthetic Idea provides sensible continuity. It is a representational “glue” at work “between” moments in time. While not itself a perception, it nonetheless is a representation necessary for the possibility of perceptions as these are experienced by human beings. The aesthetic Idea belongs to sense and we have previously established that as a 2LAR our representation of it has the form

aesthetic Idea = {analytic aggregation, quickening, harmonization, awareness}

where these constituent ideas correspond conceptually with the logical functions of understanding in judgment as the particular (for analytic aggregation, i.e. recollection), the negative (for quickening, which is aesthetic symbolism), the disjunctive (for harmonization of content in both apperception and apprehension of affective perceptions), and the problematic (in a direction of awareness). We can most fitly describe the aesthetic Idea in our present context of objectivity and Meaning as **the function of continuity in perception**.

This continuity in perception is necessary for unity in apperception but is not a sufficient condition for this unity. The first ground of apperception is the *I* of transcendental apperception, and all ideas of objectivity or Meaning must ultimately fall back upon the representation of continuity in the *Existenz* of the Self. As we have seen previously, the ground for the thinking of all objects as things rests upon a *practical* causality in the real division between the Self and the not-Self. Empirical consciousness is the representation that a representation is in *me*, and this idea makes no sense unless this “me” is thought as continuous in *Existenz*. **The idea of a function of continuity in Existenz is that which we name the judicial Idea.**

Now the judicial Idea is not the idea of an Object; the Object presupposed in positing the judicial Idea is the Organized Being itself. The judicial Idea, as the function of continuity in *Existenz*, takes its context from the appearances of the Self in relationship to the peculiar property of consciousness we have called the “sense of aliveness” that is the hallmark of the phenomenon of apperception. Neither is the judicial Idea a representation of the *Existenz* of the Self but, rather, is merely an Idea of the conditions necessary for *continuity* in this *Existenz*. While we might think of the marking of a moment in time by reflective judgment as a pulse of consciousness corresponding to what James called the substantive part of thought, the judicial Idea is a representation that is subjectively felt “in the present moment” but which is nonetheless a *nexus* of *Existenz* whose form is characterized as persistent throughout subjective time according to both the principle of the unconditioned unity in apperception (which is a general acroam of Organized Being) and the special principle of reflective judgment, namely the principle of the formal expedience of Nature. With regard to the latter principle, the formal expedience is in this case *objective* formal expedience (because the judicial Idea “belongs with” the process of teleological reflective judgment), whereas formal expedience in the case of the aesthetic Idea pertains merely to subjective formal expedience (because it “belongs with” the process of aesthetical reflective judgment).

It is not out of place here to repeat something we quoted in Chapter 8 (§6.5) in our discussion of the *nexus* of perception:

The capacity for knowledge [*Das Vermögen der Erkenntniß*] of the present as a means of the connection of the representation of what is foreseen with that of the past is the power of designation [*das Bezeichnungsvermögen*]. The act of the mind in effecting this connection is designation (*signatio*) [AK7: 191].

Intuitions are the matter of the *nexus* of perception but the mere representation of an intuition is without an object of any kind unless there is also some *significance* attributed to this representation by the thinking Subject. To make an intuition the sign of an object (*signatio*) is one thing; to establish the condition by which alone objectivity is possible *for the Organized Being* is something else. Here we have a very subtle distinction, for in our judicial Standpoint we are not looking at the conditions for the representation of an object by means of characteristic marks and the formations of sensations (i.e. the *Gestalt* of intuition). We are instead looking at what it is for anything to be objective. To put it another way, **objectivity is a function** and we are inquiring as to *what practical consequences of being affected are those that establish the effect as not merely subjective* in the absence of a copy-of-reality in representation.

Again, the standard of reference (the norm) of all objectivity is grounded in the “sense of aliveness” we call the transcendental *I*. Psychology tells us that the formation of object-concepts

develops slowly in an infant and that knowledge of objects, as we come to know them in adulthood, proceeds from thoroughly *practical* assimilations in action schemes in the sensorimotor stage of development. Perhaps the most important event in the development of intelligence comes when the child first makes for itself that crucial representation, thought as a real division, of the opposition of the Self and the not-Self. But even before this key event comes to pass it is evident that the mental “groundwork” is being laid in the discrimination of appearances.

In the sensual and the phenomenal . . . that which antecedes the logical use of intellect is named *appearance*, but the reflexive cognition which arises from intellectual comparison of many appearances is designated *experience* [KANT7: 129 (2: 394)].

The power of designation is not a special “organ” in our anatomy of *nous*; designating is rather a complex of activities, the unity of which depends upon the possibility of the Organized Being’s representation of continuity in its own *Existenz*. Without this continuity there could be no *practical ground* for uniting appearances in the concept of an object because without this continuity all consciousness of sensibility would not even be a flux, much less a system. To put it another way, if the Self is the standard gauge for discriminating between the selfish and the not-selfish, then it is necessary that there be contained within the faculty of an Organized Being some schema of the unity of perception (from which come cognitions of physical causality and dependency) and action (from which comes our inference of practical causality). The matter of this schema subsists in the judicial Idea.

In terms of our general 2LAR of representation, the Quantity of the judicial Idea falls under identification as form of the matter of continuity in *Existenz*. In terms of the logical functions of understanding in judgment, this Idea is *singular* (there is always only one “me” in apperception¹). It is the Idea of continuity in *Existenz* in terms of the identity of sensible affectivity and practical activity. The Quality of the judicial Idea is subcontrarity as the matter of the matter of continuity in *Existenz*. The corresponding logical function of understanding is the infinite (x is not- y). To understand this classification, we must first bear in mind that the *Dasein* of the transcendental *I* is entirely syncretic, i.e. the *I* admits of no real division. But on the other hand *Existenz* involves limitation in the representation of the Self and is empirical (not transcendental). Just as we must regard the objects in Nature as limitations of Nature *per se*, *Existenz* is to be regarded as a limitation in appearances referred to transcendental *Dasein* according to empirical circumstances.

¹ It may be worthwhile here to review the discussion in Chapter 5 (§3) on conversion hysteria and dissociated states/multiple personalities. The judicial Idea is not a cognition; it rather belongs to what we have termed “non-cognitive knowledge.” Continuity in *Existenz* is an Idea that does not pertain to the cognitions in empirical consciousness but, rather, to the *condition* for which empirical cognitive consciousness is the conditioned. The judicial Idea is not a perception and in Freudian terminology it belongs to “system *Ucs*” (“the unconscious”) rather than “system *Cs*” (“the conscious”).

Continuity of *Existenz* is subcontrarity because it coalesces mere logical divisions (not-*Dasein*) in apperception. Just as natural objects are said to be contained *in* Nature, we say *Existenz inheres in Dasein*.

As for the *nexus* of the judicial Idea, its Relation (form of the form) falls under the idea of the external as the connection of the *state of Existenz* “at” one moment in time to the state of *Existenz* “at” another moment in time. In terms of the logical functions of understanding, this is the hypothetical Relation. Continuity in *Existenz* is nothing less than the functional ground of thinking continuity in appearances (which gives rise to object concepts through reasoning) and of the possibility of behaviors in response to both sensuous stimuli and intellectual representations. When we discussed the objective validity of the causality of freedom, we said that this objective validity requires the possibility of a “transformation” by which practical causality could also be represented in terms of physical causality (i.e. causality in accordance with the conditions of subjective time). In our theory we must be able to (as Margenau put it) “transform a purpose into a cause.” Expedience is “the congruence of a thing with that property of things that is only possible in accordance with purposes.” Now, the idea of a purpose is practical, that of physical causality is theoretical. The one belongs to pure Reason, the other to determining judgment. The judicial Idea is in Relation the congruence function of the practical and the theoretical and, indeed, is that attribute which, more than any attribute of reflective judgment, functionally expresses objective expedience. It is a ground of the possibility of *objective appetites in concreto*². When we call the judicial Idea the external Relation, what we mean by this is that it connects otherwise disjoint representations of our logical divisions of *nous* and *psyche* (and not that it connects one object concept or appearance with another in the process of thinking; that job belongs to the processes of determining judgment and the synthesis of imagination and we are speaking here from the judicial rather than from the theoretical Standpoint). The judicial Idea is hypothetical Relation because it expresses as a *condition* (the condition of formal expedience) in the continuity of *Existenz*.

As for the Modality of the judicial Idea, the matter of the form for *nexus* of continuity in *Existenz* is the idea of the determination. In terms of the logical functions of understanding in judgment, the aesthetic Idea is problematic and goes to the determinable in sense; the judicial Idea is assertoric in representing the determination of continuity in *Existenz*. We spoke earlier of the unquestioning character of belief. All teleological judgments insofar as they concern the actual presentation of *Existenz* admit no dubitability; only the judgment of the subjective inexpedience of concepts, in the free play of imagination and understanding, give rise to doubt, and these belong with aesthetical, not teleological, judgment. Summarizing our representation of

² The Latin word *concretio* means “formation into solid matter or the condition of being so formed.”

the judicial Idea in terms of the logical functions of understanding in judgment, we have

judicial Idea = the judicially {singular, infinite, hypothetical, assertoric}.

This exposition of the judicial Idea as the function of continuity in *Existenz* suffices for now in bringing this section to its conclusion, which we will now do.

Objectivity and Meaning

The concept of an object *as* an object is always determined according to the category of substance and accident (persistence in time) and the category of unity. In the aesthetic and judicial Ideas we have the functions of continuity in perception and continuity in *Existenz*. These are the subjective conditions of the possibility and actuality of objectivity in cognition. In terms of the logical functions of understanding in judgment, the aesthetic Idea is

aesthetic Idea = the judicially {particular, negative, disjunctive, problematic}.

Objectivity, as we said earlier, is a function, and we are now in a position to provide for it an explanation as *the function of continuity in Nature*.

The aesthetic Idea belongs to sense, is the function of continuity in perception, and is a condition for the possibility of cognition *in concreto*. The judicial Idea is the function of continuity in *Self-Existenz*, and through this continuity affectivity is joined to activity. As actions give rise to sensible and cognitive effects (in sensibility), we see in these Ideas the structure of a feedback loop in the overall structure of the Organized Being: sensibility leading to action which, in turn, leads back to sensibility. Both are transcendental conditions necessary for the possibility of being conscious of Nature. In terms of the hypothetical-judicial perspective (that is, Rational Cosmology viewed in the judicial Standpoint), the aesthetic and judicial Ideas speak, respectively, to: 1) consciousness of Nature (coexistence of the Self and other objects in Nature as transcendental objects); and 2) consciousness of the Self in Nature (as succession in *Existenz* of the Self *in* Nature). In terms of the cosmological Ideas, these address: 1) the Quality of Nature (in the Idea of the absolute completeness in a common ground of beliefs in all reflective judgments, which is the Idea from the judicial Standpoint); and 2) Relation in Nature (in the Idea of the causality of freedom as the origin of all appearances, which is the Idea as seen from the judicial Standpoint).

Nature, as we have said repeatedly, is the Organized Being's world model, and the aesthetic and judicial Ideas are functions in the organization of this world model. Yet, as Quality and Relation of *the synthesis in continuity*, these Ideas by themselves provide neither the complete

composition of objects nor the complete manifold of the natural *nexus*. We arrive at our deduction of the objectivity function through the synthesis of the logical functions of the aesthetic and judicial Ideas. In terms of the logical functions of understanding in judgment, this synthesis easily yields:

aesthetic Idea + judicial Idea → objectivity = {universal, affirmative, categorical, apodictic}.

As a judicially universal function, objectivity is an Idea of the integration of continuity in perception and *Existenz*. As an affirmative function, objectivity is an Idea of agreement expressing a transcendental affirmation of Nature, namely as the *logical* expedience subsisting in *subjective* representations. As a categorical function, objectivity is an Idea of internal Relation, i.e. the logical essence of Nature. And as an apodictic function, objectivity expresses the objective expedience of Nature as an expedience made necessary by the principle of reflective judgment, which holds that Nature is to be judged as constituting a system. Objectivity addresses the Quantity of continuity as Nature structured through the homogeneous composition of the extensive magnitude in every appearance in empirical consciousness (an Idea of absolutely complete equilibrium in judgmentation, which is the cosmological Idea of Quantity from the judicial Standpoint). In short, the objectivity function expresses the Idea of Nature as the persistent in all appearances, i.e. it is **the function of continuity in Nature**.

Objectivity, the aesthetic Idea, and the judicial Idea are, therefore, functions of continuity with regard to the Quantity, Quality, and Relation in the *formation* of knowledge through a process of *synthesis in continuity*. As for the Modality function, here we must recall that Modality adds nothing to the Object but only to the relationship of this Object to judgment. Now, from our deduction of objectivity via the synthesis of the aesthetic and judicial Ideas it follows that ***the possibility of knowledge of the object subsists in the context of the continuity in Existenz through activities arising from and interacting with continuity in the matter of the nexus of perception***. The matter of the form for this context is Meaning in general, and consequently **meanings are coherences of perceptions and activities**.

Intuition is the matter of the *nexus* of perception. Activity is the unity of act and action³. **The critical Realerklärung of Meaning is found in the context of the Modality function of continuity**. All transcendental meanings *in concreto* are limited activities that must necessarily presuppose the function of Meaning as a substratum of their possibility. We quoted Kant earlier as saying that sense, imagination, and apperception are the three subjective sources of knowledge. The aesthetic Idea is the continuity function of sense insofar as through it the unity of sensibility in time is synthesized. The judicial Idea is the continuity function of apperception insofar as through it the continuity in *Existenz* is synthesized. Objectivity is the continuity function of

³ An act is the determination of a *Kraft* as a cause of accidents; action is change in appearance of accidents; activity combines act and action as an object.

imagination insofar as through it unity in understanding is synthesized according to expedience in Nature. Meaning is *the continuity function of judgmentation in general (Beurtheilung)* and through this function is synthesized *the unity of the faculties of mind* (faculty of knowledge, affectivity⁴, and appetitive power [KANT5c: 44-45 (20: 245-246)]) according to the fourth cosmological Idea. **Meaning is coherence in the context of life.**

We do not express Meaning in terms of the logical functions of understanding in judgment. The reason for this is a simple one: *understanding presupposes Meaning*. Thus, Meaning is not a logical function of understanding in judgment but, rather, an *a priori* condition necessary for the possibility of understanding, therefore for experience, and hence is a *transcendental* synthetic function. When we discussed the *Realdefinition* of the categories of Modality in Chapter 8 (§6.5), we said that an intuition is *made* symbolic and *ipso facto* is endowed with a meaning. This endowment of a meaning is grounded in nothing else than a judgment of formal logical expedience (and therefore belongs to teleological reflective judgment) through the judgment of a connection of the intuition with a possible activity. An intuition is made through the function of the aesthetic Idea; an intuition connects in apperception through the function of a judicial Idea; an intuition is made objective through the function of objectivity; an intuition acquires a reference to an appearance by *assimilation into Nature* through meanings (which are accommodating) *structured* in accordance with (and thus expedient for) an Ideal of equilibration through the continuity function of Meaning. In this we see transcendental Meaning as **an organizing function for activity serving the categorical imperative** and, consequently, as a regulative function of *Beurtheilung* and as a condition of the unity of pure practical Reason and pure speculative Reason. Thus we see that we will have to make an examination of the synthesis in continuity to properly place the idea of an Object in relationship to the idea of meanings.

§ 5.2 Orientation

Of all the capabilities of the phenomenon of mind, perhaps none is so easily observed and yet so sublime as a human being's ability to conceive and use ideas of supersensible objects (*noumena*). These are the boundary ideas of possible experience where the *Dasein* (but not the *Existenz*, i.e. inner determination) of *noumena* are known. This remarkable ability shows up in the early years of life in the imaginative play of children. The observable display of this capacity of mind marks what Piaget called the semiotic function of intelligence. It bespeaks of the use of the speculative power of Reason through the formation of maxims of thinking. While it is true that ideas of the supersensible arise from experience through thinking (spontaneity), it is also nonetheless the case that no supersensible object can be sensibly *given in* experience (determined in an intuition), and so the explanation of this capability must be sought elsewhere than in the data of the senses.

⁴ the capacity (*Vermögen*) for the feeling of *Lust* or *Unlust*.

Kant opened his 1786 essay, “What Does It Mean to Orient Oneself in Thinking?” with the following remark:

All of us wish to apply our concepts ever so high and by them to abstract ever so far from sensibility, yet for all of that they still always attach to figurative representations from which their proper determination is drawn from nothing else than experience, to make them suitable for *application to experience*. For how would we secure sense and meaning for our concepts if we would not underlie them from some intuition (which must always ultimately be from an example from some possible experience)? When afterwards we omit from this concrete act of understanding the admixture of the image, especially the accidental perception through senses and then even the pure sensuous intuition in general, then that remaining is pure notion of understanding, whose scope is now widened and contains a rule of thinking in general. In such a way general logic comes to be and many *heuristic* methods in thinking perchance still lie concealed in the application of our understanding and reason to experience [KANT12a: 7 (8: 133)].

What we can empirically deduce of the intellectual processes of the infant from its behavior early in life gives us no firm ground for concluding that the infant engages in the exercise of a power of speculative reasoning in the abstract. Quite the contrary, the infant’s early thought processes appear to be entirely in the practical realm. This should not be surprising. On the one hand, the infant’s brain is still immature and lacks the organization of synaptic interconnection that growth and development will produce in the next few years. On the other hand, the infant comes into the world possessing no experience other than what little might perhaps be possible from within the womb. Abstract speculation abstracts *from* concrete experience, and without such experience there is no conceptual matter from which to make abstraction.

And yet experience is gained. The later emergence of behaviors indicative of an on-going process of accommodation of sensorimotor schemes is also at the most fundamental levels indicative of an on-going transformation of conceptual representation from which the possibility of the development of ideas, albeit very rudimentary ideas, takes its ground. The transition from the practical to the speculative use of Reason follows a slow course, and here we must inquire into the ground for the *setting* of that course. To find a *direction* for reasoning to take is what is meant by the orientation of the process of thinking, and we must seek the possibility of setting such a direction within the Organized Being itself. Kant illustrated this by means of an analogy:

To orient yourself in the proper sense of the word means: to find from a given global direction . . . the others¹, literally to find the *rising*². See I now the sun in the sky and know that it is midday, then I know how to find south, west, north, and east. Yet on this behalf I certainly have need of the feeling of a difference in my own subject, namely the right and left hand. I call this a *feeling* because these two sides outwardly display in intuition no evident difference . . . Thus, for all the objective data in the sky, I orient myself geographically only through a subjective ground of discrimination [KANT12a: 8 (8: 134-135)].

¹ That is, to find other directions.

² Kant’s word was *Aufgang*, which is “rising” as in the *rising* of the sun in the east (the Orient).

After expanding for a bit on this analogy, Kant came to a more general connotation for the idea of orienting oneself:

Finally I can widen this idea even more inasmuch as it passes as a capacity to orient oneself not merely in space, i.e. mathematically, but also in *thinking*, i.e. *logically*. One can according to analogy easily guess that this will be a business of pure reason to guide its employment when it will go beyond all borders of experience and find absolutely no Object of intuition but merely space for the same³; whereupon there it is no longer in a position to bring its judgments under a determinant maxim according to objective grounds of knowledge, but on the contrary merely according to subjective grounds of discrimination in the determination of its own capacity of judgment. This subjective means thereupon remaining is nothing other than the feeling of reason's own **need** . . . But where it is not arbitrary whether or not one determinably judges something, where an actual *need* attaches that makes judgment necessary, and to be sure is one which attaches to reason regarded as it is in itself, and yet lack in regard to the fragments of knowledge requisite for judgment curtails us: then a maxim is necessary, according to which we take our judgment, for reason will be satisfied [KANT12a: 9-10 (8: 136)].

We do not feel the need to attend to and understand everything that comes our way. But never the less we do seem to have a need to judge and understand *some* things – which is merely to say that we find things to attend to, and from feelings of puzzlement and curiosity seem to find ourselves driven to at least attempt to make sense of the objects of such experiences. Yet the *feeling* of such an urge is not to be placed within the capacity of pure Reason because

Reason feels not; it realizes its lack and effects through the impulse for knowledge the feeling of the need. It is the same way with moral feeling⁴, which does not cause any moral law, for this⁵ springs entirely out of reason; on the contrary the active and yet free will needs determined grounds caused or effected through moral laws, hence through reason [KANT12a: 12fn (8: 139-140fn)].

It is from argument through these analogies that Kant came to his general explanation of the idea of orientation in thinking. We may extract from his comments two key characteristics found in this idea. In the first place, we have the idea that Reason has “needs” of some sort, and it is but a short step to generalize beyond this specific idea to the broader idea of “needs” of an Organized Being generally. But what is a need? We looked earlier in this treatise at modern psychology’s descriptions of needs. Kant, however, predates modern psychology and so we should regard “need” in the present context in its more common connotations. From the dictionary we have:

need, *n.* [ME. *need, nede*; AS. *nyd, ned, nied*, necessity, compulsion, want.]
1. necessity; compulsion; obligation; as, there is no *need* to worry now.

³ By "space for the same" Kant refers to the form of an intuition of an object that is obtained as an outcome of productive imagination. "Space" is the Critical Philosophy's name for the pure form of an intuition of an object of outer sense. Kant means here that the intuition is empty, i.e. devoid of sensational matter.

⁴ i.e. those feelings we often call "feelings of conscience."

⁵ i.e. moral law as an objectively determined concept of a tenet of right and wrong.

2. a lack of something useful, required, or desired; a call or demand for the presence, possession, etc. of something; as, I feel the *need* for a long rest.
3. something useful, required, or desired that is lacking; want; requirement; as, what are his daily *needs*?
4. (a) a condition in which there is a deficiency of something; a time or situation of difficulty; a condition requiring relief or supply; as, a friend in *need*. (b) a condition of poverty; state of extreme want.

Of these definitions (2), (3), and (4a) best fit the context Kant uses in the quotes above. So far as orientation in thinking goes, we know enough of the Critical Philosophy at this point to expect that the idea of “needs of Reason” will be an idea tied to the dictates of the categorical imperative. We may also expect from our previous examination of *psyche* and the Idea of *Lust per se* that the idea of “need” must also be tied to somatic conditions and exhibited as in a stimulus to take actions, both physical as well as noetic.

The second characteristic contained in Kant’s argument is that need-based determinations are based ultimately on non-objective (i.e. *subjective*) grounds. We have seen previously in this Chapter that objectivity as a condition of objective knowledge takes its transcendental place within the synthesis in continuity, and this process belongs to that part of the intelligible powers we term the non-cognitive power of knowledge. Reflective judgment is not objective judgment but rather the *condition of* objective judgment. Thus we come to our *Realerklärung* of what is meant by the idea of an act of orientation in thinking: **To orient oneself in thinking means to make a determination according to a subjective principle in the face of insufficient grounds in objective principles for the holding-to-be-true of the judgment.**

Judgment in this case is not confined to the objective determinations of the process of determining judgment and, indeed, all determinant judgments are objective judgments since they are based on the pure *a priori* categories of understanding (which define objects through concepts). Here we may see the significance in Kant’s remark that orienting judgments go to the *application* to experience: General *Beurtheilung* (judgmentation) does not stop with the mere making of concepts but extends to *making use* of concepts to understand new phenomena, and thereby extends the experience of the reasoning Subject.

Now, thinking is merely one activity among many. We require an extension of Kant’s explanation of orientation in thinking to an explanation of general orientation in acting. In Chapter 15 we examined the principle of acting in the particular, namely the *Lust* Principle: **Orientation in acting is the determination (in act) of an action judged expedient for the negation of the intensive magnitude of *Lust per se*.** To extend this principle to the general case is a practical extension and, as such, it goes merely to the question of what in the faculty of Organized Being is necessary for the possibility of acting in the particular.

If for a moment we back away from the technical details of the explanation of orientation, in order to recapture the flavor of this term, we can say that to “give an orientation” to something means “to give it a direction” in some sense of the word “direction.” This idea of a direction has come up before in this treatise, especially in Chapter 13 during our discussion of practical Reason. There we said, a number of times, that the categorical imperative “gives a direction to” the construction of practical tenets and laws. This is *practical* orientation. We also described the Ideal of happiness as “giving a direction” to an Organized Being for its activities. The idea of happiness has its tie-in with the categorical imperative through the principle of happiness, i.e. that an Organized Being’s disposition to act on the basis of the matter of desire is a principle of practical Reason. Inasmuch as all acting is orienting the state of the Self according to an Ideal of perfect expedience in the whole of *Self-Existenz*, and recalling that this Ideal is an ideal of perfect equilibrium, the *Lust* Principle also contains its tie-in with the categorical imperative of pure practical Reason. *Lust per se* viewed in terms of its coordinate terms (*Lust* and *Unlust*) can likewise be viewed in terms of directions of orientation. All of this points to a necessary connection between *psyche* (as the faculty of animating principles) and *nous* (in terms of its capacity for *Beurtheilung*).

Such a connection is a logical bridgehead necessary for the possibility of the real reciprocity of *nous* and *soma*. In the idea of orientation in thinking we spoke of determination according to a subjective principle of holding-to-be-true. **In the more general sense of orientation, we speak of determination according to a subjective principle of *holding-to-be-binding* under the categorical imperative.** We have already seen that on the one hand there is a connection of *psyche*’s *Lust per se* with aesthetical reflective judgment through the *feeling* of *Lust* or *Unlust*; this is aesthetical orientation. However, affective perception in aesthetical judgment gives no object that we can say this orientation is directed to, nor does it establish any activity to submit to practical Reason for a choice. For these we must also require a judgment of formal logical expedience:

The judgment about the expedience in things of nature, which is regarded as a ground of the possibility of the same (as natural purpose), is called a teleological judgment [KANT5c: 34 (20: 232)].

A teleological judgment compares the notion of a product of nature as it is with one of what it *ought to be*. Here the judgmentation of its possibility is grounded in a notion (of the purpose) that precedes it *a priori* [KANT5c: 40 (20: 240)].

Holding-to-be-binding implies nothing more than practical expedience in the activity, and this is in practical terms what it means to orient oneself in acting. But this idea of holding-to-be-binding must presuppose the possibility of making a judgment of that-which-is-held-to-be-binding because

The teleological judgment . . . presupposes an idea of the Object and passes judgment on its possibility according to a law of the connection of causes and effects [KANT5c: 35 (20: 234)].

It is with the *Existenz* of this possibility of both the Object and the law of connection that we are presently concerned. This brings our discussion to the topic of *organic unity* in the Organized Being insofar as this concerns the combination of *psyche* and reflective judgment.

§ 5.3 Continuity, Reflective Judgment, and *Psyche*

We know from the fundamental principles of Kant's transcendental ontology that our theory of the phenomenon of mind can have objective validity only insofar as this theory applies to the appearances of the phenomenon of mind. In our logical division of the Organized Being we have distinguished *psyche* from *nous*, the former term referring to the faculty of animating principles and the latter term referring to the substance of mind (in the Kantian sense of the notion of substance). Even though this division is merely a logical division, we nonetheless require a metaphysical synthesis of these constructs that understands their *real unity*. This requirement is met by the four judicial functions of continuity we introduced in §5.1.

The **law of continuity** is a requirement of the metaphysics proper of Rational Cosmology. In his lectures on metaphysics Kant referred to this law as a dynamical principle of synthesis in cosmology, although its objective validity is vested only in *negative* principles of the synthesis of appearances in the idea of the world. The law of continuity was one of Leibniz' principles:

Leibniz has built the law of continuity upon the proposition: nothing happens in the world through a leap; and yet to Maupertuis it has not once been seen in the proper light [KANT19: 5 (28: 41)].

The law of continuity has been regarded as a logical law, as a mathematical law, and as a physical law. Maupertuis in particular regarded it as a physical law, and in this, Kant tells us, he erred by regarding the law of continuity as a law of things-in-themselves rather than as a law that merely pertains to appearances.⁶ Regarded as a *logical* law, the law of continuity is expressed as:

Whatever holds good generally for a certain magnitude that can become smaller also holds good for it if it is infinitesimal. All free acts are imputable - therefore the smallest degree of this, the natural acts, are also imputable [KANT19: 5 (28: 41)].

Maupertuis thought the principle of continuity required a continuum in what we would now call the phylogenetic series running from lifeless matter, to plants, to animals, to human beings and, beyond ourselves, all the way up to God. The rationalists of the Wolffian school also maintained

⁶ Kant's discussion of this can be found in *Metaphysik Dohna* [KANT19: 364-365 (28: 662-663)]. Here he demonstrates that it is objectively invalid (a "mere chimera") to regard the law of continuity as physical law and applicable to things regarded as they are in themselves.

this view and, indeed, attempted to use it as a proof of the existence of God.

But, as a merely logical law, the law of continuity is a law of the composition of magnitudes (a magnitude, we recall, is a unity thought as containing a multiplicity), and as such it pertains only to appearances. When we speak of the *degree* of a magnitude, we are considering *intensive* magnitude, and this falls under the metaphysical requirement of the second Idea of Rational Physics (the anticipations of perception). When we turn to considerations of the real significance of the law of continuity, we consider it *mathematically* (in the Kantian sense of mathematics – that is, mathematics is knowledge through the *construction of concepts*). The metaphysical *Realerklärung* of the idea of continuity is contained in this viewpoint:

Continuity is thus the absolute indeterminability of the number of parts in a whole. Thus where no smallest part is possible, there is continuity; e.g. space and time are *quanta continua* . . . All moments are positions in time, just as all points are positions in space . . . Further, no thing comes from one state into another immediately, i.e. *per saltum*, but rather the transition from one state to the other happens so that the thing must go through all intermediate states; thus we may say generally: All *mutatio*⁷ is *continua*⁸ . . . The cause of the law of continuity is time [KANT19: 24-25 (28: 200-201)].

Time is the pure form of inner sense, and as we construct our concepts of the model of an Organized Being we must always understand that this model is a model of its appearance. Consequently, for any such model to maintain objective validity, our theory must obey the requirements of transcendental ontology. The mathematical law of continuity (as a law for the construction of concepts of phenomena) is one of these requirements. We must understand the possibility of the teleological judgment, which must both presuppose an Object and pass judgment on its possibility according to a law of connection of causes and effects, under the constraint of the mathematical law of continuity in general. Presupposition of an Object rests on the principle of the formal logical expedience of Nature, while passing judgment on its possibility rests on determining judgment and especially the schematism of the category of causality and dependency. To connect a *practical* Object with a *sensible* object requires a synthesis in which the process of reflective judgment and the adaptive *psyche* are united.

The general law of continuity is a law of what Kant called “the dynamic synthesis in appearances” – a synthesis that rests upon four “negative principles in regard to the sensible world insofar as things cohere with one another as causes and consequences” [KANT19: 215 (29: 859)]. In terms of the four titles of Quantity, Quality, Relation, and Modality, these negative principles are [KANT19: 218 (29: 862)]:

⁷ the action of making or process of becoming different; change, alteration.

⁸ uninterrupted, unbroken (in space or time).

1. *in mundo non datur saltus* (a leap is not given in the [sensible] world);
2. *in mundo non datur hiatus* (a gap is not given in the [sensible] world);
3. *in mundo non datur casus* (chance is not given in the [sensible] world);
4. *in mundo non datur fatum* (fate is not given in the [sensible] world).

Kant provided an extensive discussion of these negative principles in the *Metaphysik Mrongovius* lectures [KANT19: 215-226 (29: 859-864, 29: 921-927)]. Let us note carefully that Kant has told us that a leap, a gap, chance, and fate are not *given* to our senses in any appearance of the sensible world. The two principles of composition (*saltus* and *hiatus*) are those which properly concern the mathematical law of continuity. The remaining two concern the *nexus* of Nature. The principle of *casus* (chance) follows from the principle of sufficient reason once we understand what Kant means by “chance” – i.e., “chance is an event in the world not determined according to natural laws”.⁹ Similarly, the Wolffians defined “fate” as “the necessity of events in the world” and this idea was inseparably linked to the idea of “destiny.” But they defined “destiny” as “blind necessity without law” [KANT19: 225 (29: 926)]. To say that something happens because of fate is to say that the event was the product of spontaneity in the *sensible* world; such a “cause” can only be regarded as a final cause, and such teleological causes cannot be posited in the world of phenomena where cause and effect must be understood by the category of causality and dependency. Spontaneity thus belongs to the noumenal world (*mundo noumenon*) and we can posit it only of human reason, and this with merely *practical* objective validity. As Kant put it, to say something is “the product of destiny” is merely to say we do not understand its cause.

When we narrow our attention to the consideration of the organic unity of judgment and *psyche*, the metaphysical requirement of continuity is met with in the four functions of judicial continuity (objectivity, the aesthetic Idea, the judicial Idea, and Meaning). In order for us to better see judicial continuity as the function for this organic unity, we will examine more closely the idea of holding-to-be-binding in its purest manifestation, namely the Kantian idea of *duty*:

Duty is that act to which someone is bound. It is therefore the matter of obligation, and there can be one and the same duty (in conformity with the act) although we can be bound to it in different ways [KANT4b: 377 (6: 222)].

This definition of duty calls upon another Kantian idea, namely that of obligation:

Obligation is the necessity of a free act under a categorical imperative of reason [KANT4b: 377 (6: 222)].

Kant’s doctrine of duty and obligation occupies a central position in his applied metaphysic

⁹ Here we can note that Piaget studied whether the idea of “chance” was innate in children [PIAG23]. He found that “chance” is a late-developing idea, and very young children have no concept of it at all.

of morals, which is one the most controversial doctrines – in terms of the disagreements among scholars it has sparked – in Kant’s philosophy. It is not within the aim of this treatise to critique Kant’s applied metaphysic. The reader can find interesting examples of this in [NELL] and [WILL], along with Beck’s introduction in [KANT3] and Sullivan’s introduction in [KANT9]. Views opposing Kant’s moral theory are legion, e.g. Chapter XIV of [JOAD] and Chapter IV of Santayana’s *Reason in Common Sense* (vol. 1 of *The Life of Reason*, 1st edition). Here we will be concerned with the foundations in Kant’s ontology and metaphysics proper rather than with the application of these to moral theory.

Kant appeared to regard the idea of duty as one so clearly and readily apparent to everyone that it needed little in the way of explanation. Critics of this were plentiful in Kant’s own lifetime. One of them was Christian Garve, a professor of moral philosophy in Leipzig and a Lockean philosopher. In regard to Kant’s ideas of duty and obligation, Garve wrote:

Such fine distinctions among Ideas already become *obscure* in *contemplation* upon particular objects; but they *disappear completely* when it comes to *acting*, where they are to be applied to appetites and intentions [KANT4b: 287 (8: 285-286)].

Kant responded to this in his 1793 essay “On the common saying: That may be correct in theory, but it is of no use in practice”:

The idea of duty in its complete purity is not only incomparably simpler, clearer, and, for practical use, more readily grasped and more natural to everyone than any motive drawn from happiness, or mixed with it and with the regard for it (which always requires much art and consideration); it is also, even in the judgment of the most common human reason far more powerful, forceful, and promising of results than all grounds of movement borrowed from the latter, selfish principle if only it is brought in this purity to the will of man, and even with separation from, and, yes what is more, in opposition with this will [KANT4b: 287 (8: 286)].

Far from being obscure, Kant replied, even a child could recognize what was *contrary* to duty. We can note here that while it may be (and often is) difficult to recognize something *as* a duty and carrying the force of an obligation, what Kant maintained as easily done is to judge something as being wrong – i.e. contrary to duty. When we set this beside the moral realism of the child we discussed earlier, the latter would seem to stand in support of the former.

But what is meant by the very idea of duty? I think it likely that all of us hold acting (or refraining from acting) in particular ways to be duties. Yet in all such cases it is typically all-too-easy to find apparent contradictions. For example, most of us would hold that to not commit murder is a duty. But if we are soldiers fighting a war, to kill the enemy is likewise a duty. It is argued that killing the enemy in wartime is not murder, but there are also many people who are troubled by this fine distinction and hold that war itself is an immoral act of organized murder on a vast scale. The apparent contradiction is manifestly evident in the Old Testament:

You shall not murder [*Exodus* 20.13].

While the people of Israel were in the wilderness, they found a man gathering sticks on the Sabbath day. And those who found him gathering sticks brought him to Moses and Aaron, and to all the congregation. They put him in custody because it had not been made plain what should be done to him. And the Lord said to Moses, "The man shall be put to death; all the congregation shall stone him with stones outside the camp." And all the congregation brought him outside the camp, and stoned him to death with stones, as the Lord commanded Moses [*Numbers* 15.32].

And as soon as the people heard the sound of the trumpet, the people raised a great shout, and the wall fell down flat, so that the people went up into the city. And they utterly destroyed all in the city, both men and women, young and old, oxen, sheep, and asses, with the edge of the sword [*Joshua* 6.20-21].

The sixth commandment is categorical; it does not say, "you shall not murder *unless* ...". Yet the Old Testament is rich in exceptions to this categorical law. These examples, and others drawn from elsewhere, underlie the moralist's question: "When is it moral for the group to do what is not moral for the individual to do?" In Christianity, Judaism, and Islam murder is a sin; but somehow at Jericho baby-killing was not.

Kant argued that **conscience** is, metaphorically, an "inner prosecutor" who accuses me before an "inner magistrate" whenever I commit a deed in contradiction to "the moral law within me." The phenomenon of having a conscience is used to argue for the *Dasein* of the moral law, but it should not be very surprising to find that a large number of scholars think this a weak argument. It is true enough that at least a great many of us know what it is to "experience a guilty conscience":

"There was a door which meant there was another room and the sniper was in that - and I just broke that down. I was just absolutely gripped by the fear that this man would expect me and would shoot me. But as it turned out he was in a sniper harness and he couldn't turn around fast enough. He was entangled in the harness so I shot him with a .45 and I felt remorse and shame. I can remember whispering foolishly, "I'm sorry" and then just throwing up . . . I threw up all over myself. It was a betrayal of what I'd been taught since a child" - William Manchester.¹

Yet it also seems there are those who appear to be entirely without a conscience. How else, it is argued, could one explain such a monster as the Maréchal de Rais?

It was his custom to invite children into his castle on the pretense of training them for the chapel choir; one by one he killed them and offered them in sacrifice to demons of whom he begged magic powers. But he also killed for pleasure and (we are told) laughed at the cries of his tortured or dying choristers. For fourteen years he followed this routine, until at last the father of a victim dared to indict him; he confessed all these details and was hanged (1440), but only because he had offended the Duke of Brittany.²

¹ Gwynne Dyer, *War*, N.Y.: Crown Publishers, 1985, pg 101.

² Will Durant, *The Reformation*, N.Y.: MJF Books, 1957, pg. 71.

Kant was not such a Pollyanna he did not recognize the reality that such people exist in the world. There is, he wrote, a *propensity* for evil in the human heart just as there is also a propensity for good. This he regarded as manifestly self-evident:

We can spare ourselves the formal proof that there must be such a corrupt propensity rooted in man, in view of the multitude of woeful examples that the experience of human *deeds* parades before us [KANT12a: 80 (6: 32-33)].

Morality and immorality, he tells us, must be laid at the doorstep of *free choice*, and the propensity for morality as well as for immorality is to be attributed to the character of one's *will* [KANT12a: 74-97 (6: 26-53)].

Man (even the worst) does not dispense with the moral law, whatever his maxims in rebellious attitude (by revoking the obedience to it). This on the contrary urges itself on him irresistibly on the strength of his moral tendency; and if no other mainspring were at work against it, he would also incorporate it into his supreme maxim as a sufficient determining ground of his choice, i.e. he would be morally good. He is, however, also dependent on the mainsprings of his sensuality because of his equally innocent natural tendency, and he incorporates them too into his maxim (according to the principle of self-love) [KANT12a: 82-83 (6: 36)].

If the categorical imperative and the moral law were one and the same, it would be quite difficult to see this argument as anything but an outright contradiction. Kant's position was that all imperatives of pure Reason express an "ought to" rather than a necessity:

All imperatives are expressed by an *ought* and indicate by this the relationship of an objective law of reason to a will that by its subjective nature is not necessarily determined by it (a necessitation) [KANT4b: 66 (4: 413)].

A practical law is not a law of nature linked to a physical causality so that what happens is what *must* happen without exception. It is rather a law in the sense of "legislation" (e.g. it is a law that a driver must stop at a stop sign; but some do not). To put it another way, a *physical* law is an expression of objective relationships in sensible Nature (the ectypal world), but a moral law is an expression of the relationship of an Object to a subjective free will (a will not necessarily bound to the sensuous) and therefore bespeaks of the intelligible (archetypal) world. Practical laws do not carry the weight of necessity but, rather, of being *made necessary* (necessitation) by *choice*.

We have discussed this before in this treatise. Now, for our model of the Organized Being to have objective validity and to be useful *to science*, we must represent it in such a way that we can see its governing principles as having objective validity not merely in the archetypal world but also in the ectypal world. This is why we expressed the categorical imperative of pure Reason as an ideal of equilibrium – so that it can both carry the uncompromising authority of a *natural law* and, at the same time, provide what is necessary for the possibility of constructing maxims and

hypothetical imperatives. But by doing so we must renounce identification of *the* categorical imperative with Kant's moral law. We must instead regard the categorical imperative as a ground for the *possibility* of a person forming for himself rules of conduct that he regards as moral. We can do this because the categorical imperative of pure practical Reason is a practical and *formal* law. Its legislative force is vested in the mere law-giving formula and not in the material premises one places *in a form*. A *theoretically categorical* imperative, on the other hand, is the product of speculative Reason, is conceptualized, and therefore is merely *practically hypothetical*.

But for even this to carry practical objective validity, our model must also be one in which a thorough-going unity between the transcendental *I* and the ectypal Self is made explicit. The sensible *materia in qua* of all practical rules of Reason (hypothetical imperatives) comes to us through the data of the senses, but this data never provides the archetypal "must" that is characteristic of any activity held-to-be-binding on the Organized Being. *Duty* and *obligation* are ideas grounded in the practical character of Organized Being, and the connection of such supersensible ideas with the *materia in qua* of physical activity requires the union of the process of reflective judgment with the faculty of animating principles of Organized Being (the adaptive *psyche*) and, through this, with *soma*. This is because for any activity to be regarded as a duty and to carry the force of obligation requires an act of judgment joined to the ectypal means of carrying out the decision. *Nous*, *soma*, and *psyche* are *reciprocally determining*, and this character is at root what defines the idea of an *organized* being. Were this not the case, Kant's theory would be as inconsistent as the biblical examples given earlier. ***Theoretical imperatives are expressions.***

Now since at least the time of Descartes the union of noetic and somatic powers has been a puzzle for philosophers and laymen alike. The centuries-old problem of *communication* between mind and body becomes moot when we regard the division of mind and body as merely a logical division and understand by the word "soul" nothing more than a *Kraft* of *nous*.

The soul is no object of outer sense, and for that reason one also cannot determine where it has its seat; therefore it is also not possible to say where it is properly in the body. Soul and body in *commercio* is to this end, and this *commercium*³ is so powerful that even mere thinking has influence on the body. The soul works immediately on the nervous system, the remaining parts of the body are mere implements through which it works by means of the nervous system. To determine further this *commercium* is the business of anthropology . . . This *commercium* manifests itself in that through mere will the soul can bring about movement in the body. Now on this the following is useful: Movements are not actions but rather are phenomena of actions. Movement is a successive change of the place that a body occupies, but is not action, rather a phenomenon of an action which is unknown to us . . . [The] body is a phenomenon and consequently its properties as well . . . The soul avails itself of the nerves as implements and through these immediately flows to the remaining parts of a body; on the other side, the nerves also are the implements through which the body flows into the soul [KANT19: 273-274 (29: 907-908)].

³ Intercourse. Kant associates the Latin *commercium* with the term *Gemeinschaft* (community).

The body thus contains a ground to determine⁴ the *Kraft* that is in the soul, and thus again the soul contains a ground to determine the *Kraft* of an unknown something (*noumenon* of the body) that an outer movement results. But lacking that both substances already have powers there can be no *influxus realis*⁵ between them [KANT19: 400 (28: 759)].

One calls this *Fähigkeit* of the soul the *facultatem locomotivam*⁶ as opposed to the *facultate cogitandi*⁷; both powers [*Vermögen*], namely to perceive and to impart movement, one sets in *sensorio communi*⁸, from which they both are said to emanate [KANT19: 494 (29: 1027)].

We recall that *Kraft* is a fundamental property of a substance to determine its own accidents of appearance. Through experience we know of physical phenomena (phenomenal body) and mental phenomena (phenomenal mind), but to push our inquiry deeper into the Nature of these powers is to inquire into the *noumenal* essence of mind and body. This we are forbidden to do by Rational Psychology, and so we must regard these powers in terms of *practical* objective validity.

To do so we must look at the sensory union of Kant's two above-mentioned "capabilities of the soul." It is in this sensory union where we must examine the aforementioned interplay of Kant's "moral tendency" and the "mainsprings of man's sensuous natural tendency under the principle of self-love." We seek a foundation that provides for both the ideas of duty and obligation (holding-to-be-binding) *and* the phenomenon of antisocial personality disorder. It is in this foundation where we understand how the Kantian idea of imperatives that express merely an "ought to" can be compatible with the idea of a categorical imperative as the *supreme* regulative principle of pure practical Reason. So far as acts and actions are concerned, we have to deal on the one hand with the possibility of structuring activities that can be physically manifested *in concreto*. On the other hand, the possibility of constructing these particulars as sub-structures *in a system* and of the phenomenon that an activity can be held-to-be-binding as a duty requires both a reflective judgment of formal expedience and an objective assessment through the process of general *Beurtheilung* (in constructing maxims and hypothetical imperatives). With regard to the latter, Nell summarized the situation in the following way:

In the previous chapter the criticisms of Kant's theory of right which depended on pointing out the possibility of an agent's maxim failing to fit either his situation or his act were all made from the bird's-eye viewpoint of a context of assessment. It was assumed that it could be discovered when an agent's maxim was inappropriate to his situation or to his act, or when the agent was acting on the

⁴ *zu determinieren*. Kant uses this phrase to denote determination in the sense of being bound by or to something.

⁵ real inflow. In other words, there could be no reciprocity between them in mutually determining their accidents of appearance.

⁶ power of locomotion.

⁷ power of thinking.

⁸ in sensory union. *Communio* denotes mutual participation, and "sensory union" is to be understood in this context. The phrase means that the two faculties find a common intersect in the transcendental sensorimotor idea.

basis of a mistaken means/ends judgment. But when we act we are not in that position. Once all reasonable care has been taken to avoid ignorance, bias, or self-deception, an agent can do nothing more to determine that his maxim does not match his situation. Once an agent has acted on his maxim attentively, he can do no more to ensure that his act lives up to his maxim. We cannot choose to succeed, but only to strive. Once he has taken due care to get his means/ends judgments right, he can do nothing further to ensure they are right. Agents are not simultaneously their own spectators. In contexts of action they cannot go behind their own maxims and beliefs. We can make right decisions, but not guarantee right acts.

On the other hand, in contexts of having acted agents are their own spectators. Like others they may be able to see a discrepancy between maxim and situation, an error in their previous means/ends judgments, or a discrepancy between maxim and act. They are no longer in the context of action, but in one of assessment [NELL: 127-128].

§ 6. The Synthesis in Continuity: Part I

Psyche viewed as substance is the persistent reciprocity between *soma* and *nous*. Viewed in this way it has some of the character of an *Unsache*-thing. We introduced the idea of the adaptive *psyche* in Chapter 15 (§7.3) with a 2LAR of *psyche*'s capability of adaptation. For its four titles of representation (Quantity, Quality, Relation, and Modality) we have somatic *Kraft*, noetic *Kraft*, somatic organization, and noetic organization. Brief descriptions of these four titles were supplied in Chapter 15. In this section the character of the reciprocities represented in these will find further elucidation through an examination of the organic unity of adaptive *psyche* and the process of reflective judgment. We will call this the **synthesis in continuity**.

The synthesizing function of the organic unity of reflective judgment and *psyche* is judicial continuity. Now, the law of continuity in general is based upon the metaphysics proper of Rational Cosmology. In specializing this law for the case of judicial continuity, we must further take into account the metaphysic of *psyche* and look at continuity in terms of the transcendental sensorimotor idea, i.e. {unity of faculties, condition of state, information, sensorimotor meaning}. In terms of our general 2LAR of representation these *momenta* correspond to identification, agreement, the internal, and the determining factor, respectively. In brief, these ideas are:

Unity of faculties: the idea of Self-organization in terms of the logical coordinates of mind and body;

Condition of state: the idea of state as a coalition of representations which, with empirical conditioning via stimuli, is sufficient to determine empirical consciousness;

Information: the substance of representations which contains the ground for the “in-forming” of the *Existenz* of the Self as impelling cause of accidents of representation;

Sensorimotor meaning: the idea of the necessity of regarding the Self as determining factor in representations (in appearance) of sense.

These ideas place *psyche* within the empirical Subject, and thus they are based in the metaphysics proper of Rational Theology. They form the bridgehead on the side of transcendental metaphysics proper in the applied metaphysic of *Self-Existenz*. Judicial continuity regarded under the limitation of the transcendental sensorimotor idea is therefore a function bound to both Rational Cosmology and Rational Theology, which are the dynamical elements of metaphysics proper. Therefore the synthesis of reflective judgment and adaptive *psyche* is a synthesis of connection in combination – i.e., it is a synthesis of a manifold of heterogeneous parts that are nonetheless regarded as connected *a priori* [KANT1a: 285-286 (B: 201-202fn)]. For this reason, we are dealing here with a true synthesis rather than with an anasynthesis because we are not required to make the parts in the synthesis homogeneous before combining them.

The process of reflective judgment contains both the process of aesthetical judgment and the process of teleological reflective judgment. The former stands as the matter of the process of reflective judgment while the latter stands as its form. Thus, the representation of the process of reflective judgment is a third level analytic representation (a 3LAR) since both aesthetical and teleological judgment are themselves represented by 2LAR forms.⁹ Quantity in reflective judgment (form of the matter) is therefore constituted by the form of aesthetical judgment (aesthetic Relation and aesthetic Modality); Quality in reflective judgment (matter of the matter) is constituted by the matter of aesthetical judgment (aesthetic Quantity and Quality); Relation in reflective judgment (form of the form) is constituted by the form of teleological judgment (teleological Relation and Modality); and Modality in reflective judgment (matter of the form) is constituted by the matter of teleological judgment (teleological Quantity and Quality).

As a true synthesis, our synthesis of reflective judgment and adaptive *psyche* combines Quantity with Quantity, Quality with Quality, etc. The synthesizing function in each case is likewise a function of Quantity for the first (objectivity), Quality for the second (aesthetic Idea), and so on. This is illustrated in simple form as

Reflective Quantity	← <i>objectivity</i> →	Somatic <i>Kraft</i>
Reflective Quality	← <i>aesthetic Idea</i> →	Noetic <i>Kraft</i>
Reflective Relation	← <i>judicial Idea</i> →	Somatic Organization
Reflective Modality	← <i>Meaning</i> →	Noetic Organization.

⁹ We could have anticipated this from our discussion of aesthetical reflective judgment in Chapter 14. Our deduction of the *momenta* of aesthetical judgment was carried out under Rational Psychology and Rational Theology (the "matter terms" of metaphysics proper); this leaves the "form terms" of the metaphysics proper of supersensible objects of ideas to the teleological function. Aesthetical reflective judgment is reflective judgment from the transcendental-judicial and empirical-judicial perspectives. Teleological judgment is reflective judgment from the hypothetical-judicial perspective.

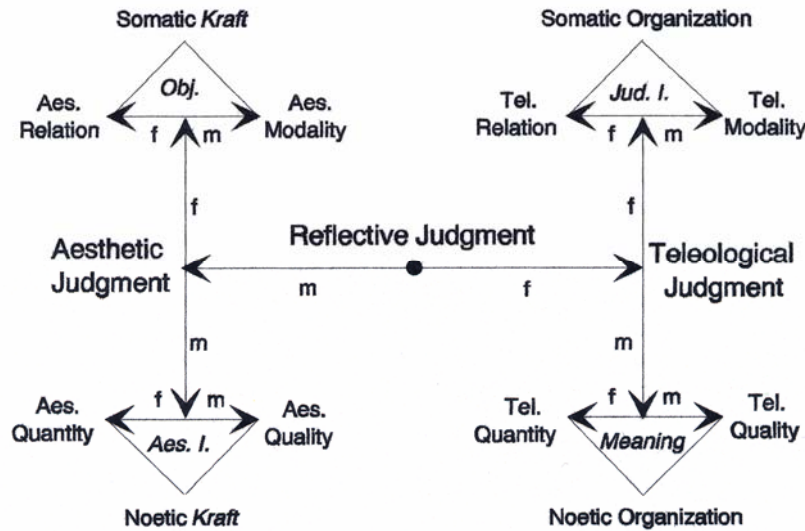


Figure 16.6.1: The synthesis in continuity of Reflective Judgment and Adaptive *Psyche*

The synthesis is illustrated in an alternative form in Figure 16.6.1 above.

The general principle of Rational Cosmology is absolute completion in the series of conditions, and this is the general principle governing the law of continuity. The general principle of Rational Theology is absolute unity of the condition of all objects of thinking in general, and this is the principle governing the limitation of continuity as it is to be regarded in the transcendental sensorimotor idea. The synthesis of judicial continuity is consequently a synthesis in which the organic unity of the process of reflective judgment and the animating principles of adaptive *psyche* are to be viewed in terms of dynamical *structuring* of the Organized Being insofar as this structuring involves noetic-somatic reciprocity. We recall that a structure is defined as a system of transformations with self-regulating laws so that no new element engendered by the operation of these transformations breaks down the boundaries of the system and does not involve elements from outside the system except as aliments of assimilation.

§ 6.1 Quantity in the Synthesis in Continuity

We begin with the synthesis of objectivity (judicial continuity in Nature) regarded in terms of unity of faculties (Self-organization). The cosmological Idea for objectivity is the Idea of absolute completeness of the composition of the given whole of all appearances (the *non datur saltus* of the law of continuity). The theological Idea for unity of faculties is the Idea of the essential characteristics (all possible predicates) in a representation of one Object (and we recall that this provides the characteristic mark of the representation of the one-ness of an object). Thus we are led to consider how reflective Quantity and somatic *Kraft* are to be regarded as the synthesis of a unity in one Object (the Organized Being) insofar as its appearances are concerned.

Now, somatic *Kraft* is our name for the persistent reciprocity between *soma* and *nous* that finds representation as the power of *soma* to produce or suffer effects. Reflective Quantity is the form of the process of aesthetical judgment, i.e. aesthetic Relation and Modality. We recall from Chapter 14 that the *momenta* of aesthetic Relation concern the sense of interest/disinterest in affective perception (from the transcendental-judicial perspective) which reflects a judgment of *value*. From this perspective, the *momenta* of aesthetic Relation can be called aesthetic drivers of assimilation. From the empirical-judicial perspective, these *momenta* are functions of the representation of aesthetic *desire* (for a *Sache*-thing, for an *Unsache*-thing, or for the Ideal-desire expressed in a state of *Existenz* expedient for a general state of happiness).

The *momenta* of aesthetic Modality from the transcendental-judicial perspective are feelings of tendency, of presentment, or of accord/discord. They are the schemata of aesthetic possibility, actuality, or necessity. From the empirical-judicial perspective, they are functions of the feeling of desire as hope/hopelessness, of liking/disliking, or of rightness/wrongness. They provide the matter in the *nexus* of aesthetical reflective judgments whose form signifies desire (in a representation by the *momenta* in empirical-judicial perspective of aesthetic Relation).

In order for us to regard these *momenta* in terms of the *Quantity* of the process of reflective judgment, we require a third judicial perspective. When we consider that we are engaged in the synthesis in objectivity for reflective judgment and adaptive *psyche*, and that objectivity is the function of continuity in Nature, it becomes clear at once that we are considering the organic unity of the Organized Being in terms of it being a sensible object in Nature (its appearances). But this belongs to what Kant called the doctrine of body, hence to the metaphysics proper of Rational Physics where the governing metaphysical principle is the Principle of Axioms of Intuition (all intuitions are extensive magnitudes). Note well that we are not saying by this that our previous deduction of the aesthetic *momenta* as *functions of judgment* was either incomplete or wrong. Rather, what we are saying here is that we must consider the ground for their *application to Nature* insofar as this application pertains to what Kant called the *facultatem locomotivam* in that capability of the *Kraft* of *nous* which Kant called “soul.” (We must also not confuse this *Kraft* with that Quality of adaptive *psyche* we named noetic *Kraft*. The latter belongs to *psyche*, the former to *nous* when each is thought under the notion of substance).

The Organized Being as an organism is regarded as an object in Nature complete in the oneness of all its appearances (*Existenz* of the empirical Self). However, affective perceptions are not intuitions nor are they concepts, and consequently are not extensive magnitudes under Rational Physics. Reflective Quantity is not a representation of an ensemble of affective perceptions but, rather, is the representation of an aesthetic manifold. But if we do not regard affective perceptions (conscious representations that cannot be part of the appearance of an object) as extensive magnitudes, then we must ask, “what is the matter in this manifold?”

To answer this question, we first remind ourselves that a reflective judgment subsumes given particulars under a general representation which it is tasked with finding. To quote Santayana, "Reflection gathers experiences together and perceives their relative worth; which is as much as to say it expresses a new attitude of will in the presence of a world better understood and turned to some purpose." Although Santayana's skeptical materialism given voice in *The Life of Reason* has many fundamental problems, he nonetheless on this occasion was able to glimpse insights we shall find useful in our present deliberation:

When consciousness awakes the body has, as we long afterward discover, a definite organization. Without guidance from reflection bodily processes have been going on, and most precise affinities and reactions have been set up between its organs and the surrounding objects.

On these affinities and reactions sense and intellect are grafted . . . It is as the organs receive appropriate stimulations that attention is riveted on definite sensations. It is as the system exercises its natural activities that passion, will, and meditation possess the mind. No syllogism is needed to persuade us to eat, no prophecy of happiness to teach us to love. On the contrary, the living organism, caught in the act, informs us how to reason and what to enjoy. The soul adopts the body's aims; from the body and its instincts she draws a first hint of the right means to those accepted purposes. Thus reason enters into partnership with the world and begins to be respected there; which it would never be if it were not expressive of the same mechanical forces that are to preside over events and render them fortunate or unfortunate for human interests. Reason is significant in action only because it has begun by taking, so to speak, the body's side; that sympathetic bias enables her to distinguish events pertinent to the chosen interests, to compare impulse with satisfaction, and, by representing a new and circular current in the system, to preside over the formation of better habits, habits expressing more instincts at once and responding to more opportunities.¹

Ideas, although their material is of course sensuous, are not sensations nor perceptions nor objects of any possible immediate experience: they are creatures of intelligence, goals of thought, ideal terms which cogitation and action circle about. As the center of mass of a body, while it may by chance coincide with one or another of its atoms, is no atom itself and no material constituent of the bulk that obeys its motion, so an idea, the center of mass of a certain mental system, is no material fragment of that system, but an ideal term of reference and signification by allegiance to which the details of consciousness first become parts of a system and of a thought. An idea is an ideal. It represents a functional relation in the diffuse existences to which it gives a name and a rational value. An idea is an expression of life, and shares with life that transitive and elusive nature which defies definition by mere enumeration of its materials. The peculiarity of life is that it lives; and thought also, when living, passes out of itself and directs itself on the ideal, on the eventual. It is an activity. Activity does not consist in velocity of change but in constancy of purpose; in the conspiracy of many moments and many processes toward one ideal harmony and one concomitant ideal result. The most rudimentary apperception, recognition, or expectation, is already a case of representative cognition, of transitive thought resting in a permanent essence.²

With caution born of the fact that Santayana never gives an unambiguous technical definition to the terms he uses, let us consider briefly some of the vivid metaphors contained in these quotes.

First, the keynote in Santayana's thesis is that of a fundamental systemic unity between body

¹ George Santayana, *Reason in Common Sense*, 1st ed., N.Y.: Dover Publications, 1980, pp. 62-63

² *ibid.*, pp. 166-167.

and mind. Although he phrases the argument in such a way as to imply the presumption of body-primacy (which is more or less the same attitude held in neuroscience), the error here is merely one of mistaking a Relation of community for one of causality and dependency. We will forgive him for this because Santayana claimed almost proudly to not be a metaphysician:

Now in natural philosophy I am a decided materialist - apparently the only one living . . . But my materialism, for all that, is not metaphysical. I do not profess to know what matter is in itself . . . I wait for men of science to tell me what matter is, in so far as they can discover it, and am not at all surprised or troubled at the abstractness and vagueness of their ultimate conceptions: how should our notions of things so remote from the scale and scope of our senses be anything but schematic? . . . [I] am a Platonist in logic and morals, and a transcendentalist in romantic soliloquy, when I choose to indulge in it . . . For good or ill, I am an ignorant man, almost a poet, and I can only spread a feast of what everybody knows [SANT2: vii-ix].

Let us take especial note of his insight that “the living organism, caught in the act, informs us how to reason and what to enjoy.” If we regard Santayana’s “organism” in terms of the totality of the Organized Being, then we have a significant particular illustration of what is meant by the continuity in Nature through the communion of the process of reflective judgment and somatic *Kraft*.

We get another glimpse of it when we consider Santayana’s metaphor of an idea as “the center of mass of a certain mental system.” In physics, center of mass is not a material thing but rather a relationship of reciprocal determinations which binds the physical matter of a body to particular physical laws.³ In like manner, the continuity in Nature through communion of the Quantity of reflective judgment and somatic *Kraft* is a relationship of reciprocal determinations, binding *soma* and *nous*, and is not to be viewed as a *Sache*-thing. It is a *structuring* law of transformations and this idea is not one contained in the idea of mere affective perceptions. As Piaget put it,

We propose to show that even if affectivity can cause behavior, even if it is constantly involved in the functioning of intelligence, and even if it can speed up or slow down intellectual development, it nevertheless does not, itself, generate structures of behavior and does not modify the structures in whose functioning it intervenes . . . *Structure versus functioning* would be . . . [an] opposition that might be considered. Here structure results from functioning while functioning implies preexisting structures (cf. the distinction between organic structures and functions in physiology). Finally, the opposition between *structure* and *content* might be examined. This is a problem analogous to the form-matter opposition . . . Let us recall in this regard that if affectivity cannot modify structures, it still constantly influences their contents . . . If, alternatively, one wishes to give a positive definition of structure, the most important characteristic is *closure*. A structure is a closed totality . . . The closure of a structure designates, therefore, a completeness or stability which is at least provisional but which may be toppled at some later time as the system moves toward a broader and more stable equilibrium [PIAG16: 6, 10-11].

³ Center of mass is technically defined in terms of a ratio of integrals and therefore corresponds in Quantity of representation to the general idea of integration.

Finally, we note Santayana's description of activity as "the conspiracy of many moments and many processes toward one ideal harmony and one . . . result." Here, too, we have an idea of integration. But what is integrated does not consist of the representations *per se* but rather the *processes* of representation – somatic with regard to somatic *Kraft* and judicial with regard to *nous-Kraft*.⁴ A *Kraft* is the capacity of a substance to determine its own accidents. Extensive magnitude in the Quantity of reflective judgment is to be viewed in terms of processes of judgment (judicial acts) and not *as* the outcome of these acts (affective perceptions). The synthesis in objectivity is the synthesis of reciprocal bindings of reflective judgment and somatic processes necessary for the possibility of producing or suffering somatic effects.

On the noetic side, we find these processes represented in terms of the *momenta* of form in aesthetical reflective judgment. What stands on the somatic side? Here we are hampered for the time being because these belong in general to a science of physiological anthropology (and particularly to neuroscience in its physiology and psycho-physics departments). To formulate objectively valid constructs of the somatic processes we require further elucidation of the mental physics of the empirical sensorimotor idea (the anatomical idea with regard to Quantity, the ideas of moving powers, agent-patient Relation, and determination of sense for the other titles). But as this involves physical science and this treatise has enough work to do in setting up the architectonic of mind, we will have to content ourselves in these pages with capturing the flavor of biological processes which at our present state of scientific knowledge appear to be compatible with the principles of our synthesis.

Damasio has proposed (as an hypothesis) one such picture in his idea of "convergence zones" in brain structure. While we do not pretend here to either support or oppose this theory, still it is informative to look at Damasio's idea in the context of the synthesis in objectivity. We begin by recalling his idea of *dispositional representations*:

Dispositional representations constitute our full repository of knowledge, encompassing both innate knowledge and knowledge acquired through experience. Innate knowledge is based on dispositional representations in the hypothalamus, brainstem, and limbic system. You can conceptualize it as commands about biological regulation which are required for survival (e.g. the control of metabolism, drives, and instincts). They control numerous processes, but by and large they do not become images in the mind . . .

Acquired knowledge is based on dispositional representations in higher-order cortices and throughout many gray-matter nuclei beneath the level of the cortex. Some of those dispositional representations contain records for the imageable knowledge that we can recall and which is used for movement, reason, planning, creativity; and some contain records of rules and strategies with which we operate on those images. The acquisition of new knowledge is achieved by continuous modification of such dispositional representations.

⁴ I use *nous-Kraft* to denote a power of *nous*. It is a term distinct from and does not refer to the noetic *Kraft* of *psyche*.

When dispositional representations are activated, they can have various results. They can fire other dispositional representations to which they are strongly related by circuit design (dispositional representations in the temporal cortex, for example, could fire dispositional representations in the occipital cortex which are part of the same *strengthened* systems) . . . Or they can generate a movement by activating a motor cortex or nucleus such as the basal ganglia.

The appearance of an image in recall results from the reconstruction of a transient pattern (metaphorically, a map) in the early sensory cortices, and the trigger for the reconstruction is the activation of dispositional representations elsewhere in the brain, as in the association cortex. The same type of mapped activation occurs in motor cortices and is the basis for movement. The dispositional representations on the basis of which movement occurs are located in the premotor cortices, basal ganglia, and limbic cortices. There is evidence that they activate both movements and internal images of body movement [DAMA2: 104-105].

The term “dispositional representation” refers to neural activity patterns (large ensembles of action potentials generated by and in particular groups of neurons). Damasio theorizes that there are some groups of neurons whose firing patterns serve to regulate the firing patterns of other groups of neurons, e.g. neurons in the sensory or motor cortices. He goes on to speculate that these signals comprise a “neural code” in which the information correlates and corresponds to mental “images” (representations on the noetic side of organized being). Put more simply (and perhaps too simply), dispositional patterns of neural activity are the embodiment of an integrating process that ties together other neural processes which directly correlate to sensory modalities, movements, and so on. Dispositional circuits and patterns *regulate* global brain activity.

Some of these regulated activities involve basic biological mechanisms that Damasio calls “instincts” (a usage that perhaps is too broad for the term in the language of this treatise, but which we can view in terms of James’ instincts which we discussed in Chapter 15. It would be fair to say that Damasio is to some degree a “Neo-Jamesian”):

Some of the basic regulatory mechanisms operate at a covert level and are never directly knowable to the individual inside whom they operate. You do not know the state of various circulating hormones, potassium ions, or the number of red blood cells in your body unless you assay it. But slightly more complicated regulatory mechanisms, involving overt behaviors, let you know about their existence, indirectly, when they drive you to perform (or not) in a particular way. These are called instincts . . . You might say that this is government for the body and by the body, although it is sensed and managed by the brain.

Such regulatory mechanisms ensure survival by driving a disposition to excite some pattern of body changes (a drive), which can be a body state with a specific meaning (hunger, nausea), or a recognizable emotion (fear, anger), or some combination thereof . . . The basic neural circuitries that operate this entire cycle are standard equipment for your organism, as much as the brakes of a car. You did not have to have them specially installed. They constitute a “preorganized mechanism” . . .

Preorganized mechanisms are important not just for basic biological regulation. They also help the organism classify things or events as “good” or “bad” because of their possible impact on survival. In other words, the organism has a basic set of preferences - or criteria, biases, or values. Under their influence and the agency of experience, the repertoire of things categorized as good or bad grows rapidly, and the ability to detect new good and bad things grows exponentially [DAMA2: 116-117].

In this hypothesis we can clearly make out a *functional* correspondence between neural circuitry

and the aesthetic *momenta* in the Quantity of reflective judgment.

Damasio goes on to build up from this theme a tie-back to James' theory of emotions and instincts [DAMA2: 129-142]. One of his points of argument is that James' theory was not "wrong" so much as "incomplete" – that it did not go far enough. We will leave it to the interested reader to examine this part of Damasio's thesis for himself because that discussion moves on into the speculative arena of "primary emotions" and their "basis in evolution" – a speculative ground we have dealt with already in Chapter 15. What is important for our understanding of the Quantity of continuity (objectivity) is the description Damasio gives of somatic processes whose function it is to integrate neural (and endocrine) activities in such a way as to provide at least a putative somatic correlate to *noetic* phenomena grounded in the reflective judgment of affective perceptions. The "dispositional circuits" Damasio describes are not isolated groupings of tissues embedded in the brain like so many raisins in a pastry. They are organized on global scale, and the somatic correlates (in biological structure) to the *momenta* of reflective judgment Damasio calls *convergence zones* - small ensembles of neurons that collectively are capable of producing a set of dispositional firing patterns that feed back into other brain structures and thereby provide a means to "reconstitute" other somatic representations [DAMA2: 102].

Convergence zones located in the prefrontal cortices are thus the repository of dispositional representations for the appropriately categorized and unique contingencies of our life experience . . . The entire prefrontal region seems dedicated to categorizing contingencies in the perspective of personal relevance. This was first established for the dorsolateral sector in the work of Brenda Milner, Michael Petrides, and Joaquim Fuster. Work in my laboratory not only supports those observations but suggests other frontal structures, in the frontal pole and ventromedial sectors, are no less critical for the process of categorization.

A fourth reason why the prefrontal cortices are ideally suited for participation in reasoning and deciding is that they are directly connected to every avenue of motor and chemical response available to the brain . . . In conclusion, the prefrontal cortices and in particular their ventromedial sector are ideally suited to acquire a three-way link among signals concerned with particular types of situations; the different types and magnitudes of body state, which have been associated with certain types of situations in the individual's unique experience; and the effectors of those body states. Upstairs and downstairs come together harmoniously in the ventromedial prefrontal cortices.

Given my previous discussion on the physiology of emotions, you should expect not just one mechanism for the somatic-marker process but two. By virtue of the basic mechanism, the body is engaged by the prefrontal cortices and amygdala to assume a particular state profile, whose result is subsequently signaled to the somatosensory cortex, attended, and made conscious. In the alternative mechanism the body is bypassed and the prefrontal cortices and amygdala merely tell the somatosensory cortex to organize itself in the explicit activity pattern that it would have assumed had the body been placed in the desired state and signaled upward accordingly. The somatosensory cortex works as if it were receiving signals about a particular body state, and although the "as if" activity pattern cannot be precisely the same as the activity pattern generated by a real body state, it may still influence decision making [DAMA2: 182-184].

This putative picture of somatic *Kraft* is one we must bear in mind in the sections that follow.

To sum up: We can find in Damasio's hypothesis all three of the general ideas of Quantity in our 2LAR of representation in general: identification, differentiation, and integration. This (or some other yet-to-be-described) hypothesis describes neural and other somatic *processes* of the manner and means of neuronal signaling. If indeed such neuronal signals represent some kind of neural code we are bound by the principle of emergent properties to regard such a code as having its correlative counterpart in noetic representation. The very name "dispositional representations" has a clear and obvious analogy with the *momenta* of interest/disinterest (value) in aesthetic Relation and with the *momenta* of feelings of desire in aesthetic Modality. The *process* of reflective judgment (in terms of Quantity) and the biological process described by Damasio (or by some other theory of neuroscience yet to be formulated) are to be viewed by us as reciprocal determinations, and in this determination we can catch our first glimpse of the animating principle of somatic *Kraft* in the relationship between *nous* and *soma* under the synthesis in objectivity (continuity in Nature). Objectivity has its source in value and desire as disposition.

§ 6.2 Quality in the Synthesis in Continuity

Next we turn to the synthesis in continuity in perception (the aesthetic Idea). Quality in reflective judgment is the matter of aesthetical judgment (aesthetic Quantity and Quality). In the *logical-judicial perspective* of Rational Physics, the metaphysical principle of Quality is the principle of Anticipations of Perceptions (the intensive magnitude of sensation presents the complete condition for marking sensibility at a moment in time; we can call this a feeling of closure). Reflective Quantity is representation of the manifold extensive magnitudes forged from processes which are its parts (not as affective perceptions but rather as the "reflective character" of what these processes in aggregation do in relationship to the Organized Being). Reflective Quality, on the other hand, deals with the phenomenon of sensation insofar as sensation takes on an aesthetic representation. In the synthesis in judicial continuity in perception, the limitation on continuity in general is that of the transcendental sensorimotor idea of *condition of state* as the idea of the *coalition* of representations insofar as these are sufficient to determine consciousness. The aesthetic Idea is represented by the four titles of {analytic aggregation, quickening, harmonization, and awareness}, and so for reflective Quality we are looking at reciprocity binding the marking of the matter of sensibility. This marking is to be regarded as the matter of the feeling of *Lust* or *Unlust*, providing the material ground of a process of adaptation – and hence noetic *Kraft* seen as the power of *nous* to produce or suffer effects.

The *momenta* of aesthetic Quantity are schemata of satisfaction/dissatisfaction in the transcendental-judicial perspective, and they are functions of *feelings* (as private satisfaction in the sensation, as particular satisfaction that is combined with an object of desire, or as general satisfaction presented in the state of *Existenz* of the Organized Being) from the empirical-judicial

perspective. The metaphysical principles of the synthesis are those of the absolute completeness in the division of a given whole in an appearance (from Rational Cosmology), and the form of sensibility necessary for the presentment of an *Existenz* in Reality (from Rational Theology). The synthesis in Quality of reflective judgment with noetic *Kraft* looks at the matter of this reflective judgment of sensation in terms of the Anticipations of Perceptions. Moreover, noetic *Kraft* is the Quality of the adaptive *psyche* and so this synthesis deals not with the still vague idea of the phenomenon of “emotion” but, instead, with what we might call *the matter of emotivity*⁵.

When we look at patterns of neural activity, such as those described by Damasio in the previous discussion of Quantity, neuroscience can speak, loosely, of the “intensity” of neural activity but not of the intensity of whatever “feelings” or “emotions” might putatively be associated with these activities. Put plainly, when neuroscience looks at brain activity (even when the biological observations are coupled with psychophysics) it does not see feelings or emotions *per se* but merely measurable activities that can be correlated with psychological ideas and descriptions. There is a *hiatus* (gap) between the observable and the psychological imputation when these are considered under the reductionism of neuroscience.

We recall that an intensive magnitude is a unity that can be thought as a multiplicity only by an approximation to negation, i.e. every intensive magnitude finds a mathematical description only as a degree. Great caution is required when what we can observe is merely mathematical *extensive* magnitude (e.g. the number of neurons that are firing, the rate at which they are firing, or the responsiveness of other neural structures at the receiving end of their activity patterns) because these extensive magnitudes are not observations of intensive magnitudes. We have come upon this issue of extensive vs. intensive magnitude before (in Chapter 8). Now we must return to it again and consider the philosophical difficulty it presents for science.

Bergson noted:

It is usually admitted that states of consciousness, sensations, feelings, passions, efforts, are capable of growth and diminution; we are even told that a sensation can be said to be twice, thrice, four times as intense as another sensation of the same kind . . . Common sense, moreover, has not the slightest hesitation in giving its verdict on this point; people say they are more or less warm, or more or less sad, and this distinction of more and less, even when it is carried over to the region of subjective facts and unextended objects, surprises nobody. But this involves a very obscure point and a much more important problem than is usually supposed [BERG1: 1].

This problem arises, Bergson tells us, when we try to view intensive magnitudes as extensive ones.

⁵ I use the word "emotivity" to denote the idea inherent in its Latin root, *e-movere*, to move out. The animating principle of reciprocal determination represented in the adaptive *psyche* by the idea of noetic *Kraft* must have such a character - i.e. the character of the action of a verb - rather than the thing-like character that would be suggested by the word "emotion."

It is only to evade the difficulty to distinguish, as is usually done, between two species of quantity, the first extensive and measurable, the second intensive and not admitting of measure, but of which it can nevertheless be said that it is greater or less than another intensity. For it is recognized thereby that there is something common to these two forms of magnitude, since they are both termed magnitudes and declared to be equally capable of increase and diminution. But, from the point of view of magnitude, what can there be in common between the extended and the unextended? If, in the first case, we call that which contains the other the greater quantity, why go on speaking of quantity and magnitude when there is no longer a container or a contained? If a quantity can increase and diminish, if we perceive in it, so to speak, the *less* inside the *more*, is not such a quantity on this very account divisible, and thereby extended? Is it not then a contradiction to speak of an in-extended quantity? But yet common sense agrees with the philosophers in setting up a pure intensity as a magnitude, just as if it were something extended. And not only do we use the same word, but whether we think of a greater intensity or a greater extensity, we experience in both cases an analogous impression; the terms "greater" and "less" call up in both cases the same idea. If we now ask ourselves in what does this idea consist, our consciousness still offers us the image of a container and a contained. We picture to ourselves, for example, a greater intensity of effort as a greater length of thread rolled up, or as a spring which, in unwinding, will occupy a greater space . . . We are thus led to believe that we translate the intensive into the extensive, and that we compare two intensities, or at least express the comparison, by the confused intuition of a relation between two extensities. But it is just the nature of this operation which it is difficult to determine [BERG1: 3-4].

The distinction between “intensities” and “extensities” is a very important one, and it is worth our while to spend some time picking apart the problem that Bergson describes.¹ There is first Bergson’s statement (which probably strikes many of us as quite strange) that an “intensity” cannot be “measured.” Is this assertion as absurd as it may at first seem? No. Let us recall that to measure a magnitude means to have some unit of measure, and the magnitude is determined by successive addition of this unit over and over again – e.g., 1 inch plus 1 inch is 2 inches; 2 inches plus 1 inch is 3 inches, etc. But such a procedure fails, for example, in the case of objects said to “measure out to equal” irrational numbers (e.g. the number pi, Euler’s number, the square root of 2, etc.). For irrational numbers there is no smallest unit of measure suitable to the task. We deal with this situation in mathematics by means of a limiting process that allows us to make such statements as “pi is greater than 3.141592654 but less than 3.141592655”. One finds this expressed in mathematics textbooks by the famous Weierstrass “epsilon-delta” definition of mathematical continuity:

Let f be a function and let c be a number in the domain of f . Then f is continuous at c if and only if to each $\varepsilon > 0$ there corresponds $\delta > 0$ such that

$$|f(x) - f(c)| < \varepsilon \quad \text{whenever } |x - c| < \delta$$

and x is in the domain of f .

Although the non-mathematician may find this definition to be very opaque, with a little practice

¹ This problem ultimately led Bergson to his own philosophy of "the flux of real duration" or, as he also called it, the "living time" - from which idea one comes ultimately to his view of "evolution" as an *elan vital*.

one can become quite used to this kind of mathematical argument. What is perhaps less obvious is that this formula specifies a process of limitation (in which ϵ and δ are both made smaller and smaller “without limit”). One consequence of mathematical continuity is the “existence” (in the mathematical sense of that word) of the irrational numbers (which was formally established in the work of Richard Dedekind in the mid-nineteenth century²). Poincaré described these mathematical ideas in more operational terms as follows:

If we want to know what the mathematician means by a continuum, it is useless to appeal to geometry . . . The pure analyst has . . . disengaged mathematics from all extraneous elements, and he is in a position to answer our question: - "Tell me exactly what this continuum is, about which mathematicians reason." . . .

Let us start with the integers. Between any two consecutive sets, intercalate one or more intermediary sets, and then between these sets others again, and so on indefinitely. We thus get an unlimited number of terms, and these will be the numbers which we call fractional, rational, or commensurable. But this is not yet all; between these terms, which, be it marked, are already infinite in number, other terms are intercalated, and these are called irrational or incommensurable.

Before going any further, let me make a preliminary remark. The continuum thus conceived is no longer a collection of individuals arranged in a certain order, infinite in number, it is true, but external the one to the other. This is not the ordinary conception in which it is supposed that between the elements of the continuum exists an intimate connection making of it one whole, in which the point has no existence previous to the line, but the line does exist previous to the point. Multiplicity alone subsists, unity has disappeared - "the continuum is unity in multiplicity," according to the celebrated formula. The analysts have even less reason to define their continuum as they do, since it is always on this that they reason when they are particularly proud of their rigor. It is enough to warn the reader that the real mathematical continuum is quite different from that of the physicists and from that of the metaphysicians . . . [The] only property of the sets which comes into the reasoning is that of preceding or succeeding these or those other sets; this alone should therefore intervene in the definition. So we need not concern ourselves with the manner in which the sets are intercalated, and no one will doubt the possibility of the operation if he only remembers that "possible" in the language of geometers simply means exempt from contradiction [POIN1: 17-19].

The mathematical continuum is not a collection of points with some sort of twine holding them together. The individual has disappeared entirely, and where there is no individual, there is likewise no unit of measure. This is what Bergson means when he says that intensities cannot be measured. This is likewise what Kant is telling us in his definition of intensive magnitudes.

And yet these immeasurables are nonetheless experienced. As Bergson quipped, “Thus it seems evident that we experience a more intense pain at the pulling out of a tooth than of a hair.” If we then use something called a “number” to describe intensity, the “number” we use is descriptive of an *ordering procedure* – i.e. it is what mathematics calls an “ordinal number”, which is defined as “a number denoting position in a sequence, e.g. ‘first’, ‘second’, ‘third’, etc.”³ This is a quite different concept than that of magnitude as an amount because “order in a

² see Richard Dedekind, "Continuity and Irrational Numbers," in *Essays on the Theory of Numbers*, NY: Dover Publications, 1963.

³ *The Penguin Dictionary of Mathematics*, 2nd ed., David Nelson (ed.), London: Penguin Books, 1998.

sequence” is an idea that, by itself, carries no concept of an accumulation nor a “smallest part” (a unit measure). Rather, it is a concept that obtains its meaning from the sequencing procedure by which one is said to order whatever perception is said to “fill time.” In other words but to the same end, Bergson called this *procedure* a “new element” in “the estimate of” intensive magnitude:

Now, the nature of this element is easy to determine. For, in proportion as a sensation loses its affective character and becomes representative, the reactions which it called forth on our part tend to disappear, but at the same time we perceive the external object which is its cause, or if we do not now perceive it, we have perceived it, and we think of it. Now, this cause is extensive and therefore measurable: a constant experience, which began with the first glimmerings of consciousness and which continues throughout the whole of our life, shows us a definite shade of sensation corresponding to a definite amount of stimulation. We thus associate the idea of a certain quantity of cause with a certain quality of effect; and finally, as happens in the case of every acquired perception, we transfer the idea into the sensation, the quantity of the cause into the quality of the effect. At this very moment the intensity, which was nothing but a certain shade or quality of the sensation, becomes a magnitude. We shall easily understand this process if, for example, we hold a pin in our right hand and prick our left hand more and more deeply. At first we shall feel as it were a tickling, then a touch which is succeeded by a prick, then a pain localized at a point, and finally the spreading of this pain over the surrounding zone. And the more we reflect on it, the more clearly shall we see that we are here dealing with so many qualitatively distinct sensations, so many varieties of a single species. But yet we spoke of one and the same sensation which spread further and further, of one prick which increased in intensity. The reason is that, without noticing it, we localized in the sensation of the left hand, which is pricked, the progressive effort of the right hand, which pricks. We thus introduced the cause into the effect, and unconsciously interpreted quality as quantity, intensity as magnitude. Now, it is easy to see that the intensity of every representative sensation ought to be understood in the same way [BERG1: 41-43].

Bergson was quite willing to agree with Kant in regarding space as a form of pure intuition, but he departed from Kant by regarding time as something that was not an intuition, i.e. as a real thing in the transcendent (not transcendental) sense. It was this one point of departure that took Bergson on the path to his philosophical theory. We shall not take that step ourselves, but we will pay careful consideration to this Bergsonian idea of *conceptualizing the process*, by which intensive magnitude is “transformed” into extensive magnitude.

Let us recall Kant’s statement of the *logical* law of continuity: whatever holds good generally for a certain magnitude that can become smaller also holds good for it if it is infinitesimal. What we seek in the synthesis in continuity in perception is not some number measuring a sensation but, rather, what it is *about* a sensation that we can say “holds good generally” for it regardless of any numerical idea that might come out of a process of viewing its somatic correlates (or, likewise, its affective perceptions) in aggregation. This we shall do by looking at the sensorimotor idea of condition of state quite carefully with regard to the properties of the aesthetic Idea.

To do so, we ask, “What is it in our idea of ‘sensation’ that defines what a sensation *does*?”

More precisely, because reflective judgments deal only with affective perceptions, and these are the subjective perceptions that never become part of the cognition of an object, we ask this question of sensation in the restricted Kantian connotation of sensation as *feeling*, i.e.,

we will call that which must always remain merely subjective and absolutely cannot make up a representation of an object by the otherwise customary name of "feeling." The green color of the meadows belongs to *objective* sensation, as perception of an object of sense; but the pleasantness of the same belongs to subjective sensation, through which no object is represented: i.e. to feeling, through which the object is regarded as an Object of satisfaction (which is not a cognition of it) [KANT5c: 92 (5: 206)].

Now, to answer this question we must consider what is meant by “determining the degree of a quality.” In his metaphysics lectures, Kant illustrates this through examples, e.g.:

Order is a quality, nevertheless it can be as great with a few things as with many; it rests on the truth of the rules of the combination of the manifold. Transcendental perfection is the same. The ground [of its degree] rests on this: the more the manifold harmonizes, the more there is perfection; one to which a manifold agrees is an associate; thus the more that are associates, the greater is the perfection [KANT19: 176 (29: 766)].

In order to give meaning to the concept of reality, an object of sensibility must be put in support of it . . . therefore an object of sensation is required in order to represent to oneself the magnitude of the real . . .

One calls this *degree* of sensation *intensive magnitude* in order to distinguish it from the extensive magnitude with quantity, and says: everything sensible has intensive magnitude, or = a degree of sensation; that is: it can be represented that from zero = null = which has no sensation at all, it can climb, or again decrease from a certain measure until = 0. But it is understood as a magnitude whereby the parts are not recognized previously in order to determine the magnitude; rather it must be recognized as unity and the parts drawn out from the unity . . . but one determines the *degree* better through: *magnitude of the one-ness*, i.e., the representation of an Object gives the degree of the magnitude insofar as I think its magnitude (*quantitatem*) as unity. Thus the magnitude is not given here as plurality, but rather as unity and distinguishes itself precisely from extensive magnitude (*quantitas extensiva*, and therefore different in consequences from *quantitas intensiva*) [KANT19: 466-467 (29: 998-999)].

Kant holds that we can determine “the magnitude of the real” only relatively because “we have no concept of the highest degree of Reality” [KANT19: 176 (29: 767)]. In other words, in order to speak at all about the idea of a degree of intensive magnitude there must be some standard of comparison and some rule by which the comparison is made. We can note at once the congruence of this idea with the mathematical definition of irrational numbers. But what does he mean by the seemingly strange phrase “the magnitude of the one-ness (*Einheit*)”? Here we can first point out that this requires an Object to be represented and recall that an Object always understands the unity of a manifold – in this case, an *aesthetic* manifold “filling time.”

Second, we can note Kant’s descriptions given above, i.e. that the quality of an order “rests on the truth of the rules of combination of the manifold” and that the degree of transcendental

perfection rests on “how much” the manifold “harmonizes.” It is here that we find an important tie-in to the aesthetic Idea. Quantity in the aesthetic Idea pertains to the clarity and distinctness in appearance, object, or Object. Relation pertains to the manner of connection by which representations harmonize in the synthesis of apprehension. For Quality, the aesthetic Idea is “quickening” – i.e. animation of the cycle of thought. This idea of quickening carries several closely-knit connotations: compatibility with the Ideal of the Quality of thinghood, compatibility in continuity with the feeling of *Lust* or *Unlust*, coalition of the *materia ex qua* compares of sensibility in accordance to their compatibility with this feeling (signification as matter of desire), and aesthetic symbolism of autistic thought. For Modality, the aesthetic Idea is general coherence in Reality, i.e. a metaphysical and aesthetical “direction” in the arousal of attention and as “gateway” or “censorship” function that excludes from apprehension representations judged incompatible with the general harmonization of feeling in aesthetic representation at a moment in time.

In the aesthetic Idea, analytic aggregation brings clarity of perception; quickening as the compatibility standard of a censorship function defines what representations are or are not to be “qualities” of the perception; harmonization brings the form of the *nexus* to “one-ness” in the perception; and Modal awareness binds the arousal of attention according to the manner of coherence in Reality of the perception. To all this, we add that the transcendental condition of state is an idea of agreement (and that this idea covers the noetic and somatic faculties of the Organized Being in their reciprocity). What this synthesis in judicial continuity must accomplish is the “filling of the gap” that otherwise separates noetic and somatic representation. Intensity here is no measure of “how much” this gap is filled, for nothing short of completeness fills a gap; rather, it is the presentation of a reciprocal determination of everything somatic and noetic *required so as to leave no gap at all (non datur hiatus)*. Even a feeling of dissatisfaction cannot in this context be regarded as a subjective gap; e.g. a feeling of tendency “fills” a subjective gap.

Thus we can say that the intensive magnitude of sensation presents the complete state of conditions prerequisite to marking sensibility at a moment in time. It is a feeling of *closure in the structuring* of the Organized Being’s state of *Existenz* at a moment in time. Closure of the complete structure is the sole standard of comparison by which the idea of intensive magnitude can be assayed. The act of comparison (in reflective judgment) compares against a standard that the condition of state is neither more nor less than what is necessary to determine the expedience of representations. It is this coalition of sensations that is denoted by Kant’s “magnitude of the one-ness.” **The intensity of feeling is thus nothing else than the representation of an ordering procedure that coalesces the synthesis of apprehension.** This ordering procedure binds in this synthesis the matter of emotivity which, combined in consciousness with the processes of adaptation, synthesizes adaptation performance in *Lust-Kraft*. To say that a sensation has a degree

is to say that its presentation can be subjected to analytic division *ex post facto*, which not only grounds the possibility of clarity and distinctness in representation but also makes possible acts of accommodation.

This explanation may seem at first to run counter to “common sense.” Most of us are accustomed through long-lived habit of thinking of the intensity of sensation in terms which, if not precisely numerical, have at least the flavor of being numerical. Our verbal descriptions of feelings are oftentimes metaphorical analogies. To discourse upon “burning rage” can summon the analogy of a thermometer with its rising column of mercury. But, of course, this analogy is suggested on the basis of our commonplace description of anger as “feeling hot-headed” or “getting red in the face.” Or, sometimes, anger can be “cold” and described as an “icy rage” – an emotional winter storm. Fear is likewise often described in “cold temperature” terms. Moods are often expressed in “color terms” – e.g. when I am sad I might say “I’m feeling blue”. On the other hand, sometimes such feelings are expressed as “feeling low” or, in the case of euphoric feelings, “feeling high” (a metaphor perhaps summoned up by body posture). To put emotions into words is often difficult because the corresponding affective perceptions are autistic (in the Piagetian sense of that word). That we can communicate them at all is due to the fact that other human beings appear to experience “emotions” and “moods” in much the same way, or at least they describe them metaphorically in similar terms. Damasio likes to describe this using a theater metaphor – the “body theater” where sensations and feelings are “acted out.”

One of the criticisms leveled at William James concerns the idea that we always use the body as theater for the emotions. Although I believe that in many situations emotions and feelings are operated precisely in that manner, from mind/brain to body, and back to mind/brain, I believe also that in numerous instances the brain learns to concoct the fainter image of an “emotional” body state, without having to reenact it in the body proper. Moreover, as we have previously discussed, the activation of neurotransmitter nuclei in brain stem and their responses bypass the body, although, in a most curious way, the neurotransmitter nuclei are part and parcel of the brain representation of body regulation. Thus there are neural devices that help us feel “as if” we were having an emotional state, as if the body were activated and modified. Such devices permit us to bypass the body and avoid a slow and energy-consuming process. We conjure up some semblance of a feeling within the brain alone [DAMA2: 155-156].

Damasio proposes that the somatic faculty contains two “loops” – a “body loop” and an “as-if-body loop” – that, taken together, account for the phenomena of “emotions” and “feelings.” To properly understand this hypothesis, we need to understand how he uses these two terms. We presented Damasio’s definition of emotion in Chapter 15; to this we must add the following descriptions. “Emotions” are “complex, stereotyped patterns of response, which include secondary emotions, primary emotions, and background emotions”. “Feelings” occur when “sensory patterns signaling pain, pleasure and emotions become images” [DAMA1: 55].

The body (including brain state) is, according to Damasio, the “substrate” for “feelings or emotions” (as he uses these terms):

The collection of neural patterns which constitute the substrate of a feeling arise in two classes of biological changes: changes related to body state and changes related to cognitive state. The changes related to body state can be achieved by two mechanisms. One mechanism involves what I call the "body loop." It uses both humoral signals (chemical messages conveyed via the bloodstream) and neural signals (electrochemical messages conveyed via nerve pathways). As a result of both types of signal, the body landscape is changed and is subsequently represented in somatosensory structures of the central nervous system, from the brain stem up. The change in the representation of the body landscape can be partly achieved by another mechanism, which involves the "as if body loop." In this alternate mechanism, the representation of body-related changes is created directly in sensory body maps, under the control of other neural sites, for instance, in the prefrontal cortices. It is "as if" the body had really been changed, but it has not. The "as if body loop" mechanism bypasses the body proper, partially or entirely . . . The "as if" mechanisms are not only important for emotion and feeling, but also for a class of cognitive processes one might designate as "internal stimulation."

The changes related to cognitive state are generated when the process of emotion leads to the secretion of certain chemical substances in nuclei of the basal forebrain, hypothalamus, and brain stem, and to the subsequent delivery of these substances to several other brain regions. When these nuclei release neuromodulators in the cerebral cortex, thalamus, and basal ganglia, they cause a host of significant alterations of brain function . . .

In short, emotional states are defined by myriad changes in the body's chemical profile; by changes in the state of the viscera; and by changes in the degree of contraction of varied striated muscles of the face, throat, trunk, and limbs. But they are also defined by changes in the collection of neural structures which cause those changes to occur in the first place and which also cause other significant changes in the state of several neural circuits within the brain itself [DAMA1: 281-282].

We will again withhold judgment on Damasio's theory and merely point out that the picture he paints above appears to be entirely consistent with the nature of the synthesis in continuity we have described here. Note the frequent occurrence of the word “state” in his hypothesis. We may also note the *hiatus* that persists between the biological structures and mechanisms he describes and what we actually experience when we say we “have an emotion” or “have a feeling.” Such a *hiatus* is inevitable when we are discussing *soma* because *soma* is precisely the *extended* representation of the *Existenz* of the Self, whereas *nous* is the unextended and supersensible representation. We may inquire to know on what ground Dr. Damasio is justified in representing this extensive appearance in *soma* as the substrate of emotions and feelings. The scientific evidence for the making of this hypothesis is indeed bounteous, but we will content ourselves in these pages with only one specific example – the phenomenon of anosognosia. Anosognosia is a condition in which the patient is unable to acknowledge that he has a disease or that “something is wrong.” This is *not* a situation where the patient is “in denial”; it occurs when there is damage to a very particular region of the brain and results from the loss of a particular cognitive function. Dr. Damasio describes one such case:

Typical anosognosics need to be confronted with their blatant defect so that they will know there is something the matter with them. Whenever I asked my patient DJ about her left-side paralysis, which was complete, she would always begin by saying that her movements were entirely normal, that perhaps they had once been impaired but they no longer were. When I would ask her to move her left arm, she would search around for it and, after looking at the inert limb, ask whether I really wanted "it" to move "by itself." When I would say, yes, please, she would then take *visual* notice of the lack of any motion in the arm, and tell me that "it doesn't seem to do much by itself." As a sign of cooperation, she would offer to have the good hand move the bad arm: "I can move it with my right hand" [DAMA2: 63].

No less dramatic than the oblivion that anosognosic patients have regarding their sick limbs is the lack of concern they show for their overall situation, the lack of emotion they exhibit, the lack of feeling they report when questioned about it. The news that there was a major stroke, that the risk of further trouble in the brain or heart looms large, or the news that they are suffering from an invasive cancer that has now spread to the brain - in short, the news that life is not likely to be the same ever again - is usually received with equanimity, sometimes with gallows humor, but never with anguish or sadness, tears or anger, despair or panic. It is important to realize that if you give a comparable set of bad news to a patient with the mirror image damage in the left hemisphere [of the brain] the reaction is entirely normal. Emotion and feeling are nowhere to be found in anosognosic patients, and perhaps this is the only felicitous aspect of their otherwise tragic condition [DAMA2: 64].

Damasio goes on to describe the particular brain regions – all in the right hemisphere – that are damaged in anosognosic patients. This damage disrupts the interconnections among the various brain regions he mentioned earlier in his discussion of the “substrate for feelings and emotions.” He summarizes his hypothesis for what is happening in anosognosia in the following words:

The pattern of brain damage in such anosognosics results in the disruption of cross-talk among regions involved in body-state mapping, and often in the destruction of some of these regions themselves. The regions are all in the right hemisphere, although they receive input from both right and left sides of the body. The key regions are the insula, the parietal lobe, and the white matter containing connections among them and, in addition, connections to and from thalamus, to and from frontal cortex, and to basal ganglia.

Using the notion of background feeling I can now indicate what I think happens in anosognosia. Unable to avail themselves of current body input, anosognosics fail to update the representation of their bodies and as a result fail to recognize, through the somatosensory system, promptly and automatically, that the reality of their body landscape has changed. They can still form in their minds an image of what their bodies were like, an image that is now outdated. And since their body was fine, that is what they venture to report [DAMA2: 153-154].

Dr. Damasio has a great deal more to say about this hypothesis and the theory that he builds from it. I will leave it to the reader to consult the sources we have quoted here for more details. What is pertinent to our discussion here is the idea of the complete reciprocity of determination between noetic and somatic representations based on the synthesis in judicial continuity through the function of the aesthetic Idea under the transcendental sensorimotor idea of condition of state. Noetic *Kraft* is the animating principle of reciprocity between *nous* and *soma* in regard to the power of *nous* to produce or suffer effects. On the side of *nous* this is represented in affective

perceptions *as they are judged* in aesthetical reflective judgment. But the *process of reflective judgment*, in Quality, speaks to the subsumption of particular sensible representations under a *general* subjective judgment of perception. The principle of this judgment is the principle of formal expedience (*Zweckmäßigkeit*), and the judgment coalesces the *materia* of sensibility into a specific representation of the feeling of *Lust* or *Unlust*.

This synthesis is a structuring, i.e. an enacting of representational transformations which, taken together with the synthesis in objectivity, composes emotivity (reciprocal determination of changes in *soma* and aesthetical composition in reflective judgment). Recall that when we combine noetic and somatic *Kraft* with consciousness (i.e. with the processes of adaptation and the powers of sensibility) this anasynthesis gives us the matter of *Lust-Kraft* in *psyche* (adaptation performance and adaptation measurement). This is why we use the term “emotivity” to describe the action of this process. We recall that on the somatic side Damasio’s description revolves around the ideas of dispositional representations and somatic markers. Regardless of whether the details of Damasio’s theory stand up under further scientific investigation, these terms capture the flavor of this synthesis and through this point us toward a clearer understanding of the idea of desire (in the *Begehren* sense) as the matter in a reflective judgment that ties sensuous judicial representation to appetite. *The synthesis in the aesthetic Idea is a structuring act of emotivity.*

§ 7. The Motoregulatory Orientation

Our discussion in §6 was facilitated by the fact that we could call upon the 2LARs of both the aesthetic Idea and aesthetical reflective judgment in our treatment of the mathematical parts (as Kant would have called them) of the synthesis in continuity. However, for the synthesis of the dynamical parts in continuity we are presently handicapped by the fact that we have not yet said much about the 2LAR of the judicial Idea nor have we yet discussed the *momenta* of teleological reflective judgment. In addition, Kant offers us little help in this task because his presentation of teleological judgment in *Critique of Judgment* was neither systematic nor did it address a doctrine of elements for teleological reflective judgment. Instead he gave his attention over to discussing teleological *Beurtheilung* and the misconceptions that it often produces. It is not the teleological *Beurtheilung* and its cognitive outcomes with which we must be concerned here; it is with teleological *Urtheilskraft* (power of judgment) where our present interest lies.

Consequently, we will again follow Aristotle’s advice and advance upon our goal “from the outside in” (so to speak). Considered in its relationship to speculative Reason and determining judgment, the process of teleological reflective judgment is tasked with making a system of Nature. However, its relationship to cognition is mediate rather than immediate because the perceptual matter of a reflective judgment is always presented by affective, not objective,

perceptions. Furthermore, the dynamical synthesis in continuity involves somatic and noetic *organization*. The former concerns the body manifold, the latter the mind manifold in the psychological phenomena of experience. Both draw their context from the form of adaptation in general. Hence, our topic takes its point of reference from some relationship to structures. It is within this context we must proceed.

Now, thinking is an activity and it is clear that the function of teleological judgment in this context is an orienting function. However, locomotion (in the Kantian sense) is likewise an activity, and so it should be clear that the dynamical synthesis in continuity pertains to the orientation of activity in general. The practical objective validity of our theory can only be sought from the appearances of phenomena in our *experiencing* of activity, and so it is here where we will begin.

§ 7.1 William James and the Experience of Activity

Whenever we think about “experience” we do so in objective terms. By now it is probably obvious why this is so: phenomenal cognitions are the product of the process of determining judgment and the synthesis of imagination in the process of the cycle of thought. I am also confident all of us would additionally hold it to be true that we experience effects exhibiting what we may call “subjective objects” (e.g. *noumenal* emotions, moods, feelings, preferences). In short, somehow or other affective perception becomes a part of individual personal experience for each of us. But in what objectively valid manner can we view “subjective objects of experience” so that this phrase itself is not oxymoronic? In an essay entitled *The Place of Affectional Facts in a World of Pure Experience*, William James offered an excellent answer to this question.

[My] central thesis [is] that subjectivity and objectivity are affairs not of what an experience is aboriginally made of, but parts of its classification. Classifications depend on our temporary purposes [JAME4: 141].

James maintained that the classification of “an” experience revolves around the subjective effects (that is, around affective perceptions) that accompany our objective cognitions of “what the ‘individual experience’ is about.” A subjective object is the *noumenon* for a concept of a classification of a distinct *species* of experience in general distinguishable in affective perception.

It is by the interest and importance that experiences have for us, by the emotions they excite, and the purposes they subserve, by their affective values, in short, that their consecution in our several conscious streams, as “thoughts” of ours, is mainly ruled. Desire introduces them; interest holds them; fitness fixes their order and connection [JAME4: 151-152].

This is an excellent statement of the sort of consequences and manner of *Existenz* that touches upon the *Realerklärung* of the synthesis in continuity under the principle of formal expedience.

James' essay deals with what we might call "the nature of experience" (in contrast to the experience of Nature) and this topic has long been a point of debate in the history of philosophy. In large measure, this debate has enjoyed an impressive longevity because of homonymous usages of the word "experience." Adler *et al.* remarked,

Experience is regarded as a source of knowledge. It is also spoken of as containing what is known. Sometimes it is identified with sense-perception; sometimes it involves more - memory and the activity of imagination. Sometimes it includes thoughts, feelings, and desires as well, all the contents of consciousness, every phase of mental or psychic life . . .

There are still other divisions of experience: intuitive or aesthetic experience, religious experience, and mystical experience.

Experience is said to be that which makes a man expert in an art or in a sphere of practical activity. A man is better able to do or make that which he has much experience in doing or making. He is also better able to judge what should be undertaken or what has been accomplished by others as well as by himself. In this connection experience is called practical, both because it is the result of practice and because it is a means to be used in directing action . . .

These are some of the myriad meanings of "experience" - not all, but those which occur with major emphasis in the tradition of the great books. No author uses the word in all these senses. Some of these senses are contradictory. According to the context of the discussion or the subject matter under consideration, the same author will shift from one meaning to another [ADLE, v.2: 468].

In what sense does James use the word "experience"? In another work he tells us,

According to my view, experience as a whole is a process in time, whereby innumerable particular terms lapse and are superseded by others that follow upon them by transitions which, whether disjunctive or conjunctive in content, are themselves experiences, and must in general be accounted at least as real as the terms they relate [JAME3: 111].

Jamesian experience as a whole is thus a process – an *Unsache*-thing or "happening" in our terminology – the matter of which is composed of some-things called "experiences." But these experiences are organized *as a system*, which we might call the *manifold of experience*. And what is "an" experience? James does not favor us with an explicit definition, but we may easily deduce from his theory that "an experience" is whatever is presented at any given time in the stream of consciousness. In our terminology this would translate under the Copernican hypothesis to the totality of perception – affective, conceptual, and intuitive – that is said to "fill" and/or "be present at" a moment in time in the synthesis of apprehension:

The experience is none other than a knowledge of an Object through sensuous representations [KANT19: 316 (28: 550)].

The subjective factors in "experiences" lead some thinkers to conclude that they can be divided into "material experiences" and "spiritual experiences." The spiritual hypothesis is

particularly associated with volitional phenomena, as, e.g., when we “struggle to make a difficult decision.” Some see the “effort” that “goes into making a hard decision” as the spiritual analog of the effort that goes into, say, lifting a heavy weight. Such “experiences” are often taken as evidence for the existence of a real mind-body division. Aquinas wrote

In our soul there are certain powers whose operations are exercised by corporeal organs; such powers are acts of sundry parts of the body, as sight of the eye, and hearing of the ear. There are some powers of the soul whose operations are not performed through bodily organs, as intellect and will, and these are not acts of any parts of the body [AQUI v.1: 288 (Pt. I, Q 54, A5)].¹

On the issue of material vs. spiritual “experiences” James commented

The obstinate controversies that have arisen . . . prove how hard it is to decide by bare introspection what it is in experiences that shall make them either spiritual or material. It can surely be nothing intrinsic in the individual experience. It is their way of behaving towards each other, their system of relations, their functions; and all these things vary with the context in which we find it opportune to consider them [JAME4: 154].

These characteristics of experience – the *systematic*, *organizational*, and *contextual* aspects of experience – are ideas that are likewise characteristic of the synthesis in continuity of reflective judgment and adaptive *psyche*.

Where the phenomenon of experience raises questions dealing with what Piaget called psychological causality, there we invariably find a third factor entering into the context of the question: the idea of *activity*. For most people the actuality of a thing called “activity” is taken for granted, i.e. the existence of “activities” is taken as self evident. It might therefore be surprising to learn that the idea of “activity” is yet another that has been embroiled in philosophical controversy. The issue here tends to revolve around the questions: what is meant by “activity”? and how do we know when something *is* “an activity”? (i.e., what is it that makes *this* thing an activity and *that* thing not an activity?). More specifically (since no one really doubts there is *something* we call activity), the controversy settles down into arguments about *agency*, i.e., the question of what it is that *causes* “activity” to exist.

In another essay, *The Experience of Activity*, James waded into this issue from the viewpoint of pragmatism. In it he criticized three schools of thought which, from his descriptions of their arguments, we might loosely classify as: 1) Spinoza-like or Hegel-like rationalism; 2) associationism (e.g. as in the doctrines adopted by psychology from British empiricism); and 3) positivism as this shows itself in, e.g., the automaton theory. In all debates on the nature of activity there are, James tells us, three main questions which must be addressed:

(1) There is a psychological question: "Have we perceptions of activity? and if so, what are they like, and when and where do we have them?"

¹ In Scholastic doctrine corporeal matter is ‘enlivened’ by soul; thus sentience and will are spiritual.

(2) There is a metaphysical question: "Is there a *fact* of activity, and if so, what idea must we frame of it? What is it like? and what does it do, if it does anything? And finally there is a logical question:

(3) "Whence do we *know* activity? By our feelings of it solely? or by some other source of information?" [JAME4: 158-159].

James made no claim of answering any of these questions, but he did insist that there is a correct pragmatic way of defining the problem:

The urgent problems of activity are thus more concrete. They are all problems of the true relation of longer-span to shorter-span activities . . . Again, when a mental activity-process and a brain-cell series of activities both terminate in the same muscular movement, does the mental process steer the neural process or not? Or, on the other hand, does it independently short-circuit their effects? Such are the questions we must begin with. But so far am I from suggesting any definitive answer to such questions that I hardly yet can put them more clearly [JAME4: 188-189].

The Experience of Activity was originally an address made by James to the American Psychological Association in 1904 (when he was president of the Association). Thus it is not strange that the "mental-process/brain-cell series" context entered the discussion. The issue of "longer-span to shorter-span activities" recalls Aristotle's series of "movers" going back to a "prime mover" or Spinoza's God as "the immanent, and not the transitive cause of all things":

Prop. 26. A thing which has been determined to any action was necessarily so determined by God, and that which has not been thus determined by God cannot determine itself to action.

Prop. 28. An individual thing, or a thing which is finite and which has a determinate existence, cannot exist nor be determined to action unless it be determined to existence and action by another cause which is also finite and has a determinate existence; and again, this cause cannot exist nor be determined to action unless by another cause which is also finite and determined to existence and action, and so on *ad infinitum* [SPIN: 365].

Suppose I strike a billiard ball with a cue stick, and this ball strikes another ball which drops into a pocket. What was the agent causing the second ball to move? Was it the first ball? Or the cue stick? Or was it me? This is the sort of thing James is talking about when he speaks of the issue of "longer-span to shorter-span" activities. As soon as the chain of "transitive causes" disappears into the territory of intelligible psychological causality we are dealing with *noumena*, and if we persist by speculating about a *Ding an sich selbst* (thing regarded as it is in itself) we have lost contact with the territory of possible experience and all objective validity is lost.

If I want to explain an event in the world, and I derive this from the general laws of nature, then that is a natural event. In the world as a series of appearances, we cannot and must not explain any event from spontaneity; only the reason of human beings is exempted from this. It does not belong to the series of appearances. It is independent of the laws of nature and just in that subsists freedom. With regard to the powers of the mind, a human being belongs to the noumenal world [KANT19: 218 (29: 862)].

In this quote, we must keep in mind that when Kant refers to Nature, he is referring to one's world model and not to the world regarded as it is in itself; we each *build* our world model and thus one's supersensible Reason is not an appearance in this Nature (which is constructed through it). Epistemology takes precedence over ontology in the Critical Philosophy.

Lest we think that we who live in the twenty-first century are too enlightened and educated to fall prey to arguments such as Spinoza's, or think that modern science has definitively settled this question of agency in activity, consider this: Quantum mechanics regards the causality question in terms of "probability amplitudes" – a pure mathematical construct. This is, however, nothing more than an acceptance of spontaneity in agency and behind it lies the idea of probability. But "probability" is a *noumenon*. We posit the *idea* of probability as a mathematical explanation for the *phenomenon* of *statistical distributions*. A statistic is something we can measure; it belongs to the world of experience. But no one has ever or will ever come face to face with "a" probability; probability is the *transcendental object* "behind" the phenomenon of statistical regularity. As a *Ding an sich selbst* it is as transcendent as the agency of a god so far as science proper is concerned and no better substitute as a ground for a cosmogony of the universe.

Why, then, should science make use of the idea of probability but banish the use of God or gods from its theories? The short answer is: So far *in our experience* the idea of probability *works* in cosmology (although not for cosmogony). It makes testable predictions and when these predictions are put to the test the results do not gainsay the prediction. The idea of probability has *practical* objective validity; that of gods does not because "god theory" is mystic, capricious, unpredictable and "explains" only *ex post facto*. It is specious teleology as an idea of Nature.

Now slept the gods and those who fought at Troy - horse-handlers, charioteers - the long night through, but slumber had no power over Zeus, who pondered in the night how to exalt Achilles, how in his absence to destroy the Achæans in windrows at the ships. He thought it best to send to Agamemnon that same night a fatal dream. Calling the dream he said: "Sinister Dream, go down amid the ships of the Achæans, enter Lord Agamemnon's quarters, tell him everything point by point as I command you: Let him prepare the long-haired carls of Achæa to fight at once. Now he may take by storm the spacious town of Troy. The Olympians, tell him, are of two minds no longer. Hêra swayed them, and black days overhang the men of Troy."²

James' pragmatism takes the side of deciding upon philosophical questions in terms of practical objective validity.

By the principle of pure experience, either the word "activity" must have no meaning at all, or else the original type and model of what it means must lie in some concrete kind of experience that can be definitely pointed out. Whatever ulterior judgments we may eventually come to make regarding activity, *that sort* of thing will be what the judgments are about. The first step, then, is to ask where in the stream of experience we seem to find what we speak of as activity. What we are to think of the activity thus found will be a later question.

² Homer, *The Iliad*, bk. II.

Now it is obvious that we are tempted to affirm activity wherever we find anything *going on*. Taken in the broadest sense, any apprehension of something *doing* is an experience of activity . . . Bare activity then, as we may call it, means the bare fact of event or change . . . The sense of activity is thus in the broadest and vaguest way synonymous with the sense of "life." We should feel our own subjective life at least, even in noticing and proclaiming an otherwise inactive world. Our own reaction on its monotony would be the one thing experienced there in the form of something coming to pass [JAME4: 160-161].

But in this actual world of ours, as it is given, a part at least of the activity comes with a definite direction; it comes with desire and sense of goal; it comes complicated with resistances which it overcomes or succumbs to, and with the efforts which the feeling of resistance so often provokes; and it is in complex experiences like these that the notions of distinct agents, and of passivity as opposed to activity, arise. Here also the notion of causal efficacy comes to birth [JAME4: 163].

The question *Whose is the real activity?* is thus tantamount to the question *What will be the actual results?* Its interest is dramatic; how will things work out? . . . The pragmatic meaning of the various alternatives, in short, is great. It makes no merely verbal difference which opinion we take up [JAME4: 178-179].

However far James considered his understanding to be from an answer to the problem of activity, when it came to psychology he leaves us with little room to doubt that he viewed the question in terms of an organic unity. In *The Principles of Psychology* he wrote:

The reader will not have forgotten, in the jungle of purely inward processes and products through which the last chapters have borne him, that the final result of them all must be some form of bodily activity due to the escape of the central excitement through outgoing nerves. The whole neural organism, it will be remembered, is, physiologically considered, but a machine for converting stimuli into reactions; and the intellectual part of our life is knit up with but the middle or "central" portion of the machine's operations . . .

Every impression that impinges on the incoming nerves produces some discharge down the outgoing ones, whether we be aware of it or not. Using sweeping terms and ignoring exceptions, *we might say that every possible feeling produces a movement, and that the movement is a movement of the entire organism, and of each and all of its parts* . . . Professor Bains many years ago gave the name of the Law of Diffusion to this phenomenon of general discharge, and expressed it thus: "According as an impression is accompanied with Feeling, the aroused currents diffuse themselves over the brain, leading to a general agitation of the moving organs, as well as affecting the viscera" [JAME2: 694].

He went on to summarize the physiological evidence of the time supporting this hypothesis. James identified three

of the more important classes of movement consequent upon cerebro-mental change. They may be enumerated as -

1. Instinctive or Impulsive Performances;
2. Expressions of Emotion; and
3. Voluntary Deeds [JAME2: 699].

Let us take these expressions of activity one by one.

§ 7.2 Jamesian Instincts

For James an instinct, considered in isolation, belongs to the idea of reflex actions. He translates *Trieb* as “impulse” and tells us, “Every instinct is an impulse.” He subdivides these into classes: *sensation-impulses*, *perception-impulses*, and *idea-impulses*. A “complex instinctive action may involve successively the awakening of impulses of all three classes” [JAME2: 701].

There is, James tells us, no use in asking the *Why?* of an instinct. They can only be regarded (in and by the species in whom they are expressed) as an absolute and as *selbstverständlich* (self-evident). These are the characteristics that describe knowledge *a priori*.

And we may conclude that, to the animal which obeys it, every impulse and every step of every instinct shines with its own sufficient light, and seems at the moment the only eternally right and proper thing to do. It is done for its own sake exclusively [JAME2: 703].

However, instincts do not exist in splendid isolation, and where many and possibly conflicting impulse reflexes exist, and when in addition the organism which possesses them is also endowed with memory via concepts, instincts are neither blind nor invariable.

Man has a far greater variety of *impulses* than any lower animal; and any one of these impulses, taken in itself, is as “blind” as the lowest instinct can be; but, owing to man's memory, power of reflection, and power of inference, they come each one to be felt by him, after he has once yielded to them and experienced their results, in connection with a *foresight* of those results. In this condition an impulse acted out may be said to be acted out, at least in part, *for the sake* of its results. It is obvious that *every instinctive act, in an animal with memory, must cease to be “blind” after being once repeated*, and must be accompanied with foresight of its “end” just so far as that end may have fallen under the animal's cognizance . . . Some expectation of consequences must in every case like this be aroused; and this expectation, according as it is that of something desired or something disliked, must necessarily either re-enforce or inhibit the mere impulse [JAME2: 704].

In man (and, putatively, in higher animals), a seeming lack of “instinctive behavior” is actually due, according to James, to his possession of so many different impulses that they *block* each other [JAME2: 706]. The mechanism of this blockage is, of course, a consequence of the “law of diffusion” whereby some brain activities inhibit other brain signaling activities. (Although brain physiology was in a rather primitive state, compared to today, in James’ time, this idea of inhibition of signaling has stood up over the years and is a central part of neuroscience theory to this day).

There has long been a widespread, popular opinion that instincts are a kind of invariant, hard-wired “programming” of an animal’s reaction to a stimulus. James scoffed at this preconception.

Were one devising an abstract scheme, nothing would be easier than to discover from an animal's actions just how many instincts he possessed. He would react in one way only upon each class of objects with which his life had to deal; he would react identically the same way upon every specimen of a class; and he would react invariably during his whole life. There would be no gaps among his instincts; all would come to light without perversion or disguise. But there are no abstract

animals, and nowhere does the instinctive life display itself in such a way [JAME2: 707].

In place of the abstract-animal model, James proposed the two principles we looked at earlier in this treatise: the principle of the inhibition of instincts by habits, and the principle of the transitoriness of instincts. We may recall these principles hold that: 1) rather than being permanent, instincts “ripen” at a specific time and, in many cases, later fade away; and 2) the first instinct adopted by the animal blocks a contrary instinct if the first instinct becomes habitual.

Taken in conjunction with the two former principles - that the same object may excite ambiguous impulses, or *suggest* an impulse different from that which it *excites*, by suggesting a remote object - they [the principles of inhibition and transitoriness] explain any amount of departure from uniformity of conduct [JAME2: 707].

James provided a number of examples illustrating these principles, and his chapter on instincts in *The Principles of Psychology* is worth the reading. Instincts, James concludes, are the foundation of habits. Although Piaget disagrees with James’ theory of instincts, it is worth our notice that his theory, in which habits form from assimilations and accommodations that extend primitive sensorimotor reflexes, shares much in common with James’ principles.

It is worthwhile to re-emphasize something that was said earlier: The trademark of a Jamesian instinct is that it is – when considered in isolation – a blind impulse to act as soon as a particular sensibility is perceived. In James’ theory it is only the *Dasein* of a *manifold* of instincts in interaction with each other that brings to appearances the seeming *absence* of instinctive behavior in human beings. The ability of memory and experience to hinder or inhibit some instinctive behaviors by setting into motion other conflicting (inhibiting) instincts is a manifestation of what we commonly call intelligence.

Taken in this context, instinct and intelligence appear to be behavioral opposites, and their synthesis in behavior is to be conceptualized under the categories of {totality, limitation, community, necessity}. (The correctness of the first three of these notions is, I think, rather obvious; we shall have to discuss the Modality notion in more depth at a later point). Bergson’s views on this topic share a number of points in common with James’ theory.

There is no intelligence in which some traces of instinct are not to be discovered, more especially no instinct that is not surrounded with a fringe of intelligence . . . In reality, they accompany each other only because they are complementary, and they are complementary because they are different, what is instinctive in instinct being opposite to what is intelligent in intelligence [BERG2: 136].

Intelligence, in so far as it is innate, is the knowledge of a *form*; instinct implies the knowledge of a *matter* [BERG2: 149].

If we replace the Jamesian instinct with the Piagetian innate sensorimotor reflex and regard James’ theory of inhibition of instinct as the neurological counterpart to Piaget’s accommodations, we can, however dimly, see in the synthesis of these two men’s theories a

foundation for the formation of Piagetian schemes. A scheme, we recall, was defined by Piaget as “what can be repeated and generalized in an action.” Beyond saying that assimilation and accommodation “extends” biological organization, Piaget was silent on the question of *how* this generalization was possible. While we may dismiss James’ particular catalog of human instincts as not sufficiently well-founded, we shall retain the idea that within the sensorimotor organization of the brain there are signal pathways and neural structures that, although subject to change through maturation and experience, correspond to the Jamesian idea of instincts, and that these brain structures are the somatic correlates of Piagetian schemes.

§ 7.3 The James - Lange Theory

The second of James’ three “classes of movement” is the expression of emotion. Given our discussion of the state of emotion theory in psychology, we must naturally be on our guard in looking at this topic. James’ theory, also developed independently by Lange and consequently known to history as the James-Lange theory, was the first of modern psychology’s emotion theories. We have already seen Dr. Damasio defend and extend this theory, but what is it that he defended and extended? That is our next topic.

James saw an inherent linkage existing between instincts and emotions. To some extent we should expect this since “emotional expression” has already been classified by James as one of his “movements.” What is it that distinguishes emotions from instincts?

In speaking of the instincts it has been impossible to keep them separate from the emotional excitements that go with them . . . *Instinctive reactions and emotional expressions thus shade imperceptibly into each other. Every object that excites an instinct excites an emotion as well.* Emotions, however, fall short of instincts in that the emotional reaction usually terminates in the subject’s body, whilst the instinctive reaction is apt to go farther and enter into practical relations with the exciting object [JAME2: 738].

This would seem to be a rather slim criterion upon which to base the distinction between an instinctive reaction and an emotional one. If we take the general view that both of these are types of activity in general, rather than restrict them to *somatic* activity, would *thinking* activity be an instinctive or an emotional expression? Most of us would, I think, rebel at any proposition that thinking should be regarded as emotional behavior. On the other hand, by making a distinction between objective and affective perceptions it can be argued that objective perceptions imply a kind of “relationship with the exciting object.” Inasmuch as noetic perception must have its correlate in brain activity, then so long as we do not make a brain-body division and we treat brain as part of body (which we do in this treatise), we can somewhat quiet this objection to James’ criterion.

Still, one finds James’ criterion slippery and difficult to apply *in concreto*. The state of

emotion theory in modern psychology illustrates the difficulty in getting a good grasp on how to view and approach the idea of “emotions” and “emotional reaction.” For example, *pain* is obviously an affective perception but most of us would not call pain an emotion. Yet it would seem to fit James’ criterion for being an emotional expression as stated above if this were the *sole* criterion for deciding what we shall regard as emotional vs. instinctual. Pain would not typically be called an *instinct* either; it *would* be and is called a feeling.

Perhaps the source of the difficulty of which we speak is obvious to the reader; put simply, it arises from the question of how one *defines* or is to *recognize* “emotion.” We have already discussed the difficulties involved with this question in Chapter 15. To the list of mini-theories given there, we can add another of Kant’s descriptions of “emotion”:

The inclination difficult or not at all vanquishable through the reason of the subject is passion. On the other hand, the feeling of a *Lust* or *Unlust* in the present state which does not give rise to consideration in the subject (the representation of reason whether one should give way to or refuse it) is emotion [AK7: 251].

Emotion is surprise through sensation whereby the composure of the mind (*animus sui compos*) is suspended. It therefore is precipitate, that is, grows quickly to a degree of feeling that makes consideration impossible (it is thoughtless) [AK7: 252].

For Kant, **emotion is a feeling** (of *Lust* or *Unlust*) – therefore an affective perception – **having the distinguishing characteristics that it is unanticipated and antagonistic to thinking and reasoning as the degree of the feeling increases.** As *activities*, thinking and reasoning have a relationship to James’ idea of instincts (allowing that, under James’ theory, more complex and eventually voluntary acts of thinking and reasoning would be *constructible* through complex sequences of instincts modified through experience). Emotivity, then, would be a “movement” (activity) tending to inhibit or block some instinctive activities (especially some cognitive activities) in favor of other contrary activities. As we will see, this explanation of emotivity is compatible with the main points of James-Lange that we will retain in this treatise.

James did not begin his theory of emotion with an attempt to define emotion. Why was that?

The trouble with emotions in psychology is that they are regarded too much as absolutely individual things. So long as they are set down as so many eternal and sacred psychic entities, like the old immutable species in natural history, so long all that *can* be done with them is reverently to catalogue their separate characters, points, and effects. But if we regard them as products of more general causes . . . the mere distinguishing and cataloguing becomes of subsidiary importance [JAME2: 742].

If one begins by simply giving names to particular “emotional experiences” (e.g., anger, joy, etc.) and assumes these names represent species of particular experiences under the genus *emotion*, then, James holds, our study is merely an historical activity. Based as it would be on merely nominal definitions, it would lack a foundation for any truly scientific study.

The result of all this flux is that the merely descriptive literature of the emotions is one of the most tedious parts of psychology. And not only is it tedious, but you feel that its subdivisions are to a great extent either fictitious or unimportant, and that its pretenses to accuracy are a sham. But unfortunately there is little psychological writing about the emotions which is not merely descriptive . . . They give one nowhere a central point of view, or a deductive or general principle. They distinguish and refine and specify *in infinitum* without ever getting on to another logical level, whereas the beauty of all truly scientific work is to get to ever deeper levels. Is there no way out from this level of individual description in the case of the emotions? I believe there is a way out [JAME2: 742].

James' "way out" takes its starting point and central focus from the hypothesis that all manifestations of emotion include measurable physiological effects – constriction of blood vessels, changes in heart rate, paralysis or innervation of muscles, glandular secretion or dryness, etc. If such things as these are to be the observables *from which* one defines emotion then it follows that these physiological observables might *pragmatically* be regarded as the *cause* of the *feelings* that get called "feelings of emotions." The central principle of James-Lange is this: That bodily changes follow directly upon the perception of "the exciting fact" and our feeling of these same changes as they occur *is* the emotion [JAME2: 743]. A "body state" is thus interposed between a perception and the emotional feeling.

Without the bodily states following on the perception, the latter would be purely cognitive in form, pale, colorless, destitute of emotional warmth. We might then see the bear and judge it best to run, receive the insult and deem it right to strike, but we should not actually *feel* afraid or angry [JAME2: 743].

Now, there *is* a *saltus* in this argument, and it is one that I find to be fairly common in science. The *saltus* is the presumption that the Relation between body state and feeling must be one of causality and dependency rather than one of community. The idea of a body state clearly belongs to *soma*; feeling belongs to *nous*. There is no ground for presuming that the latter must follow the former, nor is there a ground for presuming that the former must follow the latter. On the other hand, there *are* grounds for conceptualizing the Relation as one of community. First, the division between mind and body is a logical rather than a real division. *Psyche*, the faculty of animating principles, connects *soma* and *nous* through a Relation of community, *not* a Relation of causality and dependency.

Second, whatever we might choose to call an emotion¹, the phenomenon in experience spans *multiple* consecutive moments in time. Here we need to remind ourselves of the logical law of continuity: Whatever holds good generally for a certain magnitude that can become smaller also holds good for it if it is infinitesimal. Now, for any object to *be* an object *capable of being thought* in terms of external or transitive Relations with other objects, its representation across

¹ so long as on some level this choice can be *applied* to phenomena that we can agree are expressions of "an emotional nature" – such as expressions called rage or joy.

multiple moments in subjective time requires its concept to come under the notion of substance and accident (as well as under the notion of unity). To speak at all of something called an emotion requires its representation in a functional object (and so that of which we speak is the object of an *idea*)². If it is likewise true (as, I think, all psychologists agree) that both body state and sensibility are characteristics of emotion, then this concept is a conjunctive representation of emotion which, since it spans both *soma* and *nous*, comes under the schema for coexistence in time with regard to these coordinate parts, each conceptualized under the category of substance and accident. But the object (emotion), in its *accidents of appearance*, exhibits in sensibility *changeability* in time, and has in its representation an intensive magnitude coming under the logical law of continuity. We therefore have no objectively valid way to fix its “real starting point” in time; the most we can do is determine at which moment in time its presentation in sensibility *first became perceived*.³ That is not the same thing as saying when the emotion began (i.e., when an obscure representation of the effect was first synthesized in sensibility). The only statement we can therefore make with *theoretical* objective validity is that the Relation of body state to sensibility is a Relation of community.⁴ Removing this *saltus* in James’ argument (and in some other emotion theories as well) will, I think, go far in removing some of the objections that have been developed to James-Lange during the twentieth century (cf. [CARL: 37-48]).

With this in mind, we can now return to James-Lange theory. The theory proceeds from three basic points of argument:

To begin with, no reader of the last two chapters will be inclined to doubt the fact that *objects do excite bodily changes* by a pre-organized mechanism, or the farther fact that *the changes are so indefinitely numerous and subtle that the entire organism may be called a sounding-board*, which every change of consciousness, however slight, may make reverberate . . .

The next thing to be noticed is this, that *every one of the bodily changes, whatsoever it be, is FELT, acutely or obscurely, the moment it occurs* . . . Our whole cubic capacity is sensibly alive; and each morsel of it contributes to its pulsations of feeling, dim or sharp, pleasant, painful, or dubious, to that sense of personality that every one of us unfaillingly carries with him . . .

I now proceed to urge the vital part of my whole theory, which is this: *If we fancy some strong emotion, and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find we have nothing left behind*, no “mind-stuff” out of which an emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains [JAME2: 743-744].

We might well dispute James’ second point that every bodily change is felt if by “felt” we take him to mean that we are conscious of the bodily change. But leaving this aside and considering

² We are speaking here of making a scientific theory. Therefore, the object of the theory must be represented in cognition and what we then say about it we say from the *theoretical* Standpoint.

³ If we say “the emotion did not exist before it was perceived” we introduce a *hiatus* into its representation. But *in mundo non datur hiatus*. On such a fine edge lies the border between a *noumenon* and a transcendent object. Community is the category of coexistence in representation at the same moment in time.

⁴ A similar argument applies to James’ idea of instincts. The noetic and somatic characteristics of an instinct are likewise to be conceptualized under a Relation of community.

only those “bodily changes” of which we *are* conscious, this point is in fact an argument favoring the Relation of community we just discussed. The first point James makes, that of pre-organized mechanism, is an argument applied to *soma* and, from the previous section on instincts, we shall concede that James’ use of the word “pre-organized” does not imply “permanently fixed.” As for the third and “vital point of the whole theory,” this is not a valid argument for body primacy (as we have already discussed and dealt with earlier in this treatise), but it *is* a valid argument against the “spiritual” view of emotions.

Having made the causality-and-dependency error, it was quite an understandable, albeit over-generalized, conclusion for James to draw that the regions of the brain responsible for emotions were the same as those responsible for motor and sensory functions and that no “special brain-centers” in addition to these were required (the role of amygdala being then unknown).

And yet it is even now certain that of two things concerning the emotions, one must be true. Either separate and special centers, affected to them alone, are their brain-seat, or else they correspond to processes occurring in the motor and sensory centers already assigned, or in others like them, not yet known. If the former be the case, we must deny the view that is current, and hold every cortex to be something more than the surface of "projection" for every sensitive spot and every muscle in the body. If the latter be the case, we must ask whether the emotional *process* in the sensory or motor center be an altogether peculiar one, or whether it resembles the ordinary perceptive processes of which those centers are already recognized to be the seat. Now if the theory I have defended be true, the latter alternative is all that it demands . . . An object falls on a sense-organ, affects a cortical part, and is perceived; or else the latter, excited inwardly, gives rise to an idea of the same object. Quick as a flash, the reflex currents pass down through the pre-ordained channels, alter the condition of muscle, skin, and viscus; and these alterations, perceived, like the original object, in as many portions of the cortex, combine with it in consciousness and transform it from an object-simply-apprehended into an object-emotionally-felt. No new principles have to be invoked, nothing postulated beyond the ordinary reflex circuits, and the local centers admitted in one shape or another by all to exist [JAME2: 758-759].

It is precisely this “loop picture” involving three “steps” in the “emotional loop” that runs into serious difficulty when it comes up against the experimental evidence that was later obtained. Damasio’s statement that James-Lange did not go far enough is correct. However,

Regardless of the mechanisms by which emotions are introduced, the body is the main stage for emotions, either directly or via its representation in somatosensory structures of the brain. But you may have heard that this idea is not correct, that in essence this was the idea proposed by William James . . . and that time has cast the idea aside. First, there is more to my proposal than what was advanced by James. Second, the attack against James . . . is just not valid, although his proposal on emotion is neither flawless nor complete.

The mechanisms I have outlined to enact emotion and produce a substrate for feelings are compatible with William James's original formulation . . . but include many features absent in James's text. None of the features I have added undermines or violates the basic idea that feelings are largely a reflection of body-state changes . . . The new features I proposed add a new dimension to these phenomena, however. Even in the most typical course of events, the emotional responses target *both* body proper and brain . . . The body is no longer the exclusive theater for emotions and consequently the body is not the only source for feelings, as James would have wished. Moreover,

the body source may be virtual, as it were, it may be the representation of the body "as if" rather than the body "as is" [DAMA1: 287-288].

James tended to view things in terms of electrical "brain currents" and this model does imply the need for a "closed circuit" – one that must indeed involve "currents" running from brain to body-proper and back again. However, today we know that this electric circuit model of the brain is simply not correct. There is indeed transmission of signals in the nervous system, and some of them do involve current flow from one part to another (and, in accord with physics, back again). But we now know that the principal signaling mechanisms include electro-chemical signaling (synapses) as well as humoral transmission mechanisms (blood-borne hormones). In short, James' model of the *soma* was inadequate. Damasio's somatic markers may well require non-brain signals in order to become initially established and maintained, but Damasio's dispositional representations and convergence zones also admit of the possibility of as-if-body loops within the brain itself, and his hypothesis would seem to answer a great many more of the objections to James-Lange. (Only more research will tell the degree to which this is true). The most serious problem with both James-Lange and Damasio's theory is the problem of body-primacy, which makes mind a mystic epiphenomenon. This is a problem that spans all of today's neuroscience paradigm and originates in the same *saltus*, namely the presumption of a causality and dependency Relation where only a Relation of community has objective validity.

There is, however, one very important point where James and Damasio do *fundamentally* disagree: Damasio is a proponent of the idea of primary emotions [DAMA2: 131-134]; James was not.

If such a theory is true, then each emotion is the resultant sum of elements, and each element is caused by a physiological process of a sort already well known . . . Definite questions now immediately arise - questions very different from those which were the only possible ones without this view. Those were questions of classification . . . The questions now are *causal* . . . Now the moment the genesis of an emotion is accounted for, as the arousal by an object of a lot of reflex acts which are forthwith felt, *we immediately see why there is no limit to the number of possible different emotions which may exist, and why the emotions of different individuals may vary indefinitely*, both as to their constitution and as to objects which call them forth. For there is nothing sacramental or eternally fixed in reflex action. Any sort of reflex effect is possible, and reflexes actually vary indefinitely, as we know.

In short, *any classification of the emotions is seen to be as true and as "natural" as any other*, if it only serves some purpose; and such a question as "What is the 'real' or the 'typical' expression of anger, or fear?" is seen to have no objective meaning at all [JAME2: 745-746].

James today might well be a strong proponent of the fuzzy circumplex model of emotion theory.

Emotions, as James saw them, were part and parcel of his general idea of reflexes. Although innate and pre-organized, let us remember James argued that not only were there an enormous

number of them, but also that many (most?) were neither present at birth nor permanent. On the one hand, their structure would be modified by experience (“foresight” – i.e. anticipation). On the other, their nature would be “transitory” – i.e. maturation alone would bring changes in them. Put simply, the system of Jamesian reflexes is not fixed. Seen in this way, “emotional expression reflexes” are merely the affective complement to “instinctual expression reflexes” (which, from his description, are not themselves perceived). This argues against the idea of primary emotions, of course, but it also raises another interesting question. Do these “emotional mechanisms” of *soma* form *structures* in the Piagetian sense?

We have earlier seen Piaget argue that “affectivity” produces no “structures of behavior and does not modify the structures in whose functioning it intervenes” [PIAG16: 6]. Allowing for the ambiguity that arises in comparing different theories whose proponents employ different terminology, it seems to me that this was also James’ view. Emotions, he tells us, are not *remembered* (i.e. they do not have *cognitive* representation); they are instead *recaptured*:

The revivability in memory of the emotions . . . is very small . . . This difficult ideal revivability is, however, more than compensated in the case of emotions by a very easy actual revivability . . . The cause is now only an idea, but this idea produces the same organic irradiations, or almost the same, which were produced by the original, so that the emotion is again a reality. We have "recaptured" it [JAME2: 759].

Furthermore, emotions

. . . blunt themselves by repetition more rapidly than any other sort of feeling. This is due not only to the general law of "accommodation" to their stimulus, which we saw to obtain of all feelings whatever, but to the peculiar fact that the "diffusive wave" of reflex effects tends always to become more narrow. It seems as if it were essentially meant to be a provisional arrangement, on the basis of which precise and determinate reactions might arise [JAME2: 760].

In order to qualify as a structure in the Piagetian sense, something must be “a system of transformations with self-regulating laws so that no new element engendered by the operation of these transformations breaks down the boundaries of the system and do not involve elements from outside the system except as aliments of assimilation.” It seems clear that James is telling us emotions do not become part of cognition (they cannot be “ideally revived”), hence do not become part of the structure of cognitions. We compare this with Piaget’s reason for concluding affectivity is non-structural:

We can extract a provisional conclusion from such facts and state the themes we shall develop. The first of these is that although affectivity is constantly at work in the functioning of thought, it does not create new structures of reasoning. This means that affectivity does not create laws of equilibrium which are more and more differentiated from their content and independent of functioning. The second of our provisional conclusions is that the energetics of behavior arise from affectivity whereas the structures arise from cognitive functions. This distinction of structure and

energetics demonstrates clearly that even though intelligence and affectivity are not separable in concrete conduct, they are different in nature [PIAG16: 7].

But if emotions in the James-Lange sense do not become part of cognition, can they nonetheless form affective structures of their own? Here the apparent absence of *self-regulating laws of transformation* argues against viewing them as structures of behavior. Affective perceptions are not eventually equilibrated; they are *extinguished* from consciousness. A structure preserves itself; affectivity does not. If it did, there would be evidence of a synthesis of reproduction for affective perceptions, just as there is for cognitions. But affective perceptions, in experience, always seem to be the product of *receptivity*. This applies even to those that seem to arise merely from thinking (through a process we are calling kinaesthetic feedback).

It is true we can often recognize a particular emotion when it happens again, but this implies nothing more than a *cognition* of a particular appearance of the Self (an “I have felt like this before” with objective, if often indistinct, re-presentation of prior appearances). If I have a sensation of tightness in my facial muscles, a sensation of heat in my face, a sensation of rigid posture, etc., these are merely the sensational matter of cognitions of my face, my torso, and so on. I conclude from this “I am angry” but the cognition is not the affective perception.

Feelings, without being structures by themselves, are structurally organized by being intellectualized [PIAG16: 15].

Such seems also to be James’ position.

§ 7.4 James’ Volitional Psychology

Jamesian instincts and emotions in “raw form” are “blind” responses to stimuli. By this he means they are not products determined by cognition and in this sense are “automatic” reactions to sensible stimuli. However, their effects are capable of being experienced. Once this has happened and these effects are represented in cognition, the situation becomes considerably more complex. This is because it now becomes possible for a larger number of “impulses” to be “excited” by the same stimulus owing to the sensible re-presentation of the cognitions of past effects of the stimulus.

Cognition, James tells us, can present “remote objects” (anticipations of imagination), and it is this presentation that makes possible the arousal of other impulses. These may be antagonistic to the impulses aroused by the sensibility of the original stimulus. He uses the term “voluntary movements” to denote physical activities, arising from the “foresight” of these imaginative remote objects, that are “foreseen and desired” prior to their execution. Now, it is clear that James’ theory here becomes concerned with the interplay between *thinking* activities and what we might call the brutish activities of particular Jamesian instincts.

The movements we have studied hitherto have been automatic and reflex and (on the first occasion of their performance, at any rate) unforeseen by the agent. The movements to the study of which we now address ourselves, being desired and intended beforehand, are of course done with full prevision of what they are to be. It follows from this that *voluntary movements must be secondary, not primary, functions of our organisms*. This is the first point to understand in the psychology of Volition. Reflex, instinctive, and emotional movements are all primary performances. The nerve-centers are so organized that certain stimuli pull the trigger of certain explosive parts; and a creature going through one of these explosions for the first time undergoes an entirely novel experience . . . But if, in voluntary action properly so-called, the act must be foreseen, it follows that no creature not endowed with divinatorial power can perform an act voluntarily for the first time . . . As we must wait for the sensations to be given us, so must we wait for the movements to be performed involuntarily, before we can frame ideas of what either of these things are. We learn all our possibilities by the way of experience.

A supply of ideas of voluntary movements that are possible, left in the memory by experiences of their involuntary performance, is thus the first prerequisite of the voluntary life [JAME2: 767-768].

Now here is one place where a too-simple interpretation of James' words will soon come to be at odds with experimental evidence. The word where this trouble centers is *idea*. James is very ambiguous in his use of this word and so it is easy to read into his description above a picture of the Organized Being going through a sequence of: 1) cognizance of some desired state of being compared with the sensibility of a present state of being; 2) cognizance of some imagined movement that would bring the present state to the desired state; and 3) willful execution of that movement. But such a neat, logical, and predominantly intellectual process is not in fact found in the study of young children.

This was demonstrated by Piaget *et al.* and described in *The Grasp of Consciousness* [PIAG25]. The experimental data presented there reveals that the process of voluntary execution of physical motions is much more syncretic than the logical and juxtaposed sequence just described. Children (and, for that matter, most athletes, musicians, and others whose occupations principally involve physical performance) are frequently incapable of giving a description of the details of their voluntary movements. Yet, all the same, these movements are executed with great skill. For example, four-year-old children are able to learn to use a sling to throw a ball into a box, but they are unable to correctly describe the movements they have just executed or even the point in their throwing action at which they released the ball [PIAG25: 12-45].

James uses the word "idea" in a vague and general way, and to make any use of his theoretical description above we must take care not to interpret his word "idea" as implicating a clear and distinct cognitive representation. Piaget's work concluded that "cognizance proceeds from the periphery to the center," i.e. that consciousness of the detailed objective understanding of an action scheme follows the "mechanical" development of this scheme at a much later time. If the subject is to be said to "have an idea" of a sensorimotor scheme that could be executed for an intended purpose, we can take this to mean little else than that it implies: 1) a recognizable

intended result plus 2) some *connection* between this representation and a sensorimotor scheme that is recognized only in terms of a syncretic representation of sensible data experienced during its execution but which is not imagined in distinct detail prior to its actual execution.

To put this another way, the Subject is able to *invoke* a particular action scheme and to control the execution of this scheme. But this control can only be said to be accomplished through some sense of “this feels right” experienced *during* the actual execution of the scheme. The memory of which James speaks is therefore not a distinct cognition of an abstracted motor-scheme object but rather is autistic (in the Piagetian sense of that word) and indistinct (in the Kantian sense of that word). It might even involve obscure representations. Such a representation in an intuition has a pure form in inner sense as the *modus* of succession in time and a form in outer sense that composes a particular dynamical combination of sensible representations.

We can in this context conceptualize the motoregulatory scheme as a totality of Jamesian instincts that have been sequenced, but sequenced without distinctive *objective* perception of this motor sequence. The learning that is implied in James’ use of the word “memory” subsists in the formation of the motoregulatory scheme *and* of some *nexus* linking an intuition of the consequences of its execution with psychic *Lust-Kraft*. It is the synthesis of this intuition, formation of the sequence of the motoregulatory scheme, and their combination in this *nexus* that allows us to say, with James, that a voluntary movement must be “a secondary, not a primary, function of the organism.”

Are we justified in making such a sweeping expansion as an interpretation of James’ theory? Did James himself have any such thing in mind when he wrote *The Principles of Psychology*? We cannot answer the second question with any strong conviction, but I think he did envision such a theory (if not in detail, and certainly not in our terms) at least vaguely:

Now the same movement involuntarily performed may leave many different kinds of ideas of itself in the memory. If performed by another person, we of course *see* it, or we *feel* it if the moving part strikes another part of our body. Similarly we have an auditory image of its effects if it produces sounds, as for example when it is one of the movements made in vocalization . . . All these *remote* effects of the movement, as we may call them, are also produced by movements which we ourselves perform; and they leave innumerable ideas in our mind by which we distinguish each movement from the rest. It *looks* distinct; it *feels* distinct to some distant part of the body it strikes; or it *sounds* distinct. These remote effects would then, rigorously speaking, suffice to furnish the mind with the supply of ideas required.

But in addition to these impressions made upon remote organs of sense, we have, whenever we perform a movement ourselves, another set of impressions, those, namely, which come up from the parts that are actually moved. These *kinaesthetic* impressions . . . are so many *resident* effects of the motion [JAME2: 768].

Here James describes by examples various possible representations *of sensibility* that are placed in association with the physical action. And what is the nature of this association?

All these cases, whether spontaneous or experimental, show the absolute need of *guiding sensations* of some kind for the successful carrying out of a concatenated series of movements. It is, in fact, easy to see that, just as where the chain of movements is automatic . . . each later movement of the chain has to be discharged by the impression which the next earlier one makes in being executed, so also, where the chain is voluntary, we need to know at each movement just *where we are in it* [JAME2: 770].

From this he concludes:

This is perhaps all that need be said about the existence of passive sensations of movements and their indispensableness for our voluntary activity. We may consequently set it down as certain that, *whether or no there be anything else in the mind at the moment when we consciously will a certain act, a mental conception made up of memory-images of these sensations, defining which special act it is, must be there* [JAME2: 771].

James called this “mental conception” *the kinæsthetic idea*.

According to this theory, we are not conscious of any representation of motor actions prior to their being performed. We become conscious of them only through sensible feedback of their effects, i.e. through the kinæsthetic idea. This is consistent with a statement made earlier, and it seems quite consistent with introspection: I “will” to move my finger and it moves, but I can perceive no sense of *how* I make it move. However, in James’ day this was not the prevailing view in psychology. Instead, psychology subscribed to what was known as the *feeling of innervation* theory, which was a theory first put forth by Wundt and agreed to by such notables as Helmholtz and Ernst Mach.

Proponents of this theory claimed, “the motor discharge itself must be felt.” In other words, prior to executing a physical movement there must be some sort of consciousness of how much “effort” was going to be applied to each muscle, the order in which muscle “discharges” were going to be made, and so on. This view was based more or less on “common sense”: When we know we are going to lift a heavy object, handle an egg, or hammer a nail, we somehow must know *in advance* the amount of muscle force we are going to apply so as not to throw the heavy object over our head, crush the egg, etc. James devoted a lengthy discussion to refuting this common-sense view [JAME2: 772-790]. Rather than having to know *a priori* what the discharge was going to be (as the feeling of innervation theory maintained), it was enough, said James, that we know *from previous experience (a posteriori)* what the *effect* will feel like. This is enough to *unconsciously* determine the brain representation regulating the force being applied.

James described a number of experiments, both those designed to demonstrate the existence of feelings of innervation and those designed to demonstrate its non-existence. On the whole, neither set would seem to conclusively settle the issue once and for all, but by and large James’ view does appear to get the best of the argument. This is particularly the case, from today’s view,

if one accepts as fact the *Dasein* of sensorimotor schemes (including the development over time of what Piaget calls *mobile schemes*) and is also willing to tie the physiological basis of these schemes to James' theory that the brain contains within its structure mechanisms for pre-organized "instinctive movements." With well practiced movements, James tells us,

The idea of an end . . . tends more and more to make itself all-sufficient. Or, at any rate, if the kinæsthetic ideas are called up at all, they are so swamped in the vivid kinæsthetic feelings by which they are immediately overtaken that we have no time to be aware of their separate existence . . . This comes from the rapidity with which often-repeated movements follow on their mental cue. An end consented to as soon as conceived innervates directly the center of the first movement of the chain which leads to its accomplishment, and then the whole chain rattles off *quasi-reflexly* [JAME2: 788].

What we know of voluntary movements from modern neuroscience tends to support James' view, although even today the specific mechanisms and physiology of these movements remains far from settled unequivocally. Where neuroscience and James' description differ the most is twofold. First, James appears to imply there is a single "chain of discharges" involved in movement, whereas the modern evidence reveals a highly parallel and distributed signaling complex. Second, the modern evidence also shows that not all of the signals carrying feedback on the state of the motor organization are necessarily perceived in a "kinæsthetic idea." There are "local loops" that feed back to neurons in the spinal cord which help generate muscle control. Other signals reaching the brain carry information to the cerebellum and lower brain nuclei but might not reach the sensory cortices.¹ Neither of these facts, however, wholly invalidates James' model. Rather, they tend to augment the details of the biology and, in a manner of speaking, "lighten the workload" James assigned to the cerebral cortex. There do appear to be somatic signals that have no direct correlate in *conscious* noetic representation. In the phenomenon of mind, they are and remain *obscure* representations.

James next turned his attention to the role of cognition in voluntary movements.

The question is this: *Is the bare idea of a movement's sensible effects its sufficient mental cue, or must there be an additional mental antecedent, in the shape of a fiat, decision, consent, volitional mandate, or other synonymous phenomenon of consciousness, before movement can follow?*

I answer: Sometimes the bare idea is sufficient, but sometimes an additional conscious element, in the shape of a fiat, mandate, or express consent, has to intervene and precede the movement. The cases without a fiat constitute the more fundamental, because the more simple, variety. The others involve a special complication . . .

Wherever movement follows *unhesitatingly and immediately* the notion of it in the mind, we have ideo-motor action. We are then aware of nothing between the conception and the execution. All sorts of neuro-muscular processes come between, of course, but we know absolutely nothing about them. We think the act, and it is done; and that is all that introspection tells us of the matter [JAME2: 790].

¹ see Gordon M. Shepherd, *Neurobiology*, 3rd ed., N.Y.: The Oxford University Press, 1994, pp. 381-497.

Intentional motor movement thus involves what James called “ideo-motor action” – the representation before the fact of an action to follow. Here is a case where perception in sensibility is comprised at least in part of elements of sensibility arising from noetic spontaneity. We thus are dealing with a situation in which there is “blockage” of some instinctual movements by other instincts aroused by cognition. Those cases where the “ideo-motor cue” is effective without the intervention of a “mental fiat” would seem to be those of which we use such descriptions as “I did it without thinking.” A Piagetian would probably call such actions as these *sensorimotor habits*. The trademark of ideo-motor action, according to James, is performance of the action without any mental representation of *not* doing the action.

In all of this the determining condition of the unhesitating and resistless sequence of the act seems to be *the absence of any conflicting notion in the mind*. Either there is nothing else at all in the mind, or what is there does not conflict [JAME2: 791].

Here James makes a conjecture that modern neuroscience appears to confirm at least in part:

We may then lay it down for certain that *every representation of a movement awakens in some degree the actual movement which is its object; and awakens it in a maximum degree whenever it is not kept from doing so by an antagonistic representation present simultaneously in the mind*.

The express fiat, or act of mental consent to the movement, comes in when the neutralization of the antagonistic and inhibitory idea is required [JAME2: 792].

Neuroscience appears to support the first part of this hypothesis, i.e. the “awakening in some degree” of the actual movement, although not perhaps in the specific way James imagined. Experiments performed on monkeys have shown that there exist neurons in the motor cortex that make up what has been called a “preparatory state” of signaling. Shepherd describes this in the following way²:

We have seen that there is not a tidy sequence in the onset of neuronal activity in different areas of the motor system. Neurons at apparently lower levels in the motor hierarchy begin to fire in relation to a learned movement about the same time as at higher levels, indicating that motor control involves parallel as well as serial processing . . . This raises the question of whether one could go even further, and identify activity related to the earliest mental operations involved in preparing to carry out an intended movement.

By setting up an appropriate behavioral paradigm, it is in fact possible to show that there are neurons in the motor cortex that have this type of activity . . . Remarkably, this motor activity is entirely internal, as far as the behavior is concerned; there is no overt motor movement during the warning period, and no EMG [electromyograph] discharge in the muscles. Thus, the central motor program drives the cortical motor cells, but the motor output stays within the brain. States of readiness, such as this, can also be detected in the electroencephalogram, recorded by gross electrodes on the scalp.

² *ibid.*, pp. 492-494.

This earliest activity is related to several types of mental operations. The expectation of target appearance in these motor experiments is sometimes referred to as "perceptual set." This requires the monkey to remember where the light and target are located, and therefore overlaps with the operation referred to as "spatial memory." This in turn overlaps with spatial attention, which is required for carrying out the task. Thus, neuronal activity may be involved in several categories of mental and motor preparation.

It remains to be seen by neuroscience whether the failure of the cortical motor cell signals to excite an actual motor movement is due to *inhibition* from other signals elsewhere in the brain, or is due to the simple *absence* of some other signal or signals required to produce the actual motor activity, or involves both types of signaling conditions.

James went on to make from this hypothesis a "fundamental law" of voluntary movement:

The first point to start from in understanding voluntary action . . . is the fact that consciousness is *in its very nature impulsive* . . . Every pulse of feeling which we have is the correlate of some neural activity that is already on its way to instigate a movement . . . *Movement is the natural immediate effect of feeling, irrespective of what the quality of the feeling may be. It is so in reflex action, it is so in emotional expression, it is so in the voluntary life.*

It may be remarked in passing that the inhibition of a movement no more involves an express effort or command than its execution does. Either of them *may* require it. But in all simple and ordinary cases, just as the bare presence of one idea prompts a movement, so the bare presence of another idea will prevent its taking place . . .

A waking man's behavior is thus at all times the resultant of two opposing neural forces. With unimaginable fineness some currents among the cells and fibers of his brain are playing on his motor nerves, whilst other currents, as unimaginably fine, are playing on the first currents, damming them or helping them, altering their direction or their speed [JAME2: 793].

If this talk of "neural forces" (somatic signals) opposing one another reminds us of our psychic idea of *Lust vs. Unlust* – well, so it should.

Given James' "stream of thought" model with its "the-pack-of-cards-is-on-the-table" constructs, it may seem strange and even contradictory to hear him speak, howsoever vaguely, of "ideas" in the plural. Yet this plurality is at the heart of his theory, and so it merits our attention. Fortunately, we do not have to guess what he had in mind. James himself addressed this seeming contradiction:

I use the common phraseology here for mere convenience's sake. The reader . . . will always understand, when he hears of many ideas simultaneously present to the mind and acting upon each other, that what is really meant is a mind with one idea before it, of many objects, purposes, reasons, motives, related to each other, some in a harmonious and some in an antagonistic way. With this caution I shall not hesitate from time to time to fall into the popular Lockian speech, erroneous though I believe it to be [JAME2: 794fn].

In Jamesian "ideo-motor action" the "impulse to act" is not counteracted by inhibitions. What, though, of James' "fiat, decision, consent, volitional mandate"? In the presence of mutually antagonistic "neural forces" that are the somatic correlates of noetic representations,

One of the ideas is that of an act. By itself this idea would prompt a movement; some of the additional considerations, however, which are present to consciousness block the motor discharge, whilst others . . . solicit it to take place. The result is that peculiar feeling of inward unrest known as *indecision*. As long as it lasts . . . we are said to *deliberate*; and when finally the original suggestion either prevails . . . or gets definitely quenched by its antagonists, we are said to *decide*, or to *utter our voluntary fiat* in favor of one or the other course [JAME2: 794].

Where stands “the will” in relationship to this “voluntary fiat”? To put it more properly, what is the pragmatic definition of the idea of a “will”? James is now ready to answer this. We have looked briefly at his answer before. Let us now re-visit it in more depth:

In closing in, therefore, after all these preliminaries, upon the more *intimate* nature of the volitional process, we find ourselves driven more and more exclusively to consider the conditions which make ideas prevail in the mind. With the prevalence, once there as a fact, of the motive idea the *psychology* of volition properly stops. The movements which ensue are exclusively physiological phenomena, following according to physiological laws upon the neural events to which the idea corresponds. The *willing* terminates with the prevalence of the idea; and whether the act then follows or not is a matter quite immaterial, so far as the willing itself goes. I will to write, and the act follows. I will to sneeze, and it does not . . . In a word, volition is a psychic or moral fact pure and simple, and is absolutely completed when the stable state of the idea is there. The supervention of motion is a supernumerary phenomenon depending on executive ganglia whose function lies outside the mind.

We thus find that *we reach the heart of our inquiry into volition when we ask by what process it is that the thought of any given object comes to prevail stably in the mind*. Where thoughts prevail without effort, we have sufficiently studied . . . the laws of their advent before consciousness and of their stay. We will not go over that ground again, for we know that interest and association are the words, let their worth be what it may, on which our explanations must perforce rely. Where, on the other hand, the prevalence of the thought is accompanied by the phenomenon of effort, the case is much less clear . . . We have now brought things to a point at which we see that attention with effort is all that any case of volition implies. *The essential achievement of the will, in short, when it is most "voluntary," is to ATTEND to a difficult object and hold it fast before the mind*. The so-doing is the *fiat*; and it is mere physiological incident that when the object is thus attended to, immediate motor consequences should ensue. A *resolve*, whose contemplated motor consequences are not to ensue until some possibly far distant future condition shall have been fulfilled, involves all the psychic elements of a motor fiat except the word "*now*" . . .

Effort of attention is thus the essential phenomenon of will. Every reader must know by his own experience that this is so, for every reader must have felt some fiery passion's grasp. What constitutes the difficulty, for a man laboring under an unwise passion, of acting as if the passion were unwise? Certainly there is no physical difficulty . . . The difficulty is mental; it is that of getting the idea of the wise action to stay before our mind at all. When any strong emotional state whatever is upon us the tendency is for no images but such as are congruous with it to come up. If others by chance offer themselves, they are instantly smothered and crowded out [JAME2: 814-816].

To sum it all up in a word, *the terminus of the psychological process in volition, the point to which the will is directly applied, is always an idea*. There are at all times *some* ideas from which we shy away like frightened horses the moment we get a glimpse of their forbidding profile upon the threshold of our thought. *The only resistance which our will can possibly experience is the resistance which such an idea offers to being attended at all*. To attend to it is the volitional act, and the only inward volitional act which we ever perform [JAME2: 819].

§ 7.5 Motoregulatory Expression

James' theory of instincts and emotions as impulses, re-viewed in the light of *nous-soma* reciprocity under the category of community, rests in part upon a general idea of the expression of noetic representations in appearances of *soma*. We will call this the idea of **motoregulatory expression**. In somatic terms, motoregulatory expression is an idea that takes in all the basic mechanisms recognized by neurobiology as making up what are known as the motor systems. These include the effector organs (i.e. endocrine and exocrine glands, the smooth and striated muscles and the "motor units" they comprise) as well as the brain structures which control them.¹ The somatic motoregulatory system (i.e. the whole of the appearances of *soma* recognized by neurobiology as comprising the motor systems) is to the whole of the *soma* what spontaneity is to *nous*. The idea of the motoregulatory system is the idea of the co-determined physical and noetic capacities for the Organized Being to act as agent, just as receptivity is the idea of its capacity to act as patient. The reciprocity of somatic representation with representation in *nous* that applies to receptivity we will call **sensory impression**. The systematic combination of sensory impression and motoregulatory expression comprises what we have been calling the sensorimotor system.

I commented earlier that James' distinction between instincts and emotions is not entirely a clearly presented distinction. Indeed, in his catalog of human "instincts" we find entries such as "anger" and "fear" – ideas more commonly accounted in psychology as emotions rather than instincts. The common ground for James' classifications is simply that *all* such objects as these are to be viewed, in physiological terms, as Jamesian "movements consequent on cerebro-mental change." Hence, they are all activities in the Jamesian sense and their appearances span multiple moments in time. From our earlier discussion, we now find we must understand "cerebro-mental change" under the Relation of community, not causality and dependency, and the physically apparent behavioral manifestations of these "movements" we are to understand as the combination of these appearances in a phenomenal object.

The general 2LAR of motoregulatory expression can be easily stated from James' descriptions we have looked at in the earlier sub-sections. For *Quantity* (form of the matter), we have the singular idea of an **activity** (an identification), the particular idea of Jamesian **impulses** (differentiation among the somatic signaling complexes), and the universal idea of **impulsive structure** (the integration of particular impulses *in* an activity). For *Quality* (matter of the matter) we have the affirmative idea of **excitation** of an activity (an idea of agreement), the negative idea of **inhibition** of an activity (an idea of opposition), and the infinite (subcontrary) idea of **regulation** in the adaptation of an expression of activity.

Our ideas of *Relation* (form of the form) fall under our general ideas of the internal, the

¹ see Gordon Shepherd, *Neurobiology*, 3rd ed., pp. 381-394.

external, and the transitive. For the internal (categorical) idea we have **psycho-noetic action**, which we shall understand as that in the appearance of *soma* (e.g. brain activity) which stands as the somatic counterpart of noetic activity. For the external (hypothetical) idea we have **psychosomatic action**, which we understand as that in the appearance of *soma* which corresponds to mechanical *kinesis* (and which is the proper object of the neurobiology of motor function). For the transitive (disjunctive) idea we have the synthesis of these first two ideas as **behavior** in general.

Our ideas of *Modality* (matter of the form) in motoregulatory expression fall under the general ideas of the determinable, the determination, and the determining factor. Here, as has been the case in our previous representations of Modality, our ideas add nothing to the description of activities and actions as such but, rather, are descriptive of the metaphysical *nexus* of these activities and actions in the Organized Being in general. The idea of the determinable (problematic) is **desiration** (*Begehrung*). Desiration is here regarded as the idea of a desire made specific and actively *demande*d by the Organized Being. By “desire made specific” we mean a representation in affective perception that presents a possible expression, upon merely *subjective* grounds, for a possible appetite. By “actively demanded” we mean that this action *is judged by an act of reflective judgment to be a possible rule under the principle of formal expedience*.

For the idea of the determination (assertoric) we have **predisposition**. By this idea we understand a *nexus* of perception with motoregulatory expression such that the perception is viewed as having an immediate connection with some specific expression of activity. Here the activity is not regarded as a matter of choice but, rather, as an actual ground for some particular appetite under the principle of Kantian self-love.

The predisposition for animality in the human being may be brought under the general title of physical or merely *mechanical* self-love, i.e. a love for which reason is not required [KANT12: 22 (6: 26)].

Predispositions in general provide matter for a manifold of Desires. However, this idea is not to be understood as implying that this matter is necessarily either invariant, innate at birth, or not subject to executive regulation under the categorical imperative. Some impulsive structures may indeed be present at birth, but such structures are subject to change through adaptation (and therefore are not necessarily invariant). Here it is helpful to recall both James’ principles of the transitoriness of instincts and inhibition by habits as well as Damasio’s idea of dispositional representations.

What the brain must do to operate in this fashion is come into the world with considerable “innate knowledge” about how to regulate itself and the rest of the body. As the brain incorporates dispositional representations of interactions with entities and scenes relevant for innate regulation, it increases the chance of including entities and scenes that may or may not be directly relevant to

survival [DAMA2: 117].

Finally, for the idea of the determining factor (apodictic) we have the idea of an **expression of purpose**.

. . . the act has need of an Object to which that act is relative. This Object . . . is the purpose of the act [KANT11a: 300 (27: 542)].

. . . purpose has identical meaning to the concept of that which brings happiness [KANT11a: 302 (27: 544)].

An Object that can only be represented as a cause referred to the capacity to act in accordance with the determination of the appetitive power is what we call “a purpose” or “the end” to which the action is directed. Now, there is nothing in the appearances of *soma* that we can justify calling (on the basis of neurobiology) a purpose. However, when we treat the Organized Being *in toto* nothing is more self evident to each of us than that we do *in fact* undertake specific actions in order that we might achieve some specific end. We spoke at length earlier in this treatise of the putative motivational system neuroscience finds itself forced to posit in order to be able to understand (from the viewpoint of psychology) the possibility of some types of activity. To date no purely mechanistic explanation of these activities has ever been successfully pin-pointed by neuroscience. If indeed there is any such thing as a “teleological cause” we can only describe such a cause in terms of *noetic* representations under the causality of freedom and in accordance with the executive regulation of the categorical imperative as an ideal of equilibrium. Expression of purpose is the idea that some *phenomena* in the appearances of *soma* have a necessary connection with *nous* such that determinations of appetitive power have *physical* manifestations in the activities of *soma*.

The ideas of Modality in motoregulatory expression therefore speak to the unity in Organized Being of phenomenal somatic actions and noumenal noetic acts. We *say*, “The student studied on Tuesday *because* he had a test on Wednesday” but we *mean*, “The student studied on Tuesday because he *knew* he had a test on Wednesday and he *wanted* to do well on this test.”

§ 8. The Synthesis in Continuity: Part II

In §6 we discussed the synthesis in continuity as this pertains to the synthesis in the combination of aesthetical reflective judgment with the matter of adaptive *psyche*. This was carried out from the logical-judicial reflective perspective, the metaphysical principles of which fall under the metaphysics proper of Rational Physics (because it concerns appearances of the Self as physical object). Our next task in this Chapter is to complete this synthesis on the side of teleological

reflective judgment and the form of adaptive *psyche*. Here we are concerned with the unification of the *nexus* of reflective judgment and the organizational *nexus* of adaptive *psyche*.

As mentioned before, this is the more difficult part of the synthesis in continuity because we are not yet in possession of the 2LAR of teleological reflective judgment. Unlike the earlier situation, our synthesis here will ultimately guide the development of this 2LAR, hence is propaedeutic for our work in Chapter 18. What we have to go on at this point is merely our understanding that teleological judgment is concerned with judgments of logical expedience, that it is forward-looking (anticipatory), that it is charged with making a system of Nature through the orientation of Reason, and that its judgments have the character of beliefs held-to-be-binding by the Organized Being.

§ 8.1 Relation in the Synthesis in Continuity

This is the synthesis of judicial continuity in *Self-Existenz* under the judicial Idea. The judicial Idea falls under the cosmological Idea of Relation, which is the Idea of absolute completeness in the beginning (origin) of an appearance in general. All changes in appearances in sensible Nature imply a cause as their condition, and sensible causes are themselves always conditioned by other conditions in a series. However, the Idea of absolute completeness in the series of conditions leads to an unconditioned cause, and if we seek for such a cause we can do so only on the basis of practical objective validity, thus only as a transcendental principle of an intelligible causality.

Relation in judicial continuity is the negative principle of *in mundo non datur casus* (chance is not *given* in the sensible world). “Chance” refers to an event in the world that is not determined according to natural laws, hence an event in violation of the condition of the category of causality and dependency. No event in physical Nature can be so-regarded and claim objective validity because violation of the series of causality and dependency is violation of the conditions of time determination in the inner sense, and under Rational Physics no physical object claiming to such a characteristic is a possible object of experience. If we seek to explain the appearance of an event by recourse to chance, the object regarded as cause of the event must be one that stands outside the conditions of time determination, and such an object is a denizen of an intelligible, not a sensible, world.

Modern physics encounters this issue in quantum mechanics, and its solution to the problem provides an illustrative example of this metaphysical theorem. Let us therefore briefly take a look at a representative example drawn from physics. It is known that atoms in what is called an “excited state” give off radiation in the form of light. The wavelength of this light can be precisely calculated by quantum mechanics by computing the energy that must be given up by the atom when one of its electrons falls from a higher energy state (an excited orbital) to a lower energy state. However, it is also found that in a collection of atoms it is not possible to predict on

the basis of mechanistic cause-and-effect relationships *which* atoms will emit light at a particular given objective time. The radiation of light by a given atom appears to occur “at random.” Physics deals with this through the ingenious postulate of “probability amplitudes” and precise equations that govern the statistical properties of these probability amplitudes. The governing equations are based on Hamilton’s principle, which as we noted earlier yields equations that satisfy causality in the Margenau sense. On the other hand, these equations operate on an object (probability amplitude) that is itself not a physically observable object. What, then, is it? The role in physics of probability amplitudes, which are sometimes called “de Broglie waves” and sometimes called “ ψ -functions”, was described by noted physicist George Gamow in the following way:²

Since in atomic and nuclear physics the notion of classical trajectories inevitably fails, it is apparently necessary to devise another method for describing the motion of the material particles, and here the ψ -functions come to our aid. They do not represent any physical reality. The de Broglie waves have no mass such as we find in the case of the electromagnetic waves, and whereas, in principle, one can buy half a pound of red light, there does not exist in the world an ounce of de Broglie waves. They are no more material than the linear trajectories of classical mechanics, and, in fact, can be described as “widened mathematical lines.” They guide the motion of particles in quantum mechanics in the same sense as the linear trajectories guide the motion of particles in classical mechanics. But, just as we do not consider the orbits of the planets in the Solar System as some kind of railroad tracks that force Venus and Mars and our own Earth to move along elliptical orbits, we may not consider the wave-mechanical continuous functions as some field of forces which influences the motion of electrons. The de Broglie – Schrödinger wave functions . . . just determine the *probability* that the particle will be found in one or another part of space and will move with one or another velocity.

Physics (or rather physicists) did not come easily, and in many cases not willingly, to this interpretation of “de Broglie waves” as “probability amplitudes.” For a long time there was a proposal adhered to by some known as the “hidden variable theory”. According to hidden variables, the reason events seemed probabilistic in quantum mechanics was because there were unobserved “hidden variables” at work in the experimental setups and, being unaccounted for, these hidden variables were responsible for the inability to make exact predictions of what individual atoms were going to do. Feynman often referred to these “hidden variables” as “internal gears, internal wheels, and so forth.”

It is not our ignorance of the internal gears, of the internal complications, that makes nature appear to have probability in it. It seems to be somehow intrinsic . . . What is necessary ‘for the very existence of science’, and what the characteristics of nature are, are not to be determined by pompous preconditions, they are determined always by the material with which we work, by nature herself. We look, and we see what we find, and we cannot say ahead of time successfully what it is going to look like [FEYN2: 147].

² George Gamow, *Thirty Years that Shook Physics*, Garden City, NY: Anchor Books, 1966, pp. 113-114.

Despite the most conscientious and serious efforts of proponents of the hidden variable theory, the theory failed, physics eventually was forced to concede that there are no hidden variables, and that the idea of probability amplitude is the only practical solution left.

Let us recap this situation. First, physics studies observable *physical* events, in which the objects involved are ultimately objects of possible sensible experience (either directly or by means of instruments). In its studies, it encounters experimental results in which the behavior of well-definable material objects appears to be subject to empirical laws requiring the introduction of a supersensible object (probability amplitude) that cannot be connected to the classical idea of mechanical cause-and-effect relation operating between locally-definable states of sensible matter. Rather, the correct evaluation of any local event requires the mathematical integration of a probability amplitude function taken over all of space, i.e. the evaluation of the totality of everything that “could” happen to obtain a *statistical* prediction of what actually does happen. The resulting theory is highly successful – the most successful scientific theory in mankind’s possession at this time. But every attempt to explain the probability amplitudes on the basis of sensible objects has utterly failed, and, lacking any revolutionary breakthrough in the science, it is now thought that all such attempts must fail. The only justification for positing supersensible probability amplitudes is *the hypothesis works*, and this is nothing else than positing the *Dasein* of probability amplitudes solely on the ground of *practical* objective validity. For physics in its present state, probability amplitude and the empirical law that dictates its proper use establishes an unconditioned condition on the behavior of every physical object.

With this example in mind, let us now examine the situation we find for Relation in the synthesis of continuity. This synthesis concerns the Nature of *Self-Existenz*, and in light of the situation that prevails in quantum physics, an obvious question that should be asked at this point is: Does not the discovery of the statistical nature of quantum mechanics imply that the time-honored philosophical idea of *in mundo non datur casus* is a principle demonstrated to be false by modern physics? (There are some moderns who do make precisely this claim). We would have to conclude so *if the laws of physics described the world rather than Nature*. But to describe the world means to describe its *noumenal* character, i.e. to describe a *Ding an sich selbst*. But no science can do this, *and physics proper does not try to do this*.

Hitherto it had been believed that the only kind of causality with which any system of physics could operate was one by which all the events of the physical world – by which, as usual, I mean not the real world but the world view of physics – might be explained as being composed of local events taking place in a number of individual and infinitely small parts of space. It was further believed that each of these elementary events was completely determined by a set of laws without respect to the other events; and was determined exclusively by the local events in its own immediate temporal

and spatial vicinity . . . In modern mechanics matters are wholly different. – Max Planck³

In these and similar ways, the progress of science has itself shown that there can be no pictorial representation of the workings of nature of a kind which would be intelligible to our limited minds. The study of physics has driven us to the positivist conception of physics. We can never understand what events are, but must limit ourselves to describing the pattern of events in mathematical terms; no other aim is possible – at least until man becomes endowed with more senses than he at present possesses. Physicists who are trying to understand nature may work in many different fields and by many different methods; one may dig, one may sow, one may reap. But the final harvest will always be a sheaf of mathematical formulae. These will never describe nature itself, but only our observations on nature. Our studies can never put us into contact with reality; we can never penetrate beyond the impressions that reality implants in our minds. – James Jeans⁴

What physics describes is the observable world, the world of appearances, i.e. what we here in this treatise call the world *model* or Nature. In the first quote above, Planck speaks of “the world *view* of physics”; in the second, Jeans’ “positivist conception of physics” is stated in terms Kant would have been comfortable with for the most part, and Jeans’ nature described in terms of mathematical formulae is part and parcel with what Kant called the doctrine of Nature. While it may be true that the average working-class physicist, and probably 100% of the undergraduate students in science, do not think about or perhaps even realize the distinction between “the world” and Nature, the old leaders of the scientific world of physics – men like Planck and Jeans – long ago laid down this distinction as part of the fundamental paradigm of the science.

Probability amplitudes, like chance, are not *given* in the *sensible* world, the appearances of Nature. The principle *in mundo non datur casus* demands no more than this, and the fact that the probability amplitudes of physics are supersensible objects of intelligible, not sensible, Nature is a fact *in accordance with* the principle, and not a refutation of it.

However, a merely negative principle only guards us from error and we require more than this for our theory. We require a positive formulation of the continuity principle, and this is what we have in the judicial Idea. As the function of continuity in *Self-Existenz*, the judicial Idea represents this continuity in the following terms.

In Quantity: the judicially singular, which is an idea of identification predicated on there being only one “me” in the representation of the Self. Quantity in the judicial Idea is interpreted as identity of sensible affectivity and practical activity, i.e. sensorimotor unity.

In Quality: the judicially infinite, which is the subcontrary idea of representation in general. Quality in the judicial Idea is interpreted as limitation in the appearances of the Self, as accidents of appearance of the transcendental Subject we call the *I* of transcendental apperception. *Existenz* inheres in *Dasein*, and the *Dasein* of the

³ Max Planck, “The universe in the light of modern physics,” in *The Great Ideas Today: 1962*, William Benton (pub.), Chicago, IL: Encyclopædia Britannica, Inc., 1962, pg. 495.

⁴ Sir James Jeans, *Physics and Philosophy*, NY: Dover Publications, 1981, pg. 15.

transcendental Subject occupies a unique place among *noumena* as the only *noumenon* whose absolute reality is unquestioned and unchallenged by the Organized Being. I might not be certain of the sum-total of what is true of my *Existenz*, but I do not question the reality my own *Dasein* however much the nature of my *Existenz* might puzzle me.

In Relation: the judicially hypothetical. This is the congruence function in which the practical and the theoretical meet. Relation in the judicial Idea is interpreted as the expression of objective expedience as a condition of continuity in the *Existenz* of the Self. It is to be seen as the ground of the possibility of objective appetites *in concreto*.

In Modality: the judicially assertoric, which is the idea of the determination in general representation. The Modality of the judicial Idea is connection as holding-to-be-binding in orientation, insofar as the activities of the Organized Being are concerned, to the judicial Ideal of happiness.

The judicial Idea joins Relation in reflective judgment with the somatic organization of adaptive *psyche*. When we introduced somatic organization in Chapter 15 we described it as the idea of the *nexus* of physical Relations in the Self. These Relations involve: 1) appearances of the Self inhering in a physical *structure*; 2) the kinesis of physical accidents in the moment-to-moment appearances of the Self; and 3) the self-regulation of these appearances as an organism. The transcendental sensorimotor idea of Relation, under which somatic organization is understood, is the idea of information. Information is the substance of representations containing the ground for the “in-forming” of the *Existenz* of the Self as impelling cause of all its accidents of representation. Here we should recall that the Self is logically divided as mind and body. On the mental side, these representations are viewed here as reflective judgments; on the somatic side they are representations of biological objects. Information is that which is common to both classes of representation and is the linchpin of mind-body community.

The synthesis in continuity of the judicial Idea is governed by the principles of Relation from the logical-judicial perspective of Rational Physics. The general principle is that of the Analogies of Experience. From the judicial Standpoint, experience is possible only through the representation of a necessary connection of perceptions connected in time. “Time” is, of course, subjective time, the pure form of inner sense. In making our application of the Analogies of Experience to the synthesis in continuity, we find ourselves faced with a peculiar inhomogeneity between reflective judgment on the one hand and somatic organization on the other. It is this: Subjective time, as a pure form of intuition, belongs to the division of *nous*, while within the division of *soma* we have no biological counterpart that is recognized as the correspondent of subjective time.⁵ Biological appearances are, of course, tied up with the idea of objective time, but we have emphasized that subjective time and objective time are not the same. How, then,

does Rational Physics provide a bridge from one side to the other?

The resolution of this question is simpler than it might initially appear. The principle applies only to the manner in which appearances are perceived. For receptivity there is clearly no problem raised by this because receptivity and the perception of appearances both belong to *nous*. Our cognitions of somatic activity are all cognitions of appearances, and the Organized Being's gradual construction of the appearances of *soma* is entirely a mental process. The only caution we need exert comes in how we are to examine the effects of spontaneity, specifically that spontaneity of *nous* leading to somatic effects. Here the caution arises as a consequence of our *not* having a perception of the motor representations but only a perception of their consequences, i.e. James' kinæsthetic idea.⁶ In our examination of the continuity function connecting the form of reflective judgment with the adaptive *psyche*, we must not posit relationships that make statements in which *soma* is taken as *Ding an sich selbst*, nor which depend upon merely empirical findings as to the *Existenz* of *soma*. The former would violate the Copernican hypothesis, the latter cannot be employed in the exploration of the transcendental requirements of the system (other than as clues for leading us to the final model).

Continuity and the First Analogy of Experience

The first analogy of experience is the principle of persistence. In the theoretical Standpoint, *all appearances contain the persistent (substance) as the object itself, and the changeable as its mere determination, i.e. the way in which the object exists.*

In the *logical-judicial* perspective of this principle, substance denotes the transcendental Subject, which is the object of our inquiry. Although part of our description of somatic organization (form of the form of the adaptive *psyche*) includes the idea of the physical structure of the Self (*soma*), we must be very careful not to embed biological descriptions of the *soma* in our theory of the synthesis in continuity. This is because these descriptions are empirical but the task at hand is to address this aspect of mind-body reciprocity in terms of transcendental factors. From purely metaphysical considerations all that we are justified in saying is that *mental activity* affects a part of physical Nature, the effect being perceivable as accidents of appearance. Since in this limited case the characteristic of the *Kraft* of the transcendental Subject effecting the accident

⁵ Subjective time is not an appearance. It is a condition of the possibility of appearances.

⁶ The arguments made for the "feeling of innervation" theory sketched in the previous section were rationalist arguments, not arguments based upon empirical findings. Roughly, the argument proceeded along lines similar to "we must know how much force to apply so as not to break the egg, therefore we must have a sense of how much force *is going to be applied* to each muscle."

has its transcendental place in the division of *nous*, that part of Nature which is patient to the agency of *nous* defines that in Nature which is to be taken as *soma* and sets a boundary line dividing *soma* from the environment.

This might seem a rather trivial point to make, but there are two aspects to it that require discussion. First, we noted earlier in this treatise that the Subject makes the Self vs. not-Self division during infancy, and that this division between *soma* and environment, which the Subject takes as a real division, is the basis of the distinction between physical causality and psychological causality. In our Organized Being model there must be some transcendental principle necessary for the possibility of such a judgment, and this is what is provided by this aspect of Relation in the synthesis of continuity.

The second aspect we need to look at concerns the phenomenon of anosognosia. Recall from our earlier discussion that anosognosia is a medical condition in which the patient is unable to acknowledge that something is “wrong” with his or her body. We briefly discussed the example of Dr. Damasio’s patient left paralyzed on one side of her body by a stroke, and who was so apparently unconcerned about her paralysis that she seemed to regard her paralyzed limbs as no longer even a part of her Self [DAMA1: 209-213].⁷ As most such patients are adults, which means they had long ago already made the “body-environment” division, anosognosia is indeed a bizarre medical condition. Those of us who are unfamiliar with the many strange consequences of brain damage probably find it incredible that these patients would be unable to recognize something so primary as the loss of ability to move or feel our own limbs.

Two points are worth note here. First, the *soma*, the recognition of which is made possible under the logical-judicial perspective of the principle of persistence, constitutes a system, and this system includes the sensory abilities as much as the motor abilities. There is nothing in the principle that permits *a priori* a real division of the sensorimotor system. That we can make a merely logical division of this sort merely speaks to the ability of understanding to differentiate cognitions. Biology can and does make logical distinctions (divisions) among different “systems” of the brain, but the logical-judicial perspective of the first Analogy warns us that all such divisions are empirical and speak only to biological appearances on the one hand and scientific hypothesis on the other.

Our second note concerns the thorough-going community of somatic and noetic representations. The transcendental sensorimotor idea of information comes into play here.

⁷ Dr. Damasio also describes another bizarre medical condition known as asomatognosia, “lack of recognition of the body”. Patients with this condition are subject to seizures during which they are unable to sense or have any feelings of their own bodies [DAMA1: 213-215].

Information is the substance of representations, and the principle of mind-body reciprocity forbids us to make any division whatsoever that makes statements such as “this information is carried only in biological signals and that information is carried only in mental representations.” Information is that which is common to both the biological and the mental representations. The appearance of brain damage that compromises biological signaling should be expected to also imply some compromise affecting mental representation as well. *Soma*, *nous*, and *psyche* are *reciprocally determining* in an Organized Being, and this lessens the mystery, if not the tragedy, of anosognosia.

Now let us look at the second aspect of the principle of persistence, that of the changeable in appearance. The changeable in appearance denotes the accidents of *Self-Existenz*, and in the Organized Being these accidents include those that appear to have their point of origination in human reason. In the logical-judicial perspective continuity through the judicial Idea requires that spontaneity in the faculty of *nous* must be reflected in the accidents of somatic organization. Were it not so, accidents of noetic representations could have no correlated accidents of appearance in *soma*. Therefore the somatic organization of adaptive *psyche* must contain as an animating principle the unity of motoregulatory expression and appetitive power in giving rise to the accidents of *Existenz* of the Self. Through this principle is deduced a necessary connection between the power of pure Reason, which contains the appetitive power, and *Lust* in the psychic dimension of organization. We may call this unity *generalized locomotion*.

Continuity and the Second Analogy of Experience

The second analogy of experience is the principle of generation: *Everything that happens (begins to be) presupposes something that it follows in accordance with a rule.*

The idea of somatic organization contains the idea of physical relations in the kinesis of the physical accidents of the Self. On the side of *soma* all appearances are those of physical objects, and therefore all ideas of the *Kraft* of the Self in determining its accidents of appearance must accord with physical causality. There can be no final causes, no teleology, in the scientific descriptions of *soma*. Series of events and activities in time in somatic appearances follow physical cause-and-effect relations and none of the mysterious factors of vitalism or spiritualism can hold sway here.

In seeking to explain somatic activity neuroscience has developed the view that the cooperative interactions of four “systems” within the nervous system must be taken into account. Here is how Professor Swanson of the University of Southern California describes this theory:

Two and a half millennia after Aristotle began to formulate general theories about how the body produces behavior through the action of psychic pneuma, we can propose that the nervous system controls behavior via the motor system, which in turn is modulated by coordinated inputs from three systems: cognitive for voluntary control, sensory for reflex control, and intrinsic for behavioral state control.¹

The “intrinsic system for behavioral state control” is also called the “motivational system.” As we saw in Chapter 15, “motivation” proves to be a rather slippery *noumenon* to grasp, as are the “motivational states” of the motivational system. Swanson goes on to say,

There is a neural system that is responsible for switching the overall function of brain circuitry between two radically different states, sleep and wakefulness. And as a corollary to this, it is also responsible for orchestrating less radical differences between various stages of the sleep cycle . . . and various levels of arousal while awake. In essence, this system is responsible for controlling behavioral state, and its basic cyclicity is the result of an intrinsically driven clock or clocks, in principle just like there are intrinsic rhythm generators for breathing in the hind-brain and for the heartbeat with the heart itself.

Until recently it was quite popular to analyze brain function only in terms of stimulus-response relationships. This approach, which was championed especially by a school of psychology known as *behaviorism*, liked to think of the brain as a passive machine, waiting for environmental stimuli to arrive and activate the appropriate response. What this approach chose to ignore was the fact that the brain is a living machine operating all the time. At least three basic findings undermined the behaviorists. First, the brain actually uses just as much, if not more, oxygen when it is asleep as compared to when it is awake and “active.” Second, there is a great deal of endogenously generated, intrinsic neural activity. And third, the motor system of embryos is quite active before sensory pathways have even developed to the point of establishing inputs to it! We pointed out . . . that most if not all neurons show some level of “spontaneous” activity, which is modulated up or down by synaptic inputs, and it is now clear that there are endogenous rhythm generators as well, some of which control behavioral state.²

Earlier we saw Kant’s admonition that “we cannot and must not explain any event from spontaneity,” and so it is needful that we understand how this metaphysical requirement squares with Swanson’s (and others’) comment about “spontaneous activity” in neurons. When Kant speaks of spontaneity, e.g. that of imagination, he means an activity for which we can find no object of appearance standing as physical cause of the action. The spontaneity to which Swanson refers means signaling activity by a neuron in the absence of some other “incoming” signal for triggering that activity. This is “spontaneity” of a different sort and is referred to in physics and engineering as “oscillation”. There are a great many mathematical equations used in describing the appearances of physical systems for which the solutions of the equations are oscillatory. In mathematical form these equations satisfy causality in the Margenau sense. It is the mathematical relationship among the state variables of the equation that produces those changes leading to oscillations in objective time. One word that is often used to describe this type of mathematical

¹ Larry W. Swanson, *Brain Architecture*, NY: Oxford University Press, 2003, pg. 95.

² *ibid.*, pp. 89-90.

relation is “feedback.” Objective time is a parameter in these equations, and the role it plays is that of an ordering relationship. Many neural phenomena are adequately described by one or another of this class of mathematical equation.

It is when the physical appearance of the somatic system is to be paired up with psychological phenomena that we encounter difficulties in describing the “motivational state” of the biological system. The difficulty here arises because psychological phenomena, by definition, refer to noetic objects while biological phenomena refer to the appearances of biological objects. The former objects are supersensible (intelligible), the latter sensible. Here we have a situation in relating these two very different classes of objects that is not wholly unlike the situation we encounter when we set thermodynamics and statistical mechanics side-by-side and try to explain the one science in terms of the other. We again quote Margenau:

A science enjoying the richness of data possessed by biology is likely to show a feature which, although present on the lower plane of physics, did not come into clear focus there. It is the opportunity to represent one given empirical sequence by several different causal chains, and we shall call it the *multiplicity of causal schemes*. One of its simpler instances occurs in the different explanations offered for the same phenomena by thermodynamics and statistical mechanics. The laws of thermodynamics represent a causal system at least in the minimal sense in which we are ready to accept that term. That causal mode of explanation proceeds with its own set of states and variables of state and remains entirely within the conceptual limits imposed thereby. Statistical mechanics, on the other hand, effects a causal reduction of the same observed facts, but in a different conceptual sphere. Its systems and states are different logical entities from those of thermodynamics; ultimate reference to the same body of immediate experience is achieved by different rules of correspondence, as we have seen. Confusion results only when the two are mixed unwittingly as, for example, when the probability laws regulating the aggregates of statistical mechanics are injected into thermodynamics as though they were propositions concerning thermodynamic experience . . .

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

Biological objects and psychological objects are as different in kind – I dare say even more so – as are molecules and molecular forces compared to cells and cytological interactions. While the identification of biological objects is attended by many significant issues and difficulties, the identification problem for biological objects pales in comparison with that for psychological objects. Indeed, the efforts here to lay the groundwork for a science of mental physics is aimed in no small part at addressing the identification problem for psychological objects.

Let us focus our attention for awhile on Margenau's "vertical connections between causal schemes." The word "vertical" here refers to scientific reductionism. Cells and cytological interactions are in a sense regarded as "higher level" constructs with "molecules and molecular forces" occupying a lower (and putatively more fundamental) rung on the hierarchy of explanations. I propose that with respect to our present topic, the word "vertical" is misapplied in regard to Margenau's idea of a multiplicity of causal schemes. I suggest that "horizontal connection" is more often a more appropriate term.

Taking the relationship between thermodynamics and statistical mechanics as an example of what I mean, there is general agreement that statistical mechanics when compared to *equilibrium* thermodynamics (an important branch of that science) occupies a "lower rung" in the reductionist hierarchy (is more "primitive") than does equilibrium thermodynamics. In this sense, "vertical connection" is an appropriate term. At the present time, however, the situation is a bit more difficult when statistical mechanics is to be placed in hierarchal relationship with *non-equilibrium* thermodynamics. De Groot and Mazur explain the problem in the following way:

From a fundamental point of view these relations as well as irreversible behavior in general should follow in a straightforward manner from the microscopic laws of motion and the principles of statistical mechanics. However, no microscopic theory of such a general character as exists for equilibrium phenomena is available for non-equilibrium processes. On the other hand it is possible to derive from the microscopic laws of mechanics and the principles of statistical mechanics a number of theorems on the basis of which the reciprocal relations may be obtained with the help of an additional assumption on the behavior of the processes considered.³

The "relations" referred to by de Groot and Mazur in this quote are known as the Onsager reciprocal relations, which describe phenomenological coefficients appearing in a set of state variable equations that describe non-equilibrium thermodynamic behavior. Without diving too deeply into what is after all a very complex branch of physics, what we are being told here is that the macroscopic empirical laws that describe non-equilibrium thermodynamics do not follow directly from atomic-level principles of statistical mechanics. To enforce a correspondence between statistical mechanics and non-equilibrium thermodynamics an additional hypothesis must be made, one which does not properly belong to either science. What this means is that the laws of non-equilibrium thermodynamics are not derived from the strict basis of more "primitive" laws of statistical mechanics. It is in this sense that one must say the two sciences are not placed in a hierarchical relationship as a series but rather in a coordinate relationship by means of the additional hypothesis. Thus I say they have a "horizontal connection" through a coordinate concept.

³ S.R. de Groot and P. Mazur, *Non-Equilibrium Thermodynamics*, NY: Dover Publications, 1984, pg. 83.

When we give joint consideration to biological objects and psychological objects, the correspondence between them likewise requires some principle to act as a bridge between them. This is the role of *psyche* as the faculty of animating principles in our theory. Receptivity is one such principle in passing from *soma* to *nous* in the representation of sensibility. Objectivity and the aesthetic Idea complete this coordination for the mathematical synthesis in continuity in reflective judgment and adaptive *psyche*. “Going the other way” from *nous* to *soma* in the agent-patient relationships of the logical divisions of Organized Being brings us to the consideration of the dynamical synthesis in continuity. For dynamical Relation this connection takes place by way of the judicial Idea. Seen from the viewpoint of ontology, there is here a kind of “primacy of place” enjoyed by *nous*, not because of any mystical “soul factor” or other such transcendent nonsense but because of the primacy of epistemology over ontology in the Critical Philosophy. “Knowledge” is a mental Object, and in making a theory for neuroscience’s “motivational system” we must acknowledge that “motivation” is none other than a mental Object, the reality of which must be understood “on its own ground” with respect to the intelligible objects of *nous*. The ontology of the objects with which we must work in this sphere of knowledge is the ontology of speculative Reason (Chapter 9). The synthesis of dynamical continuity in its kinematical aspects from the logical-judicial perspective must explore the Critical ontology of Reason under the regulation of Rational Physics’ principle of generation.

Now, the matter of reflective judgment consists of aesthetical judgments of affective perceptions. Because an affective perception is by definition that which in a judgment can become no part of the cognition of an object, the *nexus* of aesthetical judgments constituting the *form* of reflective judgment is a *nexus* that does not fall under the constitutive principles of the categories of understanding, and therefore is not bound by the transcendental schemata. To use the metaphorical language with which the idea of time is often described, the category of causality and dependency in *determining* judgment determines “the arrow of time” (e.g. “that which is in the past” and “that which is in the future”) in one’s understanding of experience. But reflective judgment deals with representations that in the cycle of thought run from sensibility to pure Reason (figure 9.3.1). Representation in this hemisphere of *nous* is not bound by the transcendental schemata of time nor by the determination of the categories of understanding. This is what Kant meant when he said *Reason does not belong to the series of appearances*. For reflective judgment and for the process of pure Reason, time is not an arrow.

In *making a theory* of mental Objects, we have no choice but to make objective representations of these objects. (Otherwise we could not *understand* them). Thus we must represent some concept of subjective time (even though subjective time proper is a pure form of

intuition, i.e. the form of inner sense). We then must construct concepts of the relationships by which other representations of mental objects stand in regard to this *concept* of time. However, these relationships need not be, and indeed must not be, bound by the rules that govern the theory of sensible appearances. Our theoretical representations of mental objects are thought as problematical appearances. The objective validity for these objects can *only* be practical objective validity, and this is what I meant when I said earlier that Relation in the judicial Idea is the congruence function in which the theoretical and the practical meet.

The second Analogy of Experience dictates that every action must presuppose the *Dasein* of an object that stands as cause of that action. The action follows from the cause in accordance with some rule (*non datur casus*). In the logical-judicial perspective the object taken as the cause of the accidents of Self can be none other than the transcendental Subject regarded as a Kantian substance possessing the *Kraft* to determine its own accidents of appearance. We can understand the characteristics of our concept of the appearance of the Subject, i.e. the Self, from the four titles of representation in the judicial Idea. In Quantity this synthesis in continuity calls for **sensorimotor unity**, which means that for every noetic representation of perception there is a corresponding somatic representation that conveys the same information as the former, this information being carried in the biological signals that constitute the physical data, corresponding to the noetic representation, as a physical form. In Quality, the judicial Idea is the Idea of limitation in the appearances (**Self-Existenz**), regarded as limitation within the All of Reality. This means the somatic correspondents to the noetic manifold represent a specific physical state, i.e. noetic representations in reflective judgment are reflected in a specific physical *structure* of appearance. In Relation the judicial Idea is the Idea that the noetic representations of appetites are also **expressed** in somatic appearances of action *in individuo*. There is thusly a connection between the form of reflective judgments and the *Lust-Kraft* of *psyche*. Finally, in Modality the judicial Idea is assertoric, which means that judgments held-to-be-binding in reflective judgment are somatically **expressed as rules**, i.e. judgments of logical expedience are binding determinations of somatic accidents. Thus the character of somatic action is purposive, and this we call **motive**. The rule by which the accidents of appearance follow is the noetic representation of a judgment serving the categorical imperative of pure practical Reason and aimed at negation of the feeling of *Lust per se*. The orientation of Reason expressed in the noetic representation of reflective judgment is the orientation to effect a state-of-being judged expedient under the Ideal of a perfection according to the principle of happiness.

Thus, the character of the cause of somatic accidents of appearance insofar as the synthesis in continuity in *Self-Existenz* is concerned is that of a purpose, and the reflective judgment in its

connection to the adaptive *psyche* is an act of determination of the “reason for” the ensuing action. On the side of *nous* the representation of the act is seen in the character of a final cause and is teleological. However, the principle of the judgment is expedience for the categorical imperative, and thus **the judicial act aims at the negation of the feeling of *Lust per se***. But *impression* of the feeling of *Lust per se* in *aesthetical* judgment (the matter of reflective judgment) tracks with *expression* of accidents in the somatic state-of-being. Thus, affective perception is the noetic counterpart of somatic representations that constitutes a feedback signal (James’ kinæsthetic idea). For the noetic character of the Organized Being, we regard the representation of the judgment of expedience as a control reference, and this can be called the noetic representation of motive expressed *in concreto*. In the somatic character of the Organized Being, this representation is reflected in a somatic state that is on the one hand an energetic of somatic expression (an emotivity) and on the other a physical ground of actions that follow its expression strictly according to the rules of time determination in sensible appearances.

Continuity and the Third Analogy of Experience

The third analogy of experience is the principle of community: *All substances, insofar as they are coexistent, stand in thorough-going community (i.e. interaction with one another)*. In the structure of an Organized Being, as represented by our logical mind-body division, *soma* and *nous* are regarded as Kantian substances coexisting in time. Hence, the principle of community dictates that each stands in a reciprocal Relation of co-determination with the other.

The idea of somatic organization in adaptive *psyche* contains the idea of biological Self-regulation as a characteristic of the appearance of *soma*. Biology has enjoyed considerable success in understanding some autonomic aspects of somatic regulation, particularly those phenomena that collectively are called by the name homeostasis. In the synthesis in continuity in Relation our concern is not with these phenomena but rather with mind-body reciprocity in terms of the principle of emergent properties.

We have just called the representation of a judgment of expedience the noetic expression of motive *in concreto*. Those activities we call motivated actions are in appearance generally composed of a series of accidents, and the idea of a motivation is typically regarded as the idea of that which persists throughout the course of this series. Fulfillment of a motive, i.e. its satisfaction, is generally taken as one possible condition for the termination of this series. Another possible condition is the frustration of the motive, where the Organized Being fails to achieve its objective and gives up the effort. In either case, the termination of the activity is marked by an

aesthetical judgment, one of satisfaction in the first case or of dissatisfaction in the second.

If the motive represented in a judgment of expedience is a control reference for activity, it is not difficult to appreciate how the satisfaction of a goal serves to mark the termination of the series of actions taken in pursuit of the goal. Satisfaction implies attainment of a state of equilibrium extinguishing the feeling of *Lust* or *Unlust* in the measurement of adaptation performance (Chapter 15). It is not quite so neat and easy to appreciate the termination of the series of actions in the case where attainment of the goal is thwarted and the Subject gives up in frustration. After all, in this case it can hardly be said that the originating feeling of *Lust* or of *Unlust* has been extinguished, and this would imply an on-going state of inexpedience with regard to the dictates of the categorical imperative. Such a situation presents a contradiction because, as Kant said, “Reason will be satisfied.” How do we solve this puzzle?

The difficulty lies in the initial presupposition that a motivation is the persistent in the activity. It is mere word play to say that “the motivation still persists even after the attempt to satisfy it is frustrated” because to say this introduces an ambiguity in the very idea of motivation. Howsoever much merit there may be in the advice “if at first you don’t succeed, try, try again,” the idea of motivation *loses its context* if it is not regarded in some sense as a *ground of activity*. We discussed the difficulties and ambiguities that have long accompanied attempts to define “motivation” in Chapter 15 (§4). Motivation as the object of an idea is a supersensible object, and therefore it can have none other than practical objective validity. A motivation that does not motivate – produce action – is a contradiction in terms.

Here we do well to draw a careful distinction between the term “motivation” and the term “motive”. In Chapter 12 (§3.2) we saw that Kant described a “motive” as the cause of an intellectual appetite. This is distinct from a stimulus, which he called a cause of a sensuous appetite.

Appetite is thus a *Lust so far as it is a ground of the activity to determine certain representations of the object*. If the representation is a ground for determining us for the object, then we *desire* the object. Dissatisfaction in an object, insofar as it can be the cause of a representation, is *holding-in-detestation* [KANT19: 69 (28: 254)].

Now, the determination of an appetite falls to the appetitive power of pure practical Reason. Reason is the executive power of *nous*. How is an appetite (as *Lust*) the ground of an activity, and where does this leave the idea of motive? **The distinction between appetite and motive is one of Standpoint.** Appetite is an object of the practical Standpoint, *motive is an object of the judicial Standpoint*. Appetite is an Object in *practical* judgment and is a *determination to take action*; motive is an Object in *reflective* judgment and is a *condition* specifying a possible activity.

And here we come to a key point, namely: *a new reflective judgment is made at every moment in time*. Indeed, the making of a reflective judgment is that which *marks* a moment in time, and every such marking marks a difference between sensibility in the present moment and that which immediately preceded it in appearance or feeling. Motivation as an Object of reflective judgment *is not a substance* because the perceptions that belong to the process of reflective judgment are affective perceptions only. These are not bound to the determination of subjective time that *objectively* defines what it is to be a substance. Indeed, these perceptions are not even appearances, although they can be called feelings in the general sense and constitute part of the formal conditions of experience. We cannot say with objective validity that motivation persists in time, and we must therefore hold that the presupposition that motivation persists in an activity is not-true. What, then, is motivation? **We can only take it to be the problematic datum (*dabile*) in noetic representation that corresponds as *accident* to the substantial in the sensorimotor idea, and the latter is information.**

Information, in its turn, is that in which both noetic representation and the reciprocal representation of *soma* inhere. Thus, a possible datum (*dabile*) of somatic representation at a particular moment in time and a possible datum of noetic representation in a reflective judgment (motivation) are two sides of the same coin. Both are possible accidents of *Existenz* and they are reciprocally determinable (problematic Modality) through *psyche* (“*X* is to the left of *Y* and *Y* is to the right of *X*”).⁴ Motivation as an accident of Self-*Existenz* in a Relation of reflective judgment is thus *singular* (presented at one moment in time) and is the noetic correspondent of a likewise singular appearance of the *soma*. **The synthesis in continuity in Relation** uniting reflective judgment and somatic organization **is thus to be seen as the process of reciprocal co-determination of the physical nexus of soma and the form of logical expedience in reflective judgment**. That which is assertoric in the judicial Idea (motive), as pertains to teleological reflective judgment, is simultaneously that which in the theoretical Standpoint must be regarded as *binding* in the state of somatic organization, and because *soma* is an object of sensible Nature, this binding can be regarded as nothing other than a physical law of emergency in empirical experience. **Emergency in experience** is thus the Relation of community in the judicial Idea.

I will not be surprised if some readers find it strange that this explanation of motivation, as the singular and problematic character of synthesis in the judicial Idea, makes no reference to

⁴ The possibility of a somatic *dabile*, being an object of sensible appearance, falls under the condition of the category of causality and dependency. That of the noetic *dabile* (motivation), because motivation is not an appearance, falls under the causality of freedom. Therefore the *complete* possibility of reciprocal determination through *psyche* falls under the rule that the intelligible cause be representable also by the appearance of a physical cause. If it is not, the motivation is impossible.

objective goals, subjective desires, or even the needs, whether objective or subjective, of the Organized Being. Nonetheless, Critical motivation makes no *explicit* reference to these factors, nor can it. The idea of motivation can speak with practical objective validity only to an accord between the faculties of *soma* and the representation of a reflective judgment of logical expedience. The judicial Idea is an Idea pertaining merely to the form of a *nexus* and not its matter.

§ 8.2 Modality in the Synthesis in Continuity

This is the synthesis in continuity of judgmentation in general. It pertains to the matter of the form of reflective judgment (hence to the metaphysical *nexus* of reflective judgment) in its connection to the noetic organization of adaptive *psyche*.

The general ideas of representation in Modality are the idea of the determinable, the idea of the determination, and the idea of the determining factor. These ideas are the ideas of the matter of a *nexus*. For the *nexus* in the acts of the divers processes of judgment (determining, reflective, and practical), goals, desires, needs, etc. are of this character. In specializing these considerations to the continuity in judgmentation in general, the function of continuity is transcendental Meaning, and the principles of Rational Physics that apply are those of the Postulates of Empirical Thinking in General as viewed from the judicial Standpoint.

The negative principle of Modality in continuity is *in mundo non datur fatum*. Teleology in sensible Nature (appearances), i.e. fate as blind necessity without governance under a physical law, is an idea lacking any objective validity whatsoever. Spontaneity in *nous*, on the other hand, belongs not to sensible Nature but to the intelligible Nature of mind, and here teleological *thinking* finds objective validity as a phenomenon. Yet even so a law is required, and for noetic spontaneity to have objective validity this must be a law of transformation grounding spontaneity with practical objective validity. Here we remind ourselves that reflective judgment has its own special principle by which reflective judgment makes a system of Nature, subsuming specific laws of empirical experience under more general yet still empirical laws. This is the principle of formal expedience of Nature, which regulates for noetic organization in the mere *form* of experience. **For each of us the order in Nature is what one *thinks* it to be, for order in Nature is but one's personal representation of an empirical *nexus* providing coherence in the context of mental life.** Yet the positing of any general theoretical law of Nature can begin only with an inference of reflective judgment (by analogy, by induction, or by ideation) and such judgmentation has merely a subjectively sufficient ground. Hence teleological reflective judgments are judgments of belief.

This consequence of Kant's Copernican hypothesis has sometimes been characterized by later philosophers as Kant's "objective idealism" and not just a few respected thinkers find this aspect of the Critical Philosophy more than a little troubling. Joad, for example, held that Kant's philosophy implies

it cannot be known that reality exists and that it underlies and is the partial cause of the world of phenomenon . . . To many philosophers the distinction between appearance and reality has always seemed to be inadmissible. If a thing exists, they would affirm, it is real, and no one thing can be more real than another . . . Kant's philosophy more than that of any other thinker is exposed to the criticism that, if we do not know reality, we have no grounds for postulating it as a part cause underlying the world of appearance [JOAD: 395-396].

However, Joad is mistaken when he asserts Kant's philosophy holds that "reality" is a "cause" of *anything*. One might as well say the hive is a partial cause of a bee. We have here but another case of philosophy's three troublesome words (being, existence, and reality) contributing to misunderstanding among learned thinkers. Margenau noted that,

Our culture has built a shrine to the real, a shrine supported by the three pillars described: one signifies the constant and permanent aspects of experience, one the thing-like, the external aspect, one symbolizes the practical, the efficacious [MARG: 10].

Each of these "pillars", by itself, runs into a number of well-known difficulties, the debates over which fill volumes in the history of philosophy. Of the "Greek" view (the enduring), we may with Margenau ask, "How permanent and inflexible does the real have to be if we are to accept it?" Of the "Roman" view (the thing-like), he writes,

We now examine our Roman heritage. Real is that which partakes of the nature of a *thing* as distinct from *thought*. To the unsophisticated the distinction is obvious; to the careful thinker it presents thorny problems . . . At any rate our domination by the thing doctrine goes so far that we of the Western Culture are prone to reject offhand a philosophy which fails to give significance to this distinction [MARG: 5].

And as for "the efficacious" he writes,

The real and the actual are close together; indeed the German word *wirklich*, though not implying anything like *res*, means nevertheless the same thing as the real. Literally, *wirklich* is that which acts, that which is capable of having an effect. In detail, the meaning of the word is loose, for it fails to signify whether the effect is to be on another object or in the mind. What is not real in the Roman sense may well be real in this [MARG: 9].

Philosophers often use the words "real" and "reality" without defining in what sense they employ these words, what significance they are to hold for us, and what we are to understand these ideas to mean. When ontology takes precedence over epistemology in supplying the context for "real" and "reality" we invariably run into the ambiguities reflected in the enduring, the thing-

like, and the efficacious. Furthermore, such a precedence invites – even demands – the invocation, explicitly or implicitly, of the copy-of-reality hypothesis. It is otherwise in the Critical Philosophy. No thing is real *to me* unless I have a concept of an object and connections of this concept in judgment to other concepts that give a *coherent context* for its *meaning*. When I attribute *Dasein* (the character of *being real*) to any object, my ultimate standard of reference is that “sense of aliveness” we call the *I* of transcendental apperception. *I* am my own standard of what is real, and I judge other objects to be real *in some meaningful context* (*Existenz*) grounded ultimately in my *absolute* certainty of my own actual “real character”.⁵ But I can judge the *Existenz* of the object only from what I know from experience, thus in terms of its appearances only, and all *root concepts* in this manifold originate from a *reflective* inference of belief.

The sensibility arising from any concrete physical action is at any moment in time the totality of intuition (sensation given form) and affective perception. That which in sensibility is reciprocally determined with the state of *soma* makes up what James called the kinæsthetic idea. The object of intuition is merely an undetermined appearance, the determination of which in a phenomenal object falls as a task to the process of determining judgment. Determining judgment contains no single *a priori* category of “thing”; yet the *thinking* of an appearance *as* a thing is a characteristic of human thinking so basic and fundamental that, in every child, childish thinking is uncompromised realism. At every stage in life, a thing *is* what the thinking Subject *thinks* it to be. This “it-is” is *belief*, the capacity for which belongs to reflective, not determining, judgment.

Neither does determining judgment adjudicate the distinction between intuition and affective perception. An intuition is an outcome of the *Verstandes-Actus* in the synthesis of apprehension and is *presented* to determining judgment via imagination’s synthesis of re-cognition. What, then, adjudicates the mental distinction of objective vs. affective perceptions? We already know the answer to this question: the process of reflective judgment. Here it is worth recalling that the principle of the *Verstandes-Actus* of abstraction is the segregation of comparates in sensibility based on their likeness and unlikeness with regard to a purpose (Chapter 3 §4.2 and Chapter 4 §7.3). Another way of saying this is that abstraction is the act of marking off a manifold in sensibility on the basis of the character of formal expedience in the representations. Perceptions that are not subsumed in an intuition can only be affective perceptions (because that is all that is left for them to be).

⁵ Beginning from knowledge of my own *Dasein*, empirical reasoning advances necessarily in a prosyllogism aiming at an absolute origin of *all* appearances under regulation of the cosmological Idea of Modality. Under the theological Idea of Modality Reason holds All-of-Reality as what Kant called “the one genuine Ideal of pure Reason.” The Ideal of All-of-Reality is necessary for the possibility of experience. A *transcendental* idealist is an *empirical* realist.

Now this division of *materia* of representation in sensibility into either an affective or an objective sub-manifold must be grounded in a principle of reflection, and this principle must serve the subjective as well as the objective in sensible representation. The only pure and *a priori* principle of reflective judgment is the principle of the formal expedience (*Zweckmäßigkeit*). What remains for us to do here is to elucidate how this principle regulates the structure of the reflective *nexus* and what its implications are for the synthesis in continuity.

The *Verstandes-Actus* of reflexion makes a *meaning implication*, and abstraction bases its segregation of the manifold of sensibility on this meaning implication. In Chapter 4 we saw that reflexion and the phenomenon of assimilation, and abstraction and the phenomenon of accommodation, are tied into each other in the synthesis of apprehension. In this Chapter we have seen that empirical meanings are grounded at the most elementary level in *actions*. We have seen that reflective judgments of Relation are tied to the motoregulatory expression of actions. But motoregulatory expression considered in isolation contains within its idea nothing that can be rightly called a meaning. An expression of meaning is not an idea of the form of a *nexus* but rather of its *matter*. We find the causality of actions in the synthesis of the judicial Idea. This synthesis *forms* a scheme of activity, its *act* being the form of Relation in reflective judgment and its *action* being the matter of expression.

We find empirical meaning *in* actions through the synthesis of transcendental Meaning. An object is vested with a meaning by its assimilation into an action scheme (reflexion) and the object is distinguished from accompanying affective perceptions by an accommodation of representation (abstraction). Orientation in *thinking* is an outcome of this synthesis, but this is not all that is presented by this synthesis. Objective meanings are tied to schemes of activity, and that which binds the intuition to the deed is the affective perception that accompanies the intuition in the synthesis of apprehension. While the meaning vested in the intuition is that which gives orientation in thinking, the meaning vested in the affective perception gives orientation in *acting*.

When we first introduced the idea of the noetic organization of adaptive *psyche* we described it as the idea of the metaphysical *nexus* of the Self. We are now in a position to improve upon this somewhat vague description: **Noetic organization is the nexus of meanings expressed in the reciprocity of the representations of nous and soma.** The synthesis in continuity under the function of transcendental Meaning is *objectively* a synthesis of beliefs. *Subjectively*, it is the function that brings coherence in the context of life, life being understood as Kant described it: the capacity of a being for acting according to laws of its appetitive power.

In a metaphorical sense, we can say that reflective judgment “feeds” appetitive power by providing representations that are connected with the organization of adaptive *psyche*. Here is

where we come to understand the effect of the regulation of judgment under the principle of formal expedience in Nature. As we discussed earlier in this treatise, the only Objects of practical judgment are called good and evil. Expedience for good is presented in reflective judgment as that which is expedient for the categorical imperative; expedience for evil (inexpedience for good) is that which is presented as contrary to the categorical law of pure Reason. The *nexus* of reflective judgment bears the name *manifold of Desires*, and the judicially expedient is therefore also the judgment of the connection of *happiness* with the psychic *Kraft* of *Lust per se*. In our logical-judicial perspective of the Self, we understand this according to the principles of Modality in Rational Physics.

Meaning and the First Postulate of Empirical Thinking in General

Transcendental Meaning is not described in terms of the logical functions of judgment for reasons we explained earlier. Meaning goes deeper than understanding and judgment, and indeed is the Idea necessary for the foundations of the very idea of “representation.” Our discourse here, not being able to call upon the logical functions of judgment, must proceed by connecting Modality in representation in general with the general postulates of Rational Physics.

The first postulate of empirical thinking in general (postulate of possibility) is this: *What agrees with the formal conditions of experience is possible*. When we dealt with this postulate from the theoretical Standpoint we considered its implications in terms of conditions of representation necessary for the possibility of the formation of concepts, and found that these conditions were those of the form of pure intuition, i.e. the pure intuition of subjective time. This led us to the categories of understanding that make an intuition symbolic in terms of a relationship between the intuition and its apperception in empirical consciousness. Here in the judicial Standpoint we must turn to the consideration of those characteristics in the appearance of the Organized Being necessary for the possibility of *experiencing* because we deal here with the possibility of empirical meanings in experience. In the theoretical Standpoint we were concerned with the grounds of theoretical objective validity; in the judicial Standpoint our attention must be given to those of the possibility of practical objective validity.

For the Organized Being there can be no experience without meaning accompanying the representations of experience. For human beings the assimilation of perceptions into action schemes is the condition for the possibility of a meaning. The psychological evidence is compelling; but the rational ground for this conclusion is equally compelling. A concept acquires a context for its meaning through connection to other concepts. But somewhere in this connected

manifold of objective representations there must be some **root concept** – some representation in the manifold of concepts where a relationship to the actual in experience (sensation) is formed. We cannot call upon a copy-of-reality hypothesis to obtain this root concept, nor can we attribute it to determination by the categories of understanding (because these contain no *a priori* rationalist ideas of any *Ding an sich*). Root concepts are formed through the synthesis of recognition in imagination from an intuition, but that which marks an intuition is a reflective judgment of formal expedience. This judgment makes an inference of ideation, which in itself expresses nothing more than a subjective belief. However, the intuition is also accompanied by affective perception, and affective perceptions mark a connection with the psychic *Kraft of Lust per se*. *Lust* is that property of the adaptive *psyche* exhibited in Self-adaptation, and adaptation implies action. Affective perception and intuition in sensibility are coexistent in time, hence are reciprocally determining, thus every ideation contains *materia* assimilated in an action scheme.

So it is that **the idea of the determinable in Meaning is: the representations of sensibility and the motor faculties of the Organized Being are such that the former can be joined to specific capacities for action in the latter.** The *materia in qua* of this conjunction acts as a *reflexive* ‘predicate’ of a possible meaning implication *as* an action. We will call this the idea of **sensorimotor possibility**.

Here it is worth our recollection that in the earliest phases of life the infant makes no distinction between Piagetian objects and his own actions. His observable is merely *Obs.OS*, as we discussed in Chapter 9. The assimilation of these syncretic observables in innate action schemes precedes all coordination of different schemes, and assimilation of observables *Obs.OS* into coordinated schemes precedes the formation of all type I interactions.

It goes without saying that at the start no differentiations could exist which would make it possible to distinguish the coordinations between actions (*Coord.S*), and between objects (*Coord.O*). The first reason is that the causal coordinations between objects clearly appear much later than between the subject’s actions and the objects; this is one of the most decisive lessons to be learned about the sensorimotor period . . . Second, if the coordinations linking the subject’s actions and objects thus appear prior to these *Coord.O* proper, at first, before the subject succeeds in regulating in detail his own actions, they use only *Obs.OS*. (Eventually they permit the beginning of awareness insofar as this adjustment implies choices or a certain “vigilance.”) Third, these early coordinations based on *Obs.OS* (which at first merely consist of reciprocal assimilations between schemes) are not themselves immediate and only begin at stage II during which the first habits are acquired; at stage I no coordination is observed between schemes or actions [PIAG19: 86-87].

Root concepts, those that ground the later development of meanings vested in phenomenal objects (and, later, in the noumenal objects of ideas), are first formed in the earliest stages of life. It goes without saying that there is tremendous refinement in these concepts as life progresses, but this refinement is nonetheless founded upon a bedrock of early judgments of belief and unbelief.

Noetic organization accommodates its structure in part because of the motor capacities available to the Organized Being, which are the conditions of the possibility of empirical meanings.

Meaning and the Second Postulate of Empirical Thinking in General

The second postulate of Modality in Rational Physics (postulate of actuality) is: *What coheres with the material conditions of experience (sensation) is actual*. The idea of determination in Meaning is drawn from this principle as seen from the logical-judicial perspective.

Perceptions in sensibility and motor capacities for action in motoregulatory expression are the possible *materia* and forms for activity. A teleological reflective judgment of belief is an *act* marking sensibility and combining sensibility with a determination of an expression of an *action* to accompany it. One type of instantiation of the expression of action is locomotion. Touch the lips of a new-born infant and the sucking reflex ensues. I perceive that I thirst, and I reach for my beverage. I recognize the ringing of the telephone, and I rise to answer it. I receive an insult and my face reddens and my muscles tense.

But the expression of action is not limited to locomotion alone. As I think, I perceive with my imagination representations that are the similes of the sounds of English words, reproduced in sensibility and connected with sensation by virtue of past judgments of actual experience. I can even summon up gibberish words – “gliptaki” – through the synthesis of productive imagination, without mouthing the gibberish aloud, from concepts of sounds I have heard before that I combine for the purpose of making gibberish. Although I have never actually seen one, I can readily conjure up the image of a blue duck with green feet wearing a red French beret, smoking a long English pipe, standing atop a lectern, and lecturing with a Harvard accent to an auditorium of freshmen on the topic of wetland conservation. This I can do because every noun, verb, adjective and adverb in the previous sentence belongs to my past experience, in which each became vested with meanings for me, and because the syncretic power of productive imagination supplies the *materia* for this image to sensibility so that I might *achieve my purpose* of presenting to you an example of such a fantasy.

Clearly these *mental* actions do not express any locomotion immediately observable by another person. They bear on schemes of thinking, the process of which is expressed only within myself. However, this does not imply that to these mental actions there exists no somatic correspondent, as neurologists well know. Let me think these thoughts while I undergo a scan by an MRI (magnetic resonance imaging) scanner or a PET (positron emission topography) scanner and the observer will be treated to a graphic image of my brain activity, obtained and displayed

by physical processes and understood through the laws of physics. This we can call **generalized locomotion**. In the context of motoregulatory expression, it has no less somatic representation than any other somatic action. Professor Freeman tells us,

Our brains don't take in information from the environment and store it like a camera or a tape recorder, for later retrieval. What we remember is being continually changed by new learning, when the connections between nerve cells in the brain are modified.

A stimulus excites the sensory receptors, so that they send a message to the brain. That input triggers a reaction, by which the brain constructs a pattern of neural activity. The sensory activity that triggered the construction is then washed away, leaving only the construct. That pattern does not 'represent' the stimulus. It constitutes the meaning of the stimulus for the person receiving it.

The meaning is different for every person, because it depends on their past experience. Since the sensory activity is washed away and only the construction is saved, the only knowledge that each of us has is what we construct within our own brains. We cannot know the world by inserting objects into our brains.⁶

All activities of the Organized Being are a reciprocal determination of somatic and noetic representations. **The idea of the determination in Meaning is the co-determination of a somatic action and a reflective judgment viewed as a specific act.** It is this co-determination that determines the unity in an activity. Within sensible Nature the appearance of this unity can be called psychosomatic activity; within intelligible Nature it is called psychonoetic activity. It is the synthetic unity of this activity that properly is the *Realerklärung* of behavior in logical-judicial perspective.⁷ These three ideas are of course the *momenta* of Relation in motoregulatory expression. The Modality of Meaning adds nothing to their appearances *except their connection* in the process of judgmentation, and, through this, in the faculty of pure consciousness. We call this idea of synthesis a **meaning implication**.

Meaning and the Third Postulate of Empirical Thinking in General

This brings us to the determining factor in Modality for our logical-judicial perspective. For the synthesis in continuity, this is **enforcement of coherence** by pure Reason. We have previously spoken of such noetic properties as the harmonization of imagination and understanding and the idea of a direction given to the employment of the process of determining judgment through the

⁶ Walter J. Freeman, "The lonely brain," in *Mapping the Mind* by Rita Carter, Berkeley & Los Angeles, CA: University of California Press, 1998, pg. 146.

⁷ The psychological usage of the term "behavior" has run afoul of clear meanings over the years. Reber's *Dictionary* defines "behavior" as, "A generic term covering acts, activities, responses, reactions, movements, processes, operations, etc., in short, any measurable response of an organism." Reber tells us that the usages of the term in psychology have become so varied that the word "no longer can be said to have a clear denotative domain."

transcendental Ideas of speculative Reason. These properties of reasoning are so manifest in introspection that the character of thinking is described as sensibly continuous, that the character of the stream of empirical consciousness seems never to change abruptly, and that one's consciousness *now* always seems to belong together with one's previous consciousness.⁸

The third postulate of Modality in Rational Physics is: *that whose context with the actual is determined in accordance with general conditions of experience is necessary (exists)*. In applying this postulate in the logical-judicial perspective, our first challenge is to reconcile the idea of noetic orientation with the general conditions of sensuous experience, where teleology has no objectively valid ground in appearances of sensible Nature from the theoretical Standpoint (the *non datur fatum* of continuity). In making this reconciliation as regards transcendental Meaning (coherence in the context of life), we first ask: what is *to cohere*? The dictionary tells us

cohere, v.i. [L. *cohæerere*, to stick together.]

1. to stick together; to cleave; to be united; to hold fast, as parts of the same mass, or as two substances that attract each other; as, particles of clay *cohere*.

2. to be connected naturally or logically, as by a common principle; to be coherent, as the parts of a discourse, or arguments in a train of reasoning.

3. to suit; to be fitted; to agree.

From the first two of these definitions we see that the first condition of coherence is construction of a combination, specifically the structuring of a manifold. Absent a copy-of-reality mechanism, we cannot say that our sensory impressions arrange themselves into such a structure; this would be tantamount to saying they were “fated” to have or to form such-and-such a manifold. Yet it is certainly true that for healthy people perceptions are structured, and from this character of perception we have the required connection with the actual that grounds the *practical* objective validity of noetic orientation from the *judicial* Standpoint. Kant tells us,

The manifold of representations can be given in an intuition that is merely sensuous, i.e. is nothing but receptiveness, and the form of this intuition can lie *a priori* in our capacity of representation without being anything other than the way in which the subject is affected. Yet the *combination* (*conjunctio*) of a manifold in general can never come to us through the senses, and therefore cannot already be contained in the pure form of sensuous intuition; for it is an act of spontaneity of the power of representation, and, since one must call this understanding, in distinction from sensibility, all combination is an act of understanding, whether we are conscious of it or not, whether it is a combination of the manifold of intuition or of several concepts (and in the first case be either of sensuous or non-sensuous intuition), which we would designate with the general title *synthesis* in order at the same time to draw attention to the fact that we can represent nothing as joined in an Object without having previously combined it ourselves, and that among all representations *combination* is the only one that is not given through Objects but can be executed only by the

⁸ see Chapter 1 §6.2, Mind as the Stream of Thought.

subject itself, since it is an act of its self-activity. One can here easily see that this act must initially reach agreement and be equally valid for all combinations [KANT1a: 245 (B: 129-130)].

Noetic orientation is necessary for the possibility of understanding perceptions through Objects.

Next we note that the structuring of a manifold in perception necessarily implies some self-organizing rule of transformation, i.e. the “common principle” mentioned in definition 2 above, and that the characteristics of this rule are those of suitability, fitness, and agreement in matter and form of this manifold. Indeed, “this act must initially reach agreement,” and one idiomatic connotation of the phrase Kant used, “*ursprünglich einig*,” is “to make up one’s mind” – which is an idea obviously concordant with the psychic idea of noetic organization. Spontaneity in *nous* has practical objective validity, and because its transcendental place is in the noetic power of understanding and not in sensuous Nature, its practical validity does not come into conflict with the negative principle of Modality, *in mundo non datur fatum*, in continuity.

But our inquest cannot stop here because our second task is to elucidate the form of enforcement of coherence in noetic organization. Modality in continuity does not add to continuity in the objects in Nature, to that of perception, nor to that of the appearances of *Self-Existenz*. Its role is to give all of these their reference to the transcendental Subject, i.e. logical-judicial possibility for perceptions, logical-judicial actuality for Nature, and logical-judicial necessity for *Self-Existenz*. An instantiation of such a connection is an empirical meaning, and we can look upon Piaget’s *Obs.OS* as a clue to the “nature” of meanings and to the energetics of affectivity. To Piaget’s “objective” diagrams of basic interactions in Chapter 9 we can add the “subjective” diagram of Figure 16.8.1. Empirical meanings vested in the representations of general judgmentation are the matter of *nexus* in noetic Self-organization: energetics for affectivity, objects and desires for objectivity, and purposive form for motivations in *logical* continuity of purpose.

In the last of these, we have seen that motivation is not to be viewed as persistent. The logical continuity of motivation *in all subjective time* requires a formal binding principle, an idea

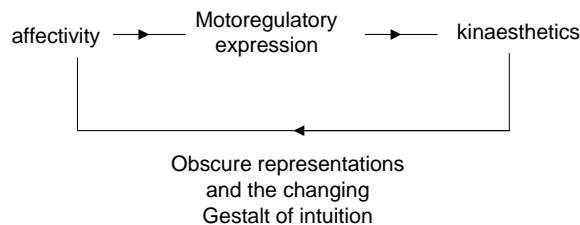


Figure 16.8.1: The Cycle of Affective Interaction

of a *Prinzip zu determinieren*¹, effecting an orientation in activity common across multiple moments in time. Such a binding principle must likewise serve as a ground for determinations of the *elater animi* (driver of the mind) that reflect a **constancy of purpose** in the transformations of the formal in accidents of Nature (objectivity) from moment to moment.² This is because the preeminent quality of any structure (unity in objectivity) is its own **conservation**.

[It] is in the nature of rules or norms to introduce compulsory conservation, which is why their function is of such great importance in the life of societies and individuals. The norm is therefore by its very nature the essential instrument of connexion between the diachronic and the synchronic.

The fact remains that structures and rules develop, that they were formed little by little, and that even in the case of progressively acquired stability new structures or norms can modify the meaning of preceding ones to a more or less deep extent, even if they do not replace them . . .

On the other hand, if reason evolves, the progressive constructs to which it may give rise constitute an extremely remarkable type of development in the sense that the previous structures are not set aside or destroyed but are integrated in the subsequent ones as specific cases valid in a certain sector or at a certain scale of approximation [PIAG28: 33-34].

The terms “diachronic” and “synchronic” were coined by linguistic theorists, principally the Swiss linguist Ferdinand de Saussure (1857-1913). They are antonyms pertaining to change over time. In structuralist linguistic theory “diachronic” refers to the evolution of language over time, “synchronic” to its structure. Piaget uses these terms in a somewhat broader connotation with adaptation and organization, i.e. to refer to the conservation of structure in the evolution of constructs. In structuralist theory what is stressed is coherence of constructs rather than the relationship of the structure to entities outside the system. Let us examine this idea of a norm (a standard or rule) seen as an “essential instrument of connexion” between the evolution of constructs and the conservation of the structure within which this construction is carried out.

Probably the most common connotation of the word “instrument” is that which is synonymous, or nearly so, with the idea of an “implement” or “tool.” In pragmatic philosophy “instrumentalism” is

the view that theories, especially in the sciences, are not strictly speaking true or false but are to be regarded as tools. Their main use is to assist in predictions, in making the transition from one set of data to another.³

For example, I use theory to connect measurements of voltages and resistances to the putative motion of electrons within an electric circuit. To put this more precisely, the theory tells me how I

¹ see pg. 1459 and the Glossary.

² Objectivity (the continuity function of aesthetical judgment and somatic *Kraft*) makes possible the *Gestaltung* of intuitions of outer sense. But *understanding* requires the continuity of Meaning. Constancy of purpose is not the same as, and does not implicate, persistence of motivation.

³ *The Penguin Dictionary of Philosophy*, Thomas Mautner (ed.), London: Penguin Books, 2000. It is not out of place to note here that adaptation measurement in *Lust-Kraft* is tied to somatic *Kraft*, and thereby to the synthesis in objectivity. Thus objectivity has an “instrumental” role in the synthesis in continuity.

am to interpret the readings I obtain with my voltmeter and my ohmmeter in regard to the theoretical constructs of voltage and resistance. This same theory then tells me how I am to infer from these readings yet another construct, namely an electric current. The theory “gives meaning” to what I observe when I use my measuring instruments in the laboratory.

When we speak of rules having been “developed” (as Piaget does above), we are clearly referring to empirical rules worked out *a posteriori*. However, the possibility of being able to formulate such rules necessarily presumes the ability to do so, and for this possibility we require a transcendental ground in some *a priori* capacity of *nous*. If this were not so, it would not be possible for the Organized Being to come up with empirical rules in the first place. Because the character of a rule as an “instrument” (in this sense of the word “rule”) is that through the rule an empirical meaning is “given” to what would otherwise be merely a sensuous representation of *nous*, the *a priori* capacity of the Organized Being of which we speak must be one that grounds the *Realerklärung* of empirical meanings in general.

One characteristic of the idea that a perception “has” meaning for the perceiving Subject is that an objective perception must have connection with other concepts, and we call this manifold of connection the *context* of the perception. In this instance, we say the context provides for the meaning in the objective perception, and that the representation is *made symbolic* of its object. This is something quite different from the usage we make of the term “symbolic” when we say that one object is “symbolic” of another (as in the example above, where the voltmeter reading was symbolic of something called “voltage”).⁴ But how does the mere connection of concepts in a manifold come to implicate a meaning?

Here Professor Whitehead makes an observation that is of some use to us. Whitehead distinguishes two “pure modes of perception” which he calls “perception in the mode of causal efficacy” and “perception in the mode of presentational immediacy”.

Thus perception, in this primary sense, is perception of the settled world in the past as constituted by its feeling-tones, and as efficacious by reason of those feeling-tones. Perception, in this sense, will be called ‘perception in the mode of causal efficacy.’ Memory is an example of perception in this mode . . .

Perceptions which merely, by means of a sensum, rescues from vagueness a contemporary spatial region, in respect to its spatial shape and its spatial perspective from the percipient, will be called ‘perception in the mode of presentational immediacy.’ . . . The unraveling of the complex interplay between the two modes of perception – causal efficacy and presentational immediacy – is one main problem of the theory of perceptions. The ordinary philosophical discussion of perception is almost wholly concerned with this interplay, and ignores the two pure modes which are essential for its proper explanation. The interplay between the two modes will be termed ‘symbolic reference.’

⁴ It is “symbolism” in this manner to which Piaget refers when he speaks of the development of the semiotic function near the end of the sensorimotor stage of development [PIAG15: 51-91].

[WHIT: 120-121].

Whitehead describes perception “in the mode of causal efficacy” as “information about the universe obtained through visceral feelings.” Presentational immediacy, on the other hand, has to do with the usual five senses (seeing, hearing, touching, tasting, smelling), and his description of this “pure mode” is similar to that of the Kantian *Gestaltung* of outer sense.

The pure mode of presentational immediacy gives no information as to the past or the future. It merely presents an illustrated portion of the presented duration. It thereby defines a cross-section of the universe; but does not in itself define on which side lies the past, and on which side the future. In order to solve such questions, we now come to the interplay between the two pure modes. This mixed mode of perception is here named ‘symbolic reference.’ The failure to lay due emphasis on symbolic reference is one of the reasons for metaphysical difficulties; it has reduced the notion of ‘meaning’ to a mystery.

The first principle, explanatory of symbolic reference, is that for such reference a ‘common ground’ is required. By this necessity for a ‘common ground’ it is meant that there must be components in experience which are directly recognized as identical in each of the pure perceptive modes. In the transition to a higher phase of experience, there is a concrescence in which prehensions in the two modes are brought into a unity of feeling; this concrescent unity arises from a congruity of their subjective forms in virtue of the identity relation between the two prehensions, owing to some components in common. Thus the symbolic reference belongs to one of the later originative phases of experience. These later phases are distinguished by their new element of originative freedom . . . The presented locus is directly illustrated by the *sensa*; while the causal past, the causal future, and the other contemporary events are only indirectly perceived by means of their extensive relations to the presented locus . . . Thus the presented locus, with the animal body of the percipient as the region from which perspectives are focused, is the regional origin of reference to which in this perceptive mode the complete scheme of extensive regions is rendered determinate [WHIT: 168-169].

We should note here that Whitehead argues there has to be something “in common” in “presentational immediacy” and the “perception of causal efficacy” in order for a perception to have a symbolic reference. We note as well that it is in the “feelings” of the perceiving Subject that he finds this unity necessary for symbolism. In the terminology of this treatise, this is to say that symbolism is some “common ground” to be found for affective and objective perceptions. Causal efficacy as Whitehead describes it is due in part to affective (“visceral”) feelings and in part to “memory”, which in Kant’s theory pertains to the synthesis of reproduction in imagination (the concepts thereby recalled into sensibility being already connected in time-order according to the transcendental schema). Thus, an entirely novel presentation in sensibility, lacking anything in common with previous presentations, cannot be made symbolic upon its first appearance for lack of a common ground of unity. Symbolic reference arises *a posteriori*, and with it, Whitehead tells us, comes meaningful understanding:

So much of human experience is bound up with symbolic reference that it is hardly an exaggeration to say that the very meaning of truth is pragmatic. But though this statement is *hardly* an exaggeration, still it *is* an exaggeration, for the pragmatic test can never work unless on some

occasion – in the future or in the past – there is a definite determination of what is true on that occasion . . . According to the doctrine here stated, the day of judgment arrives when the ‘meaning’ is sufficiently distinct and relevant, as a perceptum in its proper pure mode, to afford comparison with the precipitate of feeling derived from symbolic reference. There is no inherent distinction between the sort of percepta which are symbols and the sort of percepta which are meanings [WHIT: 181].

Critical Meaning is a unity, not a perception. Yet even in Whitehead’s description of “percepta” in the process of becoming meaningful by means of their symbolic reference, we nonetheless must presuppose something in the capacity of the Organized Being that regulates the structuring of this process as a determining factor. Otherwise, the “pragmatic” character of truth he describes would indeed be subject to the criticisms of the pragmatists’ definition of truth we discussed earlier in this treatise, particularly the charge that “truth” as described, e.g., by James would be capricious. In the absence of any copy-of-reality mechanism, this determining factor must lie with the Organized Being, and here is where what Whitehead called the “new element of originative freedom” above comes into play. The idea of transcendental freedom from the theoretical Standpoint can be only problematic, while from the practical Standpoint it has practical objective validity; but from the judicial Standpoint this practical objective validity must necessarily be grounded in a reference to an *a priori* regulative law, and this is the law of the categorical imperative of pure practical Reason.

The synthesis in continuity of transcendental Meaning must therefore be a synthesis having as its primary character the bringing forth of that “common ground” of which Whitehead speaks and upon which the possibility of his symbolic reference depends. Unable to call upon a copy-of-reality for this common ground, the Organized Being must supply this common ground to itself. Here we once again recall that the idea of a Piagetian scheme is the idea of whatever is repeatable and generalizable in an action. We are now in a position to appreciate that the character of repetition in a scheme is necessary for symbolic reference because such a reference is possible only *a posteriori*. From repetition of an action scheme comes repetition of kinæsthetic sensibility, and in this latter repetition is found the sensible *materia circa quam* upon which the possibility of a “common ground” depends.

A scheme is the structure or organization of actions as they are transferred or generalized by repetition in similar or analogous circumstances [PIAG15: 4fn].

Whitehead’s “common ground” of symbolic reference is the unity in sensibility presented in the synthesis of the *Verstandes-Actus* of reflexion. *Thorough-going unity* in the process of judgmentation constitutes the *Realdefinition* of **coherence in Reality** as continuity of *nexus* in general *Beurtheilung*. Inasmuch as kinæsthetic sensibility arises from motoregulatory expression,

this coherence is determined through the activity of the Subject, hence is lodged in the psychological *Realerklärung* of empirical meanings we discussed earlier. Thus we are led to conclude that the possibility of meanings necessarily presupposes acts of teleological reflective judgment combined with practical judgments of appetite (the determination of the Subject's appetitive power) by which mere representations can be the cause of an object. But we have seen, in Chapter 15, that the regulation of actions by practical Reason is oriented by the *Lust* principle, i.e. orientation in acting is the determination in act of an action judged expedient for the negation of the intensive magnitude of *Lust per se*. We have likewise seen that the equilibrium mandated by the categorical imperative must be regarded in terms of a sensible cycle in which no further innovations are perceived. Repetition is the substance of a cycle. An ideal equilibrium is *Existenz* in a cyclic state that is absolutely robust. Coherence in Reality is a condition of sensible equilibrium, and so we find that **enforcement of coherence by pure Reason is the determining factor in the synthesis of Meaning.**

§ 9. The Animating Principles

Psyche is the faculty of animating principles in the Organized Being model. Viewed as an Object it is the persistent reciprocity between *soma* and *nous*, and so viewed under its four titles of somatic *Kraft*, noetic *Kraft*, somatic organization, and noetic organization, we call it the adaptive *psyche*. Under Kant's definition of organized being, an Organized Being is a whole in which each part is viewed as simultaneously a cause of the other parts *and* an effect of these other parts. *Psyche* in the Organized Being model is thus seen as the faculty of rules of mind-body Self-determination. These rules are the metaphysical laws of objective validity in the relationship between intelligible *nous* and sensible *soma*; they are, as it were, the rational foundation of the psychophysical method. In Chapter 15 we examined how the combination of adaptive *psyche* with the faculty of pure consciousness is the synthesis of *Lust-Kraft*. In this chapter we have looked at the synthesis in continuity, which binds the process of reflective judgment in *nous* to synthesis in the adaptive *psyche*. We are now in a position to elaborate on the general animating principles of mind-body reciprocity.

§ 9.1 The Animating Principle of Somatic *Kraft*

In the 2LAR of the adaptive *psyche* somatic *Kraft* is Quantity. Its extensive magnitude is viewed in terms of the additive structuring of processes. In *soma* it appears that these processes take the form of something like Damasio's system of "dispositional representations mediated through

small assemblies of neurons (convergence zones).” Here it is important for us to keep in mind that in *soma* the data of representation is expressed in biological signals, e.g. neuronal activity patterns and chemical signaling, and that such signals as appearances in sensible Nature present us with no psychological objects. However, in their relationship with the intelligible objects of *nous*, the physical conditioning of neuronal assemblies by the activity patterns of other neuronal structures can nonetheless be called “dispositional” because their noetic correlates in the faculty of pure consciousness are the powers of sensibility – receptivity, spontaneity, and feelings. In relationship to receptivity, somatic dispositional representations go to the production of those somatic activities we connect with the sensory modalities of the brain. In relationship to spontaneity, their appearances in *soma* are “spontaneous” only insofar as we call the oscillatory character of any feedback system “spontaneous” activity, and if we were in possession of a complete set of mathematical equations describing this activity, this set would perforce have to appear in a mathematical form that satisfies causality in the Margenau sense. In relationship to feelings, the Critical understanding of this term is the synthesis of spontaneity regarded as receptivity, and in psychic terms this refers to the feeling of *Lust* or *Unlust*. In somatic terms, we need to appreciate that not all neurological structures in the brain have a direct reference to the sensory modalities. Some, such as found in the limbic system or the motor cortices, are properly called dispositional for general somatic appearances that have behavioral correlation to phenomena we call by such names as “emotion” and “mood.”

In *nous* the direct correlates of these somatic actions (somatic processes) are connections in the *nexus* of aesthetical reflective judgments. These connections viewed as dispositions are the form of the matter of representations of reflective judgment that can be made the matter of appetites. When these representations are sensuous the appetites are called instincts, propensities, or inclinations. When they are intellective an appetite is more properly called *appetitia per motivum* since the relationship to pure Reason is that of a relationship to the Objects of practical Reason, i.e. good and evil. Either way, as representations of extensive magnitude these judicial momenta refer to the processes of adaptation measurement in *Lust Kraft* and the form of their *nexus* expresses interest and desire as acts of reflective judgment.

Activity is the union of act and action, and the animating principle of somatic *Kraft* is the principle of reciprocity between the act of judgment and the appearance of action in *soma*. This union of act and action falls under the synthesis in continuity of objectivity, and so we say that the animating principle is: **reciprocity through somatic *Kraft* is determination of a condition, called an *elater animi*, through which the structuring of somatic actions expresses acts of aesthetical judgment of the form of a system of values, desires, and interests.**

§ 9.2 The Animating Principle of Noetic *Kraft*

The synthesis in continuity of the aesthetic Idea deals with intensive magnitude in emotivity inasmuch as emotivity concerns the presentment of a state of *Existenz*. It is a structuring of emotivity, and this structuring leads to the quickening of perception as it coalesces in consciousness of the condition of state, this coalition marked at a moment in time. Recalling that this moment in time must be regarded as “growing out of” the prior moment, the presentment in consciousness of the Subject’s state of *Existenz* is ordered in time by the transcendental schemata when presentation becomes cognition.

An intuition is a mark of change in cognitive state, but we cannot attribute the judgment of such a change to either an environmental or a somatic object. To do so is to invoke a copy-of-reality mechanism. It is rather to be seen as an exhibition of an accident of Self-*Existenz*, and the noetic *Kraft* of adaptive *psyche* is that power of *psyche* to determine this exhibition insofar as *nous-soma* reciprocity is concerned. In thinking we can retroactively compare objects of cognition and *ex post facto* make a cognition of differences between appearances in terms of what has changed in the filling of time, and this is how we can understand the phenomenon in terms of extensive magnitude. But with regard to the intensive magnitude of perception, the singular presentment of Self-*Existenz* logically precedes its analysis through analytic judgments, and so the presentment must be viewed as a unity that admits of a later analytic division by which it can be understood in terms of a multiplicity of factors. Indeed, “to factor” *means* to break into parts, and *the ability to do so* is the characteristic that actually defines what it is for a representation to have intensive magnitude. The degree of such a magnitude loosely means “the amount of the quality” and precisely means the kinematic ordering of the analyzed factors in their re-coalescence to make a concept of an object of appearance (Chapter 8 §3.2).

To understand “emotivity” is to determine it as an object by connecting concepts of its factors in the manifold of concepts so that they are understood in a context. The Object standing as the function of understanding for this is the subjective state of the Self. But the only factors pertaining to emotivity as they are broken out of the presentment by analysis are those we must regard as grounded in representations of the process of aesthetical judgment in Quantity and Quality and co-determined with somatic change. **Emotivity is the unity of this determination** and its transcendental place in Organized Being lies in the noetic *Kraft* of adaptive *psyche*.

Just as we started our discussion of the animating principle of somatic *Kraft* by looking at processes in the *soma*, so here our discussion must find its starting point in reflective judgment and, in particular, with the matter of aesthetical reflective judgments. Figure 16.9.1 illustrates the

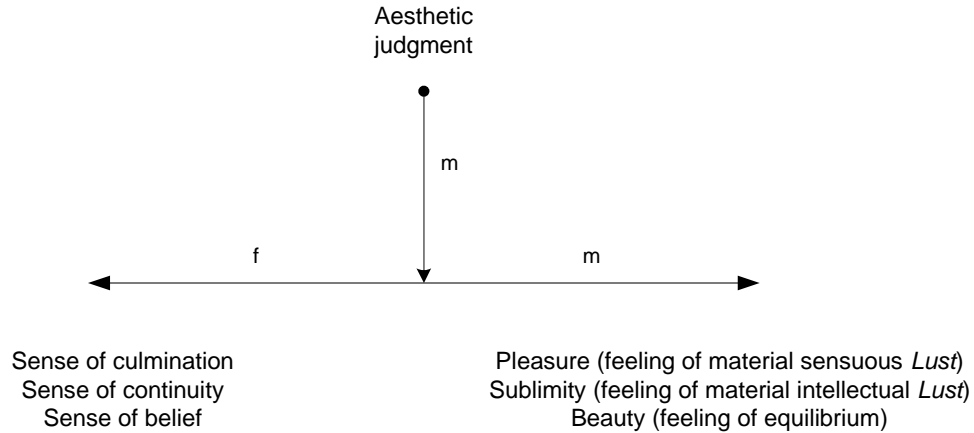


Figure 16.9.1: *Momenta* of Quality in reflective judgment from the transcendental-judicial perspective in reference to *Lust*.

momenta of the Quality of reflective judgment as seen in the transcendental-judicial perspective. We introduced these *momenta* in Chapter 14. To apply them in our present consideration we must examine them from the logical-judicial perspective. In particular, our discussion is primarily concerned with the *momenta* of beauty and sublimity *inasmuch as* these two technical terms can pertain to the Rational Physics wing of metaphysics proper (because we are still dealing here with the metaphysics of a sensible object, namely the Self in the context of emotivity).

It is not usually the case that what could be called a theory of æsthetics is looked at in terms of a metaphysic that bears in its name the title of “physics”. Certainly æsthetics, as that term is normally used, falls well outside the topic of the proper physical science of physics, and I do not mean to leave the reader with the impression that here he will find an attempt to reduce æsthetics to physics. However, for *practical* objective validity the animating principle of noetic *Kraft* must be tied to actual experience in sensible Nature, and Rational Physics is the metaphysic proper of the appearances of objects here. The types of phenomena with which we are dealing might well be called “social phenomena” since they are those behavioral appearances that we often describe in terms of actions which we say are indicative of *values* of one form or another, and upon which many of the mores and folkways of society rest. Kant often gave names to the transcendental factors in his theory that reflected some of the more familiar “end results” that these factors tend to produce, and this is the case with the *momenta* of Quality in reflective judgment shown in the figure above.

Santayana was one philosopher for whom the philosophy of beauty (æsthetics) is a theory of values. Moreover, he saw a close relationship between æsthetics and ethics. His method of approach to both æsthetics and ethics was psychological. Such an approach

. . . deals with moral and æsthetic judgments as phenomena of mind and products of mental evolution. The problem here is to understand the origin and conditions of these feelings and their relation to the rest of our economy. Such an inquiry, if pursued successfully, would yield an understanding of the reason we think anything right or beautiful, wrong or ugly; it would thus reveal the roots of conscience and taste in human nature and enable us to distinguish transitory preferences and ideals, which rest on particular conditions, from those which, springing from those elements of mind which all men share, are comparatively permanent and universal [SANT1: 5-6].

Santayana ties the idea of beauty to that of value. His comparison of æsthetics and ethics provides a well-reasoned connection to considerations befitting practical objective validity, and indeed it is easy to sense that Santayana's practical morality has its contact with the feeling of the sublime. He tells us,

We may . . . at once assert this axiom, important for all moral philosophy and fatal to certain stubborn incoherences of thought, that there is no value apart from some appreciation of it, and no good apart from some preference of it before its absence or its opposite. In appreciation, in preference, lies the root and essence of all excellence. Or, as Spinoza clearly expresses it, we desire nothing because it is good, but it is good only because we desire it.

It is true that in the absence of an instinctive reaction we can still apply these epithets by an appeal to usage. We may agree that an action is bad, or a building is good, because we recognize in them a character which we have learned to designate by that adjective; but unless there is in us some trace of passionate reprobation or of sensible delight, there is no moral or æsthetic judgment. The verbal and mechanical proposition, that passes for judgments of worth, is the great cloak of ineptitude in these matters. Insensibility is very quick in the use of words. If we appealed more often to actual feeling, our judgments would be more diverse, but they would be more legitimate and instructive . . .

Values spring from the immediate and inexplicable reaction of vital impulses, and from the irrational part of our nature. The rational part is by its essence relative; it leads us from data to conclusions, or from parts to wholes; it never furnishes the data with which it works. If any preference or precept were declared to be ultimate and primitive, it would thereby be declared to be irrational, since mediation, inference, and synthesis are the essence of rationality. The ideal of rationality is itself as arbitrary, as much dependent on the needs of a finite organization, as any other ideal. Only as ultimately securing tranquility of mind, which the philosopher instinctively pursues, has it for him any necessity. In spite of the verbal propriety of saying that reason demands rationality, what really demands rationality, what makes it a good and indispensable thing and gives it all its authority, is not its own nature, but our need of it both in safe and economical action and in the pleasures of comprehension.

It is evident that beauty is a species of value, and what we have said of value in general applies to this particular kind. A first approach to a definition of beauty has therefore been made by the exclusion of all intellectual judgments, all judgments of matter of fact or of relation. To substitute judgments of fact for judgments of value is a sign of a pedantic and borrowed criticism. If we approach a work of art or nature scientifically, for the sake of its historical connexions or proper classification, we do not approach it æsthetically . . .

Æsthetic and moral judgments are accordingly to be classed together in contrast to judgments intellectual; they are both judgments of value, while intellectual judgments are judgments of fact. If the latter have any value, it is only derivative, and our whole intellectual life has its only justification in its connexion with our pleasures and pains [SANT1: 13-16].

At this point we should recall that Piaget also incorporated ideas of value and interest into the theory of affectivity (see Chapter 14 §3.4) [PIAG16: 26-36]. In that discussion we were

focused on looking at the Janet-Piaget “energetic regulations” and the structuring of a value system in terms of aesthetic Relation in the transcendental-judicial perspective. With Santayana the discussion of the idea of value, viewed by us under the logical-judicial perspective, centers on the matter of composition in reflective judgment. With Piaget our attention is fixed on the form of values (“evaluation”); with Santayana our attention turns to the matter of evaluation. With Kant, our attention focuses on the grounds for the possibility of the phenomenon of evaluation.

When we named the aesthetic *momenta* depicted in Figure 16.9.1, the choice of names was made with a more or less explicit reference to the feeling of *Lust*. However, these *momenta* must also take into account their proper interpretations in reference to the feeling of *Unlust*. This we will do in due course, to the extent that this is important at present in our deduction of the animating principle of noetic *Kraft*. As a prelude to that discussion, what we note here is that the tie-point between æsthetics and ethics as Santayana discusses it is found in the Critical Philosophy in this two-sided character of *Lust per se*. Santayana writes,

The relation between æsthetic and moral judgments, between the spheres of the beautiful and the good, is close, but the distinction between them is important. One factor of this distinction is that while æsthetic judgments are mainly positive, that is, perceptions of good, moral judgments are mainly and fundamentally negative, or perceptions of evil. Another factor of the distinction is that whereas, in the perception of beauty, our judgment is necessarily intrinsic and based on the character of the immediate experience, and never consciously on the idea of an eventual utility in the object, judgments about moral worth, on the contrary, are always based, when they are positive, upon the consciousness of benefits probably involved . . .

Hedonistic ethics have always had to struggle against the moral sense of mankind. Earnest minds, that feel the weight and dignity of life, rebel against the assertion that the aim of right conduct is enjoyment. Pleasure usually appears to them as a temptation, and they sometimes go so far as to make avoidance of it a virtue. The truth is that morality is not mainly concerned with the attainment of pleasure; it is rather concerned, in all its sharper and more authoritative maxims, with the prevention of suffering. There is something artificial in the deliberate pursuit of pleasure; there is something absurd in the obligation to enjoy oneself. We feel no duty in that direction; we take to enjoyment naturally enough after the work of life is done, and the freedom and spontaneity of our pleasures is what is most essential in them.

The sad business of life is rather to escape certain dreadful evils to which our nature exposes us, - death, hunger, disease, weariness, isolation, and contempt. By the awful authority of these things, which stand like specters behind every moral injunction, conscience in reality speaks, and a mind which they have duly impressed cannot but feel, by contrast, the hopeless triviality of the search for pleasure. It cannot but feel that a life abandoned to amusement and to changing impulses must run unawares into fatal dangers. The moment, however, that society emerges from the early pressure of the environment and is tolerably secure against primary evils, morality grows lax. The forms that life will further assume are not to be imposed by moral authority, but are determined by the genius of the race, the opportunities of the moment, and the tastes and resources of individual minds. The reign of duty gives place to the reign of freedom, and the law and the covenant to the dispensation of grace [SANT1: 16-17].

I expect there are some people who, upon reading Santayana’s characterization of morality, experience a surge of indignation. After all, does not his characterization seem to imply that

“morals” are ultimately based upon selfish and vulgar considerations of the flesh and not upon a “higher standard” of conduct? Others there are who will be reminded of the common misinterpretation of Kant’s *Groundwork of the Metaphysics of Morals*, i.e. the misconception that has Kant holding the view that to be moral actions must involve self-denial and self-inflicted suffering. Given Santayana’s polemic against Kant’s moral philosophy, plus his characterization of Epicurean ethics as a “sty”, I find some ironic amusement in the interpretation of Santayana in either of these terms. With regard to Santayana’s characterization of moral judgments as “mainly and fundamentally negative,” it is perhaps worth noting that in the Ten Commandments, eight of these are phrased as “you shall not”, one as a positive imperative, and one (“remember the sabbath day”) is expressed in both the form of a positive imperative and a negative imperative (“in it you shall not do any work, you, or your son, or your daughter, or your manservant, or your maidservant, or your cattle, or the sojourner who is within your gate”). Even the one “positive” commandment is followed by an appeal to self-interest: “Honor your father and your mother, that your days may be long in the land which the Lord your God gives you.” Kant held that to base one’s religious practices upon fear of God, fear of hell, fear of punishment in the hereafter, etc. was an act of no *moral* worth whatsoever because it is then based upon self-interest rather than upon an understanding love of God and His laws. Kant’s moral system is based upon doing right *because* one knows *why* it is right.⁵ Moral religious practice begins with understanding *why* sin is evil (contrary to moral law) and then abstaining from sin *because* of this moral understanding of it rather than from fear of any divine or earthly retribution. The penitent man is remorseful because he accuses himself, not because God does so. One can be expected to “go and sin no more” only if one understands what constitutes the evil character of a sin. In this view, to be morally innocent is to have no concept of the character of sin, and therefore to go unarmed against and unprepared for evil consequences of innocent acts. A good father does not damn his innocent children but sees to their instruction in moral *understanding*, and not by means of a catalog to be memorized and attended to from mere self-love. To *choose* to be ignorant of what it is that makes sin a sin, if it is possible to attain an understanding of it, is to choose to be morally ignorant, and such a choice is not only intellectually lazy but, Kant would say, also Critically immoral (a dereliction of duty).

Getting back to the main point of this section, Santayana somewhat admixes beauty, good,

⁵ Santayana would probably say Kant’s moral philosophy is flawed because it is based upon intellectual judgments rather than upon the “vital impulses” of life. Kant would probably respond that such feelings are the starting point for the *possibility* of understanding moral law in experience, but that before there could be a science of morality one *must* attend to understanding one’s maxims and to making them accord as perfectly as one knows how with one’s concepts of the categorical imperative, which in turn requires *conceptualization* of categorical imperatives in the form of moral law.

and pleasure in his treatment. (Kant does this also in *Critique of Judgment*). He regards beauty in terms of value objectified. In his words, beauty is

value positive, intrinsic, and objectified. Or, in less technical language, Beauty is a pleasure regarded as the quality of a thing.

This definition is intended to sum up a variety of distinctions and identifications which should perhaps be here more explicitly set down. Beauty is a value, that is, it is not a perception of a matter of fact or of a relation: it is an emotion, an affection of our volitional and appreciative nature. An object cannot be beautiful if it can give pleasure to nobody; a beauty to which all men were forever indifferent is a contradiction in terms.

In the second place, this value is positive, it is the sense of the presence of something good, or (in the case of ugliness) of its absence. It is never the perception of a positive evil, it is never a negative value. That we are endowed with the sense of beauty is a pure gain which brings no evil with it . . .

Further, this pleasure must not be in the consequence of the utility of the object or event, but in its immediate perception; in other words, beauty is an ultimate good, something that gives satisfaction to a natural function, or to some fundamental need or capacity of our minds. Beauty is therefore a positive value that is intrinsic; it is a pleasure. These two circumstances sufficiently separate the sphere of aesthetics from that of ethics. Morality has to do with the avoidance of evil and the pursuit of the good; aesthetics only with enjoyment.

Finally, the pleasures of sense are distinguished from the perception of beauty, as sensation in general is distinguished from perception; by the objectification of the elements and their appearance as qualities rather of things than of consciousness . . . There is no sharp dividing line between them, but it depends upon the degree of my objectivity my feeling has attained at the moment whether I say "It pleases me," or "It is beautiful." . . . Thus beauty is constituted by the objectification of pleasure. It is pleasure objectified [SANT1: 31-33].

If we are to make any good use of Santayana's insights, we must reconcile the views just quoted with the requirements of the Critical Philosophy. From the transcendental-judicial perspective the *momentum* of beauty is a feeling of equilibrium. It is a feeling that marks the unexpected and undesigned occasion of a harmony in the free play of imagination and understanding, and this feeling marks sensibility as an intuition; this marking is the *Realerklärung* of an objective *Gestalt* in the representations of sensibility.

It would, however, be all too easy to leave a false impression of what is meant here by the relationship of the *momentum* of beauty to objective *Gestalt*. In transcendental-judicial perspective the *momenta* of Quality in reflective judgment speak to satisfaction and dissatisfaction in the experience of an Organized Being. It is in the *logical*-judicial perspective where we may speak of these *momenta* in objective terms, and here their context with objectification is one of matters of desires in the *Begehren* sense. The affective perception of beauty fills the same moment in time as the intuition it marks, thus is that in affectivity that arises with an objective perception in a reflective inference of ideation, and thus has a special bond in consciousness with the objective in cognition. Santayana would be correctly in accord with the Critical Philosophy if he had said that beauty is *affection* objectified.

And still the complete picture admits more shades of complexity within this context. In every reflective judgment involving the *momentum* of beauty, there are seven other titles of judgment involved (three more in aesthetic judgment plus the four in teleological judgment), and each of these admits three *momenta*. Furthermore, these judgments are also linked up with the feeling of *Unlust* as well as that of *Lust*. Mathematically, this gives us up to 4,374 potential flavors of affective perceptions involving the *momentum* of beauty. What the *momentum* of beauty brings in common to all of these possibilities is that character of *behavior* which is, to use the Janet-Piaget terminology of energetics, a termination regulation. Satisfaction “in the beautiful” is a contemplative satisfaction, a call to linger and not to action. It is a “positive pleasure” (as Santayana puts it) only when a feeling of *Lust* is involved. The character of behavioral lingering under the feeling of *Unlust* is different. The flavor of beauty under *Unlust* is a disvalue (ugliness); the corresponding lingering behavior is exemplified by *sadness*:

A unique function of sadness is its capacity to slow the cognitive and motor systems. In one study, mothers’ facial and vocal expressions of sadness during face-to-face mother-child interactions increased sadness expressions and significantly decreased exploratory play in their 9-month-old infants . . . Because play is the principal and virtually continuous activity of healthy infants and children, the slowing of play behavior dramatically demonstrates this function of sadness.

The sadness-induced slowing of mental and motor activity can have adaptive effects. The slowing of cognitive processes may enable a more careful look for the source of the trouble and deeper reflection on a disappointing performance or a failure that instigated the sadness . . . This slower and more deliberate scrutiny of the self and the circumstances may help the individual gain a new perspective – one that facilitates plans for a better performance in the future. Such plans and the anticipation of another attempt may ameliorate the sadness.⁶

O, that this too too solid flesh would melt,
 Thaw, and resolve itself into a dew!
 Or that the Everlasting had not fix'd
 His canon 'gainst self-slaughter! O God! God!
 How weary, stale, flat, and unprofitable
 Seem to me all the uses of this world!

Hamlet

Equilibrium, as we pointed out in Chapter 15, does not involve cessation of activity but rather the closure and repetition of a cycle. Regardless of whether we speak of the *momentum* of beauty as a satisfaction (the usual context of that word) or as a dissatisfaction (under *Unlust*), one moment in time still follows upon another, and each successive moment bears its own mark. Contemplation of a beautiful object is not a static, unchanging state. Contemplation of, for

⁶ C.E. Izard and B.P. Ackerman, “Motivational, organizational, and regulatory functions of discrete emotions,” in *Handbook of Emotions*, 2nd ed., (M. Lewis & J.M. Haviland-Jones, eds.), NY: The Guilford Press, 2000, pp. 253-264.

example, a beautiful, star-bejeweled night sky (when examined in retrospect) involves an on-going succession of cognitions in which: the syncretic images of the whole give way to analytic re-cognition of parts of this whole in the examination of its details; to juxtaposition of these new parts; to re-integration into a new syncretic whole clarified and made more distinct. In aesthetical reflective judgment different *momenta* make different combinations moment by moment, and these give us the sampling of a multiplicity of distinct flavors in our affective experience in contemplation. The *momentum* of beauty need not be found at each and every such moment in time, but its recurring Quality closes the cycle of equilibration and nucleates our objective perceptions in the synthesis of apprehension, centering our attention on the one Object of contemplation. This is the character of the synthesis in continuity of the aesthetic Idea for the contemplation of the beautiful.

The situation is otherwise when the *momentum* of sublimity is involved. The affective marking of a moment in time by sublimity always implies a failure of comprehension, and it is an energizing factor for the Organized Being (an activation regulation, in Janet's terminology). Again, the behavioral character of judgments of sublimity differs under *Unlust* from that under *Lust*, and in both cases differ from the judgment of beauty. Santayana describes it as follows:

Now it is the essential privilege of beauty to so synthesize and bring to a focus the various impulses of the self, so to suspend them to a single image, that a great peace falls upon that perturbed kingdom. In the experience of these momentary harmonies we have the basis of the enjoyment of beauty, and of all its mystical meanings. But there are always two methods of securing harmony: one is to unify all the given elements, and another is to reject and expunge all the elements that refuse to be unified. Unity by inclusion gives us the beautiful; unity by exclusion, opposition, and isolation gives us the sublime. Both are pleasures: but the pleasure of the one is warm, passive, and pervasive; that of the other cold, imperious, and keen. The one identifies us with the world, the other raises us above it [SANT1: 144].

What we objectify in beauty is a sensation. What we objectify in the sublime is an act. This act is necessarily pleasant, for if it were not the sublime would be a bad quality and one we should rather never encounter in the world. The glorious joy of self-assertion in the face of an uncontrollable world is indeed so deep and entire, that it furnishes just that transcendent element of worth for which we were looking when we tried to understand how the expression of pain could sometimes please. It can please, not in itself, but because it is balanced and annulled by positive pleasures, especially by this final and victorious one of detachment [SANT1: 147].

These descriptions are, of course, descriptions of beauty and sublimity under *Lust* rather than under *Unlust*. The satisfaction of the sublime awes us and is a spur to reasoning; dissatisfaction in sublimity is *agitation*. In either case, there is a rupture in the cycle and a new orientation in reasoning begins, leading to a new orientation in acting. Kant tells us:

We call *sublime* that which is *absolutely great*. However, to be great and to be a magnitude are quite different ideas (*magnitudo* and *quantitas*). Likewise, *simply* (*simpliciter*) to say that something

is great is also entirely different from saying that it is *absolutely* great (*absolute, non comparative magnum*). The latter is that *which is great beyond all comparison*. – So what does the expression that something is great or small or medium-sized say? It is not a pure notion of understanding that is thereby designated, still less a sensible intuition, and just as little an idea of reason, since it does not bring with it any principle of cognition at all. It must therefore be an idea of the power of judgment, or derive from such an idea, and be grounded in a subjective expedience of the representation in regard to the power of judgment [KANT5c: 131-132 (5: 248)].

Comparisons of magnitude are relative to some unit of measure, but in the categories of understanding there are no *a priori* units of measure, no innate set of “counting numbers” for the process of determining judgment to use as if that process were some sort of computing machine. Still less is any such thing to be found in reflective judgment. What, then, is the basis for an “idea of the power of judgment” that makes comparisons of magnitude possible and likewise provides practical objective validity to the idea of something as “absolutely great,” hence sublime? Kant tells us that it is in the synthesis of comprehension where we must look for the ground of judgments of the relative greatness or smallness of appearances.

To take up a quantum intuitively in imagination, in order to be able to use it as a measure or a unit for the estimation of magnitude by means of numbers, involves two acts of this ability: *apprehension* (*apprehensio*) and *concentration* (*comprehensio aesthetica*). Apprehension involves no problem, for it may progress to infinity. But concentration becomes more and more difficult the farther apprehension advances, and it soon reaches its maximum, namely the aesthetically largest basic measure for the evaluation of magnitude. For when apprehension has gone so far that the partial representations of sensible intuition that were first apprehended are already being extinguished in imagination as it advances to apprehension of further ones, then it loses as much on the one side as it gains on the other, and so there is a maximum in concentration that it cannot exceed [KANT5c: 135 (5: 251-252)].

The transcendental schema of Quantity is number, and here we must recall that “number” in this context means the successive addition of units in the synthesis of an intuition. It is by the synthesis of reproduction in imagination that our “inner loop” between determining judgment and the synthesis of the *Verstandes-Actus* in the cycle of thought is closed. The reproduction of concepts by the synthesis of imagination is what distinguishes comprehension from mere apprehension in the making of an intuition. However, the capacity to synthesize intuitions via this process is not without limit, and at some point the capacity to build up the intuition is exhausted.

Thus it must be the *aesthetic* estimation of magnitude in which is felt the effort at concentration which exceeds the capacity of imagination to comprehend the progressive apprehension in one whole of intuition, and in which is at the same time perceived the inadequacy of this capacity, which is unbounded in its progression, for grasping a basic measure that is suitable for the estimation of magnitude with the least effort of understanding and for using it for the estimation of magnitude . . . [That] magnitude of a natural Object on which imagination fruitlessly expends its entire capacity for concentration must lead the idea of nature to a supersensible substratum (which grounds both it and at the same time our capacity to think), which is great beyond any standard of sense and hence allows not so much the object as rather the disposition of the mind in estimating it to be judged *sublime*.

Thus, just as the aesthetic power of judgment in *Beurtheilung* of the beautiful relates imagination in its free play to *understanding*, in order to agree with its *concepts* in general (without determination of them), so relates the same capacity to *reason* in *Beurtheilung* of a thing to be sublime, in order to correspond subjectively with its *Ideas* (which are undetermined), i.e., in order to produce a disposition of the mind which is in conformity with them and compatible with that which the influence of determinate (practical) Ideas on feeling would produce [KANT5c: 139 (5: 255-256)].

Inferences of reflective judgment (ideation, induction, analogy) are the acts of judgmentation where general concepts are made under which the particular determinations in the process of determining judgment are subsumed. When the synthesis in intuition of such a general concept succeeds, it is marked by the aesthetic *momentum* of beauty. But when this process fails, owing to the finite limits of the Organized Being's power to concentrate its concepts in a single intuition, the frustration of this process, despite the guidance Reason provides the employment of determining judgment by expression of its transcendental Ideas, is what is marked by the *momentum* of sublimity. Sublimity marks a breakdown in comprehension, and the feeling of sublimity is one in which the Organized Being feels its own inadequacy in the face of the "sublime object." It is a rupture in the adaptive cycle of thought.

It is in this context we can say with Santayana that what is "objectified" in the sublime is an act rather than a sensation. Quite literally, the Organized Being does not know what to do next. However, it must do something because sublimity marks a state of inexpedience with regard to the categorical imperative of Reason, and Reason must be satisfied. The *momentum* of sublimity is a call to action, but one in which the appropriate act is not known. Depending on what other *momenta* of reflective judgment are involved, the Organized Being has several recourses. One of these is, of course, to give up and turn its attention to something else. However, Piaget's many observations of infants in the sensorimotor stage of development show that before this sort of surrender takes place, the infant will usually run through a repertoire of his familiar stock of sensorimotor schemes, giving up only after some number of repeated attempts fails to produce the result sought. We interpret this behavior as indicating that sublimity under the condition of *Lust* is an activation regulation characterized by hunting for the accomplishment of an end (which implies, of course, that teleological reflective judgment is also at work in the totality of the behavior). Sublimity under *Unlust* is, correspondingly, to be regarded as an activation regulation of the hunt for *prevention* of one end through the making actual of another. (All of this does, naturally, presume that the Subject has acquired some store of concepts and developed schemes that he can call upon in these behaviors; for infants in stage I, the store of available schemes are simple innate schemes that will later be extended through accommodations).

Let us now pull all this together. Quality in reflective judgment is productive of feelings of desire (in the *Begehren* sense). The *momenta* of Quality are *momenta* of aesthetic composition which stand as energetic regulations for the structuring of values and which provide orienting marks in consciousness that serve *adaptation performance* in *Lust-Kraft*. On the one hand, these orienting marks serve orientation in thinking, and here reflective judgment serves Reason in its application of the transcendental Ideas to the employment of the process of determining judgment. On the other hand, we must also consider reciprocity with *soma* in reference to the animating principle of noetic *Kraft*. Here I think I can hardly improve upon the description of this reciprocal relationship Santayana provides:

The human body is a machine that holds together by virtue of certain vital functions, on the cessation of which it is dissolved. Some of these, like the circulation of the blood, the growth and decay of the tissues, are at first sight unconscious. Yet any important disturbance of these fundamental processes at once produce great and painful changes in consciousness. Slight alterations are not without their conscious echo: and the whole temper and tone of our mind, the strength of our passions, the grip and concatenation of our habits, our power of attention, and the liveliness of our fancy and affections are due to the influence of these vital forces. They do not, perhaps, constitute the whole basis of any one idea or emotion: but they are the conditions of the existence and character of all.

Particularly important are they for the *value* of our experience. They constitute health, without which no pleasure can be pure. They determine our impulses in leisure, and furnish that surplus energy which we spend in play, in art, and in speculation. The attraction of these pursuits, and the very existence of an aesthetic sphere, is due to the efficiency and perfection of our vital processes. The pleasures they produce are not bound to any particular object, and therefore do not account for the relative beauty of things. They are loose and unlocalized, having no special organ, or one which is internal and hidden within the body. They therefore remain undiscriminated in consciousness, and can serve to add interest to any object, or to cast a general glamour over the world, very favorable to its interest and beauty.

The aesthetic value of vital functions differs according to their physiological concomitants: those that are favorable to ideation are of course more apt to extend something of their intimate warmth to the pleasures of contemplation, and thus to intensify the sense of beauty and the interest of thought. Those, on the other hand, that for physiological reasons tend to inhibit ideation, and to drown the attention in dumb and unrepresentative feelings, are less favorable to aesthetic activity. The double effect of drowsiness and reverie will illustrate this difference [SANT1: 35-36].

The study of anatomy and physiology has uncovered many mechanisms that energize or retard metabolism, brain activity, and so on. Psychophysical studies have likewise been able to link some of these mechanisms to behaviors that link to mental capacities which are reported in terms of the aesthetic Quality of reflective judgments, such as the examples described above.

And so we come at last to integrating these considerations into the animating principle of noetic *Kraft*: **The co-determination of somatic representations and the affective perceptions of Quality in reflective judgment are energetics for understanding and reasoning in the structuring of a value system and for the orienting of activity.**

§ 9.3 The Animating Principle of Somatic Organization

From the judicial Standpoint, the principle of the first Analogy of Experience is: *motoregulatory expression persists through a determination of the appetitive power of Reason*. The condition of the synthesis drawn from the first Analogy is that of information common to both somatic and noetic representations in time.

The second Analogy establishes the categorical imperative as the law regulating non-autonomic kinesis in somatic organization insofar as this kinesis is viewed in the context of mind-body reciprocity. From the judicial Standpoint, the idea of happiness is: the “know-how” to gauge the expedience of sensible conditions for a pure purpose of practical Reason subsists in the synthesis in continuity in the judicial Idea, and thusly judicial happiness is an Ideal of reflective judgment. The reflective judgment of formal expedience acts in the role of a control reference, and the kinematic evolution of appearances in time is therefore to be regarded in terms of the dynamics of a feedback system. So it is that what is a teleological law for the *Beurtheilung of nous* is, at the same time, expressed in *soma* in terms of physical causality in the Margenau sense. The synthesis in continuity of the judicial Idea is a synthesis of transformation by which, in Margenau’s words, “a purpose is transformed into a cause.”

The third Analogy provides the explanation of the idea of a motivation. To the appearances of an activity in a series of moments in time corresponds the series of markings of these moments by reflective judgment. But that which fills time in the somatic representations of these appearances is bound to the logical form of expedience represented by reflective judgments. Teleological reflective judgment provides a formal organization for the matter of desire represented through aesthetic judgment, thus makes for the matter of desire (*Begehren*) a form of expression (desiration, *Begehrung*). Their combination in reflective judgment is Desire properly so called. The totality of Desires presented in reflective judgment, i.e. the manifold of Desires, sets the *affective context* for practical Reason and is matter for its appetitive power; all that remains for some part of this manifold to become a motivation is for it to be made an appetite through a determination of choice.

The “control reference” character of motivation must be regarded as a moving reference altering the target of activity as sensibility filling time becomes more or less expedient for the formula of the categorical imperative. Motivation is not a static set-point but rather a dynamic trajectory, and its judgment enforces *continuity in the actions* of an Organized Being.

Activities serve the process of equilibration demanded by the categorical imperative, but the only way by which reflective judgment can monitor this process is by judgment of the actual state of satisfaction or dissatisfaction presented at each moment in time. The only way in which

reflective judgment can serve Reason is through representation of a motoregulatory expression anticipating a series of appearances purposive for the negation of the intensive magnitude of *Lust per se*. In the terminology of control systems theory, the feeling of *Lust* or *Unlust* is analogous to an error signal, and the motoregulatory expression marked as logically expedient in teleological reflective judgment is analogous to a *predictive* control law.

Motivation is consequently to be regarded as the expression in the particular by teleological reflective judgment of the form of such a predictive control law. It is an adaptation inasmuch as cognition extends the *materia* of sensibility in the synthesis of apprehension. Here the synthesis of imagination brings to sensibility concepts already relatively ordered in subjective time by the transcendental schemata through previous determinant judgments. Motoregulatory expression, through the judicial Idea, of the totality of perception marked as formally expedient at a moment in time is therefore reciprocally the somatic representation of the action which corresponds to this noetic act of judgment.

Here it is important to remember that determinations of pure Reason are not concerned with sensible objects at all, but only with equilibration. Activities having outcomes that increase the intensive magnitude of *Lust per se* are contrary to the pure purpose of Reason, hence inexpedient. Reason's dictates cannot guarantee empirical success, and a motivation that in actual experience produces frustration of equilibration will not be maintained. The purposiveness in motivation is constant, but the expression of particular motivations in serving the purpose of pure Reason is not, and it responds to the perception of the state of happiness/unhappiness as this is actually experienced. So it is that we call the union of somatic organization and the powers of perception an act of innovation in *Lust-Kraft*.

All this is as much as to say **motivation is accommodation to perception and motoregulatory expression is its assimilation**, and this is the animating principle of somatic organization. Piaget tells us

Now these comparisons, which we have often emphasized, between the biological plane, the sensorimotor plane, and the rational plane, make it possible to understand how assimilation, from the functional point of view, constitutes the primary fact when analysis must proceed regardless of the real interdependence of the mechanisms. On each of the three planes, in effect, accommodation is only possible as a function of assimilation, since the very formation of the schemes called upon to accommodate themselves is due to the assimilatory process. Concerning the relationships between the organization of those schemes and assimilation, one can say that the latter represents the dynamic process of which the former is the static expression.

On the biological plane one could, it is true, raise the objection that every assimilatory operation presupposes a previous organization. But what is an organized structure if not a cycle of operations of which each one is necessary to the existence of the others? Assimilation is hence the very functioning of the system of which organization is the structural aspect.

On the rational plane, this primacy of assimilation is expressed by the primacy of judgment. To judge is not necessarily to identify, as has sometimes been said, but it is to assimilate; that is to say, to incorporate a new datum in an earlier scheme, in an already elaborated scheme of implications. Hence rational assimilation always presupposes a previous organization. But whence comes that organization? From assimilation itself, for every concept and every relationship demands a judgment in order to be formed. If the interdependence of judgments and concepts thus demonstrates that of assimilation and organization, at the same time it emphasizes the nature of that interdependence. Assimilatory judgment is the active element of the process of which the organizing concept is the result.

Finally, on the sensorimotor plane which is that of elementary intellectual life, we have always emphasized the assimilatory mechanism which gives rise to the schemes and to their organizations. Psychological assimilation in its simplest form is nothing other than the tendency of every behavior pattern or of every psychic state to preserve itself and, toward this end, to take its functional alimentation from the external environment. It is this reproductive assimilation that constitutes the schemes, the latter acquiring their existence as soon as a behavior pattern, however small its complexity, gives rise to an attempt at spontaneous repetition and thus becomes schematized. Now this reproduction, which by itself and to the extent that it is not encased in an earlier schematism does not involve any organization, necessarily leads to the formation of an organized whole . . . In short, in every realm, assimilatory activity appears simultaneously as the resultant and the source of organization; that is to say, from the psychological point of view which is necessarily functional and dynamic, it constitutes a veritable primary act [PIAG1: 410-411].

“Activity,” Piaget comments, “makes structures function by accelerating or retarding their formation but without modifying them” [PIAG28: 40]. This functioning is indeed crucial to developing the organization of *any* structure.

Generally speaking one may . . . consider functioning as the structuring activity whose structure constitutes the result or the organized event. In the case of a completed structure functioning is identical with those transformations which are real among all those which are possible, and which characterize the system as such. As to function, the term can be used to designate the particular rôle played by a specific transformation relative to the entire set of transformations (the two meanings, biological and mathematical, of the word ‘function’ then tend to become interchangeable). But in the case of a structure in the process of formation or of development, or generally not ‘closed’, where for that reason self-adjustment so far consists only in regulations and where exchanges are open to the exterior, functioning is formative and not merely transformative and functions correspond to utilities (or values) of various kinds depending on the rôles of conservation, reinforcement, or perturbation which the functioning of sub-systems may play in relation to the total system, or vice versa . . . Any genetic process which results in structures undoubtedly consists of balancings alternating with imbalances followed by rebalancing (which may succeed or fail), since human beings never remain passive but constantly pursue some aim or react to perturbations by active compensations consisting in regulations. It follows from this that every action proceeds from a need which is connected with the system as a whole and that values likewise dependent on the system as a whole are attached to every action and to every situation favorable or unfavorable to its execution [PIAG28: 37-38].

Continuity in *Self-Existenz* (the judicial Idea) can in this way be seen as the function of Self-organization whereby intellectual adaptation extends biological adaptation.

A certain continuity exists, therefore, between intelligence and the purely biological processes of morphogenesis and adaptation to the environment [PIAG1: 1].

§ 9.4 The Animating Principle of Noetic Organization

Noetic organization is the *nexus* of meanings expressed in the reciprocity of the representations of *nous* and *soma*. In order to understand how meanings can constitute such a *nexus* in logical-judicial perspective we must understand noetic organization in terms of its functioning as that functioning can be related to behavioral appearances. This explanation is what we require from the animating principle of noetic organization.

An object is the function of unity in understanding. Just as the *meaningful understanding* of an object subsists in the connection of its concept with other concepts in the manifold of concepts, an object is *behaviorally vested* with a meaning by its assimilation in an action scheme. It is the latter which provides the *real ground* of the former because sensibility without activity cannot serve practical Reason by mere apperception. Experimental psychology supports this conclusion. In studying the foundations of the logic of meanings, Piaget concluded,

It follows that an object is a set of conjoined predicates and its meaning amounts to “what can be done” with it, and is thus an assimilation to an action scheme (whether the action is overt or mental). As for actions themselves, their meaning is defined by “what they lead to” according to the transformation they produce in the object or in the situations to which they are applied. Whether we are dealing with predicates, objects, or actions, their meanings always implicate the subject’s activities, which interact either with an external physical reality, or with elements that were previously generated by the subject, such as logico-mathematical entities.

Furthermore, we may distinguish various degrees in meanings: They may remain “local” in that they relate to limited data and to particular contexts; they may become “systematic” in laying the groundwork for structures; and finally they may become “structural” when they pertain to the internal compositions of already constituted structures [PIAG12: 119-120].

Affective perceptions of reflective judgment are what bind an intuition to an action, and the condition of this binding is formal expedience of the whole of representation in sensibility for a purpose of practical Reason. That we can speak at all of conceptual meaning (meaning in understanding) is due to the synthesis of comprehension through the power of imagination, by which concepts are brought back to sensibility in the synthesis of apprehension, where they then participate in motivation (accommodation of perception) in the determination of the scheme and, in addition, serve as aliments of assimilation in that scheme.

Now that we have specified what meanings are, let us recall what they have brought to light about implications. The two problems are indissociably linked: If all truth is based on meanings, and if all forms of meanings consist in attributions of schemes to either predicates, objects, or actions, then clearly there could be no such thing as an isolated scheme or meaning. Rather, there are always multiple relations among them. This means that at all developmental levels, no matter how primitive, all knowledge has an inferential dimension, however implicit and elementary it may be. To put it another way, using a meaning always presupposes and entails using some implications . . .

In the first place, we have been led to replace the classical extensional implication [of formal logic] . . . by what we have called the “meaning implication” $A \rightarrow B$, in which at least one meaning of B is embedded in the meaning of A, and this “inherence” relation is transitive . . .

The import of this definition of meaning implication is that, since any action, in addition to its causal aspect (i.e., its actually being carried out), has a meaning, there must be implications between actions, that is to say between their meanings. This is a fundamental reality, going far beyond the realm of implications between statements, and manifested from the beginning of what we have called the logic of actions, which is the necessary basis of operatory logic [PIAG12: 120].

The function of transcendental Meaning is objectively a synthesis of beliefs, and subjectively it is coherence in acting according to the determinations of appetitive power. The judicially expedient is that in the representations marked by reflective judgment which connects to the psychic *Kraft* of *Lust per se* in accordance with the principle of happiness. There is in this description much that might remind us of the Epicurean doctrine. However, it should here be remembered that happiness in its general idea refers to a state of being to which man would make his animality adequate¹ under empirical conditions. Part of such a state does, to be sure, take in sensuous pleasures, but another part of this state must also be such as to take into account that entirely intelligible connection to *Lust per se* we call *conscience*. Conscience, regarded as an intellectual feeling of *Unlust*, can in one sense be called an unhappy perception of being contrary to virtue; if it is regarded as an intellectual feeling of *Lust*, it can be called a satisfaction in conformity to virtue. In this view, the idea of “virtue” and that of happiness share a connection. But,

Two determinations *necessarily* combined in one concept must be connected as ground and consequence, and so connected that this *unity* is regarded either as *analytic* (logical connection) or as *synthetic* (real combination), the former in accordance with the law of identity, the latter in accordance with the law of causality. The connection of virtue with happiness can therefore be understood either thus: that the endeavor to be virtuous and the rational pursuit of happiness are not two different but rather quite identical acts, in which case no maxim need be made the ground of the former other than that which serves for the latter; or else that connection is found in virtue’s producing happiness as something different from the consciousness of virtue, as a cause produces an effect.

Of the old Greek schools there were, strictly speaking, only two which in determining the concept of the highest good followed one and the same method insofar as they did not let virtue and happiness hold as two different elements of the highest good, and consequently sought the unity of the principle in accordance with the rule of identity; but they differed in their choice of which of the two was to be the fundamental concept . . . One must regret that the acuteness of these men . . . was unfortunately applied in searching out identity between extremely heterogeneous ideas, that of happiness and that of virtue [KANT4: 93 (5: 111)].

Similarly, in order for the evaluation of happiness to include satisfaction in the feeling of material sensuous *Lust* (pleasure) as well as satisfaction of conscience, these factors in the evaluation must

¹ Kant’s word was *adäquat*, which stems from the Latin *adæquo*, *adæquatum*, to make equal in some respect.

be treated with a view that they are heterogeneous factors differing in their transcendental place. *Cognitions* of conscience are ideas of those objectively-framed empirical judgments we call *moral* judgments, and “moral meanings” vested in these ideas are likewise grounded in the behavioral *actions* we tie to the feeling. Aristotle’s thesis – that moral judgments and ethical behaviors must be *learned* – is consistent with this doctrine of the Critical Philosophy. The *synthesis* of such otherwise heterogeneous factors is possible only from a ground that can be held common to both types of satisfactions. What happiness in the satisfaction of pleasure and happiness in the satisfaction of conscience have in common is that both types of satisfactions are perceived as feelings, thus in affective sensibility, and thus, once again, through combinations in reflective judgment. Consequently, the ground of which Kant spoke above comes back once again to a Logic of meanings and the relationship between Piaget’s logic of actions and the operatory logic of a rational being.

Before discussing the relations between these two logics, let us first notice that action implications, just as implications between statements, may take three forms: (1) a “proactive” form (which Peirce called “predictive”), in which case $A \rightarrow B$ means that B is a new consequence derived from A; (2) a retroactive form (which Peirce called “retroductive”), according to which B implies A as a preliminary condition; and (3) a justifying form, which relates (1) and (2) through necessary connections that thus attain the status of “reasons.” However, we must recall that the reason R_i of a necessary truth can never be isolated. Sooner or later, it brings up the problem of the reason R_j for reason R_i , and so on, through a dialectical spiral that is superimposed on the interconnections between implications of type 1 and type 2. This spiral results from the fact that reality draws back to the extent the subject gets nearer to it, because it raises new problems as understanding advances.

These various initial relations, first separately and then through combinations, serve to constitute fragments of structures that progressively become coordinated until “groupings” are formed beginning at about age 7-8 years. The early skeletal structures emerging from interactions among meanings are all the more interesting because they prepare, not only for the formation of concrete operational groupings, but also for the more complex 16 operations found at the formal level, which correspond to the 16 connectives of the truth tables, if these are interpreted in terms of meanings and not in their purely extensional form.² Thus, we have witnessed the early establishment of intersections, incompatibilities, and so forth, but at the level of actions rather than of statements. This again demonstrates the general formative role of the logic of actions and action implications in the origination of meaning implications, as opposed to extensional implications [PIAG12: 121].

The ground of *all* hypothetical imperatives of Reason, including those we call moral imperatives, is *equilibrium* in the totality of conscious representations of general *Beurtheilung*. The rational formation of maxims from simple rules, and hypothetical imperatives from maxims, requires an organization of concepts in a structure, and structures are not formed other than through equilibrations. In this process, we again find affectivity intimately involved.

² Piaget is referring to logical operations constituting a propositional logic of combinations, which the child becomes capable of carrying out at around age 12-15 years. cf. [PIAG15: 132-140], [PIAG27: 46-51].

As we have seen repeatedly, affectivity constitutes the energetics of behavior patterns whose cognitive aspect refers to the structures alone. There is no behavior pattern, however intellectual, which does not involve the affective factors as motives; but, reciprocally, there can be no affective states without the intervention of perceptions or comprehensions which constitute their cognitive structure . . . The two aspects, affective and cognitive, are at the same time inseparable and irreducible.

It is precisely this unity of behavior which makes the factors in development common to both the cognitive and the affective aspects; and their irreducibility in no way rules out a functional parallelism which is rather striking even in details . . . Indeed, the sentiments involve incontestable hereditary (or instinctive) roots subject to maturation. They become diversified in the course of actual experience. They derive a fundamental enrichment from interpersonal or social exchange. But, beyond these three factors, they unquestionably involve conflicts or crises and reequilibrations, for the formation of personality is dominated by the search for coherence and an organization of values that will prevent internal conflicts (or seek them, but for the sake of new systematic perspectives such as “ambiguity” and other subjective syntheses) . . .

This interpretation can claim to give a fairly good account of the known facts, first of all because an equilibration is necessary to reconcile the roles of maturation, experience with objects, and social experience. Then, too, the sensori-motor structures proceed from initial rhythms to regulations, and from regulations to the beginnings of reversibility. These regulations are directly dependent on the equilibration factor, and all later developments (whether of thought, of moral reciprocity, or of cooperation) is a continuous process leading from the regulations to reversibility and to an extension of reversibility. Reversibility is a complete . . . system of compensations in which each transformation is balanced by the possibility of an inverse or a reciprocal.

Thus, equilibration by self-regulation constitutes the formative process of the structures we have described. Child psychology enables us to follow their step-by-step evolution, not in the abstract, but in the lived and living dialectic of subjects who are faced, in each generation, with endlessly recurring problems and who sometimes arrive at solutions that are slightly better than those of previous generations [PIAG15: 158-159].

Closure of a cycle of equilibration suppresses further innovations, and it is the attainment of this closure that marks a judicial *evaluation* of experience. The judicially *possible* is the meaning implication in an action, as in Piaget’s “proactive form.” The judicially *actual* is the union of the act of reflective judgment and its somatic action as found, e.g., in Piaget’s “retroactive form.” The judicially *necessary* is the enforcement of coherence in the representations of *Beurteilung* by pure practical Reason, i.e. it is coherence in “a reason.”

Enforcement of coherence can be regarded as a law of transformation describable as the process of “making up one’s mind.” However, we cannot speak of any representation as being coherent unless we regard its perception as being in a state of equilibrium. This idea in turn presupposes the closure of an adaptation cycle as just noted. The animating principle of noetic organization follows upon this, and it is: **Equilibration is the activity leading to closure of the cycle of affective interaction in a state of equilibrium.** We depicted the cycle of affective interaction in Figure 16.8.1. The animating principle is the structure-enforcing law of transformation in an Organized Being by which the processes of judgment combine with noetic organization in the act of evaluation (which constitutes Relation in the 2LAR of *Lust-Kraft*).

§ 10. Summary

This has been a lengthy chapter involving many philosophical threads. In it we have examined the teleological function of *nous*, and found that, first of all, teleological judgment is necessary not only for the orientation of actions but also for the very ability to form perceptions that can be made meaningful. Teleological reflective judgment is tasked with making a system of Nature, and this is based on judgments of logical expedience for the categorical imperative. Although teleological “final causes” lack objective validity insofar as appearances in the sensible world can be judged, teleological judgments have practical objective validity inasmuch as they produce objective beliefs, and such beliefs are necessary for cognition because the inferences produced in such judgments provide the root concepts upon which the process of determining judgment carries out its task of subsuming particular concepts under general ones. Although the affective perceptions in reflective judgment cannot themselves become part of the representation of an object, they must necessarily accompany the production of object concepts and intuitions because they are the subjective basis of empirical meanings.

Secondly, we have seen that empirical meanings have their genesis in the actions of the Organized Being and the re-actions in affectivity which these in turn produce. The capacity for objective understanding is indissolubly linked with the capacity for motoregulatory expression in an Organized Being in possession of no copy-of-reality mechanism. The practical objective validity of psychological causality (the causality of freedom) depends on the transformability of this teleological causality into physical causality by means of sensorimotor activity, a process by which teleological causality and somatic physical causality are *reciprocally determining* for each other through the animating principles of the adaptive *psyche*. We have seen that the function of this transformation is the synthesis in continuity. This synthesis is: 1) continuity in Nature through the function of objectivity; 2) continuity in perception through the aesthetic Idea; 3) continuity in *Self-Existenz* through the judicial Idea; and 4) continuity in judgmentation (*Beurtheilung*) through the function of transcendental Meaning. The synthesis in continuity connects reflective judgment with adaptive *psyche*, which, as we saw in Chapter 15, connects likewise with the faculty of pure consciousness in the synthesis of *Lust-Kraft*.

The transcendental principle of aesthetical reflective judgment is the subjective formal expedience of Nature in relationship to the categorical imperative of pure practical Reason. This judgment goes to objectivity so far as the form of the matter of reflective judgment is concerned; it goes to the energetics and valuation of desires so far as the matter of the matter of reflective judgment is concerned. Thus from this we see that the delineation of what will be represented as

an object is grounded in the subjective expedience of representations in sensibility. Cognition and affectivity are linked, and we do not have the one without the other.

The transcendental principle of teleological reflective judgment is logical formal expedience of Nature in relationship to the categorical imperative of pure practical Reason. This judgment goes to the act of forming an action scheme so far as it is the form of the form of reflective judgment; it goes to the establishment of empirical meanings in objective perceptions so far as it is the matter of the form of reflective judgment. The form of an act of teleological judgment is the noetic counterpart of motoregulatory expression in *soma*, and the union of the noetic act and somatic action is activity properly understood. Motoregulatory expression in *soma* is reciprocally a representation of motivation in *nous*. The matter of the form of an act of teleological judgment is the enforcement of coherence-in-context in the representation of a system of Nature, and this enforcement is the determining factor in the reflective judgment of Meaning.

From here we must go on to establish the *momenta* of the 2LAR of teleological reflective judgment. In this Chapter we have set the context within which these *momenta* are to be understood in our theory. This context involves on the one hand the relationship of teleological composition to objective perception in intuition inasmuch as the representation of intuition must admit to symbolic designation in terms of empirical meanings, and thus in terms of actions. Because reflective judgment operates only with affective perceptions, this relationship can be only formal in character. But to understand this formal relationship we must first deal with the pure form of intuition in outer sense. Kant called this pure form the pure intuition of space, and this will be the topic of Chapter 17.

The context of the teleological *momenta* also involves, on the other hand, the relationship of teleological *nexus* to the appetitive power of pure practical Reason. This involves the relationship of subjective valuations of representations of Desire in relationship to the categorical imperative and, furthermore, goes to the production of rules, maxims, and hypothetical imperatives insofar as these are the Self-constructed regulations the Organized Being imposes on itself by means of reflective judgment in structuring the system of Nature. These considerations have both a practical aspect, in relationship to pure practical Reason, and an objective aspect, in relationship to expressions of pure speculative Reason. We will begin the undertaking of this part of the theory in Chapter 18.