

Chapter 15

Third Epilegomenon: *Lust* and *Unlust*

*Whatever passion masters you, it burns you with a flame for which you need not blush,
and free-born always is the object of your weakness.*

Horace

§ 1. The *Noumenal* Character of *Lust* and *Unlust*

The feeling of *Lust* and *Unlust* occupies a prominent position in both *Critique of Practical Reason* and *Critique of Judgment* as well as in Kant's lectures and writings on metaphysics and anthropology. But what is it that stands as Object of this idea? The idea of *Lust und Unlust* is central to both the practical and judicial Standpoints. But it is also one of the least well explained ideas in Kant's writings. This is not only because *Lust* and *Unlust* taken together as disjunction in a single Object (*Lust per se*) is a *noumenon* but also because it belongs to the metaphysics of Kantian anthropology, which Kant left as a task for future generations to work out.

We have described *Lust* as "a kind of motivated wanting." Clearly this is not sufficient. The exposition of *Lust* and *Unlust* requires more detail than this, and this detail we must uncover carefully bit by bit. We must begin by clearly understanding the implications of dealing with an Object that is a pure *noumenon*. Kant remarks:

Now one calls the capability to have *Lust* or *Unlust* during a representation *feeling* for this reason: because both contain the *merely subjective* in the relationship of our representation and contain absolutely no reference to an Object for the possible cognition of the same (not even the cognition of our state) . . . Indeed, because of this very reason *Lust* and *Unlust* will not be able to be clearly explained for themselves and rather one can, if need be, only cite what consequences they have in certain relationships to make them recognizable in practice [KANT9: 12 (6: 211-212)].

While the *feeling* of *Lust* and *Unlust* can be presented in consciousness, *Lust* and *Unlust* regarded in themselves are supersensible and the idea of *Lust-and-Unlust* can take objective validity only from the *Dasein* of phenomena for which we must attribute the ground to the causality of freedom. It follows from this that we must examine these phenomena to be able to elucidate the idea of *Lust per se*, and then only as a *practical* Object.

What is implied in the phrase "motivated wanting"? This phrase contains two obvious

references. The first is to “motivation”, and through this the idea of *Lust*-and-*Unlust* implies a relationship with the appetitive power of practical Reason. The second, “wanting”, implies a relationship to the object of appetite, thus to desire. The question standing before us is: What sort of relationship? Is it a relationship where the one (e.g. *Lust*) stands as cause of the other (e.g. desire) as effect, or is it perhaps the opposite? Or is the relationship not so simple as this?

Feeling subsists in the relationship not to an Object but to the entire Subject. *Lust* and *Unlust* are not at all cognitions. The capacity of discrimination of representations in so far as they modify the Subject is the capacity of *Lust* and *Unlust*. All the same, it is entirely peculiar that we also have an intellectual *Lust* and *Unlust* but we have no other word for it. The discrimination of good and evil belongs to intellectual *Lust* or *Unlust*. We must view that feeling by intellectual *Lust* or *Unlust* not as the ground but rather as the effect of satisfaction. The feeling of the promotion of life is *Lust*, and the feeling of the hindrance of life is *Unlust*. *Lust* is when a representation contains a ground to be determined to produce again the same representation or to continue it when it is there [KANT19: 346 (28: 586)].

Here Kant is pointing out that there are two sides to *Lust* and *Unlust*: a side that is concerned with discrimination in immediate sensuous representations, and an intellectual side capable of dealing with imaginative reproduction in the absence of an object of sense. We must not misinterpret Kant’s meaning when he says “the feeling of the promotion of life is *Lust*.” Taken literally, we would interpret this sentence as saying the feeling *is* the *Lust*. This is quite wrong. It is rather the case that *Lust* is *exhibited by the feeling*. *Lust per se* is something we are said to have when we experience the feeling. Kant’s sentence would have been less ambiguous had he said, “When we have a feeling of the promotion of life we are experiencing the effect of *Lust*.”

Kant made this point more clearly in his metaphysics lectures of the winter of 1793:

Lust is matter of perfection - fundamental property (fundamental mental power¹ when it is sensuous, fundamental capacity² when it is intellectual) - that does not allow itself to be reduced, not even to the faculty of knowledge. Our representations can themselves be efficient causes (and to that extent are not cognitions). The causality of representations is:

1st subjective - they are causes for producing themselves, to contain themselves.

2nd objective - since they become cause for the production of Objects. The *consensus*³ with subjective causality is called the feeling of *Lust* - the congruence with the objective causality is called appetitive power. Thus a representation which brings forth effort to preserve its state of representation is called *Lust*, one which becomes the cause for the production of an Object is called appetite [KANT19: 376 (28: 674-675)].

As the “matter of perfection” we see the role of *Lust* in a somewhat clearer vein. We have three types of perfections in the regulation of *nous* by the transcendental Ideas: logical, aesthetical, and practical. Yet all three of these are but divided members in the disjunction of an Object we may

¹ *Grundfähigkeit*.

² *Grundvermögen*.

³ In Latin *consensus* means "agreement."

call complete perfection. Perfection is a pure aim of the faculty of Reason and serves the categorical imperative's dictate to seek the perfection of an ideal of equilibrium. In this capacity of matter of perfection, the role of *Lust* and *Unlust* is that of the "matter of regulation" as a motive power in *employing* noetic representations to serve the process of equilibration of the state of the Organized Being.

We also note that *Lust* sometimes serves as a kind of energetic regulation (when it is a ground for a representation to be made an object of appetite) and sometimes serves as a termination regulation (when *Lust* stands as effect of satisfaction rather than cause of seeking a satisfaction). *Lust* is therefore something the idea of which takes in being a basic capacity when regarded in terms of intellectual perfection (logical and practical) and takes in being a mental power (in the sense of the word *Fähigkeit*) when regarded in terms of aesthetical perfection. The *feeling* of *Lust* or *Unlust* consequently carries a connotation of the presentation of a condition of completion or incompleteness (or, if one prefers, equilibrium or disturbance) in the subjective state of the Organized Being.

In his *Metaphysics of Morals* Kant also tells us [KANT4b: 373 (6: 211)] that desire (*Begehren*) and holding-in-detestation (*Verabscheuen*) are always combined with *Lust* and *Unlust*, respectively. However, he writes, the *converse* of this is not always true, i.e. that one can have a feeling of *Lust* or *Unlust* that is not connected with the desire for an object. Instead, this feeling can be connected merely with the representations one forms of the object. Nor, he tells us, does *Lust* or *Unlust* necessarily precede desire. *Lust* is sometimes seen as the cause of desire, sometimes merely as an effect of desire.

From all this, a picture emerges in which *Lust*-and-*Unlust* seems sometimes to have an emotional context, and at other times appears in a motivational context. Its idea therefore has aspects of both an agent and a patient (the synthesis of which is patiency). But opposites such as these can be combined without contradiction only in an Object. *Lust* and *Unlust* stand at the junction of the judicial and the practical Standpoints and this Object (*Lust*-and-*Unlust* taken together in one Object called *Lust per se*) is the function of *unity* of the practical and judicial Standpoints. On the side of phenomena, *Lust per se* is a unity that takes in such things as *emotion* and *motivation* – two ideas that psychology and neuroscience both find difficult to pin down. To further explore the idea of *Lust per se* we will again heed Aristotle's advice and examine some of the aspects of emotion and motivation as empirical science describes them.

§ 2. Theories of Emotion

We have all experienced the phenomenon of emotion and few of us would doubt that emotion is something real. But what is this something? The dictionary defines emotion as

emotion, *n.* [from L. *emovere*, to move out, stir up, agitate; *e-*, out, and *movere*, to move]

1. strong, generalized feeling; psychical excitement.
2. any specific feeling; any of various complex reactions with both psychical and physical manifestations, as love, hate, fear, anger, etc.

Syn. - agitation, perturbation, commotion, excitement, disturbance, feeling.

In our common and non-technical use of the word an emotion typically denotes some excited or unusual state of mind, as the definition above implies, under the influence of which we act or think differently than we usually do. Many people think they have little or no control over their emotions, an opinion that often supposes that controlling emotions is a desirable thing to do. We use such phrases as “get a grip on yourself” or “don’t get all emotional about this” or “calm down” to rebuke another person whose behavior in some specific situation is unseemly or counterproductive. Greenspan, as we noted earlier, holds that “learning to calm himself” is one of the skills an infant must master for healthy psychological and emotional development.

The majority of psychologists adopt one or another view of emotion that reflects this commonsense view of emotion as a state of being that in some way is a marked departure from some “emotional center.” Mania and depression, for example, are mental states that are behavioral opposites of each other and the ideas of which illustrate this connotation of departure from some ideal or calm state of being. Especially strong emotions are frequently regarded as something that interferes with one’s ability to think and act rationally.

Yet difficulties and puzzles spring up when we try to pin down this phenomenon of emotion and describe it in detail. For example, most psychologists distinguish between “emotion” and “mood” on the basis of duration. Emotions are regarded as short-term or transient states usually viewed as being extreme in some fashion, while moods are seen as milder, longer-acting states. Most psychologists also draw a distinction between emotions, moods, and feelings. Carlson and Hatfield describe this distinction as follows:

Normally, emotional states are transient. When people begin to experience frequent, intense emotions, especially when such emotions seem inexplicable, it is generally regarded as a tip-off that something is wrong; they have a psychological problem. They may be, say, depressed, manic, or both, or “neurotically” anxious.

Where do **moods** fit in this scheme? Moods are more diffuse, mild, and longer lasting than emotional episodes. Interestingly enough, the terms psychologists use in describing people’s personalities often are thinly veiled descriptions of mood . . .

Finally, psychologists and others may use the term **feelings** to refer to people’s moment-by-moment evaluations of the events they encounter. (People move to a spot that “feels” cool; grab the warm sweater that “feels” right; or have a “feeling” that things are going well.)

Emotions, then, are generally intense but short-lived. Moods are less intense but longer-lasting. Feelings are barely noticeable, fleeting impressions [CARL: 15].

Under this description, it would seem that “love” should be more properly called a mood

than an emotion despite what the dictionary definition above says. I have never read or heard of a psychologist calling love a mood, but not all psychologists call it an emotion. When someone is called a loving person, that description is usually being applied as a description of that person's "personality" rather than as a description of either his or her emotional state or mood. Such is also typically the case when we say someone is a "jolly person" or a "moody crank" or a "grump."

All this might well make us wonder if these psychological fine distinctions should not be regarded as logical rather than real distinctions descriptive of the state of mental being. Why, for example, should we regard being angry as an "emotional episode" but not regard "being calm" as equally emotional? As we will see later, some psychologists, perhaps most, do not regard calmness as the opposite of anger. Perhaps this is because most of us are calm most of the time so that "calmness" is "opposite" to many types of emotion. Some of us rarely seem to get angry so when such a person does "become angry" this state of being is seen by that person's acquaintances as atypical of that person's "normal personality." It may be interesting to note that Aristotle *did* see calmness as the opposite of anger and regarded calmness as an emotion.

The emotions are all those feelings that so change men as to affect their judgments, and that are also attended by pain or pleasure. Such are anger, pity, fear and the like, with their opposites. We must arrange what we have to say about them under three heads. Take, for instance, the emotion of anger: here we must discover what the state of mind of angry people is, who the people are with whom they usually get angry, and on what grounds they get angry with them. It is not enough to know one or even two of these points; unless we know all three, we shall be unable to arouse anger in anyone⁴ [ARIS15: 2195 (1378^a20-26)].

Since growing calm is the opposite of growing angry, and calmness the opposite of anger, we must ascertain in what frames of mind men are calm, towards whom they feel calm, and by what means they are made so. Growing calm may be defined as a settling down or quieting of anger [ARIS15: 2198 (1380^a5-10)].

Kuhn wrote that effective science scarcely begins before a scientific community thinks it has acquired firm answers to such questions as what fundamental entities belong to the topic of the science. Until a scientific community thinks it understands this, scientific activity is characterized reasonably accurately as a "deliberate scramble to gather facts and cohere them in a common framework." In the case of emotion theory science is arguably still in this phase of development. Carlson and Hatfield comment:

To us, this is a perfect time to be studying what psychologists know about emotion. There are certain eras when we, as scientists, wish we had been alive, times when new discoveries came together and changed the way people saw the world: The advent of the industrial revolution was one

⁴ Aristotle defined "rhetoric" as "the faculty of observing in any given case the available means of persuasion." Making one's listeners angry with someone or about something is one means of persuasion. Perhaps Aristotle's "practical attitude" about such things is one reason why Cicero admired him.

such time. The publication of Charles Darwin's *The Origin of Species* (1859) was another. For us, today is just such a time [CARL: 4].

What is the state of emotion theory today, and what is it that psychologists call 'emotion'?
Psychologist Arthur Reber comments

Historically this term [emotion] has proven utterly refractory to definitional efforts; probably no other term in psychology shares its nondefinability with its frequency of use.⁵

Rather than providing a definition of emotion, Reber's *Dictionary* cites two primary *usages* of the term 'emotion':

- 1) An umbrella term for any number of subjectively experienced, affect-laden states, the ontological status of each being established by a label whose meaning is arrived at by simple consensus;
- 2) A label for a field of scientific investigation that explores the various environmental, physiological and cognitive factors that underlie these subjective experiences.

Reber holds that more specific "definitions" of emotion are really "mini-theories" about these "underpinnings" of emotions. He points out that nearly all these theories recognize four classes of factors: 1) instigating stimuli; 2) physiological correlates; 3) cognitive appraisal; and 4) motivational properties. He names five connotations the term 'emotion' typically carries. These are:

- 1) emotional *states* are regarded as acute, short-lived levels of arousal and desire to act;
- 2) emotions are regarded as intensely experienced states, the phrase "intensely experienced" being used to try to draw a fine line of distinction between "emotions" and "feelings" or "moods";
- 3) emotional states are "often" behaviorally disorganized;
- 4) emotions are to some extent evolutionarily determined and reflect species-specific survival "strategies"; and,
- 5) emotional reactions tend to be non-habitual and to result from particular environmental constraints and how the environment is appraised.

§ 2.1 Traditions and Paradigms of Emotion Theories

If it is the case that an immature science's activities reflect a search for coherence among facts on the basis of some model or paradigm, one way to understand how various psychological theories approach the question of emotion is to examine the approaches taken by the scientists and what we may call the traditions they use for guidance in the search. Now there does not seem to be any

⁵ Arthur Reber, *The Penguin Dictionary of Psychology*, 2nd ed., London: Penguin Books, 1995.

particularly high level of interest among psychologists for making a scientific study of any taxonomy of approaches. The *Handbook of Emotions* (2nd ed., 2000) is not organized along any lines of readily visible doctrines of methods. Still, a few psychologists have from time to time put some effort into classifying different approaches to the problem, and introductory textbooks on the subject such as [CARL] are more or less obliged on the ground of good pedagogy to at least sketch some broad major themes. We cannot in this treatise attempt any full and detailed review of psychological paradigms but we can look at a few illustrative cases of how psychologists view the various methods and paradigms of emotion research.

Our first two examples are due to one and the same man, noted psychologist Robert Plutchik. The first case is an outline he provided relatively early in his career (1962). In [PLUT1: 24] he wrote that he saw the study of emotions as involving at least three general aspects. These are:

- 1) the concern with feeling states or introspections;
- 2) the concern with behaviors or overt expressions; and
- 3) the concern with physiology or neurology.

Various theories, he tells us, usually focus on only one or another of these aspects. Plutchik's own research approach is called a "psychoevolutionary" approach, and he argued that such a framework provided a common vantage point from which all three aspects listed above can be taken in. Within this framework he cited seven different approaches along with their principal developers and contributors. These are:

- 1) James - Lange theory (a physiological theory);
- 2) Attitude theory (another physiological approach proposed by Nina Bull);
- 3) Cannon - Bard theory (a neurological theory);
- 4) Activation theory (a behavioral theory proposed in 1954);
- 5) Motivational theory (proposed by Leeper in 1948);
- 6) Psychoanalytic theory (Freud's approach);
- 7) Behaviorist theories (Tolman, Watson, and Skinner were cited as different examples).

By 1980 Plutchik had considerably refined his classification along lines that more clearly depicted basic assumptions (which were often of an almost metaphysical character) and attitudes of how emotion was ontologically viewed [PLUT2]. He first identified four major traditions in emotion theory:

- A) Evolutionary tradition (originated by Charles Darwin);
- B) Psychophysiological tradition (originated by William James);
- C) Neurological tradition (originated by Walter B. Cannon); and
- D) Dynamic tradition (originated by Sigmund Freud).

He next categorized six classes of theories, each of which could trace its origin, however loosely, to one of these four traditions. He supplied under each theoretical genus a listing of principal theorists whose works constituted the main “mini-theories” (as Reber would call them) associated with the general idea of his main headings. His outline was:

- 1) Behavioristic Approaches
 - a) John B. Watson (emotion as unlearned reaction pattern)
 - b) Edward C. Tolman (emotion as response-affecting stimulus)
 - c) Burrhus F. Skinner (emotion as activation syndrome)
 - d) J.R. Millenson (emotion in terms of positive and negative reinforcers)

- 2) Arousal Theories
 - a) Robert Leeper (emotion as motivation)
 - b) Harold Schlosberg (a three-dimensional model of emotions)
 - c) Marion A. Wenger (emotion as autonomic nervous system arousal)
 - d) Paul T. Young (emotion as disorganized response)

- 3) Cognitive Theories
 - a) Stanley S. Schachter (emotion as a label applied to physiological arousal)
 - b) George Mandler (emotion as cognition-arousal interaction)
 - c) Richard S. Lazarus (emotion as a coping response)
 - d) Joseph De Rivera (emotion as a structure)

- 4) Evolutionary Theories
 - a) Sylvan S. Tomkins (emotions as programs)
 - b) Carroll E. Izard (emotion as facial response)
 - c) Robert Plutchik (emotions as adaptive prototype reactions)

- 5) Brain Function Theories
 - a) J.W. Papez (integrated brain pathways for emotion)
 - b) Paul D. MacLean (emotion and the “visceral brain”)
 - c) Karl H. Pribram (emotions as neural programs)
 - d) Magda B. Arnold (brain pathways and appraisals)
 - e) José M.R. Delgado (emotions and fragmental organization of behavior)
 - f) Manfred Clynes (emotions as sentic states)

- 6) Psychoanalytic Theories
 - a) Sandor Rado (emotions as adaptational psychodynamics)
 - b) Charles Brenner (affect as hedonic state plus idea)
 - c) John Bowlby (emotion, control theory, and evolution).

As we can see from this list, there is no shortage of differing ways of viewing the phenomenon of emotion.

As a third and final example of emotion-theory classification, we can now look at a somewhat more simplified organization proposed by Carlson and Hatfield in their textbook [CARL]:

- 1) Motivational - Cognitive Theories
 - a) motivational: Freud, Carl Jung, Bowlby, Rado, Leeper
 - b) cognitive: Lazarus, Schachter, Robert Zajonc, Gordon Bower
- 2) Psychophysiological Theories
James, Lange, Wenger, Young, Elizabeth Duffy
- 3) Neurological and Neurophysiological Theories
 - a) neurological: Cannon, MacLean, Delgado
 - b) neurophysiological: Joseph LeDoux, Papez, Joseph P. Henry
- 4) Evolutionary Theories
Darwin, Plutchik, Izard, Edward Wilson
- 5) Behavioral Theories
Watson, Skinner, Millenson, O. Hobart Mowrer

Carlson and Hatfield used this outline for organizing their textbook (which is an introductory textbook on the psychology of emotions). It is probably safe to regard this outline as one that is primarily intended for purposes of pedagogy rather than for theory. Their classification shuffles some of the mini-theories Plutchik places under different main theoretical themes. Plutchik's class-2 disappears and Leeper is placed under Motivational-Cognitive while Wenger and Young are placed under psychophysiological. This illustrates that the dividing lines among different paradigms are not so easy to draw, and the distinctions among various theories are not so clear-cut as placing them in a neat outline might suggest. Even researchers placed under the same heading in any of the classifications given above have pronounced differences in how they view emotions. We do not have space for giving each of the example mini-theories cited in these lists its justly due consideration. Some of the researchers named in these lists summarize the main points of their theories in [PLUT3] (Tomkins, Izard, Lazarus, Mandler, Pribram, Clynes, and Brenner) and the interested reader may refer to this source for more details.

For our purposes in this treatise, the main point illustrated here is this: The mini-theories presented here as examples illustrate that ontological assumptions (which are not infrequently ontological prejudices) make a great deal of difference in how the phenomenon of emotion is viewed and studied. Each of the theories listed above is supported by some set of facts, yet each also has issues and controversies, and various opposing viewpoints are also able to call upon some set of facts in refutation. Probably the best way to comment on the relationships among these many theories making it into the peer-reviewed scientific literature is to say that while none of them are likely to be completely correct in all particulars, very likely none of them are completely wrong either. How can this be? In the final analysis, it seems to come down to our earlier question: What is emotion? It is on this very issue that these theories diverge. While some see it as a mere question of definitional convention, if we are to seek a science proper in this field we must treat it as an ontological (and therefore metaphysical) question.

§ 2.2 Definitions of Emotion

At times it seems as if the number of definitions of ‘emotion’ is as great as the number of emotion researchers. Most use their definition as a descriptor of functional correlations among different kinds of observable phenomena. Many deny thing-like existence to the ontological status of emotions, saying that what we typically call an emotion is a catch-all tag for particular physiological events. Most definitions are definitions only in the sense similar to that of a mathematician’s definition of some mathematical construct such as a mathematical group or partially ordered set. All definitions of this sort are what Kant called “nominal” definitions; they are definitions of descriptive convention only and merely serve to give a name to some particular phenomenon of appearances.

Most psychological definitions of emotion are brief and more or less vague. We have seen this already with Aristotle’s definition quoted earlier, as well as with Kant’s description (Kant would have objected to us calling his description a definition). Each definition points to one or more aspects of the idea of emotion that can be empirically studied. Thus these various attempts to define emotion provide us with a glimpse of some psychological aspect thought to be characteristic of the phenomenon of emotion. It is therefore worth our while to examine some of these mini-definitions (or, if one prefers, mini-descriptions). As we do so, we should also bear in mind Margenau’s idea of “partial causes” and take these definitions no more seriously than we would take any admittedly incomplete description of a complex phenomenon.

William James (1884): My theory . . . is that the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur is the emotion. (James called the organism a “sounding board, which every change of consciousness, however slight, may make reverberate”) [JAME2: 743].

Sigmund Freud (1915): Ideas are cathexes – ultimately of memory traces – while affects and emotions correspond with processes of discharge, the final expression of which is perceived as feeling.

John B. Watson (1924): An emotion is an hereditary “pattern-reaction” involving profound changes of the bodily mechanism as a whole, but particularly of the visceral and glandular systems.

Walter B. Cannon (1928): [Emotions] are produced by unusual and powerful influences emerging from the region of the thalamus and affecting various systems of cortical neurons.

Harvey A. Carr (1929): An emotion may thus be provisionally defined as a somatic readjustment which is instinctively aroused by a stimulating situation and which in turn promotes a more effective adaptive response to that situation.

Burrhus F. Skinner (1938): Emotion is not primarily a kind of response at all but rather a state of strength comparable in many respects with a drive . . .

Paul T. Young (1943): Emotion is an acute disturbance of the individual as a whole, psychological in origin, involving behavior, conscious experience, and visceral functioning.

Marion A. Wenger (1956): Emotion is activity and reactivity of the tissues and organs innervated by the autonomic nervous system.

J.R. Millenson (1967): Emotion [is] the association between certain widespread changes in ongoing or operant behaviors and the presentation or removal of reinforcers.

Carroll Izard (1972): Emotion is a complex process that has neurophysiological, motor-expressive, and phenomenological aspects.

Richard A. Lazarus (1975): Emotion [is] a complex disturbance that includes three main components: subjective affect, physiological changes to species-specific forms of mobilization for adaptive action, and action impulses having both instrumental and expressive qualities.

John G. Carlson and **Elaine Hatfield** (1992): We define emotion as a genetic and acquired motivational predisposition to respond experientially, physiologically, and behaviorally to certain internal and external variables.

James Russell (1997): There is no emotion other than the full script: Emotion is not an event that exists in addition to the constituents of the script, their temporal order, and causal connections. (We will explain later what Russell means here by the word “script”).

Antonio Damasio (1999): 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 in the brain.

Somewhat in a class by itself in terms of length is Plutchik's 1980 definition of emotion:

An emotion is an inferred complex sequence of reactions to a stimulus, and includes cognitive evaluations, subjective changes, autonomic and neural arousal, impulses to action, and behavior designed to have an effect on the stimulus that initiated the complex sequence. These complex reaction sequences may suffer various vicissitudes, which affect the probability of appearance of each link in the chain. These complex reactions are adaptive in the struggle in which all organisms engage for survival. At higher phylogenetic levels, the patterns of expression associated with each chain of emotional reactions serve to signal motivation or intent from one member of a social group to another. Finally, there are eight basic reaction patterns that are systematically related to one another and that are the prototype sources for all mixed emotions and other derivative states that may be observed in animals and humans [PLUT2: 361].

Very few of these mini-definitions meet Kant's definition of 'definition', which is “an adequately distinct and precise concept” [KANT8: 141 (9: 140)]. Rather, they tend to focus on some few aspects of the phenomenon and mostly fail to delimit these aspects well enough to allow us to distinguish between an “emotion” and other phenomena that also exhibit the same attributes but which are not typically called emotions. For example, if I touch a hot burner on the stove, I will pull my hand away without thinking about doing so. This reaction is spinal reflex, and one could say I have a “genetic predisposition” to do it. It does involve physiological elements, and I would certainly experience what happened. But this example can hardly be called

an example of an emotion as most of us understand that word. The main reason Plutchik gives for the length of his mini-definition is that a definition of emotion must take in all of the characteristics found or believed to be present in an emotion and, at the same time, it must clearly delimit emotion by making it clear what an emotion is *not*. A number of psychologists hold the opinion that *no* definition given to date adequately fulfills this requirement, and they argue that it is too early to even *try* to give a real definition of emotion. We could call these people the *fact gatherers* in Kuhn's sense of that scientific activity.

An attribute common to all these definitions is that what constitutes an "acute disturbance" or a "subjective change" or a "complex process" etc. requires further definition if what the definer intends his definition of emotion to mean is to be made more clear. The mini-theories of which Reber speaks set out to try to accomplish this. In this sense, the definitions above end up more or less being defined by example and the abstraction stated in the definition is made on the basis of these examples in appearance. Inasmuch as most of these theories are quite elegant, we will not be able to cover them in sufficient detail to further extract the meaning intended in each definition in the list above. But it would be quite unfair to these theorists, and contrary to the intent of this treatise, to hold any of these definitions up to ridicule simply because the stated definition does not really make the authors' meanings clear to us absent of these supporting facts. It would be fair to say that these nominal definitions are incomplete, and if the definitions have a failing, it would be a failing of under-generalization, i.e. the failing would be in the *implied* "this but not that" we usually read into anything called a definition. Wenger's "activity and reactivity of the tissues and organs innervated by the autonomic nervous system" is quite likely to be an aspect of emotion but not the *only* aspect.

For example, Damasio is quite clear that his theory is aimed only at a partial result: to understand the *biological* aspects of emotion. Hence, his definition leaves out the subjective aspects of, for example, the experience of rage or grief or any of the other experiences we call emotional experiences. Dr. Damasio is a physician as well as a researcher, and if he is to find cures for people suffering from various forms of mental illness he needs a theory that can lead to effective *practices* of medicine. It would be all-too-easy for those of us who are not physicians to dismiss his definition on the ground of incompleteness or from opining that Damasio's 'emotion' is not *our* 'emotion'. But if we did so, *we* would be guilty of under-generalization because the mind-body division is merely a logical division and whatever the subjective aspects of emotion may be, we cannot leave out the somatic aspects of the phenomenon.

To continue with this example, Damasio describes what I will call the "biological place" of emotion in the following terms:

Emotions are curious adaptations that are part and parcel of the machinery with which organisms

regulate survival. Old as emotions are in evolution, they are a fairly high-level component of the mechanisms of life regulation. You should imagine this component as sandwiched between the basic survival kit (e.g., regulation of metabolism; simple reflexes; motivations; biology of pain and pleasure) and the devices of high reason, but still very much a part of the hierarchy of life-regulation devices [DAMA1: 54].

As Damasio uses the term, emotions are not part of conscious experience. They are instead “complex stereotyped patterns of response, which include secondary emotions, primary emotions, and background emotions.” The link between these “complex stereotyped patterns of response” and conscious experience is what Damasio calls feelings, which he describes as “sensory patterns signaling pain, pleasure, and emotions” that “become images” [DAMA1: 55].

I have proposed that the term *feeling* should be reserved for the private, mental experience of an emotion, while the term *emotion* should be used to designate the collection of responses, many of which are publicly observable. In practical terms this means that you cannot observe a feeling in someone else although you can observe a feeling in yourself when, as a conscious being, you perceive your own emotional states . . . Moreover, for the sake of my argument, the basic mechanisms underlying emotion do not require consciousness, even if they eventually use it . . . [It] is possible that feelings are poised at the very threshold that separates being from knowing and thus have a privileged connection to consciousness [DAMA1: 42-43].

Of course, if one really thinks the Cartesian mind-body division is a real division, and then rejects the validity of the homunculus, one is then led to the position that the biological place of emotion is the only objectively valid ground from which to base a theory of emotions. William James seems to have taken such a position, and he argues his point in a manner very reminiscent of Hume:

I now proceed to urge the vital point 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 should find we have nothing left behind, no "mind-stuff" out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains . . .* The more closely I scrutinize my states, the more persuaded I become that whatever moods, affections, and passions I have are in very truth constituted by, and made up of, those bodily changes we ordinarily call their expression or consequence; and the more it seems to me that if I were to become corporeally anæsthetic, I should be excluded from the life of the affections, harsh and tender alike, and drag out an existence of merely cognitive or intellectual form [JAME2: 744-745].

James argued the ordinary view of emotions was that emotion was something which, whatever other attributes we give it, *caused* bodily changes to occur. This, he said, was wrong because if we remove by abstraction all the feelings of the somatic condition, we have nothing left that any longer resembles an emotion. Therefore, he said, since doing away with the somatic condition obliterates the emotion, the emotion *must be* the somatic state.

The *saltus* in this argument is a consequence of the Cartesian tradition of mind-body division. When we examine Relation in representation from the theoretical Standpoint, we have

three general notions: substance and accident, causality and dependency, and the Relation of community. James wanted to identify emotion as a *thing* and he presumed that to be a thing required the definition of emotion to be framed either in terms of substance and accident or of causality and dependency. However, there is a third possibility, namely that of the thing represented in a Relation of community. When we view the mind-body division as merely a logical division, we must take into account the principle of emergent properties. If our *idea* of some ontological thing carries the Relation of community, then severing the objects (by abstraction) for which the idea is an idea of connection destroys the connection and, with it, the very thing the idea is to represent. The loss of this representation through abstraction does not imply that what was lost therefore *must* “be in” the part of the idea we threw away in the abstraction.

This brings us to an important philosophical point. Much of what seems to be confusing about the phenomenon of emotion, and which separates the various perspectives and views taken by the different mini-theories of emotion, can be laid at the feet of the idea by which the particular researcher views the ontological thinghood of what we call emotion. We have three ways, in regards to Relation, by which we can view thinghood: the *Sache*-thing (the representation of which is connected by a notion of substance and accident), the *Unsache*-thing or ‘happening’ (the representation of which is connected by a notion of causality and dependency), or a *state* (the representation of which is connected by a notion of community). One difference among the definitions of emotion cited above is the manner in which they predicate the thinghood of emotion. Each of the three classes of ontological thinghood is represented in these definitions. For example, behaviorists, because they base their definition on behavior, tend to view emotion as an *Unsache*-thing. Those who try to isolate and identify particular emotions in terms of particular somatic states or as particular noetic objects (e.g. emotion as a predisposition) tend to view emotion as a *Sache*-thing. Occasionally a particular researcher may flip back and forth between both representations of thinghood in his theory. When it is recognized that this flip is taking place, the usual response is to make further distinctions – for example, to distinguish ‘emotion’ from ‘feeling’ – in order to establish self-consistency in the definition.

Some of the more recent definitions make an effort to keep a connection between the somatic and the noetic attributes of the thing we call emotion. This tends to make the idea of emotion the idea of a *state* of the nature of the organism (the Organized Being). What is rarely made explicit is that this idea is an idea connected by the notion of community, and thereby is an idea of an emergent property. As such, its place is neither with *soma* nor *nous*. Such an idea, connecting somatic conditions with noetic conditions in our Organized Being model, properly belongs to the logical division of *psyche*.

§ 2.3 The Idea of Primary Emotions

Another idea we often encounter in different emotion theories is the idea that there is some small set of underlying emotional primitives from which more complex emotions are constructed. These primitive emotions typically are labeled “primary emotions” or “fundamental emotions” or “categories of emotions.” The idea of an emotional genus under which primary emotions stand as species tends to a view of emotional genus as a *Sache*-thing (even if the particular primary emotions are defined in terms of processes or other happenings that make their individual thinghood that of *Unsache*-things).

This “atomic” idea of a set of primary emotions is a very old one. Chinese doctors in antiquity believed there were precisely four primary emotions: anger, happiness, sorrow, and fear. Most, although not all, emotion theories have their categories of emotions, and the number of categories varies from one theory to the next. Let us look at a few of these category systems:

Hobbes: There are seven simple passions - appetite, desire, love, aversion, hate, joy, and grief;

Descartes: There are six primary emotions - love, hatred, desire, joy, sadness, and admiration;

Spinoza: There are three primary emotions - joy, sorrow, and desire;

John B. Watson (1924): There are three basic emotions - fear, rage, and love;

Robert Woodworth (1938): There are six categories of emotions - a) fear, suffering; b) anger, determination; c) disgust; d) contempt; e) love, happiness, mirth; f) surprise;

Robert Plutchik (1980): There are eight primary emotions in polar arrangement - anger vs. fear, joy vs. sorrow, acceptance vs. disgust, and surprise vs. anticipation;

Carroll E. Izard (1972): There are ten fundamental emotions - interest, joy, surprise, sadness, anger, disgust, contempt, fear, shame / shyness, and guilt;

Paul Ekman (1980): There are six basic emotions - happiness, disgust, surprise, sadness, anger, and fear;

Michael Lewis, et al. (1989)¹: There are six primary emotions which appear during the first six months of life - joy, fear, anger, sadness, disgust, and surprise; three more derived emotions appear during the second six months of life - embarrassment, empathy, and perhaps envy; three additional emotions develop soon after this - pride, shame, and guilt;

Fisher, Shaver, and Carnochan (1990): There are five basic emotions - love, joy, anger, sadness, and fear.

As we can easily see, there is quite a difference in opinion represented in this list.

Like Aristotle, many psychologists hold that, whatever emotions may be, they come in pairs

¹ Michael Lewis, Margaret Wolan Sullivan, et al., "Self-development and self-conscious emotions," *Child Development*, vol. 60, pp. 146-156, 1989.

of opposites. Somewhat more precisely than Aristotle, they usually hold that these opposites are “polar” opposites. Carlson and Hatfield tell us:

Presumably the emotional pairs (say, joy versus sadness) feel like opposites, are associated with different physiological reactions (heart rate may speed up or slow down), and lead to incompatible behaviors (dancing for joy versus collapsing in a heap). Theorists from a variety of perspectives agree that emotions come in pairs. In early factor analytic studies (Cattell, 1946), bipolar dimensions often emerged. Richard Solomon and John Corbit (1974) proposed that "opponent processes" shape many addictive behaviors. Psychiatrists have long observed patients who have bipolar affective disorders swing from mania to depression; somehow these opposite emotions seem entwined. Plutchik believes that polarities are inherent in the structure of emotions [CARL: 153].

Of course, those theories that identify an odd number of primary emotions have something of a mathematical problem in arranging them in pairs of opposites.

The methods by which researchers have come up with their various category systems of primary emotions differ. Two not inconsiderable difficulties that arise in methods where test subjects are asked to describe or otherwise respond to questions regarding emotions are: 1) our language has a number of ambiguities that raise questions of semantics in knowing how to analyze the results; and 2) test subjects are not always honest with the psychologists and often give answers they think the psychologist wants to hear, or that are more socially acceptable, rather than answers that reflect what they really think or feel.

How does one go about deciding that some emotions are primary while others are not? And how does one identify these primary emotions? Why indeed should we even think the idea of primary emotions is objectively valid? One school of thought places great emphasis on what appear to be common “body language” and facial expression clues to what emotion a person might be experiencing. For example, human beings smile when happy or pleased, frown or scowl when unhappy, etc. These facial expressions appear in infants early in life. Carroll Izard regards facial expression as an important observable feature of emotions. That there appears to be at least some things that may be common factors in human expression of emotion, especially in the case of very young children during the sensorimotor stage of development, suggests that there is some basic underlying structure, which in turn implies the possibility that there may be primary emotions. A number of psychologists see in this the possibility of a biological foundation for the phenomenon of emotion. Once we introduce biology into the question of primary emotions, we introduce the idea of evolution into the picture.

But does this establish the objective validity of the idea that there are primary emotions? At the present time, we would have to say the status of this idea is that of an hypothesis. To better appreciate some of the arguments marshaled in favor of primary emotions, and some of the data which casts some doubt upon it, we need to take a look at some representative theories.

§ 3. Three Emotion Theory Examples

To examine more closely the idea of primary emotions, we will discuss in brief three different theories. The first example is representative of what is frequently called the psychophysiological tradition of emotion theories. The second is representative of what has come to be known as the psychoevolutionary tradition. It is also representative of an approach to emotion modeling known as the circumplex model. The third example is also a circumplex model, but its theoretical character is of quite a different sort from the first two theories.

§ 3.1 The Differential Emotions Theory

Carroll Izard regards emotion as a functional subsystem linked to and interacting with five other subsystems at work in every human being. He has built up this theory from experiments dealing with factors related to matching facial expressions and verbal labels, from examination of cross-cultural variables in emotion description, and physiological indices of muscular patterns in the face.

The theoretical rationale for the foundation of this theory employs a set of hypotheses and a model of physiological organization. While these are not unreasonable assumptions, they are not formally deduced from a well-explained system of higher principles. Thus in Kantian terminology we would call this model an example of science improper (which, as we recall, does not mean *bad* or *wrong* science but merely science treating its object solely according to empirical experience). Izard describes his emotion model in the following way:

The theory conceptualizes human personality as a complex organization of six subsystems: the homeostatic, drive, emotion, perceptual, cognitive, and motor subsystems. Each subsystem functions relatively autonomously but influences and interacts with the others. The homeostatic subsystem, which includes the endocrine and cardiovascular systems, is auxiliary to the emotion system, functioning to regulate and sustain emotions once they have been activated. The drives . . . are motivational states brought about by changes or deficits in tissues other than that of nerve cells. Although they have some of the characteristics of emotions, they are more limited in the timing of their occurrence, the range of their objects, and the freedom of alternatives for their satisfaction.

Differential emotions theory proposes that the six personality subsystems produce four types of motivations: drives, emotions, affect-perception and affect-cognition interactions, and affective-cognitive structures and orientations . . . Affects (which include both emotions and drives) frequently direct perceptual and cognitive processes . . .

The emotions constitute the principal motivational system in the human being. There are ten fundamental emotions, each with its unique motivational properties [PLUT3: 166-167].

The discrete emotions in differential emotions theory have specific adaptive functions. Amplifying on the definition given earlier, Izard tells us that “an emotion is a particular set of neural processes instigating efferent processes that may or may not lead to an observable

expression but that always leads to a unique conscious experience.”¹ This description is what Izard calls the “neurophysiological component” of a particular emotion.

This neurophysiological aspect of an emotion is to be regarded as an “innately programmed pattern of neurochemical activity in the nervous system.” As evidence of this innateness, Izard cites six of his ten primary emotions that emerge in the first few months of life. These six are: joy, interest, sadness, anger, fear, and disgust. The remaining four primary emotions, he tells us, emerge in middle childhood as a function of maturational and social processes.

In addition to the neurophysiological component of emotion, there is also an expressive component. This component includes bodily responses such as facial expression and activity, postural and gesture activity, and visceral-glandular responses. In addition there is an experiential component, i.e. Izard maintains that the emotions organize, regulate, and motivate not only behaviors but cognition as well. The emotion of interest, for example, is the mechanism of selective attention. It focuses attention, provides the motivation for it, and supplies “energy mobilization for engagement and interaction.”

The theoretical framework for differential emotions theory is based on seven broad assumptions. These are:²

- 1) The emotions system constitutes the primary motivational system for human behavior;
- 2) Each of the discrete emotions serves distinct functions in the way it organizes perception, cognition, and actions, and in the way it contributes to personality and behavioral development;
- 3) Personally significant situations typically activate a coherent pattern of interacting emotions;
- 4) Emotion-behavior relations begin to develop early and remain stable over time;
- 5) The capacity of emotions to motivate, organize, and sustain particular sets of behaviors contributes to personality development;
- 6) Individual differences in emotion activation thresholds and in the frequency and intensity with which particular emotions are experienced and expressed are major determinants of specific traits and broad dimensions of personality;
- 7) Each emotion has an inherently adaptive function, but may also contribute to maladaptive behavior in response to threats or challenges.

¹ Carroll E. Izard and Brian P. Ackerman, "Motivational, organizational, and regulatory functions of discrete emotions," in *Handbook of Emotions*, 2nd ed., Michael Lewis and Jeannette M. Haviland-Jones (eds.), NY: The Guilford Press, 2000.

² *ibid.*

Now if we include the existence of discrete emotions in the basic assumptions of our theory, the theory cannot be said to prove the existence of these discrete emotions. At most experimental evidence might contradict a hypothesis if the hypothesis predicts that one thing should happen and instead something else happens. However, psychological theories are not as exacting in their predictions as, say, physics, and where the consequences of a theory are vague the ability to find definitive “yes or no” experiments becomes almost impossible to accomplish.³ Izard does not claim that experimental findings decisively verify the ontological status of his primary emotions. He is well aware of the hypothetical nature of their place in the theory. He does maintain that as a “concept” the idea of discrete emotions is useful.

Despite the substantial body of evidence that testifies to the validity and usefulness of the concepts of discrete emotions, they have not been universally accepted by emotion theorists and researchers. [We] address three questions about a sample of specific emotions. First, does each discrete emotion have functions that can be readily understood as providing an adaptive advantage in evolution? Second, does this specific emotion continue to serve functions that facilitate development, adaptation, and coping? Third, does this emotion tend to co-occur with certain other emotions, so that the whole group forms a coherent set or pattern that provides an adaptive advantage? Finally, we try to show that a principal function of the emotions system is that of organizing and motivating characteristic patterns of responses or traits of personality.⁴

As we might expect, Izard and his co-workers answer these questions in the affirmative. The evidence for these answers is not totally compelling; other theorists propose different possible explanations for the same or a similar body of facts. To give a brief synopsis: 1) Exploration and learning seem to be motivated by the emotion of interest, and interest can be regarded as the mechanism of selective attention; 2) Expressions of the emotion of joy contribute to the strengthening of social bonds and contribute to the relieving of stress and to the ability to cope with difficult situations; 3) Sadness can also contribute to social bonding and serves as well in a capacity to slow cognitive and motor systems, which can sometimes lead to more deliberate cognitive scrutiny of situations and circumstances; 4) Anger mobilizes and sustains high levels of energy and motor activity at a level of intensity that other emotions seem unable to match; 5) Shame acts as a force for social conformity and cohesion; 6) Fear motivates escape from dangerous situations and tends to organize and focus perceptual and cognitive processes in a narrow range.

There is also evidence strongly suggesting a link between emotions and personality

³ In fairness to psychology, the problems and questions psychology attempts to understand are in many ways much more difficult than those found, for example, in physics. In physics we can dismantle complex systems and study the pieces in simpler combinations. Psychologists, quite obviously, are not permitted the same luxury with regard to their test subjects, nor can they apply probes and test instrumentation directly to mental phenomena.

⁴ *ibid.*

development. Izard theorizes that the motivational and organizational character of emotions affect the way a person thinks and acts and thereby establishes that pattern of thinking and behavior we commonly call a person's personality.

[We] have maintained that each emotion influences perception, cognition, and action in a particular way. This suggests that specific emotions help shape specific traits, and that particular patterns of emotions influence particular broad dimensions of personality. Several empirical studies support the notion that emotions have specific effects in shaping personality; more conservatively, this evidence shows significant correlations among measures of emotion expressions and emotion feelings and personality traits [*ibid.*].

There is indeed widespread consensus among psychologists that emotions and personality are somehow linked at some very deep level. The evidence does not, of course, compel one particular emotion theory ahead of all the others; if it did, there would not be so many different emotion theories. There is, likewise, clear empirical evidence of correlations between emotional expression and neural and physiological activity. But, again, this evidence does not tilt toward one particular theory above all others, nor does it necessarily establish the ontological *Dasein* of specific discrete emotions, even if emotion is defined in regard to particular neural patterns. Nor does the evidence find strongly in favor of Izard's system of ten primary emotions versus other category systems that have been proposed. Neither does Izard's model present a strong theoretical rationale derived from more fundamental considerations for why there should be *any* discrete primary emotions (let alone that there should be ten of them).

§ 3.2 Plutchik's Psychoevolutionary Model

Izard's theory has its roots in the work of Sylvan S. Tomkins, who proposed that there are eight basic emotions regarded as particular innately patterned responses to stimuli and assumed to be due to specific "neural programs" (a computer analogy) stored in the subcortical area of the brain. At about the same time that Tomkins introduced his model, Robert Plutchik was introducing a "psychoevolutionary" model, similar in a number of ways to the Tomkins model but differing in a number of other ways regarding the ontological assumptions underlying the theory. Of the emotion theories with which I am familiar, the Plutchik model is the most detailed in regard to a foundation in evolution theory. The original presentation of this model appeared in 1962 [PLUT1], and Plutchik continued to develop this model in the years that followed. A more theoretically mature expression of this model was presented in 1980 [PLUT2], and it is this model that we describe here.

Despite a great deal of nonsense, misinformation, and popular opinion to the contrary, evolution (as defined by biology) is an empirically verified fact. Evolution is defined as:

evolution: (1) Microevolution: changes in the appearance of population and species over generations. (2) Macroevolution or phyletic evolution: origins and extinctions of species. Microevolution includes changes in mean and modal phenotype, morph ratios, etc. such as occur from one generation to the next. When statistically significant changes in such variables (or the genes responsible for them) occur with time, a population may be said to evolve . . . Macroevolution includes large-scale phyletic change over geological time . . . as well as extinctions of taxa within such groups. It is generally accepted that . . . macroevolutionary change can be explained by the same factors that bring about microevolution . . . Evidence for common descent and the fact of evolution comes principally from molecular biology, comparative biochemistry, comparative morphology (e.g. anatomy and embryology), geographical distributions of organisms and fossil records. The modern theory of evolution (Neo-Darwinism) derives largely from the kind of genetic knowledge which Darwin lacked, principally the occurrence of Mendelian segregation, which helps to explain how variations can be maintained in populations.⁵

Much of the public nonsense one hears concerning evolution centers on specific theories proposed to explain *how* and *why* evolution occurs. As a colleague of mine remarked one time, "Evolution is a fact; natural selection is a theory."

If the phenomenon of emotion has a biological component (and the principle of emergent properties, the theorem of necessary correspondence between *soma* and *nous*, requires this), then some relationship between biological evolution and the phenomenon of emotion is not an unreasonable expectation. This expectation is the starting point for Plutchik's theory of emotion.

It has been pointed out that organisms at all evolutionary levels face certain common functional survival problems. These include finding food, avoiding predators, and locating mates. In addition, other associated behavior patterns have evolved along with these, such as, exploration and internalized "mapping" of the environment and "freezing" or startle reactions to novel stimuli. These total body reactions appear in rudimentary form at very low evolutionary levels and increase in complexity of expression as we ascend the phylogenetic scale, but the basic functional patterns remain invariant in all animals, up to and including humans [PLUT2: 130].

The basic contention here is that emotions have "survival value." If it is true that species at the higher levels of the phylogenetic scale evolved from lower species and if these lower species have more rudimentary or primitive "emotional survival equipment" then higher species may be presumed to have inherited some derivative version of this same basic equipment.

Plutchik is far from alone in taking this evolutionary perspective of emotions. An evolutionary basis for emotion was indeed proposed by Darwin. Damasio, too, is a psycho-evolutionist in regard to emotions.

Although the precise composition and dynamics of the emotional responses are shaped in each individual by a unique development and environment, the evidence suggests that most, if not all, emotional responses are the result of a long history of evolutionary fine-tuning. Emotions are part of the bioregulatory devices with which we came equipped to survive . . .

The biological function of emotions is twofold. The first function is the production of a specific

⁵ M. Thain and M. Hickman, *The Penguin Dictionary of Biology*, 10th ed., London: Penguin Books, 2000.

reaction to the inducing situation . . . The second biological function of emotion is the regulation of the internal state of the organism such that it can be prepared for the specific reaction [DAMA1: 53-54].

Taking evolution as a starting point, Plutchik proposed ten basic postulates for his theory of emotions. These are [PLUT2: 128-137]:

- 1) The concept of emotion is applicable to all evolutionary levels and applies to all animals as well as humans;
- 2) Emotions have an evolutionary history and have evolved various forms of expression in different species;
- 3) Emotions serve an adaptive role in helping organisms deal with key survival issues posed by the environment;
- 4) Despite different forms of expression of emotions in different species, there are certain common elements, or prototype patterns, that can be identified;
- 5) There are a small number of basic, primary, or prototype emotions;
- 6) All other emotions are mixed or derivative states; that is, they occur as combinations, mixtures, or compounds of the primary emotions;
- 7) Primary emotions are hypothetical constructs or idealized states whose properties and characteristics can only be inferred from various kinds of evidence;
- 8) Primary emotions can be conceptualized in terms of pairs of polar opposites;
- 9) All emotions vary in their degree of similarity to one another;
- 10) Each emotion can exist in varying degrees of intensity or levels of arousal.

Now since these assumptions are the basis of the theory, we must examine some of the questions and issues the positing of these assumptions raises up. The first and most obvious contentious point is postulate 1. We might well question whether the concept of emotion can legitimately be applied at *all* evolutionary levels. The word “all” leaves nothing out, so at first glance it appears as if Plutchik is contending that emotion can be posited of an amoeba or a blade of grass. Bearing in mind the definition Plutchik gives for the term “emotion” that we quoted earlier, this would be a ridiculous contention if this were what Plutchik was saying. However, this is not what he means.

First, Plutchik’s theory implicitly limits itself to species belonging to what is popularly called the “animal kingdom.” So far as I know, nothing in his theory touches upon or deals with other kingdoms. So much for grass or amoebae. Second, the most fundamental property of emotion as Plutchik defines it is that at root emotion is *an inferred complex sequence of reactions to a stimulus*. When this idea is joined to that of evolution, the appearance of emotion has the

character of being an *adaptive* reaction, much in the same spirit as Piaget uses when he speaks of accommodation. I personally think Plutchik gets a little carried away by applying the term emotion to the very low phylogenetic levels of animal species, but adaptation is a phenomenon that *does* appear to extend all the way down the phylogenetic scale (and does apply to plant life and other biological “kingdoms”). Plutchik’s thesis can be considered to be a statement that what we call “emotion” in human beings and animals is to be viewed as a higher level expression of particular adaptive behaviors found in some form or another throughout the animal kingdom and which can be called “prototype patterns” of adaptive behavior [PLUT2: 144-145].

What are these prototype patterns? In his search for adaptive behaviors that might possibly be linked to the phenomenon of emotion Plutchik quite naturally had to first decide upon a set of criteria that could be used to draw distinctions among the vast panorama of phenomena observable in the animal kingdom so that only those phenomena that could be arguably linked to the idea of emotion could be retained. After discussing several factors, he settled upon the following five criteria of primary emotions [PLUT2: 139]. Emotions considered to be primary should:

- 1) have relevance to basic biologically adaptive processes;
- 2) be found in some form at all evolutionary levels;
- 3) not depend for their definition on particular neural structures or body parts;
- 4) not depend for definition on introspections; and
- 5) be defined primarily in terms of goal-directed behavioral data or in terms of response-affecting-stimulus.

These criteria describe the end point for the search. It was then necessary to examine adaptive behaviors in the animal kingdom to see what ones could be found that could plausibly be regarded as harbingers of emotional expression in the higher life forms.

It is at this stage that Plutchik’s theory enters a territory both empirical and somewhat speculative. He takes care to point out that the five criteria above implicitly view emotions as adaptive devices in the struggle for individual survival (hence the supposition of natural selection enters in here) at all evolutionary levels. He also states that any candidate for consideration as a root of a primary emotion should be “recognizable in terms of total body reactions,” i.e. in terms of overall behaviors and interactions with the environment. He cites a number of other researchers and their investigations into adaptive behaviors and eventually comes up with eight “prototype patterns” that he claims fit the five criteria above and are consistent with the ten fundamental postulates of the theory [PLUT2: 141-145]. These are: 1) incorporation – the act of taking in or ingesting food, which represents a pattern of behavior indicating “acceptance of stimuli” from the outside environment; 2) rejection – the pattern of behavior involving getting rid of something harmful that has already been incorporated (e.g. defecation, vomiting); 3)

destruction – which he describes as the prototypic pattern that occurs “when an organism contacts a barrier to the satisfaction of some need” and “consists essentially of an attempt to destroy the barrier”; 4) protection – prototypic responses that occur “under conditions of pain or threats of pain or destruction” (e.g. flight response); 5) reproduction – the prototypic pattern associated with sexual interactions; 6) reintegration – the pattern of reaction to the loss of something possessed or enjoyed; 7) orientation – described as the pattern of behavior when an organism contacts a new or strange object; 8) exploration – more or less random activities organisms use to explore their environment.

Applicable as any or all of these may be in higher animals, and despite Plutchik’s assertion that all eight patterns apply to all organisms, it is obvious that there are issues with this list. First, the manner in which this list is compiled is subject to the same criticism Kant leveled against Aristotle’s list of categories: there is no way to know that the list is complete because it is not derived systematically on the basis of any principle that could ensure completeness. Second, the claim that this list applies to all organisms is contentious. Take, for example, the prototype reaction of protection. This is described as a response to conditions of pain or threats of the same. Now there is no objectively valid reason for us to suppose that an amoeba feels pain. The response of an amoeba to so-called “irritating” environmental conditions can be, so far as we know, completely attributed to mechanical and chemical reactions. We might just as well call the rebounding of one billiard ball from another a “protection response.” Likewise, it is hard to see how the idea of the reproduction pattern as Plutchik describes it can be applied to an organism that reproduces asexually by fission. Likewise again, it is hard to see how the reintegration or exploration patterns apply to the amoeba since we have no grounds whatsoever for attributing anything resembling pleasure or sensory endowment to an amoeba.

If we decline to admit that all of these prototype reactions actually apply to all organisms, this raises another issue. Where in the phylogenetic chain do behaviors to which these classifications correspond first appear and, more importantly, how can this appearance take place without being in violation of the evolutionary principle of continuity? This question of continuity was raised in another context by William James in his discussion of consciousness (which we mentioned in passing in Chapter 1 §4.1 in connection with the mind dust theory). It applies equally to Plutchik’s first postulate. Let us quote James in detail:

In a general theory of evolution the inorganic comes first, then the lowest forms of animal and vegetable life, then forms of life that possess mentality, and finally those like ourselves that possess it in the highest degree. As long as we keep to the consideration of purely outward facts, even the most complicated facts of biology, our task as evolutionists is comparatively easy. We are dealing all the time with matter and its aggregations and separations; and although our treatment must perforce be hypothetical, this does not prevent it from being *continuous*. The point which as evolutionists we are bound to hold fast to is that all the new forms of being that make their

appearance are really nothing more than the results of the redistribution of the original and unchanging materials. The self-same atoms which, chaotically dispersed, made the nebula, now, jammed and temporarily caught in peculiar positions, form our brains; and the "evolution" of brains, if understood, would be simply the account of how the atoms came to be so caught and jammed. In this story no new *natures*, no factors not present at the beginning, are introduced at any later stage.

But with the dawn of consciousness an entirely new nature seems to slip in, something whereof the potency was *not* given in the mere outward atoms of the original chaos.

The enemies of evolution have been quick to pounce upon this undeniable discontinuity in the data of the world, and many of them, from the failure of evolutionary explanations at this point, have inferred their general incapacity all along the line. Every one admits the entire incommensurability of feeling as such with material motion as such. "A motion became a feeling!" - no phrase that our lips can frame is so devoid of apprehensible meaning. Accordingly, even the vaguest of evolutionary enthusiasts, when deliberately comparing material with mental facts, have been as forward as any one else to emphasize the "chasm" between the inner and outer worlds.

None the less easily, however, when the evolutionary afflatus is upon them, do the very same writers leap over the breach whose flagrancy they are the foremost to announce, and talk as if mind grew out of body in a continuous way [JAME2: 95-96].

The problem of continuity was the issue that led directly to the mind dust theory with its bizarre and now discredited mental atoms, arch-monads and pontifical cells. As James pointed out, all the arguments in favor of mind-dust theory apply with equal vigor to soul theory. Yet without such a construction, the linkage of mental phenomena to evolution runs afoul of the continuity principle, and without the continuity principle a most essential load-bearing structure of evolution theory is lost. This is the principal *saltus* in all psychoevolutionary theories.⁶

Here is where our earlier discussion of "life" is relevant to emotion theory. The idea of evolution as the great unity function of biological phenomena is an idea that is applicable only to appearances in physical Nature. We have already discussed how the objective validity of making the real division between the Self and the not-Self is tied to an idea of analogy through the practical concept of the causality of freedom. There are two sides to the question "What is life?" and the side that pertains to mental phenomena is *mental* life. Evolution theory, on the other hand, grounds its phenomenal validity on the side of biological life. There is indeed, as James says, a chasm between theories of mental Nature (whose objects can have only *practical* objective validity) and those of physical Nature in the appearances of phenomena (the objective validity of which is grounded in transcendently valid application of the categories of understanding). We do indeed require some bridge-work to span this chasm, but modern psychoevolutionary theory is not it.

⁶ I think there is an irony here. The most vocal opponents of evolution theory are the so-called "creation scientists." If they weren't so committed to trying to maintain the ancient fable we call *Genesis* in the face of scientific facts, they would be able to embrace psychoevolutionary theory, claim it as their own, and thereby offer it as "scientific proof" of the existence of the soul. Their "science" would require fewer miracles that way. Descartes with his divine-design theory of evolution could be the patriarch of their so-called "philosophy" and Augustine their chief interpreter of the *Genesis* story. But this seems unlikely to happen.

That each of us can accept the objective validity of mental *Existenz* as part of the appearance of the Self is grounded in the one *noumenon* whose *Dasein* we hold to be true with absolute⁷ certainty: the *I* of transcendental apperception. That we extend this idea to other human beings is, in the strictest sense, an inference of analogy but all of our experience stands with – or at least does not oppose – this judgment and so the degree of holding-to-be-true with which we regard the validity of inferred mental life in other human beings is very great. The inference becomes more problematic if we extend this same characteristic to animals. And the certainty drops to or near to nil (at least for scientifically literate adults; young children are a different matter) if we extend this inference to organisms without brains. Therefore, while we are required by the principle of emergent properties to posit a *real Relation of community* between *nous* and *soma*, there is nothing in this principle that provides an objectively valid ground for a determinant judgment of the Modality of necessity in positing an unbroken *series* in the connection between the phenomenon of biological evolution (the appearances of which are all appearances of physical Nature) and the appearances of emotional phenomena. The Modality of such a connection is merely problematic in determining judgment for *ideas* of emotion *per se*.

The point of this lengthy digression is this: Plutchik attempts to ground his emotion theory in the soil of evolution. Under the Copernican hypothesis, we must Critically regard this attempt as not successful. With this *caveat*, I shall now cease to apply Critical analysis to the remaining points of his theory and merely finish our exposition of it.⁸

Lest one is tempted to rush to dismiss Plutchik's theory after having seen the descriptions he chose to use for the prototype patterns, let us recall postulate 7. Primary emotions are to be regarded in the theory as *hypothetical constructs*. One way to view this postulate is as a warning not to take the more or less emotion-laden descriptions of the prototype patterns too seriously and move them out of context with the basic theoretical theme of *functional utility for adaptation and survival*. Immediately after describing the eight prototype patterns, Plutchik tells us:

⁷ I use the word "absolute" here in the following sense: If the idea of certainty is to have any positive meaning whatsoever, there must be some ideas that we hold *in some degree* to "be certain." If there is anything that we hold to be true to such a degree that no other objectively valid idea can be held-to-be-true to a greater degree, this holding-to-be-true constitutes a practical certainty, and then this practical certainty can stand as the ideal and standard gauge of perfection for all other measures of certainty. Such an ideal is what I am calling absolute certainty. All other holding-to-be-true has *relative* certainty in relationship to this practical standard.

⁸ It might seem that I am going out of my way to be harsh to Plutchik's theory, but in fact the Critical analysis I have just discussed is a compliment to the theory. As an *empirical* theory, there is much in it that I admire, just as there is much in Damasio's theory that I admire. In tracing empirical findings and results in pursuit of our goal in this treatise, theories that one admires must be subjected to Critical analysis in order to forestall "learning too much" (as Bacon might say) by way of missing a Critical *saltus*. It is not the theories I discuss in detail that I hold to be of lesser merit; it is the ones I only mention in passing.

It is important to note that the language used to describe these patterns is a very general one, and it does not describe the specific behaviors or mechanisms used by any animal to deal with its particular survival problems. The language used to describe these prototype patterns may be thought of as a functional language because these behavior patterns imply a goal or aim. Thus, although patterns of defense are quite varied in different animals, they all have the *function* of separating the prey from the predator and of increasing the chances of individual survival [PLUT2: 145-146].

Again, we will not come down too hard on what a physiologist would be likely to denounce as teleology when Plutchik says these patterns “imply a goal or an aim.” If these patterns have survival value, and if we accept that natural selection is likely to be one mechanism at work in evolution, we need not worry about the plans and aspirations of earthworms but instead can merely regard the goal-directed language as being applicable to human beings (assuming the prototype patterns evolve into emotion-related mechanisms in human beings and, perhaps, at least some of the higher animals in the phylogenetic chain). We will instead focus on the theme of functional utility. We asked much earlier how one might come to a deduction of how many primary emotions there are. In the case of Plutchik’s theory,

The psychoevolutionary theory being proposed here assumes that these eight basic adaptive patterns are the functional bases for all emotions recognized in humans and animals [PLUT2: 152].

The problem now for the theory is to try to identify sufficiently descriptive labels for emotions that match up with the function held to be performed through the eight postulated prototype patterns. This is all by itself a quite challenging task because if we want to learn how human beings identify and classify their emotional experiences (which are, after all, much more a part of autistic thought than of communicable intelligence) we must ask human beings to supply this very private information. Plutchik points out that there are three “languages” that may be used to describe emotions: subjective language (e.g. words like fear or ecstasy), behavioral language (e.g. words like withdrawing or grooming), and functional language (the words used to label the prototype patterns). The research task at hand was to devise methods and procedures for translating from the way human beings offer up their descriptions and associations of emotions in terms of the eight categories of prototype patterns to a system of classifications that could identify or at least label the emotional connotation of each pattern for the case of *H. sapiens*.

Plutchik gives a rather brief description of this methodology in [PLUT2: 152-172] leading to the structure of his model. However, we have at least the appearance that the process of coming up with the labels for the primary emotions may have been less than strictly empirical. In his 1962 book (where the original version of the model was first proposed), we find

It is generally evident with what emotions in man most of the prototype patterns may be identified. The destruction pattern would be associated with anger, the protection pattern with fear, the rejection pattern with disgust, the deprivation pattern with sorrow, the reproduction pattern with joy,

and the incorporation pattern with acceptance. The orientation pattern would be most closely related to startle and the exploration pattern with something like curiosity or expectation [PLUT1: 71].

There is something in this assertion that tastes like Kant’s “abracadabra, *presto!*” introduction of the categories of understanding in *Critique of Pure Reason*. However, Plutchik does defend this alignment in considerable detail in the following pages [PLUT1: 71-107]. His discussion there is couched in terms of the “dimensions” (a word used more or less synonymously in psychology with the statistical term “factor”) of the various prototype patterns. The discussion of these dimensions has a more dialectic flair than an empirical one, but when dealing with such a subjective topic that is perhaps to be expected. In any event, Plutchik arrives in this way at a postulate for the structure of his model.

And he does not stop at this. The implications of the model can be checked by using other well-established types of psychological testing. He describes this method in [PLUT1: 112-149] and [PLUT2: 167-172]. The end result is a tested and reasonably successful model structure known today as a **circumplex model**. Plutchik found that he could describe the relationships among his eight primary emotions by representing them in the form of a circle. The Plutchik circumplex is illustrated in Figure 15.3.1 below.

Plutchik conceptualized this model by analogy with a color wheel. There are two coordinates in this emotion “map” – radial distance and angle. The angular displacement between two primary emotions is taken as a measure of how similar these emotions are. Plutchik is a little vague on the question of what it means for two emotions to be “similar” or “opposite”; the general idea of the model is that emotions separated by 180 degrees should be opposites of each other, i.e. should produce opposite behavior patterns, “feel like” opposites, etc. Now, how can we



Figure 15.3.1: Plutchik’s Emotion Model

evaluate something like this? Here is where the “three languages” mentioned earlier prove useful. One method for making such an evaluation is to put together a collection of synonyms for each primary emotion, present the entire list to a panel of judges, and ask them to rate the relative similarity of these “emotion words” to three “reference words” (the reference words not being synonyms of each other). Plutchik presents one such study in detail in [PLUT2: 167-172]. He summarized this study in a later work as follows:

In a further study of the circumplex structure of emotions, I used a modified paired-comparison method . . . Three emotion words that were clearly not synonyms were chosen as reference words. Judges were asked to rate the relative similarity of 146 emotion words to each of the three reference words using an 11-point bipolar scale ranging from *opposite* (-5), through *no relation* (0), to *the same* (+5). The mean similarity ratings were converted to angular locations on a circle based on the idea that *no relation* corresponds to a 90° divergence on a circle whereas *opposite* corresponds to 180° [PLUT4: 24].

As for the radial dimension, this requires some explanation. In his original model Plutchik presented a three-dimensional figure in which the third axis (not shown in the figure above) was a measure of the intensity (or level of arousal) of the emotion. High-intensity anger, for example, could be called “rage.” Low-intensity anger could be called “annoyance.” In this three dimensional model, cuts taken at different “intensity levels” produce circles such as the one shown above, and Plutchik defined his three dimensional figure so that the radius of this circle decreased with decreasing intensity. This was meant to indicate that the emotions become less distinguishable as the intensity is reduced. At the time, no significance was attributed to the radius of the circles, in a sense wasting this dimension. However, since Plutchik’s three-dimensional model got wider as intensity increased, it later came to be realized that this same thing can be represented by the radial dimension. It is common practice today to dispense with the three-dimensional figure and simply let the radius represent intensity. (For that reason, the radius is sometimes referred to as the “elevation” in the circumplex¹).

This model incorporates postulates 5, 8, 9, and 10 of Plutchik’s theory. Postulates 1-4 concern the psychoevolutionary hypothesis upon which the model is based. We have already mentioned the role and significance of postulate 7. This leaves only postulate 6, which says all other emotions occur as combinations, mixtures, or compounds of the primary emotions. Plutchik proposed a convention or framework for naming and analyzing these mixed emotions based on the circumplex relationships of the primary emotions involved.

With this model as the starting point, many interesting implications follow. We might begin by considering the various ways the primary emotions may be mixed in order to synthesize complex

¹ See Jerry S. Wiggins and Krista K. Trobst, “When is a circumplex an ‘interpersonal circumplex’? The case in supportive actions,” in [PLUT4: 57-80].

emotions. If we look at [the circumplex model] it is evident that any adjacent pair of primaries could be combined to form an intermediate mixed emotion, just as any two adjacent colors on the color-circle form an intermediate hue. A mixture of any two primaries may be called a dyad, of any three primaries a triad. But these dyads and triads may be formed in different ways. If two adjacent primaries are mixed, the resulting combination may be called a primary dyad. Mixtures of two primary emotions that are once removed on the circle may be called secondary dyads, while mixtures of two primaries which are twice removed on the circle may be called tertiary dyads. The same general method of designation would apply to triads as well [PLUT1: 115-116].

What these mixtures should be called is, of course, another problem to be resolved by resort to experiment. Plutchik describes some possible approaches and their outcomes. Some examples of his mixtures include:

Primary dyads: anger + joy = pride; acceptance + surprise = curiosity;
 Secondary dyads: anger + acceptance = dominance (?); joy + surprise = delight;
 Tertiary dyads: joy + fear = guilt; anticipation + acceptance = fatalism.

§ 3.3 The Fuzzy Circumplex Model

The circumplex model had been invented but was not widely known when Plutchik proposed his three-dimensional model in 1962. Indeed, at that time it was not all that apparent that there would not be some other role for the radius in this model. Plutchik's statistical data at the time indicated that two dimensions might be sufficient [PLUT1: 147-149], but the issue was by no means settled. As the years passed and more empirical data was amassed which continued to support this type of modeling of emotions (and personality traits, and the modeling of clinical disorders), the simpler circumplex model gained in popularity. By 1997 Plutchik could write

During the past few decades two major approaches have been used in an effort to define the structure of personality traits and emotions. One is based on the use of factor-analytic techniques with the aim of identifying a relatively small number of basic or underlying dimensions. The other approach focuses on determining the similarity structure of all traits and emotions; the underlying assumption of this approach is that a relatively seamless circular ordering or circumplex is a parsimonious description of the relations among traits and among emotions [PLUT4: 1].

As the circumplex modeling technique was gaining supporters, other developments were, of course, taking place elsewhere in the world of science. It is often fascinating to observe how developments in one field of scholarly endeavor sometimes reverberate into other seemingly unrelated fields. The Plutchik model of the 1962 vintage slices the emotional pie into eight categorical pieces, as we have just seen. However, we have also seen two examples of the primary emotions hypothesis where neither theory actually succeeds in establishing objectively valid grounds for claiming that in fact some emotions are primary, nor in marshaling a convincing case for how many such primary emotions there may be (if there are any at all).

Nonetheless, these early models all have a distinctly "crisp" character in the sense that

primary emotions were postulated and derivative emotions were posited to be one or another sort of mixture of these primaries. Because he regarded primary emotions as hypothetical constructs, Plutchik was able to allow his primaries to have various “hues” such that one primary (say, anger) could fade into another primary (say, joy) as one moved around the circle. (It seems to me that Izard’s psychophysiological model would have more difficulty justifying this sort of an idea since the neurophysiological character of his primary emotions is posited to be specific patterns of neural activity). Nonetheless, theories based on the postulate of primary emotions still have to regard their emotional categories as crisp (i.e. disjunctive) categories.

Between 1962 and today came a development in mathematics which was to have an impact on how some psychologists would come to view emotions in terms of the circumplex model. This was the introduction by Lofti Zadeh in 1965 of fuzzy set theory. Slowly over the next two decades it became increasingly acceptable to think of things (particularly those things that seem to defy any crisp definition) in terms of a continua. Categories (classifications) no longer had to be crisply defined in discrete terms. Rather, categories could overlap one another and an element placed in this region of overlap could be described as “belonging in some degree” to each of the overlapping categories. For example, a 6' 3" man is “tall” compared to me, but “short” compared to the typical center on a professional basketball team. He is, in other words, both “tall” and “short” in relative *degree*.

Zadeh encountered much early opposition to the idea of fuzzy set theory. One critic at the time grumped, “What we need is *clearer* thinking, not fuzzier thinking.” Less philosophical individuals – mainly engineers responsible for developing new products – were less hostile to the idea of fuzzy sets. When *methods* for doing designs based on the idea of fuzzy sets were developed, they adopted these methods (where appropriate given what the product was supposed to do) and thereby demonstrated that Zadeh’s idea could in fact be reduced to technical practice.

The idea of fuzzy sets has a rather obvious application to the problem of emotion modeling. One of the principal difficulties in emotion theory from the beginning is the difficulty in figuring out how crisp categories of primary emotions could be defined. A related issue was the ontological question: did primary emotions exist at all? If, however, we look at the question of emotions from the viewpoint of fuzziness, the ontological question becomes moot. We need only accept the *Dasein* of the phenomenon of emotion and allow it have different phenomenal appearances that can be distinguished *to some degree* without requiring that its characteristics be distinguished crisply (i.e. distinguished into primary emotions). Indeed, a fuzzy emotion model can be viewed as a model without specific categories, merely names for general features in appearance to define fuzzy sets. Within such a fuzzy set, a particular emotional experience need only be characterized in terms of degree of similarity with one and all of these *nominal* fuzzy set labels.

James Russell describes the effect this change of paradigm had for the theory of circumplex models of emotion:

Rather than forcing us to draw an arbitrary line between, for example, the category of chairs and not-chairs, fuzzy categories allow us to note degrees of chairness. Or degrees of birdness (from robins to owls to emus to penguins to pterodactyls to bats), of humanity (adult humans to new-borns to Neanderthal fetuses), or of emotions (from anger to pride to boredom to serenity), or of love (from mother's love and romantic love to infatuation to love of books). The fuzziness of emotion categories now has been well established [PLUT4: 209].

While this may sound as if fuzzy emotion modeling is merely a matter of convenience, Russell points out that it is more than that. The crisp categories of primary emotions may not be so crisp after all.

First, happiness, anger, fear, jealousy, and our other categories seem so natural and obvious that we tend to assume that all human beings must categorize the emotions in the same way. Thus, theorists such as Ekman (1972) and Izard (1977) have assumed that, in recognizing facial expressions of emotions, all human beings rely on the same universal and innate categories. However, linguists and anthropologists have found counterexamples. The categories of emotion found in other languages and cultures often resemble the categories available in Indo-European languages, but differences can be found as well [PLUT4: 208-209].

All the emotion theories developed in the latter half of the twentieth century agree that the phenomenon of emotion involves many factors on the affective, cognitive, behavioral, and physiological levels (although these theories also tend to disagree on exactly how all these factors are involved and what the relationships are). There also tends to be agreement that researchers in the field have a measurement problem in figuring out how to interpret the descriptions they obtain from test subjects (either through evaluation of "emotion words" or observations or etc.). This is a point Plutchik makes repeatedly and which he illustrates with his "three languages" idea. One benefit of positing primary emotions as a *Sache*-thing is that such a model at least provides some framework for trying to interpret the data. But, since the rational grounds for the primary emotion postulate are shaky, this framework erected upon them is likewise somewhat shaky and another theorist can easily find reasons for not taking a colleague's model very seriously. Russell puts it this way:

A major roadblock to progress in the psychology of emotion is that our descriptions are too simple by an order of magnitude. To describe a particular instance of emotion as *anger* both says too much . . . and too little . . . For a full account of how emotions are understood, we need to make explicit the full extent of a person's description of an emotion, much of which is omitted or implicit in their short answers. My theme . . . is that all six of the following properties are required to give a complete portrayal of how emotions are described . . . Any one of these six properties, considered alone, provides only a partial picture and - like any partial truth - can be misleading [PLUT4: 207-208].

Russell's six "properties" are more or less a set of postulates for his emotion model. One of the elements in this list is what Russell calls a "script", which he defines as a "prototypical sequence" consisting of: antecedent causes → feelings → physiological changes → expressions → actions → consequences. This sequence is to "unfold in a causally connected temporal sequence" and "no one of these features need be necessary or sufficient" [PLUT4: 214].

Russell's model must also deal with another issue. If we are deprived of our primary emotion categories, upon what sort of "dimensions" are we to base a circumplex model? Here Russell proposes to replace Plutchik's "circular coordinates" of category angle and intensity with two factors that seem to be easier to measure: hedonic dimension (degree of pleasure or displeasure) and degree of arousal. He arranges these measures as coordinate axes in a Cartesian coordinate system with pleasure/displeasure as the "x-axis" and degree of arousal as the "y-axis." Moving to the right represents an increase in degree of pleasure; to the left represents an increase in the degree of displeasure; toward the top represents increase in the level of arousal; toward the bottom moves in the direction of "sleepiness" – i.e. absence of arousal. This divides the circumplex circle into four quadrants, which he names (starting with the first quadrant and moving counter-clockwise) elation, distress, depression, and calm.

Within this framework, Russell's six properties (postulates) are:

- 1) A specific instance of an emotion is a member of a category, indeed of many categories;
- 2) Membership in each emotion category is a matter of degree rather than all or none;
- 3) Emotion categories are related to each other as described by a circumplex;
- 4) Emotions fall along a certain continua, such as intensity, degree of pleasure or displeasure (hedonic value);
- 5) Emotion categories are understood in terms of a script, which is a prototypical sequence of causally connected and temporally ordered constituents;
- 6) Emotion categories are embedded in a fuzzy hierarchy.

The first questions we might well ask about this model are: Why should we use these particular two axes (hedonic and arousal)? and How do we know that two axes are enough? Russell cites work by other psychologists and notes that in most cases factor analysis ends up reducing the number of dimensions to the problem to either two or at most three. Plutchik himself made a similar finding in 1962 when he carried out a "five-dimension" experiment [PLUT1: 147-149]. In this instance, his five "axes" were good-bad, pleasure-pain, excited-depressed, active-passive, and excitable-calm. When he analyzed the data he found that the good-bad and pleasure-pain

dimensions were highly correlated (correlation of +0.91), which indicated that for all technical purposes these two were coincident. This “good-bad” axis was uncorrelated (correlations below 0.4 in magnitude) with the other three axes. These three axes, in turn, had somewhat high correlations with each other (although not as high as in the good-bad, pleasure-pain case), and he concluded that he could treat these three axes as one axis. His conclusion at the time was that “at least two” axes were required.

The Russell circumplex is a continua; emotion points are plotted as functions of hedonic and arousal intensities. The radius of a point still corresponds to an overall intensity function, and two points differing in angular position are “similar emotions” if the angular displacement is small. This is the same as in the Plutchik circumplex of the previous section. However, the point on the circumplex does not, by itself, define the “emotion categories” to which a particular point “belongs.” To do this, the circumplex point must also be paired with the “script” that describes it. This leads to Russell’s definition of emotion:

There is no emotion other than the full script: Emotion is not an event that exists in addition to the constituents of the script, their temporal order, and causal connections [PLUT4: 214].

As a point of comparison with Plutchik’s model, Russell presents a diagram with labels attached representing various emotion words and their location on the circumplex. He finds that when groups of individuals are tested and the results are analyzed and plotted, the resulting measurements tend to lie at more or less the same radius on a circle. He places “happy” at an angle of approximately 16°, “joy” at about 31°, “excitement” at about 62°, “startle” at about 117°, “fear” at about 135°, “anxiety” at about 152°, “anger” at about 164°, “sad” at about -169°, “boredom” at about -154°, and “relaxation” at about -27°. These emotion words may be compared with Plutchik’s categories (accounting for a mere rotation to make “joy” line up at the same angle in both circumplexes). If we do so, we find some rather significant differences between the two models. For example, “joy” and “anger” are adjacent to one another in Plutchik’s circumplex; they are nearly 135° apart in Russell’s circumplex. If nothing else, this helps us to understand why there is no “grand unified emotion theory” in place today.

The fuzzy circumplex also leads to some interesting observations concerning individuals in comparison to group averages.

Feldman^{2,3} has discovered individual differences in the circumplex. She theorizes that individuals differ in the degree to which they monitor the hedonic versus arousal components of their emotional

² Feldman, L.A., "Valence-focus and arousal-focus: Individual differences in the structure of affective experience," *Journal of Personality and Social Psychology*, vol. 69, pp. 153-166, 1995.

³ Feldman, L.A., "Variations in the circumplex structure of emotions," *Personality and Social Psychology Bulletin*, vol. 21, pp. 806-817, 1995.

state. The result is that the circumplex varies in shape for different individuals. The perfectly round circumplex represents the group, but each individual's circumplex is an ellipse elongated along either the horizontal or the vertical axis [PLUT4: 216].

Russell offers no opinion on whether this reflects upon the individual's experience of his emotion or merely upon an issue of psychological measurement.

With the fuzzy circumplex model we see a pronounced turn in the approach to understanding the phenomenon of emotion. Gone are the crisp categories with their hypotheses of underlying mechanisms. Russell advocates a more purely empirical approach to the study of emotions.

Rather than restrict the domain of interest a priori to whatever is covered by the everyday concept of *emotion* found in the English language, we suggest a more empirical solution. The domain of study consists of the closely interconnected set of events or states. The relevant concepts are those needed to describe these events . . .

Emotion categories, thought of as scripts, can be decomposed into subevents. One theoretical question is raised by this decomposition: Do we need to postulate a mechanism that generates the subevents or a mechanism that generates the pattern among them (their coherence)? . . . [Decomposition] of emotion raises the possibility that mechanisms might exist for the generation of the constituents, but no additional mechanism for the generation of the resultant pattern that defines the emotion category . . . [The] key fact here is the degree of association among the constituents. If certain packages of constituents nearly always co-occur, then some generating mechanism might be needed. But if the packages represent little more than the occasional co-occurrence of the constituents, no such mechanism would be needed. Again, the point is to set aside a priori assumptions and seek more empirically answerable questions. Here the question might be about the empirical degree of association among subevents that together form emotion categories.⁴

§ 3.4 Summary

We have examined three emotion theories in this section and from this gotten a taste of the pronounced differences in assumptions, models, and methods that characterize emotion theory research. What can we learn from this?

All three theories do agree that it is possible to define some type of classification system to distinguish different emotions by emotional category. The three theories differ greatly, of course, on how such categories can or should be defined. Given a category system, all three agree that most expressions of emotion involve more than one of these categories being present at the same time. Two of the three theories hold that there is something primary – i.e., something built in to the organism – that gives emotion categories some mechanistic significance (or, to put it in Kant's language, that there is something *constitutive* underlying these categories), but neither theory succeeds in establishing the objective validity of primary constitutive emotions. The third theory manages to do without crisply defined emotion categories or “primary” emotions.

⁴ James A. Russell and Ghyslaine Lemay, "Emotion concepts," in *Handbook of Emotions*, 2nd ed., Lewis and Haviland-Jones (eds.) NY: The Guilford Press, 2000.

Circumplex model theories posit that emotion categories (whether they have a somatic mechanism underlying them or not) are inherently polar. 180° from every emotion category is its polar opposite. Whether or not “emotions” are polar is still something of a point of debate in psychology, but evidence continues to mount steadily from a variety of studies that tends to support the hypothesis of polarity and it is accurate to say that the majority of psychologists today are willing to accept this hypothesis. One theoretical use for polarity is this: If two emotion categories are polar opposites, they can be taken together to define (in whatever measurable terms these categories are defined by) what psychologists call a “dimension” of emotion.

All three theories agree that the phenomenon of emotion involves, in some way or another, physiological reaction (the *soma* is either affected or does the affecting or both depending on the theory). The theories also agree that emotion is experienced, i.e. the emotive subject is conscious of some feeling of affect. The theories also agree that emotion phenomenon is somehow or other linked to cognitive processes and to physical actions. The theories hold, either explicitly or implicitly, that emotion is tied in some fashion to that which we call *motivation* (although, again, the theories differ with each other on just how and why this is or could be so). Two of the three theories agree in principle that emotion and personality are also linked and that the emotion phenomenon shows development with maturation and socialization. (The fuzzy circumplex theory remains silent on this question). Finally, the theories agree that the emotion phenomenon in some way or another involves both some sort of “hedonic” affection and some sort of polar arousal or energizing effect. (The polar opposite of arousal would be similar to what Janet called a terminating regulation).

Now much of this is probably no surprise to you. I think it likely that your own emotional experiences had probably convinced you of much of this long before we ever entered this discussion. It is, however, of some comfort that one’s personal subjective appraisal of what emotion involves finds some measurable and repeatable empirical support. On the other hand, it is disappointing that emotion research cannot at present supply us with more details and a unified theory to help us understand “emotion.” With the exception of fuzzy circumplex theory, all the main psychological traditions have sought, and are seeking still, a way to *ground* emotion theory in a common paradigm. (Fuzzy circumplex theory, being rather more strictly empirical, remains for the present agnostic with regard to *a priori* explanations). A great deal of work has gone into trying to find some biological basis of emotion. However, this has not been a decisive success so far. From the Copernican perspective this is not so surprising because whatever emotion may be, the *experience* of emotion, like all experiences, is an object of *nous* rather than *soma*. The principle of *psyche* – i.e. the principle of emergent properties – tells us that we should not look for emotion in a Relation of causality and dependency. Rather, we must look for it as a Relation of community between *nous* and *soma*.

§ 4. Motivation

The idea of emotion and the idea of motivation are closely linked in modern psychology and so the ambiguity of definition in the term “emotion” we have just discussed is matched by a similar difficulty in coming up with an ontological definition of “motivation.” The traditional dictionary definition for motivation is a chain definition:

motivation, *n.* a motivating or being motivated.

motivate, *v.t.* to furnish with a motive or motives; to give impetus to; to incite; to impel.

motive, *n.* [LL. *motivum*, a moving cause, properly neut. of *motivus*, moving.] Some inner drive, impulse, intention, etc. that causes a person to do something or act in a certain way; an incentive; a goal.

Syn. - inducement, incentive, spur.

This seems simple enough and for everyday use it is. However, for the purposes of science this definition is quite inadequate since things like “impulses” or “intentions” that cause a person to do something are quite hard to quantify or scientifically explain. Reber calls motivation an “extremely important but definitionally elusive term.” The most typical use of this term in psychology (and the one favored by neuroscience) is that motivation is to be regarded as “an intervening process or an internal state of an organism that impels or drives it to action.”

Yet within this general theme of motivation as an energizer (or an “energized state”) we find several variations. A few theorists use motivation to mean a “generalized energizer” or a “generalized drive” without any specific goal or directionality. Most psychologists, however, prefer to speak of “motivational states” that are specific to particular drives or needs. This allows these ‘states’ to be analyzed in terms of specific goals or directionalities, some of which may be subjected to experimentation. Of course, this approach also sticks particular adjectives in front of “motivation” and, by doing so, begs the question of what motivation *per se*, the idea of the unity of all these specific kinds of motivations, may be.

“Motivation” was not even a psychological term prior to its use in 1908 by William McDougall. Earlier philosophers and writers tended to speak not of motivation but, rather, of “passions.” English-speaking psychologists (William James for instance) tended to speak of “instincts.” German-speaking psychologists (e.g. Freud and G. H. Schneider) spoke of “impulses” (*Triebe*)¹. McDougall can be credited with initiating the field of motivational psychology.

McDougall held that a creature aroused by a physical need is in pursuit of a known goal and that, therefore, its behavior is purposive (i.e. *motivated*). Motivation was the psychological

¹ When Freud's work was first translated into English, *Triebe* was rendered as "instincts" rather than "impulses." A number of psychologists today prefer to render it as "drives."

impetus that results in behavior and so motivation was to be viewed as the *cause* of behavior. McDougall's theory was known as "hormic psychology," the word hormic being derived from the Greek *horme*, impulse.² The theory was based on a rather loose collection of basic goal-oriented behaviors assumed to be motivated by innate instincts. The theory was in opposition to the somewhat simplistic behaviorism approach of Watson and his followers, and it initially attracted a number of adherents. Unfortunately for it, the theory had the fatal weakness of lacking precision in the definition and use of the term instinct, and this left it vulnerable to a number of piercing criticisms from the behaviorists.

Over time, the idea of motivation in psychology has come to be viewed as the idea of an inferred mental and physiological state. We discussed this aspect earlier (Chapter 10 §5.1). Quoting again from Ruch and Zimbardo,

Our attempt to explain a bit of human behavior involves the discovery of a whole network of causal relationships, only some of which we can actually see. We observe situations, stimuli, and responses. But we can only make inferences about whatever psychological processes are going on in between. Motivation is thus a concept, or hypothetical construct, not an overt, observable event.

The basic function of motivational analysis is to try to explain the observed *variability* in behavior. How can we make sense out of the differences in response to the same external situation between different people and even in the same person at different times? When conditions of training, testing, and ability are equated and the performance of individuals still varies, differences in behavior are attributed to motivation [RUCH: 273].

Here we have as good a statement as any of the objective validity for positing the *Dasein* of something called "motivation." Note Ruch's and Zimbardo's phrase, "a whole network of causal relationships". The behavior of the individual is observable, and our theoretical Standpoint of Nature requires us to view this behavior as the result of a previous natural state. But since "something internal" to the individual appears to make the difference in what will happen, given the same external conditions, the *Dasein* of this cause can only be inferred to lie "within" the individual. This is a transitive Relation and so in the Critical Philosophy regarding motivation as a state is, consequently, an objectively valid way to view this behavioral factor.

Historically psychological studies of motivation have tended to follow one or more of three main lines: physiological, behavioral, and psychosocial. Motivational states are regarded as resulting from a large number of variables, among them being such things as "needs" and "drives" (often expressed in terms of "need levels" or "drive levels"), the "incentive value" of the goal, expectations of the individual, the availability of appropriate responses the individual is able to employ, the possible presence of conflicting motives, and "unconscious factors." Because motivation and emotion appear to be so closely linked, we find a number of the same names

² We also get our word "hormone" from this same Greek root.

figuring in motivation theory as we find in emotion theory. A few of the prominent figures in motivation research are the following.

Robert S. Woodworth (1918) was the psychologist who first proposed the idea of drives. He defined a drive as “goal-directed energy of motivated behavior.” He is, more than anyone else, the man most responsible for replacing the idea of “instincts” with the idea of “drives” in psychology. Walter Cannon proposed (in 1927) the theory that peripheral body “clues” are what motivate a creature (i.e., a dry mouth or stomach rumblings; his theory was referred to by some as the “spit and rumble” theory). It led eventually to physiological theories that the thalamus and limbic system are the biological sources of motivation. Clark Hull proposed in 1943 that all drives seek to reduce “unpleasant tensions” produced by a biological need. His theory was called the drive-reduction theory. In 1954 Abraham Maslow proposed a social motivation theory and his now-famous hierarchy of needs: physiological needs at the base, safety needs at the next level, followed by psychological needs of a mostly social nature, and finally, at the top level, the need for self-actualization.

One of the most influential theories, holding the theoretical center court for some twenty years, was proposed in 1962 by Stanley Schachter and Jerome Singer. This was the theory that cognitive factors were present in emotional states. This theory made sense out of many previously bewildering experimental findings. As we have already seen, the theory that emotions are principal motivational factors (e.g. Izard’s theory) brings cognition, emotion, and motivation together in one package (at least in principle). What has been emerging over the past two-plus decades are a large number of bits and pieces pointing toward a multi-causal theory.

Perhaps one of the best examples of the state of motivation theory is given by the “prime theory” proposed in 1985 by Ross Buck. Buck proposed an integrated model of a motivational-emotional system. The key idea in this system are factors he calls “primes.” Primes are biologically-based processes assumed to have developed through evolution. They include reflexes, primary drives (i.e., physical drives and needs), and primary emotions. Primes are assumed to influence the individual on three levels: 1) somatic change via the limbic system, hypothalamus, the autonomic nervous system, and the output of the pituitary gland; 2) external behavior via the autonomic nervous system and the central nervous system; and, 3) cognition. Included in this model is a process Buck calls “subjective experience.” Subjective experience is the idea of one’s experience (i.e. one’s “feeling”) of the physiological reaction to events.

Buck presents a descriptive schema of this system in the form of what an engineer would call a block diagram of the system. This model is shown below in Figure 15.4.1. In this model, the Subject’s developmental history enters the system implicitly through the system’s current state.

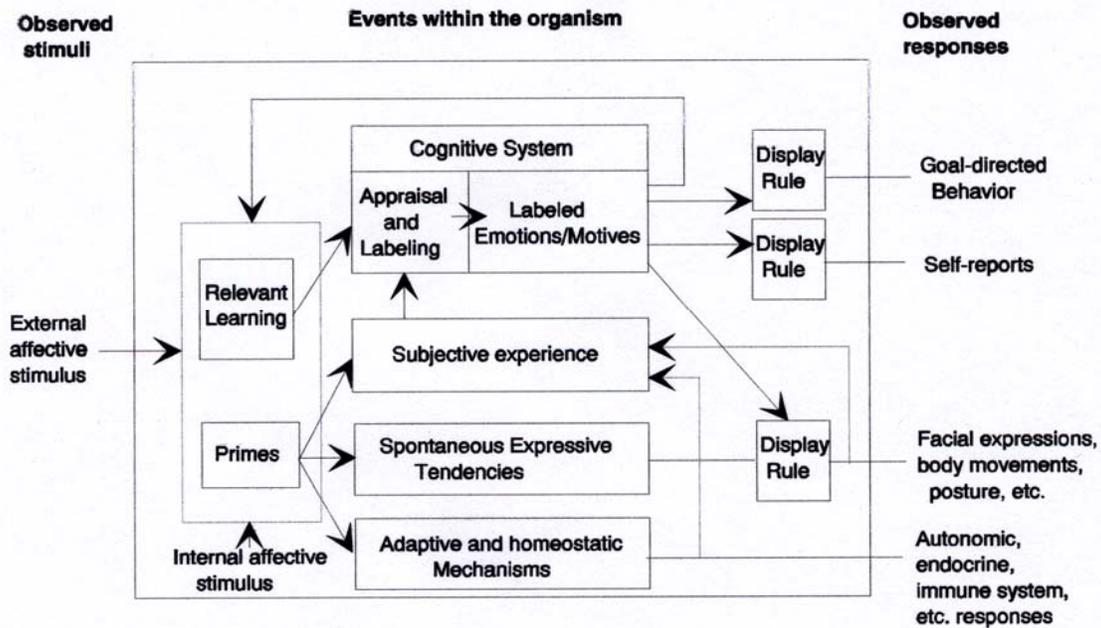


Figure 15.4.1: Buck's Model of the Motivation-Emotion System

Figure 15.4.1 gives us an indication of how intricate and interconnected the various hypothetical factors of the phenomenon of motivation-emotion-behavior expression appears in psychological research. Buck's model attempts to incorporate physiological, behavioral, and cognitive findings that have arisen from experimental research. Affective stimuli, both external and internal, are "filtered" by some process that includes Buck's primes and the effects on the state of the organism of previous experiences. The model contains a number of feedback loops through which various subsystems in the model interact with other subsystems. The arrows in the diagram give us an idea of how Buck envisions the flow of information in the system.

We need not belabor the many intricate details of this particular model. That elaboration is best left to the original sources^{3,4}. We do need to take note of a few general observations. First, this model is not universally accepted by all psychologists, although it is well regarded by many. There are, however, those among the theoreticians who argue for the primacy of one or another aspects of the phenomenon over the others.

On the side of the physiologists, perhaps the most extreme position is taken by Robert Zajonc. Zajonc argues that the aspects of emotion and affect constitute a system separate and independent of cognitive representations and appraisals. This, of course, runs contrary to the

³ Ross Buck, "Prime Theory: An integrated view of motivation and emotion," *Psychol. Rev.*, vol. 92, no. 3, pp. 389-413, 1985.

⁴ Ross Buck, *Human Motivation and Emotion*, 2nd ed., NY: Wiley, 1988.

prevailing paradigm of those who are generally called cognitive psychologists. In particular, Zajonc's paper⁵ sets out to address "those aspects of affect and feeling that are generally involved in preferences" – i.e., making decisions. Because it is usually assumed that to make a decision one must first think about that upon which one is deciding, Zajonc's thesis that it is possible to make decisions *affectively* is something of a red flag waved at the cognitivists.

The separation of affect and cognition, the dominance and primacy of affective reactions, and their ability to influence response when ordinary perceptual cognition is at chance level are all very much in the spirit of Freud, the champion of the unconscious. In terms of my formulation, there seem to be at least two different forms of unconscious processes. One emerges when behavior, such as that of discriminating among stimuli, is entirely under the influence of affective factors without the participation of cognitive processes . . . Another form of unconscious process is implicated in highly overlearned, and thus automated, sequences of information processing; this form includes cognitive acts but has collapsed them into larger molar chunks that may conceal their original component links.⁵

Zajonc's red flag did indeed elicit a response from the other side, represented in this matter by Richard Lazarus. There followed a lively and not un-entertaining debate in the pages of *American Psychologist* over the two opposing positions – an exchange of ideas of a sort now rarely seen in the many journals where cost-conscious businessmen have infected the professional societies and valued page count and magazine costs to the detriment of scientific debate. The key point upon which the disagreement turns is the idea of "appraisal." Lazarus takes up a position at the other end of the speculative spectrum:

I have taken the strongest position possible, and the most controversial, on the causal role of cognition in emotion, namely, that it is both a necessary and sufficient condition. *Sufficient* means that thoughts are capable of producing emotions; *necessary* means that emotions cannot occur without some kind of thought. Many writers who accept comfortably the idea that cognition is sufficient reject that it is necessary.⁶

Lazarus defines "knowledge" as consisting of "what a person believes about the way the world works in general and in a specific context." He defines "appraisal" as "an evaluation of the significance of knowledge about what is happening for our personal well-being." However, he also takes the interesting position that appraisal "is not coextensive with consciousness, deliberateness, and rationality" although "the way it has been discussed seems to have encouraged an image of a developmentally advanced and even conscious set of cognitive processes." In effect, his argument seems to be that cognition as a process also involves some

⁵ R. B. Zajonc, "Feeling and thinking: Preferences need no inferences," *American Psychologist*, vol. 35, no. 2, pp. 151-175, 1980.

⁶ Richard S. Lazarus, "Cognition and motivation in emotion," *American Psychologist*, vol. 46, no. 4, pp. 352-367, 1991.

unconscious factor or factors. He argues for the idea of multiple of levels of consciousness, within which “modes of meaning generation” may be viewed as “hierarchical.”

Lazarus is critical of reduction – that is, the practice of viewing psychological phenomena on a scale at which physiology is taken as the “real basis” of everything and all other levels of analysis are to be viewed in terms of mappings from one level to the next. His view is that the supposed levels do *not* map into each other (at least at our present state of knowledge), but the assumption that they do often leads to what he calls “separatist solutions”:

In reduction, thoughts and actions are reduced to physiology, which is the next lower, more fundamental level . . . The main problem, in my view, is that concepts at the different levels of analysis are not parallel; one doesn't map to the other, so that meaningful functional links might be drawn between them . . . With respect to the mapping of one level of analysis by another, too little is known about the physiology of the brain to match well with the psychological concepts of appraisal and coping . . . The further one goes in the molecular direction away from molar concepts of mind and behavior, the more remote seems to be the theoretical connection between them.

I don't want to be misunderstood about this, however. In spite of the problems presented by reductionism, I believe it is quite appropriate and valuable to build bridges across levels of scientific analysis . . . Nevertheless, we must not try to explain the psychological on the basis of the physiological and vice versa, or to adopt the pernicious view that the higher level is "nothing but" what is going on at the lower level . . .

Some of those who have accepted reduction also accept the idea that emotion and cognition are really *separate systems* of the brain and mind, governed by separate anatomical structures of the brain . . . This position is especially appealing to those who think of emotion as a hard-wired, innate process[.]⁶

At least part of the problem around which this debate revolves is, in my view, a lack of clarity regarding ideas such as what a “thought” is supposed to be. In this treatise we have been very careful to keep the idea of “knowledge” distinct from that of “cognition” and to keep “cognition” distinct from the idea of “thinking.” In this treatise cognitions are conscious objective representations but “thought” has a much broader context (which is why no specific definition of the word has yet been given and why we have not used it to this point as a technical term). This broader context is what was illustrated in our cycle of thought figure much earlier. Within this broader context it seems to me that there is room for both Zajonc’s view and Lazarus’ view if each is willing to accept the quite different ontology required by the Critical Philosophy.

Getting back to Buck’s model (and other models of this same architectonic form), the concerns we raised earlier about the idea of primary emotions applies equally to ideas such as the idea of primes in the Buck model. When we speak of such things as “primary drives” or “primary needs” or even “primary instincts” we still have no objectively valid ground for presuming that those observable behaviors that lead us to the identification of particular “drives, needs or instincts” justify the idea that at some level these “things” are *functional invariants* in the manner

we take organization and adaptation as functional invariants. The objective validity of evolution is and can only be grounded in appearances (albeit appearances heavily laden with other scientific constructs from biology, genetics, etc., including the definition of biological life). These appearances do not justify crossing over to the intelligible Nature of the practical objects of *nous* because the continuity principle is an essential mark of the theory of evolution and in evolution this principle applies only to physical objects of appearance. The best we can say is that *given* the *Dasein* of noetic objects (as ideas under the notion of substance) *nous* and *soma* must coexist under a condition of complete reciprocity (the principle of emergent properties).

We say that the appearance of *soma* in human beings is tied to an evolutionary process, but this is not sufficient for us to also say that along with this appearance the evolutionary process has brought about the *Dasein* of *nous* through reciprocity. Reciprocity applies to objects already in coexistence. We cannot so much as conclude with objective validity that evolution has *established* this reciprocity, because to say so is to say that the mind is an object that came into being somewhere along the evolutionary chain. We *know* that mind is a real phenomenon characteristic of human beings. *That* is the ground for the objective validity of the *Dasein* of *nous*, not the *Dasein* of the phenomenon of evolution. We know that within the animal kingdom there is at least one species (*Homo sapiens*) for which the phenomenon of mind is a characteristic mark. We do *not* know that evolution *caused* this characteristic. We do not know that evolution did *not* cause this characteristic. This is not a question we can ask of evolution theory because the objective validity of the *Dasein* of evolution originates in appearances of physical, not intelligible, Nature. As the mathematicians would put it, **the proposition is formally undecidable**. Lazarus' concern with reductionism is well founded.

§ 4.1 Drives, Needs, and Instincts

The ideas of drives, needs, and even instincts are important and fundamental ideas in the psychological theories of motivation. What do these terms mean?

Like emotion, the term “drive” gets used in a variety of ways. Possibly the most basic use of this term is that described by Reber in his *Dictionary*: drive is a motivational state produced by (a) deprivation of a needed aliment such as food, water, a hormone, etc., or (b) presence of a noxious stimulus such as pain, excessive cold or heat, a loud noise, etc. However, the term “need” is often used to describe states of deprivation and is used in such a way that “need” does not imply a motivational state. In such models, need *states* are said to produce drive *states*, and drive states in turn motivate behavior.

Many researchers prefer to reserve the word “drive” to describe “biological drives” such as hunger, thirst, body temperature, sexual drive, and so on. Ruch and Zimbardo provide the following list of drives: hunger, thirst, pain, and the sexual drive [RUCH: 280-296]. With such a

distinction between need states and drive states, “primary drives” are regarded as those drives which arise “from an intrinsic physiological characteristic of an organism.” Used this way, the term can be applied to a variety of species. Common ailments connected with this idea include food, water, sex, pain avoidance, body-temperature balance and so on. Species-specific drives can also be posited; examples include nest-building (birds, turtles), “imprinting” (as when a duckling “imprints” on and follows its mother), and many others. “Secondary drives” are then drives in which motivating properties are acquired or learned, presumably through association with a primary drive.

The term “need” has two primary usages. Reber’s *Dictionary* defines the term as follows:

- 1) Some thing or some state of affairs which, if present, would improve the well-being of the organism. A need, in this sense, may be something basic and biological (food) or it may involve social and personal factors and derive from complex forms of learning (achievement, prestige).
- 2) An internal state of an organism that is in need of the thing or state of affairs.

A need in sense (1) refers to that-which-is-needed, while sense (2) refers to the hypothetical need state of the organism under conditions of deprivation. In Hull’s model, physiological needs are said to produce drives that instigate actions directed toward what was called the “incentive component of a goal state.” When the need is satisfied by reaching the goal state, the organism is said to become tranquil. For example, a lion may lie in the same spot for hours after finishing a large meal, doing little or nothing other than napping.

Later Hull’s theory had to be supplemented in order to describe a great many other behaviors that did not fit this simple model. This supplementing was where the idea of “secondary” or “acquired” drives and motives (not directly related to physiological needs) arose. In the latter half of the twentieth century convincing evidence was found indicating cognition was also a factor in motivation. In other words, there appeared to exist needs that could not be reduced to physiological needs. The cognitive state appears to play a role in determining whether some somatic condition (e.g. thirst) is or is not constitutive of a need. Appraisal is one of the cognitive factors supposed to be at work here.

In addition, most behaviors appear to be directed at some goal. Associated with this idea is the idea of an “incentive.” This gives rise to what is known as a need-drive-incentive model of motivation. There are three primary usages of the term incentive: 1) an inducement to respond, i.e. conditions or objects perceived as satisfying some need; 2) a supplemental reward that functions to maintain behavior prior to the satisfying of the primary goal; and 3) incentive as a synonym for “value.” All three senses of the word reflect an underlying idea that an incentive is a motivator of behavior. Emotional states are often regarded as having “motivational properties.”

As we have seen, Izard regards emotion as being the *principal* motivator of behavior. Here, too, there seem to be many instances where “cognitive appraisal” seems to exert some influence on both the “emotional state” and “need.” (Lazarus would say this is the case in *every* instance).

Pertinent to this discussion is the idea of instincts. Indeed, the ideas of drives and needs were prompted in large part by the use (or, rather, the overuse) of the idea of instincts in earlier psychological theories. Reber describes the word “instinct” as “a term with a tortured history” and identifies four different meanings that have been applied to its use by psychology. Biology provides us with yet a fifth usage of the word. In biology instinct is “any behavior which comprises a stereotyped pattern or sequence of patterns typically unaltered by experience and appearing in response to a restricted range of stimuli and without prior opportunity for practice.” In psychology the usages are:

- 1) An unlearned response characteristic of the members of a species;
- 2) A tendency or disposition to respond in a particular manner that is characteristic of the species;
- 3) A complex coordinated set of acts found universally or nearly so within a given species that emerges under specific stimulus conditions, specific drive conditions and specific developmental conditions;
- 4) Any number of unlearned, inherited tendencies that are hypothesized to function as the motivational forces behind complex human behaviors.

All these usages imply in one way or another that instincts are in some way primary drives or primary impulses of some sort. A second implication carried in all these usages is that instinct is in some fashion the product of or related to the evolutionary history of each different species. Both of these connotations are, as we have remarked already, open to criticism under the Copernican hypothesis.

Instinct as a disposition (def. 2 above) is the presumed underpinning for instinct as observed behavior (def. 1). Instinct as a coordinated set of acts (def. 3) is used primarily in ethology¹ and pertains to such ideas as innate releasing mechanisms, fixed action patterns, etc. Instinct as an unlearned, inherited tendency is the meaning given to “instinct” in classical psychoanalysis. Instinct in the sense of definitions (1), (2), and (4) was a central theoretical idea in McDougall's system.

Piaget regarded the term “instinct” (in the sense of the German word *Instinkt*) as implying both a “technique” and a “drive” (in the sense of the German word *Trieb* or the French word

¹ Ethology is an interdisciplinary science combining zoology, biology, and comparative psychology and is concerned with the study of the behavior of animals in their natural environment and with the development of theoretical characterizations of that behavior with regard to the interplay of genetic and environmental factors.

tendance), as we mentioned in Chapter 11 (§5.3). This is an important point because if there *are* hereditary needs (“primes”) then we must also suppose that the “drives” associated with these “needs” must likewise each be associated with an instinctive “technique” (in Buck’s model, a “display rule”) capable of satisfying the need. Likewise, every instinctive technique presupposes a need it will satisfy. Now we do have many instances of behavioral phenomena in animals and in human infants that suggests organisms do possess this something we call instinct. These behaviors supply us with a ground for the objective validity of the *Dasein* of instinct as a characteristic of an Organized Being. But the ground of the mere objective validity of the *Dasein* of a thing does not at the same time tell us anything objectively valid about the *Existenz* of that thing. The question that lies before us is: What may we posit with objective validity about the *Existenz* of instincts?

§ 4.2 Piaget’s View of Instincts

From analyzing what different researchers classified as instincts, Piaget concluded that one problem with the idea of instincts is that the word is afforded different, homonymous, and sometimes meaningless usages. There were, he said, three quite different usages.

The first is where the term instinct designates a specific drive, well-defined behaviors in the form of hereditary sensorimotor structures, and differentiated organs. Nutritive and sexual instincts would be examples. The second case is where the term loses all meaning and designates one or every aspect of the organism’s activity. Curiosity and play would be included here. The third and final definition is where ambiguity remains. In this case, the name "instinct" is given to some affective constant, to some need or specialized feeling, which may include a hereditary element but which can also be explained by interactions within the individual or by interactions of the individual with other people [PIAG16: 20].

Not surprisingly, Piaget preferred to restrict the term “instinct” to a context involving hereditary organizations and what he called innate sensorimotor reflexes. These reflex schemes constituted the “technique” part of the idea of instinct. Along with these, he also held that there were instinctual drives (*tendance*) also belonging to this system of hereditary organization. He regarded the schemes as properly classified under the general heading of sensorimotor intelligence and so as belonging to what should be called the cognitive aspect of mental organization. He placed the drives under the general heading of “intra-individual feelings” and so connects them with affective development. Instinct, therefore, spanned both the intellectual and the affective dimensions of development. To limit the idea of instincts to one or the other of these two headings, he held, leads to ambiguity in the idea of instincts.

Ambiguity has arisen because some people think of instincts as only being drives, while others have accepted, alongside instincts which include inherited techniques, instincts without technique. Claparède, for example, thought that the instinct of imitation could be reduced to an "instinct to conform," and that the technique of this instinct was not inborn but was learned as Guillaume,

among others, had shown.

In fact, it is very difficult to isolate and enumerate instinctive drives for two reasons. The first is that innate does not mean contemporaneous with birth. Certain drives like the sexual drives are activated by maturation. It is very difficult, therefore, to decide what comes from biological maturation and what comes from social learning. This fact leads to the second reason that the distinction is so difficult, i.e. all developmental levels are influenced by the environment . . . Consider, for example, the alleged instinctive fears of small children such as the fear of the dark or the fear of reptiles. Watson made a game of conditioning and deconditioning these fears at will . . . Changes in behavior may be evidence of intellectual development, but affective development may be involved as well . . . In a general way then, let us recognize that every drive is inserted into a context that goes far beyond it and that this context includes both intellectual and acquired elements [PIAG16: 16-17].

To illustrate the difficulty of making any inventory of instincts, Piaget cited one such list of instincts proposed by Larguier Des Bancel. There were eight “instincts” included in this list: alimentary and hunting instincts, instincts of defense, curiosity, sexual instincts, parental instincts, social instincts, selfish instincts, and play instincts. Piaget criticized each of these in turn. Of the items in Bancel’s list, only those that involved a biological need, differentiated organs, and an hereditary organization of reflexes “designed” to satisfy that need passed Piaget’s critique definitively. Alimentary and sexual instincts fell into this class. Piaget also allowed that, with regard to defensive instincts, “In as much as it is a question of inhibition, even of aversion, one can rightly suppose a reflex mechanism.” Beyond this, however, the situation for defensive instincts becomes much more problematical. Piaget remarked, “We question . . . whether the fact that young boys fight justifies speaking of a combative instinct” [PIAG16: 18]. All the other “instincts” in the list fell under one or the other of Piaget’s “ambiguities” noted above. He wrote, “To speak of instincts of self-preservation is to say that the living being is living . . . [To] speak of a play instinct is to say that the child has an instinct to be a child. Again, we have only a tautology” [PIAG16: 19].

From this criticism, we may conclude that Piaget’s basic attitude was that it was problematic and very ambiguous to refer to anything as an instinct unless it involves both a very specific drive and well-defined innate sensorimotor behaviors (techniques). In his own work Piaget specifically identifies eight basic sensorimotor reflexes involved in sensorimotor stage I as innate. Although he neither uses the term nor claims that this list is complete, these eight would qualify as “instincts” under the standard he applied in his analysis of Bancel’s list. They are: 1) the sucking reflex; 2) the swallowing reflex; 3) what we will call (because Piaget gave it no name) the looking reflex; 4) the phonation reflex (crying and whining); 5) what we will call the listening reflex; 6) the grasping reflex (prehension); 7) a searching reflex during feeding; and 8) a postural reflex that shows up during nursing.

The looking reflex and the listening reflex do not refer to the senses of seeing and hearing. What marks the reflex in both these cases is attentiveness; the child pauses in whatever it was

doing and looks at or listens for something that, so to speak, “catches his eye or ear.” With regard to the looking reflex, it is possible that this reflex might be connected with the searching behavior observable during breast feeding within a few days after birth [PIAG1: 26, observations 2 and 3]. In every case these reflexes serve assimilation for the sake of assimilation without any indication that the infant either knows or cares about anything beyond the simple exercise of these “instincts.”

The most definite conclusion from our analysis of the beginnings of mental assimilation (*The Origins of Intelligence in Children*, Chap. 1) is that ever since the first contacts with the external environment, the child is active. The sucking reflexes, however well established they may be in the individual's hereditary structure, give rise from birth to practice, to searching, in short to a truly sensorimotor functional assimilation, and this psychic assimilation is continuously extended in the form of acquired schemes and secondary circular reactions. Sight and hearing are not at all passive: the child practices looking or hearing, and visual or auditory images are less external realities exerting pressure on him than they are nourishment sought in order to maintain a constantly growing activity. Prehension develops in the same way, through assimilations that are reproductive, recognitory, and generalizing [PIAG2: 225].

We might very well wonder if assimilation and accommodation should not be classified as human instincts. However, Piaget does not claim this. Rather, his view seems to be that to call these instincts would be incorrect because: 1) there is no unique and well-defined behavior associated with either; 2) there is no specialized organ or biological structure with which these can be associated (short of the central nervous system itself); and 3) assimilation and accommodation are general terms descriptive of the functioning of many different appearances in the functional invariant of adaptation and, hence, there is no reason to make a special instinct of these terms, just as there is no reason to make “curiosity” into a special instinct.

The term curiosity qualifies a group of behaviors more than it characterizes them. For this reason, calling curiosity innate seems to us only to advance the truism that cognitive activity responds to hereditary needs. In other words, since curiosity conveys the general idea of the functioning of various organs . . . rather than the functioning of some particular organ, there is no reason to make a special instinct of it [PIAG16: 18].

The fact that Piaget's list contains eight entries, and the general character of the entries it contains, might sharply remind us of Plutchik's eight prototype patterns. However, in this case the fact that Piaget's list has eight entries seems to be merely coincidental. For example, he notes but does not pursue the fact that the infant exhibits “random” (that is, without apparent purpose) waving about of his arms and legs. Why Piaget does not seem to consider this limb-waving a reflex is not perfectly clear, but perhaps it has to do with the fact that the behavior does not seem to be well-defined nor is it clear what, if any, need there might be that this behavior satisfies. In addition, Piaget does not mention a few rather obvious behaviors that do fit within his criteria for

calling something “instinctive.” These include urination, defecation, and spitting up. And, of course, infants do not exhibit behaviors such as sexual instincts that depend up biological maturation for making their first appearance.

§ 4.3 Freud, *Triebe*, and the *Lustprinzip*

The normative convention Piaget adopts restrains him from making speculations into the region of the unconscious. This would be one reason why Piaget’s criteria for what should and should not be called “instinct” is so firmly tied to well-defined and observable behaviors. Freud, of course, is under no such similar restraint.

Whereas the Piagetian term “instinct” is defined in the sense of the German word *Instinkt*, English translations of Freud, especially older ones, often use “instinct” as the rendering of *Trieb*. Many modern day psychologists would prefer to have *Triebe* translated as “drives”² (and, in this sense, Freud’s idea would correspond only to a part of Piagetian “instinct”); Piaget specifically objects to making a clean break between “techniques” and “drives” in his sense of the word *Instinkt*). However, a good argument could be mounted for understanding Freudian *Triebe* by the word “impulses” since this word often seems to be more agreeable in connotation with the context of many of Freud’s remarks on the subject than is either the word “drive” or the word “instinct.”

Reber gives five definitions for the word impulse:

- 1) Any act or event "triggered" by a stimulus and occurring with short latency and with little or no conscious control or direction;
- 2) Any sudden incitement to act, i.e. the internal state that initiates the action in (1) as in "an impulse to flee";
- 3) In psychoanalytic theory, an instinctual act of the id;
- 4) In physiology, a self-propagating excitatory state transmitted along a neural fiber;
- 5) (Rare) An awareness of an impulsion³.

Definition (1), he tells us, is the “core meaning” of the word around which the other four definitions revolve.

Freud’s technical vocabulary has after all these years entered the common language (usually without the meanings of these technical words) and so the principal elements of the theory have a familiar-sounding ring to them. By way of a sort of biological metaphor, Freud divided the “apparatus” of the mind into three parts: *das Ich* (the ego); *das Es* (the id); and *das Über-Ich* (the super-ego)⁴. Ego models the cognitive processes – memory, problem-solving, inference-making,

² One translation for *Trieb* is “driving force.”

³ In psychology, an "impulsion" is "a state of great urgency in which one is highly susceptible to performing an impulsive act" - Reber's *Dictionary of Psychology*.

⁴ The literal translation of these three phrases would be *the I*, *the It*, and *the super-I*, respectively. These make for clumsy phrases in English and so Latin terms, *ego* and *id*, are used in place of "I" and "It".

etc. – and conscious perception of the ‘outer world’ (*Außenwelt*). It corresponds the most closely to Freud’s system *Cs*, “the conscious.” The ego is governed by what Freud eventually came to call the reality-principle (*Realitätsprinzip*). Like most people, Freud appears to have been an uncritical subscriber to the copy-of-reality hypothesis.

The ego, however, is also regarded as a kind of outer crust around system *Ucs*, the unconscious, which is represented by the id. The id is the primitive, animalistic, impulsive element of the mind. It belongs to the deepest part of the unconscious (we may go so far as to call it Freud’s ‘true unconscious’) and its only concern is the achievement of its own private, primitive, impulsive aims. The id is supposed to be governed by the *Lustprinzip* or *Lust*-principle. (For Freud, as for Kant, English translators have invariably translated *Lust* as “pleasure” and so the *Lustprinzip* is known to the English-speaking world as the “pleasure-principle”).

The third part of Freud’s model, the super-ego, represents what we commonly call one’s conscience and is responsible for ethical and moral conduct. It is often conceptualized as a kind of internal code of conduct. Ruch and Zimbardo playfully describe the id and the super-ego by saying, “The id just wants to do what feels good, while the super-ego wants to do what is ‘right’.” The ego, then, figuratively stands in the middle of these two and acts as arbitrator by representing the picture of reality and deciding what will lead to what and what it is possible to do. The Freudian ego could be the poster child of what modern psychologists often call “cold cognition.”

The id is the central focal point for Freud’s theory of impulses (*Triebe*). This theory evolved greatly over the years, although throughout it kept as a central feature the division of the impulses into two general classes. In his earlier work, Freud identified these classes as the *Ichtriebe* (ego-impulses) and the *Objektriebe* (object-impulses), although he also often referred to the latter as the *sexualtriebe* (sexual-impulses). Later he came to see these two classes as “life-impulses” (which he gave the name Eros, after the Greek god of love¹) and “death-impulses” (which he identified with Thanatos, the Greek god of death). Strictly speaking, Eros obeys a *Lust*-principle, while Thanatos obeys an *Unlust*-principle. These are regarded as the two sides of a single principle, which is the one generally meant when referring to “the” *Lust*-principle.

As for the marked changes in Freud’s theory over the years, Freud himself explained this in his essay *Das Unbehagen in der Kultur* in 1929:

The whole doctrine of analytic theory has evolved gradually enough, but the doctrine of impulses has groped its way forward under greater difficulties than any other part of it. And yet it was so indispensable for the rest that something had to be adopted in its place. In my utter perplexity at the beginning, I took as my first basis the law of the poet-philosopher *Schiller* that hunger and love make the world go round. Hunger could serve as proxy for all those impulses intended to obtain

¹ *Eros* is also the classical source of our word “erotic.” Since Freud, the impulses of Eros have been popularly regarded almost entirely in sexual terms. Many people, at least many who are not psychologists, therefore regard Freud as the “dirty old man of science.”

what the individual wishes, love seeks according to objects; its chief function, favored in every way by nature, is the preservation of the species. Thus first appeared the opposition of ego-impulses and object-impulses to one another. For the energy of the latter, and exclusively for them, I furnished the name *libido*; an antithesis was thus brought about between the ego-impulses and those of the object . . .

. . . I made the next step in *Jenseits des Lustprinzips*² (1920) as the repetition-compulsion and the conservative character of the life-impulses first struck me. On the basis of speculations concerning the origin of life and upon biological parallels, I drew the inference that besides the impulse to obtain the living substance . . . another, its antithesis, is given [FREU9: 789-790].

This antithesis is, of course, the death-impulse. As for the *Lust*-principle,

It is, such as one notices, simply the program of the *Lust*-principle that sets the purpose of life. This principle holds dominion over the performance of the mental apparatus from the very beginning [FREU9: 772].

While the id is non-cognitive in its character, this does not mean it is wholly unconscious. The word "preconscious" (system *Pcs*) might well be applied to it in part. Freud's description of the id is not entirely free from what seems at times to be contradictions. At times Freud describes it in terms that bring to mind what some present day psychologists call "hot cognitions." Freud is consistent in his position that the id has nothing to do with the outside world; we could say it is body-centered in an almost Damasian sense. Freud described the id in 1930 in the following terms:

The id, cut off from the outer world, has its own world of perception. It feels with extraordinary keenness certain changes in its core that it becomes conscious of as sensations in the *Lust-Unlust* series, especially deviations in the need-tension³ of its impulses. It is to be sure difficult to state in which directions and with help of what sensitive ultimate organs these perceptions come about. But it stands firm that the self-perceptions - universal feelings and the *Lust-Unlust* sensations - rule with despotic authority the discharges of the id. The id obeys the relentless *Lust*-principle. But not only the id alone. It seems that the other psychic authorities⁴ are able only to modify but not to quash the activity of the *Lust*-principle, and it remains a highly important theoretical question, currently not yet answered, when and how self-control of the *Lust*-principle generally succeeds. The consideration, that the *Lust*-principle demands a curtailment, perhaps fundamentally an extinction, of the need-tension (Nirvana), leads to not yet appreciating correlations of the *Lust*-principle to both the elementary forces⁵ of Eros- and death-impulses [FREU5: 54].

The Eros-impulse class refers to the entire complex of life-preserving impulses (including, of course, the ordinary sexual impulses). The Thanatos or death-impulse, on the other hand, is supposed to be manifested in such things as denial, rejection, sadism, etc. A child who enjoys teasing another child until it cries would be said to be following an impulse of Thanatos. In his

² This title is traditionally rendered into English as *Beyond the Pleasure-Principle*.

³ *Bedürfnisspannung*.

⁴ i.e., the ego and the super-ego.

⁵ *Urkräften*. This might also be rendered "moving principles" or "original forces."

essay on the ego and the id, Freud wrote:

I have lately developed a view of the impulses which I shall hold to and take as the basis for further discussions. According to this view we have to distinguish two classes of impulses, one of which, Eros or the sexual impulses, is by far the more conspicuous and accessible to study. It comprises not merely the uninhibited sexual impulse proper and the impulses of a sublimated or aim-inhibited nature derived from it, but also the self-preservation impulse, which must be aligned to the ego and which at the beginning of our analytic work we had good reason for setting in opposition to the sexual object-impulses. The second class of impulses was not so easy to define; in the end we came to recognize sadism as its representative. As a result of theoretical considerations, supported by biology, we assumed the existence of a death-impulse, the task of which is to lead organic matter back into the inorganic state; on the other hand, we supposed that Eros aims at complicating life by bringing about a more and more far-reaching coalescence of the particles into which the living matter has been dispersed, thus, of course, aiming at the maintenance of life [FREU7: 708-709].

The baldly transcendent character of Freud's idea of these impulses is easily apparent in the last sentence of this quote. It does seem however that Freud was fully aware of, and comfortable with, the speculative nature of his constructs. We catch a glimpse of his attitude in his 1915 essay on the impulses:

The view is often defended that sciences should be built up on clear and sharply defined basal concepts. In actual fact no science, not even the most exact, begins with such definitions. The true beginning of scientific activity consists rather in describing phenomena and then proceeding to group, classify, and correlate them. Even at the stage of description, it is not possible to avoid applying certain abstract ideas to the material in hand, ideas derived from various sources and certainly not the fruit of new experience only. Still more indispensable are such ideas - which will later become the basal concepts of the science - as the material is further elaborated. They must at first necessarily possess some measure of uncertainty; there can be no question of any clear delimitation of their content . . . Thus, strictly speaking, they are in the nature of conventions; although everything depends on their being chosen in no arbitrary manner, but determined by the important relations they have to the empirical material - relations that we seem to divine before we can clearly recognize and demonstrate them [FREU10: 412].

It was very much in this spirit that Freud developed his idea of the impulses.

A conventional but still rather obscure basal concept of this kind, which is nevertheless indispensable to us in psychology, is that of an *impulse*. Let us try to ascertain what is comprised in this conception by approaching it from different angles.

First, from the side of physiology. This has given us the concept of *stimuli* and the scheme of the reflex arc, according to which a stimulus applied *from the outer world* to living tissue (nervous substance) is discharged by action *towards the outer world*. The action answers the purpose of withdrawing the substance affected from the operation of the stimulus, removing it out of the range of the stimulus.

Now what is the relation between *impulse* and *stimulus*? There is nothing to prevent our including the concept of *impulse* under that of *stimulus* and saying that an impulse is a stimulus to the mind. But we are immediately set on our guard against treating impulse and mental stimulus as one and the same thing. Obviously besides those of impulsive origin, there are other stimuli to the mind which behave far more like physiological stimuli . . .

We have now obtained material necessary for discriminating between stimuli of impulsive origin and the other (physiological) stimuli which operate on our minds. First, a stimulus of impulsive origin does not arise in the outside world but from within the organism itself. For this reason, it has a different mental effect and different actions are necessary in order to remove it. Further, all that is essential in an external stimulus is contained in the assumption that it acts as a single impact, so that it can be discharged by a single appropriate action - a typical instance being that of motor flight from the source of the stimulation . . . An impulse, on the other hand, never acts as a momentary impact but always remains a constant force. As it makes its attack not from without but from within the organism, it follows that no flight can avail against it. A better term for a stimulus of impulsive origin is a *need*; that which does away with this need is *satisfaction* . . .

Then when we find further that the activity of even the most highly developed mental apparatus is subject to the *Lust*-principle, i.e., is automatically regulated by feelings belonging to the *Lust-Unlust* series, we can hardly reject the further postulate that these feelings reflect the manner in which the process of mastering stimuli takes place. This is certainly so in the sense that feelings of *Unlust* are connected with an increase and feelings of *Lust* with a decrease in stimulation . . .

If now we apply ourselves to considering mental life from a biological point of view, an *impulse* appears to us as a borderland concept between the mental representative of the stimuli emanating from within the organism and penetrating to the mind, and at the same time a measure of the demand made upon the energy of the latter in consequence of its connection with the body [FREU10: 412-414].

As I hinted, we have here a metaphysically-cavalier and transcendent conceptualization of the idea of impulses (very much in the spirit of positivism). Nonetheless, Freud's description of the development of basal concepts in the 19th century sciences is essentially correct. Indeed, granting scientists the license to make speculations (so long as they are labeled as such *and can be tested with the risk of refutation*) without being drummed out of the academy was the one benefit positivism brought to science. More amazing, though, is that for all the evident metaphysical weakness of Freud's characterization of the impulse idea, we will see later that the final paragraph quoted above was in some ways rather prescient.

Finally we come to Freud's oft-quoted idea of the *Lust*-principle. Freud provides his clearest description of this principle, and of his idea of *Lust* and *Unlust* which underlies it, in his *Jenseits des Lustprinzips*:

In the psycho-analytic theory of the mind, we take it for granted that the course of mental activities is automatically regulated by the *Lust*-principle: that is to say we believe that any given activity originates in an unpleasant state of tension and thereupon determines for itself such a path that its ultimate issue coincides with a relaxation of this tension, i.e., with avoidance of *Unlust* or with the production of *Lust* . . .

We are not interested in examining how far in our assertion of the *Lust*-principle we have approached to or adopted any given philosophical system historically established . . . We cannot, however, profess the like indifference when we find that an investigator of such penetration as G. Th. Fechner has advocated a conception of *Lust* and *Unlust* which in its essentials coincides with that forced upon us by psycho-analytic work. Fechner's pronouncement . . . reads as follows: "In so far as conscious impulses always bear a relation to *Lust* or *Unlust*, *Lust* or *Unlust* may be thought of in psycho-physical relationship to conditions of stability and instability, and upon this may be based the hypothesis I intend to develop elsewhere: viz. that every psycho-physical movement rising above the threshold of consciousness is charged with *Lust* in proportion as it approximates - beyond

a certain limit - to complete equilibrium, and with *Unlust* in proportion as it departs from it beyond a certain limit; while between the two limits which may be described as the qualitative thresholds of *Unlust* or *Lust*, there is an area of aesthetic indifference [FREU8: 639].

Here we have, for the first time, a tie-in between the idea of *Lust* and *Unlust* and the idea of a state of equilibrium in the Organized Being. This relationship will come back a little later in this treatise when we make our critical examination of *Lust per se* as an Object.

§ 4.4 James' Theory of Instincts

While the James-Lange theory of emotions still occupies a place in the psychology of emotions, James' theory of instincts has by and large dropped out of sight in the modern psychology of motivation. Nonetheless, his theory is interesting and has some relevance to our discussion.

James took issue with the commonplace definition of instinct, i.e., "Instinct is . . . the faculty of acting in such a way as to produce certain ends without foresight of the ends and without previous education in their performance." He regarded this definition as incorrect because of the tendency for people to name the instinct after the end, e.g., the instinct for self-preservation. This, he contended, represents an animal as obeying abstractions that it could not possibly possess.

For James, every instinct is an impulse (in the sense of the word *Trieb*, which James translates as "impulse").

The actions we call instinctive all conform to the general reflex type; they are called forth by determinate sensory stimuli [JAME2: 700].

Ultimately, the expression of every instinct, like that of every other process tied to the brain, is "some form of bodily activity due to the escape of the central excitement through outgoing nerves." James, we will recall, always took the position that psychology as a science had to concern itself with what could be explained in terms of physiology. With regard to instincts (and emotions, and volition), James, like Freud, made reference to the rather vague idea of "tensions" that have to be "discharged." In his case, these ideas are to be couched in terms of activity in the nervous system.

There are probably no exceptions to the diffusion of every impression through the *nerve-centers*. The *effect* of the wave through the centers may, however, often be to interfere with processes, and to diminish tensions already existing there; and the outward consequences of such inhibitions may be the arrest of discharges from the inhibited regions and the checking of bodily activities already in process of occurrence. When this happens it is probably like the draining or siphoning of certain channels by currents flowing through others . . .

In general, however, the stimulating effects of a sense-impression preponderate over the inhibiting effects, so that we may roughly say, as we began by saying, that the wave of discharge produces an activity in all parts of the body [JAME2: 694-695].

With regard to instincts, James follows G. H. Schneider in holding that all impulses can be classified in terms of three general kinds: 1) sensation-impulses; 2) perception-impulses; and 3) idea-impulses (which he also sometimes called imagination-impulses). An instinct, he tells us, can involve all three types within itself. (It therefore would seem that James did not regard this three-fold classification system as three disjoint sets of impulses).

James takes a very broad view of what sort of behaviors can be regarded as in some way being instinctive. We cannot regard the *utility* of any instinctive act as a basis for either characterizing or understanding instincts because to do so introduces an unwarranted element of teleology into the picture. He quotes Schneider: "It would be very simple-minded to suppose that bees follow their queen, and protect her and care for her, because they are aware that without her the hive would become extinct" [JAME2: 702fn]. Rather, instincts are to be regarded as a form of *a priori* synthesis, and this synthesis is the root of those things mankind finds most self-evidently "natural." We can interpret instincts in animals, James tells us, only by what we know of instincts in ourselves.

Why do men always lie down, when they can, on soft beds rather than hard floors? Why, in a room, do they place themselves, ninety-nine times out of a hundred, with their faces toward the middle rather than to the wall? . . . Why does the maiden interest the youth so that everything about her seems more important and significant than anything else in the world? Nothing more can be said than that these are human ways, and that every creature *likes* its own ways, and takes to the following them as a matter of course . . . Not one man in a billion, when taking his dinner, ever thinks of utility. He eats because the food tastes good and makes him want more. If you ask him *why* he should want to eat more of what tastes like that, instead of revering you as a philosopher he will probably laugh at you for a fool. The connection between the savory sensation and the act it awakens is for him absolute and *selbstverständlich*, an "*a priori* synthesis" of the most perfect sort, needing no proof but its own evidence. It takes, in short, what Berkeley calls a mind debauched by learning to carry the process of making the natural seem strange, so far as to ask for the *why* of any instinctive human act . . .

And so, probably, does each animal feel about the particular things it tends to do in the presence of particular objects. They, too, are *a priori* syntheses. To the lion it is the lioness which is made to be loved . . . To the broody hen the notion would probably seem monstrous that there should be a creature in the world to whom a nestful of eggs was not the utterly fascinating and precious and never-to-be-too-much-sat upon object which it is to her [JAME2: 702].

James holds that creatures are endowed with many instincts, some pairs of which are contradictory in the sense that they tend to block each other. This idea – contradictory instincts – is the center-piece of James' theory of instincts. James theorized that contradictory pairs of instincts compete to establish *habits*. Experience can tilt things one way or the other in the determination of which instinct will win the day. Animals that learn can lose their instinctive demeanor because their contradictory impulses block each other. The popular view of man is that the human animal does not possess the many instincts which appear to govern other animals. This, James tells us, is not true. Man has *more* rather than fewer instincts than animals.

Reason may . . . make an *inference which will excite the imagination so as to set loose the impulse the other way* [JAME2: 706].

James contends that instinctive responses show sensitivity and variability in the presence of very slight changes in circumstances. He proposes two “principles of non-uniformity” for instincts. These are [JAME2: 707-709]:

- 1) The principle of inhibition of instincts by habits – When objects of a certain class elicit from an animal a certain sort of reaction, it often happens that the animal becomes partial to the first specimen of the class on which it has reacted, and will not afterward react on any other specimen of that class;
- 2) The principle of the transitoriness of instincts – Many instincts ripen at a certain age and then fade away.

The first principle is a principle governing the development of **preferences**. A preference for one specimen in a class over others in that same class implies an insensibility of some sort to those other objects. James maintains that such an insensibility can only be described physiologically as an inhibition of new impulses by the habit of old ones already formed. He says that instincts exist “miscellaneously” or as “instinct pure and simple” *only before* a habit is formed. A habit “grafted on an instinctive tendency restricts the range of the tendency itself” [JAME2: 708].

James also theorizes that some classes of objects awaken contrary instinctive impulses and that the first impulse followed (if the consequence does not turn out to be unsatisfactory) is likely to inhibit the contrary impulse afterwards. James does not say so, but this general idea can be seen as an underpinning for psychological conditioning if we view conditioning in terms of reinforcing and inhibiting instinctive impulses.

With regard to the second principle, James theorizes that habits form at a time when the instinct is particularly susceptible to being aroused. If habits are not formed during this time they are unlikely to form later on. He points out that different instincts may have different transient characteristics. Some instincts (e.g., feeding) may not be transient at all. (If this is the case, these instincts might be candidates for inclusion in a set of ‘prime’ instincts in a theory based on the idea of primary motivations; James does not offer such a theory). Other instincts might arise, fade away, and recur again at a later time. The rest “ripen” at their due time in the maturation of the organism and then may fade out never to return. He hypothesizes that contradictory instincts may have different transient periods and if one fades before a habit forms, the other permanently takes its place. Hence, *non-formation* of an instinctive habit is for all practical purposes *formation* of the opposite habit.

The principle of transitoriness also applies to what James calls “instinctive curiosity.” Human beings, when young, appear to be curious about almost everything that comes before their senses and seem to learn quickly and with an ease that appears to be absent or diminished later in life. It seems James was an adherent to the old adage “you can’t teach an old dog new tricks.”

Outside of their business, the ideas gained by men before they are twenty-five are practically the only ideas they shall have in their lives. They *cannot* get anything new. Disinterested curiosity is past, the mental grooves and channels set, the power of assimilation gone . . . But with things learned in the plastic days of instinctive curiosity we never entirely lose our sense of being at home [JAME2: 712].

James’ point seems to be that specific interests and preferences are made habitual, and within the scope of such interests and preferences human beings can and do continue to learn, experiment, and to some degree or other innovate. This, however, presupposes what we here will, for want of a better description, call a habit of learning *in the particular*, as opposed to the more general and “plastic” scope of what a person can learn without prejudice when young. The principal benefit of a liberal education is to instill the *habit* of being broad-minded and *aware* of the numberless possibilities of potential answers to questions. A *technical* education, on the other hand, might prepare a student for a particular line of work, but an overly-narrow technical education will largely fail to cultivate the sort of intellectual habits that seem to be required for coming up with the truly innovative or even for apprehending the *different* if these habits are not set earlier in life in some other way. Anyone living in these times who has had the experience of trying to teach an elderly parent how to operate a computer or a VCR can probably appreciate what James was driving at when he spoke of “mental grooves and channels” being “set.” In a more common adage, this is expressed when someone says of someone else, “he is set in his ways.”

James, without any claim of completeness, presented a catalog of various special human instincts. His list contains some 42 entries of various sorts, ranging from the very simple and more or less non-controversial to some that describe highly complex behaviors and which can be (and have been) challenged as not being instincts at all. The simpler instincts include sucking, biting, chewing, smiling, and imitation. The more complex instincts include such things as constructiveness (which includes taking things apart as well as putting them back together), play, sociability, cleanliness, and modesty. Instinctive fear is on James’ list as one of the instincts that ripens later in children but is absent for the first few months of life. This is one example of an instinct with which Piaget took issue:

William James related that his son at 18 months of age was afraid of a frog which, when he was eight months old, he had found amusing. Must we believe that this was a case of instinctive fear with late maturation? Is it not more likely that a child can conceive of a larger number of pleasant or unpleasant possibilities when he is 18 months of age than he could at eight months? Changes in behavior may be evidence of intellectual development, but affective development may be involved

as well. Perhaps the frog became the object of a transference or took on symbolic meaning, etc. [PIAG16: 17].

Piaget makes a good point here, and nothing James presents is so compelling as to force us to admit this is an example of instinctive fear with late maturation. On the other hand, nothing Piaget offers us forces us to conclude it is *not*. Piaget has noted that many early habits (e.g. thumb-sucking) wane and disappear later in life. Habits not frequently reinforced by practice cease to be habits after a time in many instances.

Let us not ignore James' more basic postulate that we must distinguish between what he called "instinct pure and simple" and an instinct that has been habitualized *by experience*. Another term we can apply to James' idea of instinct-pure-and-simple, as a reflex impulse, is *innate disposition* (bearing in mind Piaget's observation that innate does not mean present at birth). From the perspective of physiology, the motivated behavior of an Organized Being can be viewed only in terms of the biophysical observables of the body; innate disposition in this case is little else than a synonym for somatic function. But in the context of noetic function, dispositions come down to determining what an Organized Being *does* and, at the same time, what it *does not*. It is only when we try to put together a catalog of particular instincts that we stand in need of some objective method of discriminating instinct, habit, preference, and motive. We cannot make a real division between body and mind, and if we are to understand the problem of motivation in general, we require an idea of a *function* in the Kantian sense of function (the unity of actions and acts in an Organized Being).

§ 5. The Paradigm Problem

We have just completed a lengthy review of the state of emotion theory and motivation theory in present-day psychology. Both emotion theory and motivation theory are, in a sense, misleading terms for we find not one theory but many. Emotion and motivation appear to be closely coupled phenomena, but our current scientific opinions of these phenomena are well-described by Reber's phrase "mini-theories." These theories agree with each other at some (usually high) level, disagree significantly in detail, and disagree most seriously at those fundamental levels we are accustomed to calling philosophical and ontological.

This state of affairs is an altogether typical situation in the history of science. It is not unfair to psychology to say that with regard to emotion theory and motivation theory we find ourselves in what Kuhn called the pre-paradigmatic phase of a new field of science. It is a phase that all sciences that are not merely specialized divisions of an older discipline go through in their development. Even physics, the self-proclaimed queen of the sciences, has had its pre-paradigmatic phases. Kuhn provides us with a number of examples of this.

Two of Kuhn's examples are the history of the theory of physical optics and the history of the theory of electricity and magnetism. The present-day paradigm of the theory of light began with Newton and Huygens, underwent a lengthy interval of what Kuhn calls normal science, and then changed again profoundly at the hands of Planck and Einstein. This does not mean, however, that the *science* of optics had its beginnings with Newton or Huygens. The study of light had a lengthy pre-paradigmatic period.

No period between remote antiquity and the end of the seventeenth century exhibited a single generally accepted view about the nature of light. Instead there were a number of competing schools and sub-schools, most of them espousing one variant or another of Epicurean, Aristotelian, or Platonic theory. One group took light to be particles emanating from material bodies; for another it was a modification of the medium that intervened between the body and the eye; still another explained light in terms of an interaction of the medium with an emanation from the eye; and there were other combinations and modifications besides. Each of the corresponding schools derived strength from its relation to some particular metaphysic, and each emphasized, as paradigmatic observations, the particular cluster of optical phenomena that its own theory could do the most to explain. Other observations were dealt with by *ad hoc* elaborations, or they remained as outstanding problems for further research.

At various times all these schools made significant contributions to the body of concepts, phenomena, and techniques from which Newton drew the first nearly uniformly accepted paradigm for physical optics. Any definition of the scientist that excludes at least the most creative members of these various schools will exclude their modern successors as well. Those men were scientists. Yet anyone examining a survey of physical optics before Newton may well conclude that, though the field's practitioners were scientists, the net result of their activity was something less than science. Being able to take no common body of belief for granted, each writer on physical optics felt forced to build his field anew from its foundations. In doing so, his choice of supporting observations and experiment was relatively free, for there was no standard set of methods or of phenomena that every writer felt forced to employ and explain . . . That pattern is not unfamiliar in a number of creative fields today, nor is it incompatible with significant discovery and invention. It is not, however, the pattern of development that physical optics acquired after Newton and that other natural sciences make familiar today [KUHN: 12-13].

The history of the science of electricity and magnetism had a similar, if much less lengthy, pre-paradigmatic apprenticeship. Magnetism and static electricity had, of course, been known from antiquity. However, for most of that time there was really no study of these phenomena that could rightly be called scientific. That, however, began to change in the eighteenth century.

The history of electrical research in the first half of the eighteenth century provides a more concrete and better known example of the way a science develops before it acquires its first universally received paradigm. During that period there were almost as many views about the nature of electricity as there were important electrical experimenters, men like Hauksbee, Gray, Desaguliers, Du Fay, Nollett, Watson, Franklin, and others. All their numerous concepts of electricity had something in common - they were partially derived from one or another version of the mechanico-corpuseular philosophy that had guided all scientific research of the day. In addition, all were components of real scientific theories, of theories that had been drawn in part from experiment and observation and that particularly determined the choice and interpretation of additional problems undertaken in research. Yet though all the experiments were electrical and though most of the experimenters read each other's works, their theories had no more than a family

resemblance [KUHN: 13-14].

The transformation from the pre-paradigmatic period to the development of a full-fledged and enormously successful paradigm would eventually take place through Faraday and Maxwell. The model has matured since then, and in this the names Planck, Einstein, Dirac, Schwinger, Tomonaga, and Feynman figure prominently. Yet the Faraday-Maxwell paradigm set the dominant methodology used today in electrical engineering (where most applications have no need to deal with the effects addressed by quantum electrodynamics).

With regard to emotion we have a well-founded ground in the theoretical Standpoint to establish with objective validity the *Dasein* of something we call emotion. Each of us experiences affective perceptions – that is, we “have feelings” – that have no definable object of outer sense but which are certainly something “in” one’s personal *subjective* experience. “Emotional appraisal” and “emotional experience” belong to what Piaget called autistic thought in as much as these are difficult to communicate to other people and have no object of appearance *per se*. One can communicate these feelings to other people, and attribute them to other people, to whatever degree of accuracy and success only in so much as behaviors we observe in other people and other peoples’ descriptions of “what they are feeling” seem to resonate with one’s own experience. This is one reason why Damasio prefers to distinguish between “feeling” and “emotion” as he does.

We learn to interpret facial expressions, body language, and the like by analogy with our own subjective experiences. I submit for your consideration that it is precisely because we make such judgments as inferences of analogy that the very complex set of appearances we call emotional manifestations so stubbornly resists definition. At root, emotion *per se* is a *noumenon* and our difficulty does not lie in finding objectively valid grounds of its *Dasein*; the difficulty lies with finding objectively valid representation of its *Existenz* in the context of the *Existenz* of the Self.

For example, social psychology is not a particularly suitable vantage point from which to examine grounds for objectively valid representation of the *Existenz* of emotion. Our best evidence indicates that the infant has no innate conceptions of permanent objects, including concepts of other people. Social psychology has difficulty in addressing fundamental grounds of emotional phenomena without the introduction of teleological considerations. Such considerations are highly suspect in science. Is there any “social significance” to the smile of an infant? Most arguments in favor of a “yes” answer to this question call upon evolution theory for support: the infant’s smile excites “instincts” or “drives” of “love and caring” in the caregiver, without whose nurturing the infant has no chance of survival. But, as was argued earlier, under the Copernican hypothesis we cannot use evolution to establish the *Existenz* representation of

noetic phenomena, which is at root where emotion seems to make its home.

A similar comment applies to the idea of fear in the infant. Is there such a thing as infantile fear in the sense that we apply that idea as adults? It is quite possible infantile fear may not be fear in the adult sense at all; expressions we take as indicative of fear might be nothing else than a sense-of-unease-in-the-presentation-of-something-unfamiliar, which we could just as well characterize by calling it a state of disturbance in the Piagetian context of equilibrium. In Chapter 9 (§2.3) we quoted observation 37 from [PIAG1], where we were told of a variety of smile and fright expressions exhibited by infant Laurent. Piaget provides two other representative observations (Obs. 38, 39 in [PIAG1: 73]) illustrating much the same thing. Piaget concluded:

As for us, examining our three children has left us no doubt concerning the fact that the smile is primarily a reaction to familiar images, to what has already been seen, inasmuch as familiar objects reappear suddenly and release emotion, or again inasmuch as a certain spectacle gives rise to immediate repetition. It is only very gradually that people monopolize the smile precisely in so far as they constitute familiar objects most inclined to this kind of reappearances and repetitions. But in the beginning anything at all can give rise to the emotional recognition which elicits the smile [PIAG1: 72].

How does one study emotions in infants? The technical problem this presents is formidable because one of psychology's important tools, self-reporting, is unavailable when the subject is an infant. Other measures have to be employed.

Researchers who wish to study infants' emotions do as parents do - they use a multimethod approach to draw inferences about infants' feelings. They employ several measures - for example, facial expression, vocalizations, and the overall quality of behavioral activity - to assess a child's emotional state [CARL: 266].

Izard, for example, makes extensive use of facial expressions in studies of this kind^{1,2}. To the partial list offered above, we might also add non-intrusive physiological measurements such as heart rate monitoring. Of course, in order to define measurements of any kind one must first already have an idea of what it is one is measuring. The risk of adultomorphism is very high here. Whatever an emotion might be, there is ample psychological evidence that cognitive processes play some role in emotional determination (what role is not entirely clear), and infants simply do not have a level of cognitive experience comparable to that of adults or even older children.

Most emotion researchers take for granted (or else posit as an assumption) that some emotions are primary. If this is true, then perhaps there is a basis for defining measures of emotion in infants based on analogy with adult experiences in emotion expression. Ross Buck

¹ C. E. Izard, *Measuring emotions in infants and children*, London: Cambridge University Press, 1982.

² C. E. Izard and P. B. Read, *Measuring emotions in infants and children* (Vol. 2), London: Cambridge University Press, 1986.

takes a view of motivation and emotion that is based in part on the physiological approach and in part on the psychoevolutionary postulate.

I defined motivation earlier as a potential for the activation and direction of behavior inherent in a system of behavioral control. I define *emotion* as *the process by which motivational potential is realized, or "read out" when activated by challenging stimuli* [BUCK: 9].

Buck tells us that “Primes” (a term that means “primary motivational-emotional systems”) are “aspects of biologically based systems.” His hierarchy of primes is aligned with “old” and “new” brain structures, where “old” and “new” are taken in the context of evolution (e.g. the brainstem is an “old structure” in evolutionary terms; the frontal lobe in the human brain is a “new structure” in evolutionary terms). Primes are aligned, in order of correspondence from “old” brain structures to “new” brain structures, as follows: reflexes → instincts → primary drives → acquired drives → primary affects → effectance motivation. Buck’s term “primary affects” corresponds to the “primary emotions” cited earlier in this Chapter. The term “effectance motivation” refers to a 1959 theory by R. W. White, which held that there is an “intrinsic need” for humans and animals to explore, seek stimulation, and manipulate their environment, i.e., to “effectively interact” with it.

There are two problems with views such as this. The first is that grounding emotions – particularly the idea of primary emotions – in evolution lacks objective validity under the Copernican hypothesis, as we have already discussed. The second problem is: However good or adequate models such as Buck’s may be in describing adult motivation and emotion, infants are born with an immature brain. While the infant appears to be born with all (or at least nearly all) the neuron cells his brain will ever have, the process of making *synaptic connections* in the brain is far from complete. It is estimated, based on such things as autopsy data, that during the first two years of life there is a tremendous spurt of synapse forming such that by the age of two years the typical toddler has approximately twice as many synaptic connections as an adult. The number of synaptic connections appears to remain relatively stable from age two to about age ten or eleven years, at which time there begins a process of atrophy in which synaptic connections are destroyed, eventually reaching the lower level found in adults.

Neural studies conducted over the past decade have now shown us that the stimulation of synaptic contacts, through brain activity responding to perceptual experience, is a primary factor in determining which synapses survive into later adulthood and which do not. From the current viewpoint of neuroscience, the old question of nature vs. nurture is now moot: Neural development depends on both and, as Greenspan has commented, “It’s not a competition. It’s a dance.” To put it another way, the infant brain is not “hard-wired”; it is “soft-wired.” During childhood the brain is amazingly plastic in its organization. Extensive brain damage that would

permanently incapacitate an adult can be “re-wired around” in a young child. There are clinical cases that have been reported which demonstrate this beyond reasonable doubt.³

All this casts reasonable doubt on the *empirical* validity of a primary emotions hypothesis if we take this hypothesis to imply the real *Dasein* of an elemental set of emotions that are hard-wired in the brain and do not change with age and maturation. It also raises a significant possibility that James’ old and long-ignored “feels right” theory, with its “ripening” and “atrophy” of instincts and its model of habits being “grafted upon” these instincts, might be closer in agreement with recent findings of neuroscience than those models that posit specific hard-wired primary emotions. We now know that the brain (*soma*) is a physically adaptive system; the principle of emergent properties (complete reciprocity between *soma* and *nous*) requires us to regard the noetic organization of mind as equally plastic and adaptive *not only in its power of cognitive representation but in its power of affective representation as well*.

Organization and adaptation are the two functional invariants of Piaget’s theory, and we have already established the objective validity of these two ideas. On the side of phenomena we find ourselves facing the situation where the appearance of *soma* follows a soft-wired model (with, of course, some somatic structures apparently hard-wired at the time of birth; the brainstem, for example, appears to be a largely stable structure with its “wiring” already in place at birth). Neurobiologist Dr. Carla Shatz of the University of California at Berkeley likens embryonic brain development to the maturation of a tadpole that gives rise to a frog. The developing brain in a human embryo is not at all a miniature version of an adult’s brain, and it includes a number of temporary structures apparently needed in the initial growth of the brain but discarded, like a tadpole’s tail, during later development. We are just beginning to understand the details of the interaction between genetic and environmental factors in brain development.

Now because we cannot, with objective validity, call upon pre-set structures or evolution in establishing a paradigm for a theory of motivational-emotional organization, what is left? The question of how to establish a paradigm consistent with the Copernican hypothesis of the Critical Philosophy is a *transcendental* question, i.e. it is a question of what is necessary for the possibility of phenomena known in experience and understood in the context of the epistemological requirements of the Copernican hypothesis. If we can properly frame the transcendental question, the resolution of the paradigm problem will follow.

We cannot frame this question as, “What is necessary for the possibility of emotion and motivation?” because this question is ill-posed. We lack universally agreeable definitions of both emotion and motivation and without these definitions the question just posed is meaningless. Emotion and motivation cannot be made the objects of the transcendental paradigmatic question.

³ For a good non-technical description of these findings see the article by J. Madeleine Nash, "Fertile Minds," *Time Magazine*, Feb. 3, 1997, pp. 48-56.

We must instead seek out something more fundamental in the organization of the Organized Being. Furthermore, as ideas belonging to affectivity and practical activity, the object of the transcendental question cannot be such as to contain a constitutive principle. It must rather contain a regulative principle because in the Critical Philosophy all practical principles are regulative or grounded in a regulative principle. Therefore our task is to seek out from regulative principles the transcendental object of our paradigm.

§ 6. The *Kraft* Principle

Ideas of *noumenal* motivation and emotion are and can be grounded only in the practical Standpoint. This is because neither motivation nor emotion *per se* are possible objects of appearances. Their *Dasein* is, of course, a requirement of the theoretical Standpoint since the objective validity of this *Dasein* is based upon the category of causality and dependency (which requires that every state in appearances be connected to some previous state in the pure intuition of time). However, as *noumena* the ideas that represent their *Existenz* belong to intelligible Nature and, consequently, the source for these ideas has objective validity only in the practical.

The phenomena we call emotional and motivational point out to us the requirement of having some *transcendental principle* for governing the ideas of the *Existenz* of emotion and motivation. What I mean by this can perhaps best be illustrated by reviewing the path by which we came to the system of categories of understanding. The categories are rules for the making of concepts. Concepts, in turn, are rules for the re-production of representations in intuition. The categories therefore fall under a principle that concepts must conform to the conditions of subjective time (because time is the pure form of inner sense). The twelve categories are merely *momenta* of representation in determining judgment and, as such, are transcendental *laws* governing thinking in the particular. Categories are not instincts, nor are they the innate ideas of the rationalists, nor are they pre-formed structures in the sense of Gestalt theory. They are, to use one of Piaget's phrases, "the necessary and irreducible conditions" that the functional invariant of mental organization "imposes on structures" (of mental representations).⁴

In a like manner, we require a principle that provides us with necessary conditions to which all our ideas regarding the *organization of the spontaneity of actions* must conform. Such a principle would ground rules for **acting in the particular**.

⁴ This epistemological character of the categories of understanding is why the "soft-wiring" argument of §5 does not apply to the categories. If the categories were "mental instincts" or "mental drives" or "mental needs" or otherwise something of this sort, we could and would have to apply the same objection to their finite number and elemental role as we applied to the idea of primary emotions. But the categories are transcendental *laws* (rules), not mental structures. If primary emotions were likewise viewed as laws or rules rather than as reified brain-things, the soft-wiring argument would cease to apply to them.

Every individual action we undertake, whether it is physical, mental, or (as is usually the case) both, is an action taken in the particular. Given actions, taken one at a time and examined one by one, have no more importance or significance for a theory of mental physics than any particular phenomenon, taken individually, holds for physics. In physics it is the collection of phenomena unified under a physical law in which subsists the importance and significance of the physical law. So it is, too, for the phenomenon of action in general, action in this context being regarded as the *genus* under which stand all specific actions-in-the-particular. Thinking is an action just as much as is scratching one's head. A general principle of acting must be a principle broad enough to encompass all individual spontaneous actions of an Organized Being.

§ 6.1 Act, Acting, and Action

In order to deduce a general principle of acting it is clear that we must understand what is meant by the terms acting, act, and action. At first glance this would seem to present no special difficulty. We have, after all, been using these terms throughout this treatise and have encountered no great problems with their usage thus far. However, up until now our attention has not been focused on these ideas in their own right; rather, they have been ideas that supported explanations of other ideas.

But when we plunge into consideration of what we mean by act, acting, and action we find ourselves, perhaps to our surprise, wading into some rather deep ontological waters. What sort of objects are act, acting, and action? Acting as a verbal noun would seem to have the character of an *Unsache*-thing. Act and action, as these words are commonly used in English, would seem to be or to nearly be synonymous. Let us begin with the dictionary definitions of these words.

The dictionary gives 12 definitions of the word "action." Of these, there are five that pertain to our present topic.

action, *n.* [ME. *accion*; OFr. *action*; L. *actio* (*n*), from *agere*, to do, drive.]

1. the doing of something; hence, the state of acting or moving; exertion of power or force, as when one body acts on another.
2. the effect or influence of something (on something else); as, the *action* of a drug; motion produced.
3. in mechanics, operation; the way of working, moving, etc., as of a machine.
4. [*pl.*] habitual conduct; behavior; demeanor.
5. in physiology, the motions or functions of a part or organ of the body; as, the *action* of the heart and lungs.

It is perhaps interesting to note that the Latin root of our word, *actio*, is derived from the word *ago* (which is itself of Greek origin) and that the *Oxford Latin Dictionary* lists 44 definitions of this word. In his *Principia* Newton defined "force" as "an action exerted on a body to change its state" but he did not define "action" – holding that this word was "well known to all."

The verb *to act* has nine dictionary definitions, of which three are pertinent for us here.

act, *v.i.*; **acted**, pt. pp.; **acting**, ppr. [Fr. *acte*; L. *actum*, a thing done, neut. of pp. of *agere*, to do; Gr. *agein*, to do, drive, lead.]

1. to behave; to comport oneself.
2. to do a thing; to function.
3. to have an effect (often with *on*); as, acids *act* on metals.

As a noun, *act* has eleven dictionary definitions, of which we are interested in these three:

act, *n.* 1. the exertion of power; as, the *act* of giving or receiving. In this sense it denotes an operation of the mind as well as of the body.

2. a thing done; a deed, exploit, or achievement.
3. an action; performance; production of effects.

Science, of course, requires its technical definitions to be more specific and less equivocal than those given above. Newton might have thought the word “action” was too obvious to require a definition in *Principia*, but later physicists seem to not have agreed. The word *action* in classical mechanics came to mean the product of energy and time (more recently, the time-integral of energy). Planck’s constant, which is an important physical constant in the quantum theory, has the physical units of “action” in this context and is sometimes called “the quantum of action.” This is a nice, crisp, and mathematical definition of “action” and one that is of utterly no use to biology or to psychology.

It would seem that biology does not feel slighted by this; “action” is not a technical term in biology. In psychology, however, the situation is different. Reber gives the following definitions of action:

- action:** 1. Generally, the actual performance of some function, the occurrence of a process.
2. The result of such performance or occurrence.

These definitions follow more or less directly from the dictionary definitions cited above. Reber goes on to inform us that “Usage is broad; the operations may be overt and obvious like walking or talking, where the connotation is that action is conscious and purposive, or they may be more covert and internal, like heart action, neural action potential or the action of a drug, from which these connotations are missing.”

We may of course argue that these psychological definitions are still vague and perhaps even a bit circular. The situation is reflected in the psychological definition of the word “act.” Here Reber tells us that, as a verb, “act” means merely “to respond.” As a noun, “Much has been written on this term over the decades. The only sensible meaning, in sum, is simply a *response* or a pattern of behavior.” As for the word “response”, Reber provides us with five definitions of the

word, after warning us that “there are real problems with defining this term.” The definitions are:

- response:**
1. Any reaction of an organism to, or in the presence of, a stimulus. This usage is utterly general and utterly inclusive.
 2. Any muscular or glandular reaction or process made to, or in the presence of, a stimulus.
 3. Any answer to any question.
 4. A unitary process that serves as a theoretical category representing all behaviors that share sufficient similarity to be regarded as functionally equivalent for the topic or issue under consideration.
 5. A class of behaviors all of which have the same effect. Note, however, that in this context one further distinguishes operant responses (*operants*) and reflexive responses (*respondents*).

Definition (4), he tells us, “underlies all of the above” definitions (1) - (3).

In short, action and act do not have “definitions” as such in psychology; they have “usages.” These terms are, no doubt, descriptive, but, when all is said and done, we know an action when we see one. We shall have to do better than this.

Now if proper definitions are as elusive as all this, how could any of us have found the ideas of act and action so easy to use in the first place, and how could we delay for this long their definitions in this treatise? One can almost hear the ghost of Descartes muttering, “Knots in a bulrush. Knots in a bulrush.” Like so many of our ideas that are so commonplace their usages today seem to require no special effort at definition (until we actually try to use them in a *technical* way), we can trace the technical history of these terms back to Aristotle.¹

Action and passion (*poiein*, to be doing, acting, and *paskhein*, to be acted upon by outward objects, take impression from them) are two of Aristotle’s ten categories. He first introduced them in *Topics* [ARIS5], and he mentioned them briefly in *Categories* [ARIS1]; but as Porphyry noted [PORP: 157], “he has adequately discussed them” in depth only in his treatise *On Generation and Corruption* [ARIS8]. There we find that the ideas of action and passion² are bound together in a context that includes such ideas as the agent-patient relationship, actuality and potentiality, cause and effect, and the idea of power or moving forces. Indeed, *paskhein* in Greek is the antonym of *poiein*.

The subject-matter of [ARIS8] is *genesis* (generation, “coming-to-be”) and *phôra* (destruction, “passing-away”). As such, it is *change* that comes under scrutiny by Aristotle. The modern usages of action, act, and acting we discussed above tend to try to make these words speak to things (either *Sache*-things or *Unsache*-things) but this does not quite capture the full

¹ Taylor comments that “it is not unlikely” that Aristotle himself took these terms from Plato [TAY: 22-23].

² This philosophical use of the word “passion” does not have anything directly to do with the idea of “passions” in an emotional context. Rather, the connotation of the word is that of “being passive.” The language, however, is colorful because the passive patient is said to “suffer” whatever it is that is “impressed upon it” by the outside agent, as when we say “the dog suffered the children to pull his tail.”

flavor of the idea we are after. It would seem that “to be doing” should be thought of as a “happening” (*Unsache*-thing), and likewise for “being acted upon.” Note, however, that to regard action or acting or act in this way is to focus attention on the ‘what’ rather than the ‘how’, i.e. to regard them in terms of matter rather than form. If we do this, is there not something missing from the representation? After all, *every* representation of a concept requires both matter and form to be complete; it is only a question of how many levels down we have to go to arrive at a primitive level of representation, past which we cannot go without trespassing into the realm of the transcendent. Aristotle seems to have been of something like this opinion regarding the conflicting theories of his philosophical predecessors. Take, for example, the question of the relationship between an agent and a patient. Given two objects, which is the one and which is the other? And can any two objects that we might select always have a agent-patient relationship with each other? If so, one can be said to “do the acting” and the other “to be acted upon.” But if the agent-patient relationship is not possible for the two objects, then pairs of things would exist for which there could be no possible effect on the one due to the other. These questions divided the early Greek thinkers.

Such, then, are the views, and it looks as if the statements of their advocates were in manifest conflict. But the reason of this conflict is that each group is in fact stating a *part*, whereas they ought to have taken a view of the subject *as a whole*. For if two things are like - absolutely and in all respects without difference from one another - it is reasonable to infer that neither is in any way affected by the other. Why indeed should the one of them tend to act any more than the other? . . . And the same consequence follows if the two things were absolutely other, i.e. in no respect identical . . . [For] unless two things are, or are composed of, contraries, neither drives the other out of its natural condition. But since only those things which either involve a contrariety or are contraries - and not any things selected at random - are such as to suffer action and to act, agent and patient must be like (i.e. identical) in kind and yet unlike (i.e. contrary) in species . . . Hence agent and patient must be in one sense identical, but in another sense other than (i.e. unlike) one another. And since patient and agent are generically identical (i.e. like) but specifically unlike, while it is contraries that exhibit this character, it is clear that contraries and their intermediates are such as to suffer action and to act reciprocally - for indeed it is these that constitute the entire sphere of passing-away and coming-to-be [ARIS8: 529 (323^b15 - 324^a9)].

The point Aristotle is making is that the context of action and passion is bigger than merely “what is being done” or “who or what is doing it” or “to whom or to what it is being done” taken individually. We cannot speak sensibly of who is doing something without *at the same time* speaking of what he is doing *and* to whom or what it is being done. Such a context is, in our terminology, a *manifold (nexus)* with a *specific* composition.

We must conceive the same account to hold of action and passion as that which is true of being moved and imparting motion. For things are called movers in two ways. Both that which contains

the origin of the motion is thought to impart motion³ (for the origin is first amongst the causes) and also that which is last in relation to the moved thing and the coming-to-be . . . Now, in motion there is nothing to prevent the *first mover* being unmoved . . . although the *last mover* always imparts motion by being itself moved; and, in action, there is nothing to prevent the *first agent* being unaffected, while the *last agent* only acts by suffering action itself. For if things have not the same matter, the agent acts without being affected . . .

Those active powers, then, whose forms [*morphen*]⁴ are not embodied in matter [*hyle*], are unaffected; but those whose forms are in matter are such as to be affected in acting. For we maintain that one and the same matter is *equally*, so to say, the basis of either of the two opposed things - being as it were of a kind; and that *that-which-can-be-made-hot* must be made hot provided the heating agent is there . . .

The active power is a cause in the sense of that-from-which the process originates; but the end, for-the-sake-of-which it takes place, is not active . . . For when the agent is there, the patient *becomes* something; but when states are there, the patient no longer *becomes* but already *is* - and forms [*eide*], i.e. ends [*tele*], are a kind of state. As to the matter it (*qua* matter) is passive [ARIS8: 530 (324^a25 - 324^b18)].

Aristotle goes on to claim that, somewhere in here, he has “explained what action and passion are, what things exhibit them, why they do so, and in what manner.” You and I might not readily agree with that statement, but let us take a look at the conglomeration of ideas that have gone into his discussion. Action and passion must always occur together within the same context. There must always be an agent (something that does the acting) and a patient (something that “suffers” being acted upon by the agent). The action originates from a “mover” that is the *cause* of the action, and the action itself is imparted through a *chain* of motions leading to a final state. During this, the “last agent” (i.e. the patient) is *changed* in some way (as are, perhaps, intermediate movers), but this change is restricted to being a change of *matter (hyle)* since this matter is “that which possesses being potentially” (i.e. is changeable). The final forms (*eide*), on the other hand, are “completed” – that is, “have become something” (past tense), and so whatever the action was, it is over once the forms have “taken form.” But this action can take place only if the agent has the “power” to affect the patient; not all pairs of things can stand to one another as agent and patient.

So, whatever “action” may be in the mind of Aristotle, it is clear that it is far from a primitive. The context here is rich with a plethora of supporting characteristics and conditions. Aristotle goes on to explain how it is possible for all this to take place. That discussion enters deeply into his theory of being-potentially and being-actually; it involves his ideas of *enérgeia* and *entelechy*. These details need not concern us here, although one could argue a case that without these details Aristotle’s explanation of action and passion is incomplete and that we have been treated to nothing more than metaphysical signposts and indicators of the *Dasein* of action.

³ Again a reminder: “Motion” here is *kinesis* - change of any kind.

⁴ In this passage Aristotle is splitting technical hairs with terms that both, unfortunately, pass into English as the word “form.” His specific distinctions here are of no great consequence for us in this treatise.

What Aristotle's later presentation adds to what we have seen here is another idea, namely what for want of a better term we can call "dynamical natural laws", without which the explanation we have been given here is incomplete. But Aristotle's philosophy is not the Critical Philosophy, and if we are to devote further effort to untangling this question of act, acting, and action, let us do so within Kant's system.

§ 6.2 The Ontological Requirements of Act, Acting, and Action

Our goal is not to explain act, acting, and action as things-in-themselves. We already know enough of Kant's theory to know we cannot achieve that goal. What we are after instead is to understand how we have to look at the ideas of act, acting, and action, and what we have to do in order to use these ideas with objective validity. That goal *is* within our power to achieve.

It is clear that any act and any action must involve: 1) something that is doing the acting; 2) something that is acted upon; and 3) some change or alteration from some state of being into another. (1) and (2) may be the same object or they may be different objects. Therefore, the first ontological requirement we have is that of an object or objects. Now for something to be regarded as an object in the sense of being an agent or a patient, the *formal* requirement of the object concept is that it be determined in judgment under the category of substance and accident, in Relation to the manifold of concepts, and under the category of unity in its Quantity of composition. We have already seen that the notion of substance in determining judgment is the notion of an object persistent in time. It is through this notion that diverse appearances can be connected in time in one object, e.g. Octavian the boy, Octavian the man, Augustus the emperor.

It is said of an object, regarded in terms of its notion of substance, that in categorical judgments it can only be judged as the subject in the subject-predicate form of a judgment. For those of us who are not professional logicians, this may appear to be a patently false assertion. For example, suppose our object is a man named Tom. The concept of Tom *qua* Tom is obviously a concept containing the notion of substance. However, it is perfectly correct to predicate "Jerry punched Tom," and this places Tom within the predicate. A contradiction, is it not? No. The predicate here is not "Tom" but rather it is "punched Tom," and this is a concept very different from the concept of Tom *qua* Tom. It is one of the subtle points of logic that Aristotle pointed out quite early in *Categories*:

Of things that are said, some involve combinations while others are said without combination. Examples of those involving combination are: man runs, man wins; and of those without combination: man, ox, runs, wins [ARIS1: 3 (1^a16-19)].

The concept representation "punched Tom" is a combination in judgment having a Quantity of composition other than the category of unity. It is likewise not an object to which the notion of

substance is applied, although the notion of accident is applied to it within “Jerry punched Tom.”

This is admittedly something of a fine point in transcendental logic. The notions of both substance and accident belong to the same category of Relation (the category of substance *and* accident) and it is not a question of applying either one *or* the other in a determinant judgment. Rather, the notions of substance and accident are distinguishable in the manifold of concepts only by the form of connection in the *nexus* in reference to the object. Accidents pertain to the various appearances of the object, substance to the object *as* the object. Tom may have wavy blond hair at age seventeen and be bald as an egg at age fifty, but the “substantial Tom” is unaffected by this. We could put it most plainly by saying that substance pertains to the *Dasein* of the object, accident to its *Existenz*. The *Dasein* of one object cannot be predicated of a different object.⁵

Substance is that, regarded as it is in itself, which exists only as subject; accident, what exists only as predicate or determination of a thing, or whose *Existenz* is mere inherence. That of which *Existenz*⁶ is mere subsistence is substance . . .

Accidents are manners of thinking the *Existenz* of a thing, and not different *Existenzen*⁷; just as Locke says, that the substance is the bearer of accidents, for that reason it is also called *substratum*. The relationship of the accidents to the substance is not the relationship of cause to the effect. Substance can clearly exist as *rationatum*⁸, but not as predicate. These are wholly different concepts. We are indeed acquainted with the accidents, but not with the substantial. This is the subject which exists *after the separation of all accidents*, and that is unbeknownst to us, for we are aware of substances only through accidents. This substantial is the something in general. I cannot recognize something by a thing other than through judgments, and predicates always underlie these. We can recognize substances only through accidents . . . The *Existenz* of a substance is subsistence, the *Existenz* of an accident is inherence. - We also have a principle among the substances and accidents; this is the principle of the persistence of substances [KANT19: 327-328 (28: 563)].

This is the first ontological distinction we require for our task at hand. Although we speak separately of the notion of substance and the notion of accidents inhering in a substance, these notions, from a logical perspective, are distinctions made from the structure of the manifold of concepts and the rules by which objects are referred to this manifold. Neither the notion of substance by itself nor the notion of accident by itself are categories of determining judgment. To emphasize this point, Kant sometimes referred to the category of substance and accident as the category of subsistence and inherence.

Now, the fact that we distinguish between the notion of substance and the notion of accident

⁵ Although Aristotle's ontology is vastly different from Kant's, ontological material considerations such as this run throughout Aristotle's science of demonstration. It is precisely this system of material rules which that formal logic of the Middle Ages we have come to call "Aristotelian logic" discarded; thus my contention earlier in this treatise that Aristotle's logic and "Aristotelian logic" are not the same thing.

⁶ There is an opportunity for confusion here. Kant is talking about how substance *is to be regarded* in terms of our concept of its existence. The concept of the-manner-in-which something exists is *Existenz*, the concept that something does exist is *Dasein*.

⁷ plural of *Existenz*.

⁸ That which is the implication of a premise. For example, the *Dasein* of a cause is implied in the actual experiencing of an effect.

by how a phenomenal object is referred to the manifold in judgments means that this referral must fall under a principle of understanding. This principle is easy to state in terms of objective outcome. A substance is that which occupies the position of subject in the logical form of a categorical judgment; an accident takes its place in the predicate of such a judgment. There can be no accident without a substance in which this accident inheres. In this sense, we say that a substance contains the causality of accidents because without the substance the accident could not exist. However, this is an idea we must treat with great care because if the copy of reality hypothesis should infect our thinking at this point we will commit a most egregious *saltus*.

When we say that an accident cannot exist without a substance, we are not making any transcendent statement about any *noumenal* thing-in-itself. The substance-accident Relation is nailed rigidly to the Copernican hypothesis: objects must conform to our cognitions. What we are saying is that concepts of accidents cannot be connected in the manifold of concepts except by a concept that stands as the concept of the substantial object in a Relation of substance and accident. This is the **acroam of substance and accident**. This law is also the ground for our second important ontological idea, namely the idea of *Kraft* (power). At its most primitive level, *Kraft* is nothing other than this ontological law of the relationship of substance and accident.

In every experience the real is the relationship of substance to accident . . . With a substance we can have two *respectus*⁹: *respectu accidentium*¹⁰ it has *Kraft* in so far as it is the ground of their inherence; and respective of the first subject without any accidents, that is the substantial.¹¹ *Kraft* is thus not a new accident, but rather the accidents are effects produced by the *Kraft* . . . The other *respectus* is of the substance with its accidents to the substantial, i.e., to the subject which is distinguished from all *other* accidents . . . I do not say that substance is a *Kraft*, but rather that it has *Kraft*; the *respectus* of the substance to the accidents, in so far as it contains the ground of their actuality, is *Kraft* [KANT19: 178-179 (29: 770-771)].

All our other ideas involving the idea of power (*Kraft*) are built out of this basic ontological *Realdefinition*. (The reader may wish to consult definition (2) of *power* in the glossary).

Building out from this *Realdefinition* of *Kraft* we come to the notion of cause. Here again we mark the fact that the category of understanding is causality *and* dependency, not the notion of cause. As is the case for the category of substance *and* accident, the category of causality *and* dependency does not distinguish these notions but leaves that to the form of the manifold.

⁹ "Respect" in the sense of "having regard to or with respect to." Here the term denotes an inter-relationship.

¹⁰ "in regard to accidents."

¹¹ All concepts of objects have to start somewhere and "substance" is the most general notion of any object. The first conceptual representation of an object, prior to combination with other concepts that make up the representation of its *Existenz*, is the "first subject" of which Kant speaks. Such a general concept gets its first representation from an inference of judgment; that is, it is the product of *reflective* rather than of determining judgment and comes to be a concept via the synthesis of re-cognition in imagination and with a transcendental schema for persistence in time as its schema of Relation.

The transcendental schema for the category of causality and dependency is succession in time. Thus, this category is found in the idea of *change* since it is change above all else that is distinguished in successive moments in time. We would not be going too far in saying it is change that justifies Kant's use of the word "appearance" for the object of concepts of accidents.

In the idea of *Kraft* lies the notion of cause. The substance is regarded as subject, and this as cause. Accident is therefore something real because it exists by inhering and not for itself. Causality is the determination of a change by which it is established according to general rules. The idea of the *respectus* or the interrelation of the substance to the *Existenz* of accidents, insofar as it contains their ground, is *Kraft* [KANT19: 328 (28: 564)].

When we combine the idea of change with the idea of *Kraft* we come to the idea of acting.

The coexistence of the changeable with the fixed is the state. In everything something is constant, that is, fixed. The changeable, insofar as it coexists with *Existenz*, is state - it is thus nothing but the determination of a substance in time. In time only changes are possible; if the determinations in different times are different, then the state is changed; if they are the same, the state is not changed . . . Inner state is *Coexistenz* of inner changeable determinations with the existent, outer state is *Coexistenz* of the relations with the existent, modification is change of inner state . . . Act can be derived from *Kraft*, and other things from both; corresponding to it is *passio*, suffering. The possibility of acting is *facultas*, the possibility of suffering is *receptivitas*. A substance, insofar as it contains the ground of that which belongs to the *Dasein* of *one thing* acts; insofar as the ground of that which belongs to its own *Dasein* is contained in another substance, it suffers passively. Every substance acts, because the subject subsists. The predicates inhere in each substance, the accidents . . . cannot exist other than in the substance, thus it contains the ground of something which belongs to *Existenz*, thus it acts . . . Substance acts insofar as it contains not merely the ground of the accidents, but rather also determines the *Existenz* of the accidents; or substance, insofar as its accidents inhere, is in action, and it acts insofar as it is the ground of the actuality of the accidents; substance suffers (is passive) whose accidents inhere through another *Kraft*. How is this passion possible, since it was said earlier that it is active insofar as its accidents inhere? Every substance is active insofar as its accidents inhere, but also passive insofar as they inhere through an outside *Kraft*; this is not self-contradictory [KANT19: 180-181 (29: 772-773, 822-823)].

This is a long quote, and it contains quite a few different ideas. Let us break it down a bit. There are two new principal factors Kant is introducing here. One is the idea of state. The other is the idea of connections between substances as determinations of their accidents through the category of causality and dependency and the category of community. The idea of state is fundamental to the latter type of determination, so we will begin with it.

State is the coexistence of the changeable with the fixed – i.e. that accidents inhere in and provide the appearance of the *Existenz* of their substances. Now, the notion of substance is a notion belonging entirely to intelligible Nature. We never experience substance *per se*; all of our objects of experience are appearances and these appearances stand under the notion of accident. The notion of accident thus belongs to sensible Nature. *State* is therefore the idea of a necessary combination made up of intelligible objects (the objects of the notion of substance) and sensible

objects (the phenomena of appearance).

The only objective validity we can attribute to intelligible objects is, as we discussed earlier in this treatise, *practical* objective validity. The objective validity of sensible objects is, of course, *theoretical* objective validity (objective validity from the categories of understanding). (We are making theory here, and this requires us to form a representation of the objects we are discussing; this is why we must be clear about the sort of objective validity we can attribute to the intelligible and sensible objects in this theory). Substantial objects (that is, Objects represented with the notion of substance & accident) can have practical objective validity attributed to them only on the ground of practical causality; for concepts of their appearances we must always have a notion of Relation (substance and accident, causality and dependency, or community). State is an idea for which Relation in judgment is that of the category of community.

We have here a Critical construct not entirely without analogy to Aristotle's *ousia* (Aristotelian substance). For Aristotle substance always contained both matter and form. For Kant state always makes reference to objects understood by the notion of substance & accident. Aristotle's theory required, in addition to this, the dynamical ideas of potentiality and actuality (*dynamis* and *enérgeia*). These ideas find unity in Aristotle's system in the idea of *entelechy*. With Kant we also require a dynamical component and this "dynamical unity" for the idea of state is *Kraft*. As was the case for Aristotle's *entelechy*, we will have to make a logical division of *Kraft* into two parts that correspond in analogy to *dynamis* and *enérgeia*. We will elaborate on this division in a minute, after discussing the other new factor introduced above, but, so as not to leave you hanging in suspense, we will name these members of the division now: **action** and **act**.

As for our other new factor, the synthesis of imagination in re-cognition has three schemata in Relation by which a singular intuition is made into a concept: persistence in time, succession in time, and coexistence in time. The first, which is judged in Relation by the category of substance and accident, we have already discussed. The latter two types of re-cognition both involve multiple substances and the re-cognition of intuition in this case involves, depending upon which transcendental schema of Relation we have, connection either employing the Relation of causality and dependency or that of community. Clearly the possibility of either of these forms of re-cognition presupposes the prior formation of judgments of substance and accident (these concepts having also been re-presented in sensibility as *materia in qua* of the intuition being re-cognized). Now, accidents inhere in their substance; they do not "travel around" from one substance to another. But in judgments of causality and dependency and in judgments of community the presence of one substance is said to determine (at least in part) the accidents of another substance. In causality and dependency a substance in a prior moment in time stands as cause to the effect registered in intuition at the present moment. In community, the substances are presented in the same moment in time and co-determine each others' accidents.

Theoretical *Kraft* is the law of understanding that says substance cannot be a predicate and accident cannot be a subject in the logical form of a judgment. Under the transcendental schema of persistence in time a substance is said to determine its own accidents and in this sense the substance is agent (cause) of this determination. But under the transcendental schema of succession in time (the corresponding category being causality and dependency), a substance previous in the time-order stands as cause of the accidents for the substance following in the time-order. These substances do not necessarily represent the same substantial object. Thus in this case we have the prior substance as agent, the succeeding substance as patient, and the latter is said to “suffer” the effect of the former. But this “patient substance” is also held, as a persistent in time, to be the cause of the determination of its own accidents. We say it “reacts” to the agent substance insofar as the causality of its accidents is concerned.

We have a similar situation under the transcendental schema of coexistence except that in this case the substances are presented in the same moment in time and reciprocally determine each other. In other words, each is regarded as a cause of the accidents of the other and, at the same time, suffers its own accidents as effects of the other substance. This is reciprocal interaction between substances in the representation of a determinant judgment. Regarded under the notion of cause, *Kraft* therefore has three *modi*, which we can call *immanent power* (schema of persistence in time), *transeunt power* (schema of succession in time), and *reciprocal power* (schema of coexistence in time). In all cases the Modality of *Kraft* must be viewed by our theory as that of *necessary* determining factor because *Kraft* grounds its *Realdefinition* in a pure *a priori* law of understanding. Judicial *Kraft* is the idea of the relationship between a substance and its accidents insofar as the substance is regarded as containing the ground of the accident. As Kant put it, a substance is not a power (*Kraft*) but, rather, *has* power [AK29: 771].

Here it is worthwhile to point out a connection between our theory and Piaget’s idea of structures. We recall that Piaget defined structure as the totality of a *system* whose laws are self-regulating transformations and which may contain differentiable sub-structures within it that inherit the laws of the system-as-a-whole but may also have their own special laws of transformation. The idea of *Kraft* can be seen in connection with Piaget’s idea as a law of *organization in a structure*. Consequently, it is the *a priori* metaphysical foundation in our Critical ontology of the *functional invariant of organization*, and it is the transcendental ground of Piagetian organization *a priori* in Critical metaphysics from the *practical* Standpoint.

We now return to the idea of state and the dynamical character of *Kraft*. State is a determination of a substance in time. Change is the differentiable in state from one moment in time to the next; indeed, perception of differentiable moments in time is the *Realdefinition* of change. *Kraft* is the law of understanding for the determination of state in each moment in time. Now, we have noted earlier that in the pure intuition of time we must regard one moment in time

as “growing out of” the previous moment, i.e. as a process of generation. To this note we must add: Because *Kraft* spans intelligible Nature (substance) and sensible Nature (accident) we can regard *Kraft* only as a *practical idea* (the transcendental place of the notion of *Kraft* is placed outside of the conditions of sensibility, i.e., outside the condition of time) *judicially* exhibited in organization and merely employed *theoretically* in understanding. As an idea of the character of causality, *Kraft* belongs under *practical* causality (a distinction we discussed at great length in Chapters 10 and 11).

But although *Kraft* is an idea not bound by the conditions of sensibility (time), it nonetheless must be set in relationship with understanding and this connection means that the idea contains a reference to temporal Relation via Relation in determining judgment. On the side of intelligible Nature, this connection is merely one of form; on the side of sensible Nature, it is one of matter inasmuch as accidents are the sensible matter in *Existenz*. In this context we represent *Kraft* using the following ILAR.



A cause “causes something” and this property of *Kraft* as a power is what this ILAR represents. The idea of *act* is the idea of making a *nexus* of accidents in an intelligible manifold of organization. The idea of *action* is the idea of the composition of matter in this manifold as represented in the changeable accidents of appearance. **Acting is realizing a mere *Vermögen-to-act* by producing an action.**

We noted in the previous sub-section that action and act are terms rather poorly distinguished in English. It might be interesting for us to note that the Latin roots of these words are *actio* (*ago* + *-tio*) and *actus* (*ago* + *-tus*)¹ and we mentioned earlier that the verb *ago* has 44 definitions listed for it in the *Oxford Latin Dictionary*. The sometimes distinct, sometimes synonymous dictionary definitions given earlier reflect this basic equivocation in these two terms. Our distinction between these terms is based on the substance-accident distinction, i.e. our distinction between the intelligible and the sensible in Nature.

We will start with action (*actio*, *Wirkung*), in part because Kant seems to have gone along with Newton in apparently thinking that this term needs no special introduction. We find Kant using this term in contexts of appearances. He uses it extensively, for example, in his notes and comments on physics and the metaphysics of natural science. To help us get a better feel for

¹ The suffixes *-tio* and *-tus* turn a verb into a noun that denotes the action of the verb as an action in progress, e.g. *venatio* = "hunting" or *gemitus* = "sighing." *Actio* and *actus* consequently both have the flavor of "doing something."

Kant's usage of the term "action" let us take a brief look at Newton's use of this word.

Newton makes his first use of this term in Definition IV of *Principia*.

Def. IV: An impressed force is an action exerted upon a body in order to change its state, either of rest or of uniform motion in a right line.

This force consists in the action only, and no longer remains in the body when the action is over. For a body maintains every new state it acquires by its inertia only.

Although I have seen several reputable physics textbooks apply the term "action force" (particularly in connection with Newton's third law), it is obvious that Newton does not make "force" and "action" synonymous. (If he did, his definition above would be merely a tautology). In technical usage we find ourselves having to equate the idea of action with the dynamical idea of change of state, and this fundamental idea suits the Critical ontology insofar as "change of state" is understood as "change in the accidents of appearance." Newton had an observable particularly well suited for the role of "state" in his mechanics, namely "quantity of motion" (which today is known in physics as "momentum"). That we regard Newtonian action (as opposed to the later more sophisticated definition of "action" in Hamilton's principle) as change in this state is reflected in Newton's famous third law:

Law III: To every action there is always opposed an equal reaction: or, the mutual actions of two bodies upon each other are always equal and directed to contrary parts.

. . . The changes made by these actions are equal, not in the velocities but in the motions of bodies[.]

It is a simple exercise in physics to demonstrate that the "mutual action" of two bodies under Newton's law of gravitation results in equal and oppositely-directed changes in the momentum of each body. (The gravitational force experienced by each is also equal and oppositely directed, but we know that Newton does not equate force and action). Hence, "change of state" and "change of quantity of motion" are equivalent descriptions in Newtonian mechanics.

When we take "motion" more generally and in the context of our Critical ontology, the generalization of this term bears the connotation of the Greek *kinesis* (change of any kind), and this is a usage of the term "motion in general" that fits nicely with the idea of the sensible appearance of state in terms of accidents. State representation in a phenomenon is a representation of accidents. **Change in state – i.e., action – is change in the appearance of accidents from one moment in time to the next.**

Historical side note: When Kant turned his attention away from metaphysics to physics he often employed an interesting technical term for "momentum" (a term Newton did not use) that illustrates its connection under the general notion of *Kraft*. This term was *bewegende Kräfte* or

“moving powers.” When his writing exclusively concerned topics in physics or chemistry², he often abbreviated this even further to merely *Kraft*. Although the Bax 1909 translation and the more recent Ellington translation of *Metaphysical Foundations of Natural Science* both render *bewegende Kräfte* as “moving forces”, I disapprove of this rendering because of the special role the technical term “force” holds in physics. In *Opus Postumum* and elsewhere, Kant comments that “moving power” is an idea that does not belong to the metaphysical *foundations* of physics but does belong to the (applied) metaphysic of physics as an *a priori* idea – that is, as an idea of an intelligible object – provided that “I understand by moving power only the motion itself” [KANT10: 40 (21: 475)]. The direct evidence that “moving power” equates to “momentum” is provided in one of Kant’s handwritten notes on physics, where he writes

mass multiplied with velocity is *Kraft* [AK14: 187]

and on the previous page where he writes "*massa* [mass] \times *celeritas* [velocity] = *Kraft*" [AK14: 186]. We therefore take “moving power” as a synonym for Newton’s “quantity of motion” and regard “physical action” in the context of physics as “change in quantity of motion”. □

When we turn to the form of *Kraft* (act) Kant favors us with a more or less explicit explanation:

Acting and action can only be attributed to substances. The act is the determination of the *Kraft* of a substance as a cause of a certain accident. Causality is the property of a substance in so far as it is regarded as cause of an accident. We can recognize the powers [*Kräfte*] of things through changes. Action [*actio*] is either immanent or transeunt. If an inner act or immanent action is performed then it is said: the substance actuates. Transeunt action is also called *influxus*, influence . . . Suffering is the inherence of an accident of a substance through a power that is outside it. *Commercium* is relation of substances with reciprocal influence. *Vermögen* and *Kraft* are distinct. In the case of *Vermögen* we present only the possibility of the *Kraft* [KANT19: 329 (28: 564-565)].

Act is *Kraft* regarded as the practical causality of a substance in the determination of accidents of appearance. It is, in other words, the practical notion of the causality that we attribute to a Kantian substance and, as such, its objective validity can only be that of practical, not theoretical, objective validity. As causality is a notion of form, act is the form of *Kraft*.

² At the time Kant received his education chemistry was phlogiston chemistry. In one or two places Kant makes rather unkind remarks about chemistry's status as a science, and his own tentative (and not very well developed) thoughts on this subject have a flavor to them that is much closer to what today we call quantum physics than to what we know as chemistry. As we all know, quantum physics is today the basic foundation of the science of chemistry. Kant, of course, did not discover quantum physics, but what little reflection he did give to chemistry tends to lean in that direction insofar as his theory was a field theory and we recognize that the idea of electromagnetic fields, much less quantum probability amplitudes, had not yet been born. We can probably best call Kant's approach "physical monadology" - Leibniz' idea stripped of "soul." Kant's monad and Eddington's "wavicle" seem to have a surprising number of things in common.

§ 6.3 Transcendental Logic and Ontology

The *Kraft* principle is one of our key acroams for making the transition from Critical metaphysics to any applied metaphysic. Our deduction of this principle is based upon the substance-as-subject-only character of the notion of substance, and so it is important for us to understand the implications of this.

The traditions of logic bequeathed to modern science are purely formal in character (whether we are speaking of traditional “Aristotelian” logic or symbolic logic). If we look at the evolution of Aristotle’s logic into its pure formalism we may make note of a couple of key points. We have seen earlier that the move to pure formalism was well underway by the time of the later Peripatetics and was fully completed by the Neo-Platonists. Aristotle himself is partly to blame for this, in my opinion, because although he went into great detail about the formal elements of his logic (*Prior Analytics* and *Posterior Analytics*), his writings on the material elements of his science of demonstration were nowhere near as well-organized (being mixed in with his *Metaphysics* and *Physics* works). In addition, Aristotle distinguished between his science of demonstration and dialectic. Over time, all the material elements of his system came to be viewed as dialectic, and this led to a number of issues that pointed to crucial weaknesses in the formal logic of the Scholastics.

A central material element of Aristotle’s system was his collection of the ten Aristotelian categories. Opinion has been long divided over how these categories should be interpreted. Robin Smith points out that there are at least three different schools of thought on this. In the first interpretation, the categories are regarded merely as types of predicates – i.e. they represent merely the most general types of questions that can be asked about a given thing. The second interpretation regards the categories as “highest *genera*” in the genus-species-subspecies etc. classification of things. The third interpretation is that the categories are kinds of predications – i.e. possible relationships between a subject and its predicates [BARN: 55-56]. Each of these interpretations has points in its favor, and each has counterpoints that work against it. In every case, however, the traditional “Aristotelian” logic is eventually shorn of its material elements and what remains helps to underscore the position of the logical positivists that logic is to be viewed as a kind of syntax of language or a linguistic structure. This is a postulate that many facts of developmental psychology appear to refute and which is even denied by some linguists.

In brief, it seems clear that the present situation with regard to the study of language learning is essentially as follows. We have a certain amount of evidence about the character of the generative grammars that must be the “output” of an acquisition model for language. This evidence clearly shows the taxonomic views of linguistic structure are inadequate and that knowledge of grammatical structure cannot arise by application of step-by-step inductive operations (segmentation, classification, substitution procedures, filling in slots and frames, association, etc.) of any sort that have yet been developed within linguistics, psychology, or philosophy. Further empiricist speculations contribute nothing that even faintly suggests a way of overcoming the intrinsic

limitations of the methods that have so far been proposed and elaborated. In particular, such speculations have not provided any way to account for or even to express the fundamental fact about the normal use of language, namely the speaker's ability to produce and understand instantly new sentences that are not similar to those previously heard in any physically defined sense or in terms of any notion of frames or classes of elements, nor associated with those previously heard by conditioning, nor obtainable from them by any sort of "generalization" known to psychology or philosophy . . . The real problem is that of developing a hypothesis about initial structure that is sufficiently rich to account for acquisition of language, yet not so rich as to be inconsistent with the known diversity of language [CHOM2: 57-58].

Nonetheless, the “language is logic” or “language expresses logical structure” assumptions are quite commonly employed. A good case could be argued that, in the absence of formal rules for material elements of logic (an idea that seems oxymoronic), falling back upon language structure is as good a way as any to test “metalogic” principles such as the *Kraft* principle. Given a “metalogical proposition” we frame some predication intended to put the truth or falsity of that proposition to the test. This might seem a good, safe, empirical way to proceed, but it is not without issues. One of the more important of these is that each of us tends to frame such predications in one’s own native language or in the language that we use everyday (which are, for most Americans, one and the same). This has a tendency to lead to the confusion of grammar with logic. Perhaps the best way to illustrate this is to compare the expression of the same idea in different languages. Consider the following examples.

Dessen Existenz blos Subsistenz ist, ist Substanz.

[lit. = Of which existence mere subsistence is, is substance.]

That of which existence is mere subsistence is substance

or = Substance is that of which existence is mere subsistence.

Substanz ist das, was an sich selbst nur als Subject existirt.

[lit. = Substance is that which as itself by itself only as subject exists.]

Substance is that which, regarded as it is in itself, exists only as subject

or = That which, regarded as it is in itself, exists only as subject is substance.

In these two examples the word-by-word literal expression and a proper English expression are not all that different from each other. This is due largely to the fact that modern English’s roots are Germanic. What I would like you to note is the two acceptable English translations given for each German sentence. In particular, you should note the *reversal* of subject phrase and predicate phrase between the two. Both convey the same meaning but viewed as *logic expressions* the difference is significant. To better illustrate the grammar issue, let us look at a pair of examples from a language far different from English, namely Japanese.

Ki no isu desu.

[lit. = wood of chair is.]

The chair is of wood

or = It is a wooden chair.

Kare no byōki wa omoi no desu.

[lit. = He of illness as-for heavy one is.]
 His illness is serious
 or = He is seriously ill.

Again we have two acceptable translations with differing subject and predicate phrases.

From the point of view of language this reversal of subject and predicate is of no consequence because both translations mean the same thing. From the viewpoint of formal logic, however, the difference is vast and of such a nature as to perhaps cast doubt upon the *Kraft* principle. This subject-predicate ambiguity, in more scholarly and sophisticated forms, is indeed one of the principal arguments favoring symbolic logic over the “outdated Aristotelian logic” and for logicians’ argument that logic is a science (or a mathematic, depending on your point of view) of pure forms with “non-formal propositions” being beyond its jurisdiction. The examples given above are illustrations of what I call “the ambiguity of equation propositions” (categorical propositions used to define one thing in terms of another). The equal validity of the translations given above is based upon the idea of *meaning*. It is obvious that English permits this logical ambiguity to arise in statements we say “have the same meaning”; the question is: does this invalidate the *Kraft* principle?

If the establishment of meaning were the exclusive domain of determining judgment, we would have to regard the ambiguity of equation propositions as a counterexample invalidating the *Kraft* principle. From this invalidation another would follow, namely the invalidation of Kant’s system of the categories of understanding. This consequence would follow because if the *Kraft* principle is invalid then we would require separate categories for substance and accident, and there is no room in Kant’s transcendental deduction of the categories in *Critique of Pure Reason* for such a thing. Many philosophers (Young, for example) regard Kant’s transcendental Logic as belonging exclusively to the making of determinant judgments, and if they were correct then Kant’s system would indeed be seriously flawed. Fortunately, Kant’s Logic goes well beyond mere determining judgment. Kant introduced transcendental Logic as follows:

Accordingly, in the expectation that perhaps it can give notions that might refer *a priori* to objects - not as pure or sensible intuitions but rather merely as acts of pure thinking, that are therefore notions but of neither empirical nor aesthetic origins - we then make to ourselves beforehand the Idea of a science of pure understanding and ideas of reason, by which we think objects fully *a priori*. Such a science, which determines the origin, scope, and objective validity of such knowledge, would have to be called *transcendental logic* because it merely has to do with the laws of understanding and reason, but exclusively so far as it is relative to objects *a priori* and not, like general logic, to the empirical as well as pure ideas of reason without distinction [KANT1a: 196-197 (B: 81-82)].

Thinking, it is true, involves the process of determining judgment; but it involves more as well, namely the synthesis of imagination, acts of the process of reflective judgment, and the ratio-expressions of pure speculative Reason.

“Understanding” is not one of our processes in the cycle of thought. Rather, it is something that the Organized Being has the ability to achieve. But this achievement calls upon the process of reflective judgment and the process of Reason in addition to the process of determining judgment. The implication this holds is that transcendental Logic goes beyond merely combining concepts through the categories of understanding and takes in all the potential powers (in the *Vermögen* sense) of *nous*. Thinking is an action involving all the logical divisions illustrated in our diagram of the cycle of thought (figure 9.3.1). Accordingly, since understanding includes the understanding of *meanings* and not merely conceptual representation, the idea of “meaning” is at root a *practical* idea of Reason. If by Logic we mean transcendental Logic, we can say without reservation that language is not Logic and the analysis of the thinking Nature of Logic cannot be limited to the mere examination of the forms of language predications or grammars.

To make a science of Kant’s Logic requires as a first step the full explanation of his architectonic system of the faculty of mind. This is what we are working on in this treatise. Beyond this, however, it also requires the deduction and derivation of the *a priori* rules of this Logic. That topic we call the *logic of meanings*. The treatment of the ambiguity of equation propositions, and their reconciliation with the *Kraft* principle, must await a treatise on the logic of meanings, and that work must necessarily come after the present treatise. Here it is enough for us to understand: 1) that epistemology takes precedence over ontology in the Critical Philosophy; and 2) language is not Logic and we cannot come to a full judgment of the structure and rules of Kant’s science of transcendental Logic by the mere examination of predications in the tradition of formal logic, be it “Aristotelian” or symbolic. The *Kraft* principle states the *Dasein* of one substance cannot be predicated of another substance (although the *Existenz*, i.e. the accidents, of an object can be so predicated). This principle has consequences for the laws of transcendental Logic and, indeed, *is* one of the acroamatic principles of that Logic. We cannot use the rules and habits of thinking in terms of formal logic as it exists today to judge an acroamatic principle such as this one. In mathematics and in symbolic logic axioms precede theorems and proofs, **but the acroams of transcendental Logic precede axioms**. There is no other way to proceed with objective validity.

§ 7. *Psyche* and the *Lust* Principle

In §6 we have discussed the *Kraft* principle. This is a general ontological principle that applies to thinking when we examine objects and make representations of their *Existenz* insofar as we can make a representation of their appearance. What we must now undertake is to come down from this high ontological eyrie and apply the *Kraft* principle to the thinking nature of mind. We began this Chapter in search of the answer to the question: What is *Lust per se*? We have looked at

many empirical and ontological topics that seemed to us to be in some manner connected with this question (or which we came to in examining these other topics). It is now time to apply this knowledge to our goal. Our path to this is the deduction of a principle of acting in the particular as seen in the context of the Organized Being. Our entry point is the *Kraft* principle as this principle is applied to *psyche*.

Now, we have said *Kraft* is a fundamental property of substances, but we have also said that *psyche* represents the necessary Relation of community between *nous* and *soma* in the Organized Being model. Since a Relation of community is not a Relation of substance and accident, can we attribute *Kraft* to *psyche*? This is the very first question we must explore and it is equivalent to asking: Can *psyche* be regarded as substance with objective validity?

Soma is the persistent in time we attribute to the logical division of the Self that we call body; *nous* is the persistent in time we attribute to the logical division of Self called mind. The logical division of the Self which we call *psyche* enters our model as the faculty of animating principles of reciprocity between body and mind, which is to say that it is the unity of Relations of community between *nous* and *soma*. What these Relations may be in the particular is not known *a priori* and their discovery and elucidation belongs to empirical science. What we can and *must* assert as a necessary and universal Idea of Organized Being is that *reciprocal Relations must always exist* between *nous* and *soma* in the *living Self*. We cannot with objective validity posit specific permanent Relations because all our knowledge of such Relations is knowledge of the accidents of appearance in Relations of psychological and physiological phenomena. We *must* require that Relations of community always exist in the living Self. As the unity of such Relations, *psyche* is an object, but can take its transcendental place neither in *soma* alone nor in *nous* alone. Therefore we cannot regard *psyche* as a property of either of these substances. Thus the idea of *persistent reciprocity* between *nous* and *soma* contains a notion of substance. It is in this very limited context that we may view *psyche* as substance with objective validity.

Specific Relations of community between *nous* and *soma* are empirical and therefore accidents of *Self-Existenz*. State is a determination of substance in time and so, as object, *psyche* is neither *Sache*-thing nor *Unsache*-thing but instead is *state of Self-Existenz*. Viewed in this context, the idea of *psyche* contains an idea of *Self-organization* as a functional invariant of an Organized Being. This does not mean specific Relations of reciprocity that may be observed in the Self are invariant. It does mean that somatic accidents such as biological maturation have noetic accidents as a counterpart in the organization of the Self and, likewise, all noetic accidents (e.g. experience, specific state of consciousness, memory, etc.) have their reciprocal somatic accidents. To Damasio's comment, "The mind is embodied, not just embrained," we must add, "the body is *minded*."

Kraft is a property of every substance and the idea of *Kraft* contains the notion of causality.

Because *psyche* is the faculty of Self-animating principles, and because the idea of Self-animation contains the notion of change, we are led to inquire as to what idea of *Kraft* is objectively valid for *psyche*-as-substance. Causality is the determination of a change by which the change is established according to general rules, and so the notion of causality embedded in the *Kraft* of *psyche* is to be viewed in terms of general rules governing change of state of *Self-Existenz*. Now, in addition to the functional invariant of organization we have a second functional invariant, namely adaptation. Adaptation is the alteration of structure that accommodates disturbances and restores equilibrium. It is change in the accidents of state. When we discussed the objective validity of adaptation in Chapter 4 we noted that the transcendental place for a faculty of adaptation in general is *psyche*. The *Kraft* of *psyche* is exhibited in *Self-adaptation*. The relationship of substance to accident is the real in every experience, and *Kraft* is the interrelationship of substance to accident insofar as substance contains the ground of the actuality of the accident. What we must examine next is this idea of *psyche*-as-substance for which the *Kraft* is Self-adaptation.

§ 7.1 The Function of Self-Adaptation

Adaptation is the accommodation of a structure to a disturbing factor with the subsequent assimilation or removal of that disturbance. Examples of physiological and neural adaptation are commonplace and the study of somatic adaptation properly belongs to the biological sciences. To examine noetic adaptation we must account for the accommodation of representations.

To begin with, a representation constitutes a disturbance only if it is discriminated as such by the Organized Being. Here we recall Kant's earlier statement that the *Vermögen* (capacity, potential power) of discrimination of representations, insofar as they modify the Subject, is the *Vermögen* of *Lust* and *Unlust*. Note the qualification given to this capacity: not only is the representation discriminated, but this discrimination results in the modification of the Subject. This modification we regard as a change in subjective state. The power to determine such a change of state, however, is an *act* and the effecting of the change of state is an *action*. Act and action in general are form and matter, respectively, of a *Kraft*, and so we have here our first idea of the *practical function* of *Lust per se*, namely that the idea of *Lust per se* is contained in the idea of the *Kraft* of *psyche*.

Now this raises a rather subtle question. When is a modification of the state of the Subject to be regarded as an adaptation rather than as a non-adaptive modification? We said in Chapter 4 (§4) that events such as breaking a fingernail and biological maturation are typically *not* regarded as adaptations whereas phenomena such as learning *are* so regarded. In what lies the distinction between a change that is non-adaptive and a change that is adaptive?

Biology, psychology, and system theory all have their respective definitions of adaptation.

Biology defines the term in three contexts:¹

- adaptation:** 1. Evolutionary adaptation is when some property of an organism changes in such a way that the organism is fitted for its environment and if (a) it occurs commonly in the population, and (b) the cause of its commonness was natural selection.
2. Physiological adaptation is a change in an organism resulting from exposure to certain environmental conditions, allowing it to respond more effectively to them.
3. Sensory adaptation is change in the excitability of a sense organ through continuous stimulation, increasingly intense stimuli being required to produce the same response.

As we can readily see, these definitions are context specific. None of them provide a general definition of adaptation *per se*, although some sort of modification of the organism is common to all three definitions.

For psychology Reber also provides three definitions of adaptation:

- adaptation:** 1. In experimental psychology, a change in the responsiveness or sensitivity of a sensory receptor or a sense organ which is temporary in nature.
2. In social psychology and sociology, a shift in sociological or cultural disposition. Thus, one is said to "adapt" to a new environment.
3. In evolutionary theory, any structural or behavioral change that has survival value.

To these three definitions, we may also add Piaget's more general definition: **Adaptation is an equilibrium between assimilation and accommodation** [PIAG1: 6].

System theory defines "adaptive system" rather than "adaptation" and relies upon the dictionary definition of "adapt" – to make suitable to requirements; adjust or modify fittingly; to adjust oneself to different conditions, environments, etc. – in its definition. The definition is:²

An **adaptive automaton** is a system whose structure is alterable or adjustable in such a way that its behavior or performance (according to some desired criterion) improves through contact with its environment.

The engineering roots of this definition are quite self-evident. Adaptive systems belong to that class of systems called "time-varying" (the response the system will exhibit to a particular input depends on when this input occurs) and "nonlinear" (the response of the system to the sum of two input signals is not a weighted sum of the response of the system to the individual input signals). When these two properties are taken together, such a system is called non-linear-and-time-varying (non-LTI). However, within the general class of non-LTI systems the boundary line that distinguishes adaptive systems is not crisp:³

¹ Definitions taken from Thain and Hickman, *The Penguin Dictionary of Biology*, 10th edition, 2000.

² Bernard Widrow and Samuel D. Stearns, *Adaptive Signal Processing*, Englewood Cliffs, NJ: Prentice-Hall, 1985, pg. 3.

³ *ibid.*, pg. 7.

Within the realm of nonlinear systems, adaptive systems cannot be distinguished as belonging to an absolutely clear subset. However, they have two features that generally distinguish them from other forms of nonlinear systems. First, adaptive systems are adjustable, and their adjustments usually depend on finite-time average signal characteristics rather than on instantaneous values of signals or instantaneous values of the internal system states. Second, the adjustments of adaptive systems are changed purposefully in order to optimize specified performance measures.³

These performance measures are frequently measured by means of what can best be called *instrumentation functions* that are built into the system and which are often (although not always) fixed (invariant) functions.

Except for the sensory definitions above (which are of a specific and rather restricted scope), all these definitions of adaptation contain some purposive or teleological factor. System theory's definition makes this explicit (as one might expect from an engineering discipline concerned with the *design* of systems). Although all the definitions posit mechanistic causes and none say that adaptation takes place because of any final purpose, the value or purposively-expressed outcome of the adaptation is part of the context used for discriminating between that which is adaptive and that which is regarded as non-adaptive. Breaking a fingernail "serves no purpose" and so this kind of modification of an organism's somatic structure is not adaptation.

Of the definitions cited above, Piaget's has the most abstract generality with the least explicit teleological flavor. Yet the idea of "being-for-the-sake-of" is in there implicitly. Adaptation as equilibrium between assimilation and accommodation serves equilibration, and in Piaget's theory the process of equilibration is a fundamental psychological fact. It is something the organism does for no other reason we can state other than "equilibrium for equilibrium's sake." It is perhaps interesting to note that the adaptive automatons defined by Widrow and Stearns also exhibit equilibration in so far as they achieve a steady-state response to input signals. (The definition of "steady-state" in adaptive automatons is based upon average responses to stimuli, does not imply an absolutely static response to stimuli, and may exist as a limit cycle).

The dictionary definition of adaptation adds nothing to the definitions we have cited above. The teleological flavor of the idea of adaptation is built into the verb "to adapt." We may note that the Latin root of our word "adapt" is *ad* ("to") + *aptare* ("to fit"), i.e., "to fit to." We therefore find, again perhaps unexpectedly, a tie point between the functional invariant of adaptation and the idea of *formal expedience* (formal *Zweckmäßigkeit*). Kant's definition of formal expedience is "the congruence of a thing with that property of things that is only possible in accordance with purposes." The principle of formal expedience of Nature is the fundamental acroam of the process of reflective judgment and of the judicial Standpoint. Acting to achieve a condition of equilibrium is a pure *a priori* practical law of the Organized Being, and we call this law the formula of the categorical imperative. The process of equilibration is a process of acting to *perfect* the balance between assimilation and accommodation.

§ 7.2 Adaptation, Organization, and Psychic Dimension

Near the beginning of this Chapter we saw Kant describe *Lust* as “matter of perfection.” It is, he tells us, a fundamental property (a *Grundeigenschaft*) of the transcendental Subject. An equilibration is a process of perfecting, wherein an equilibrium may be regarded as a particular state of perfection. This raises the suggestion that *Lust per se* may not merely be contained *in* the *Kraft* of *psyche* but rather might be regarded *as* the *Kraft* of adaptation. But, on the other hand, Kant also refers to *Lust* as a *Vermögen* and this is different from a *Kraft*. Here we encounter a terminological opposition of Kant’s “power terms” – *Kraft* and *Vermögen*. We need to sort through these distinctions to more precisely uncover the relationship between *Lust per se* and the *Kraft* of the *psyche*.

When we discussed the idea of an ability in Chapter 4 (§3), we represented ability in terms of a matter (power, *Kraft*) and a form (capacity, *Vermögen*). We aligned the idea of the power (*Kraft*) with the *Dasein* of the ability, and we aligned the capacity (potential power, *Vermögen*) with the *Existenz* of the ability. We can illustrate the combination of these “power ideas” with the following ILAR.



Now, we cannot equate *psyche* with this directly because such an equation gives us an incomplete representation of this division of an Organized Being. Abilities are dynamical factors but, as substance, *psyche* must also be analyzed in terms of accidents of structural organization and “organization” has a substantial connotation (not in the sense that a structure does not undergo changes but in the sense that structure persists). To put it another way, an ability when regarded as a faculty (*Fähigkeit*) does not refer to a structure for which the ability is a fundamental property (a *Grundeigenschaft* in Kant’s words) but, rather, to *how the ability is organized*. This *Fähigkeit* idea here covers only one aspect of *psyche*, namely *the phenomenon of adaptation*. The *other* aspect of *psyche* is *its organization as a structure* (the functional invariant of organization). Piaget described the relationship between these two functional invariants in the following terms:

From the biological point of view, organization is inseparable from adaptation: They are two complementary processes of a single mechanism, the first being the internal aspect of the cycle of which adaptation constitutes the external aspect. With regard to intelligence, in its reflective as well as its practical form, this dual phenomenon of functional totality and interdependence between organization and adaptation is found again . . . The relationships between this organization and adaptation are consequently the same as on the organic level [PIAG1: 7].

As we have seen, organization is the internal aspect of adaptation, when the interdependence of

already adapted elements and not when the adaptational process is in action is under consideration. Moreover, adaptation is only organization grappling with the actions of the environment [PIAG1: 12].

To put this in the terminology of this treatise, adaptation and organization are *coordinate concepts* in our theory. Furthermore, both are *necessary* concepts in the idea of *psyche*. The term we will use to name this relationship of necessary coordinate concepts to the concept that stands under them is **dimension**.

The idea of dimension is one of those ideas used in science that was originally quite easy to grasp but evolved into a much more abstract term as its usefulness was extended by various disciplines. Its Latin root is *dimensio*, a measuring, and this word was derived from the word *dimensus*, to measure off. This earliest usage is quite clear. We say objective space has “three dimensions” and the word fits quite easily within the contexts of surveying and geometry. Over time mathematics found a need to generalize this term, and today we find in the *Penguin Dictionary of Mathematics* a total of *six* different definitions tied to the word “dimension”. Many of these definitions are impossible to explain to anyone except a person with an advanced education in higher mathematics. Some of them can have a non-integer number of “dimensions” (an idea utterly foreign to the simple Euclidean geometry most of us are familiar with). Perhaps the example of this that those of us who are not professional mathematicians have the best chance of having heard about is the one called “fractal dimension” (and relatively few of us are likely to have heard even of this, much less know what it means).

Physics, too, got into the act and provided “dimension” with the connotation of “physical dimensions” that have nothing directly to do with geometry other than by analogy. Examples of things regarded as physical dimensions include such ideas as mass, time, and length. Some “base set” of such “physical dimensions” is used to define what is known as a “system of units.” For example, in the International System of units (the SI system) the physical quantity called “power” (energy per unit time) has “units” of $(\text{mass}) \times (\text{length})^2 \div (\text{time})^3$, which has $1 + 2 + 3 = 6$ dimensions in its dimensional formula. Volume is $(\text{length})^3$, a 3-dimensional quantity.

The use of this word becomes even more interesting when psychology is involved. Reber tells us in his *Dictionary* that:

Originally the term was used only for the three characteristics of physical space: height, width, and depth. Now, however, it is used to refer to any well-defined quantitative series. Thus, one speaks of color as having three dimensions (brightness, hue, saturation) or of a pure tone as having three (amplitude, frequency, phase). Moreover, the term has become increasingly common with reference to non-quantitative aspects of complex stimuli, so that references to *semantic dimensions* or *social dimensions* are often seen. Note that in these latter cases the dimensions themselves are frequently difficult to specify.

We had a taste of this earlier when we discussed the dimensions of circumplex models.

Here we will refer to the “adaptation dimension” and “organization dimension” of *psyche*. It is within the adaptation dimension of *psyche* that we will find our functional explanation of *Lust per se* as a *Kraft*. In the other dimension we will find our explanation of *Lust per se* as *Vermögen*.

§ 7.3 *Lust* in the Psychic Dimension of Adaptation

Regarded in terms of “matter of perfection” Kant described *Lust per se* as a “fundamental property” or *Grundeigenschaft*. He broke this down further by calling it a fundamental capacity (*Grundvermögen*) “when it is intellectual” and a fundamental faculty (*Grundfähigkeit*) “when it is sensuous.” At first (and even at second) glance, this may seem to be quite strange terminology and, of course, Kant offered no additional explanation of these terms. In view of our discussion from the previous section, we might well have expected him to use *Grundkraft* rather than the term *Grundfähigkeit* in this description. However, if *Lust per se* is a *Kraft*, we can hardly break down its description in such a way that we *explain it* as a *Kraft*. The 1LAR shown above is an analytic division of the concept of ability. When we need to offer a *Realerklärung* of *Kraft* in terms of these “power ideas” what is called for is a *synthesis* of concepts.

Kraft is not an accident of a substance (which means the object of the idea of *Kraft* is supersensible). It is, rather, something in the idea of a substance as part of the logical essence of this idea, hence *Grundeigenschaft*. From this consideration it follows that *Lust per se* is indeed a *Kraft* and our task becomes one of synthesis of a *Realerklärung* of *Lust per se* derived from our fundamental *Realerklärung* of the idea of *Kraft*. To carry out this synthesis in the specific context of *Lust per se* we must augment the idea of *Kraft* with other *context-providing* ideas, and Kant has done this (albeit vaguely) in introducing the considerations of *Lust* “when it is sensuous” and *Lust* “when it is intellectual.” Within *nous* we have one structure where the sensuous and the intellectual coexist in one representation and that is the faculty of pure consciousness. Our synthesis in the adaptation dimension of *psyche* requires a synthesis of *psyche* and the faculty of pure consciousness.

Referring back to our 2LAR of the faculty of pure consciousness (Figure 5.6.1) and noting the ideas under the four headings of Quantity, Quality, Relation, and Modality, let us now give some more specialized names to these headings. We will call Quantity the **processes of adaptation**; Quality we will call the **powers of sensibility**; Relation we will call the **processes of judgment**; and, finally, Modality we will call the **powers of perception**. These names are wholly consistent with our earlier description of the ideas under these headings. We may note that our power terms are fixed to the two “matter” divisions of the 2LAR, while our process terms are fixed to the “form” divisions.

Now, as for *psyche* with respect to the adaptation dimension, what we must have is a 2LAR description for *psyche*’s faculty of adaptation. Our 1LAR form given earlier suffices for the

first division in terms of adaptive *Kraft* and adaptive organization. For the second division we must break these down into form and matter headings and so obtain a 2LAR. Recalling that *psyche* is the persistent reciprocity between *soma* and *nous* and recognizing that the appearance of *soma* as body is extensive composition (Quantity) and physical Relation in the Self, whereas *nous* is the intensive composition (Quality) and metaphysical *nexus* (Modality) of mind in the Self, the following terms can be applied to the four headings of this 2LAR: Somatic *Kraft* (Quantity); noetic *Kraft* (Quality); somatic organization (Relation); and noetic organization (Modality).

We must next determine how *psyche* and the faculty of pure consciousness are combined in the synthesis of *Lust*. This combination can be expressed in terms of the 2LARs of *psyche* and consciousness using a matter-form 1LAR of *Lust-Kraft*, the synthesizing function. Kant has already provided us with the names for these divisions: As matter, it is the sensuous *Grundfähigkeit* of *Lust*; as form, it is intellectual *Grundvermögen* of *Lust*. These terms refer to *sensuous combination* in synthesis and *intellectual combination* in synthesis, respectively. Figure 15.7.1 below illustrates this combination. The figure is a graphical illustration of what we will call a 4th-level synthetic representation or 4LSR. It represents the synthesis of our two 2LAR structures by placing half of one 2LAR above half of the other on the left, connecting the respective headings, and then repeating the process for the remaining halves on the right.

In constructing this diagram, the first thing to notice is that, at the 1LAR level of the structures being connected, matter is connected to matter and form is connected to form. This is to say nothing more than that *composition* must be combined with *composition* and *connection* must be combined with *connection*. The structure combination thereby maintains *structural* homogeneity in crossing the logical division of *psyche* and *nous*.

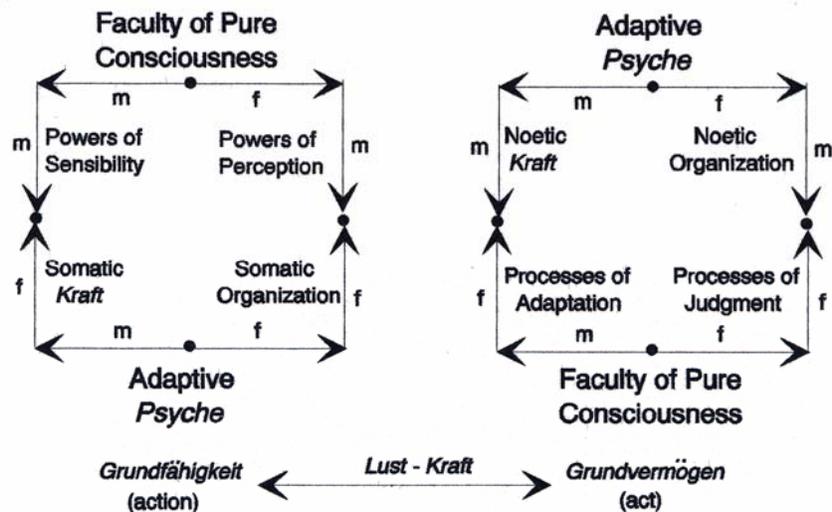


Figure 15.7.1: 4LSR Synthesis of *Psyche* and Consciousness in *Lust-Kraft*

The second point to note is the actual synthetic combining of the headings. Each of the four synthetic points (depicted by the arrows converging on the dot; analytic points are depicted by arrows pointing away from the dot) represents an outcome of the synthesis and, as such, denotes an Object in the representation of *Lust-Kraft*. Now, every representation requires both a *matter* and a *form* in the general 1LAR of representation. Thus we cannot combine, e.g., processes of adaptation (form of the matter of the faculty of pure consciousness) with somatic *Kraft* (form of the matter of *psyche* in the adaptation dimension) because the resulting combination would be pure form without matter. This would be a case where we had a manifold with no composing elements, which contradicts the definition of representation.

Next let us consider the 1LAR of *Lust-Kraft* shown at the bottom of the figure. This 1LAR is aligned with the matter-form segments of the 1LAR divisions of consciousness and *psyche*. The *Lust-Kraft* 1LAR is not intended to imply any left-to-right relationship in the synthetic constructions placed above it. It merely indicates that the left-hand side of *each* of the two upper diagrams is matter and the right-hand side of each is form. Now, if we examine the left-most synthetic point (powers of sensibility + somatic *Kraft*) what we have is combination of the power of *soma* to produce or suffer effects with the noetic powers of receptivity, spontaneity, and feeling. This speaks to Quality in the *sensuous matter* of *nous-soma* reciprocity. This is reflected in the "m" and "f" notations in the figure, and these provide a convenient memory aid in the following manner. Following the arrows for the consciousness 2LAR, we have the series "mm"; doing the same for the *psyche* 2LAR gives us "mf". The synthesis is $mm + mf$ and the center terms, "mm", can be read as "matter of the matter" or Quality of *Lust-action*.¹

Noetic *Kraft* is the Quality of adaptive *psyche* and represents the power of *nous* to produce or suffer effects. It is combined with the processes of adaptation (assimilation, accommodation, equilibration), which is Quantity in the 2LAR of consciousness and, as processes, gives an action form to the composition of this sensuous power. This is again *Grundfähigkeit*, and the pure consciousness as the form of the action in this composition makes this point Quantity of *Lust-action*. Our memory aid formula is $mf + mm$ (beginning again with consciousness in the first term), which gives us as the center term "fm" – form of the matter or Quantity.

The *Grundvermögen* synthesis of connections for *Lust-Kraft* is similar. Beginning with the connection of somatic organization (Relation in adaptive *psyche*, i.e. the somatic structure of adaptation in the *nexus* of mind-body reciprocity) with the noetic powers of perception (potential for perception, actualizing of perception, power of pure Reason), this combination is an intellectual factor of *nous-soma* reciprocity. Somatic organization is the idea of a manifold (the body manifold in physical *nexus*), whereas the powers of perception belong to the metaphysical

¹ The ordering follows from the *I* of transcendental apperception as the absolute ground of the Organized Being. The faculty of pure consciousness, not the *psyche*, represents the *Existenz* of this apperception.

manifold of consciousness. An act, we recall, is a determination of the cause of an action, and here the power again lies with pure consciousness. Accordingly, this connection is the Modality of *Lust-Kraft* (as suggested by the formula $fm + ff$ yielding "mf" – matter of the form).

Finally, the combination of noetic organization (the noetic structure of adaptation) with the processes of judgment is likewise an intellectual factor of *Lust-Kraft* and so these combinations of *Grundvermögen* give us Relation in *Lust-Kraft*. The intellectual character of the processes of judgment in pure consciousness is obvious. Noetic organization is the representation of the metaphysical *nexus* of mind-body reciprocity, hence its Modality, and, as such, is an intellectual factor of *Lust-act*. Determining the cause of the action in this case is the functional act (judgment), hence Relation in the *Lust-act*. Again beginning with consciousness, the formula of combination is $ff + fm \rightarrow ff$ (form of the form).

Figure 15.7.2 illustrates the outcome of this synthesis as a 2LAR. It will be convenient for us to have names for the four synthetic headings in this 2LAR. In anticipation of the discussion in §7.4 and for reasons to be explained below, we will designate these headings as: Quantity = adaptation performance; Quality = adaptation measurement; Relation = act of evaluation; and Modality = act of innovation.

To some degree the choice of these names follows more or less directly from the ideas in the synthesis of the four synthetic points. Noetic *Kraft* is the power of mind in producing or suffering effects (noetic accidents). The processes of adaptation are assimilation, accommodation, and equilibration. Both of these factors speak to the action in performance of an adaptation.

Somatic *Kraft* is the power of the body in producing or suffering effects. We represent this power in the 2LAR of psychic ability as Quantity because our objectively valid understanding of the somatic accidents that ground the *Dasein* of such a *Kraft* in *soma* comes from compositional elements we regard as physical extensive magnitudes (cells, organs, and so forth) and the physical

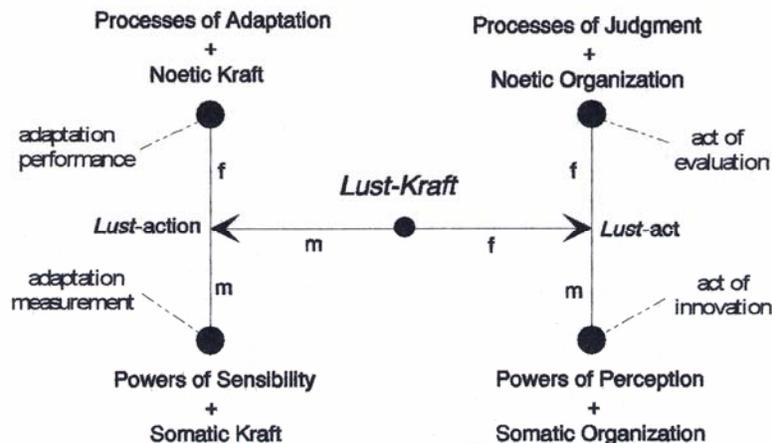


Figure 15.7.2: 2LAR of *Lust-Kraft*

laws which we understand as laws governing aggregations of these compositional elements. These laws we obtain from the study of anatomy, physiology, biochemistry, biophysics, etc., and by such laws one says somatic *Kraft* subsists in community with somatic substance. The powers of sensibility (receptivity, spontaneity, feelings) are ideas of *nous-Kraft* in the determination of accidents of Self-consciousness. The synthesis of *Lust-Kraft* presents the combination of these factors in coalition as actions of functional measurement by instrumentation (in receptivity), activity (in spontaneity), and registration (in feelings) in the performance of adaptation.

Noetic organization is the idea of metaphysical *nexus* in the Self. It is Modality in the 2LAR of adaptive *psyche* because the synthesis of Self-organization in respect to this *nexus* is the connection of heterogeneous noetic elements into a necessary manifold of phenomena that we call the psychological phenomenon of experience. The processes of judgment (determining, reflective, and practical) in their synthesis with noetic organization evaluate this noetic organization and so we say this synthesis has the character of an act of evaluation in adaptation.

Somatic organization is the idea of physical Relations of the Self in its subsistence and inherence in a physical structure, in the *kinesis* of its physical accidents, and in its biological self-regulation as an organism. The powers of perception (potential for possible perception, actualizing of perception in determination of conscious perceptions, and power of pure Reason as the determining factor of consciousness) are the Modal ideas in the organization of pure consciousness. They pertain to the actual *Dasein* of the manifold of representations. The synthesis of somatic organization with the powers of perception “embodies the mind” and “minds the body” in the act of bringing forth a *new* accidental state-of-being, and therefore it is appropriate to call this act of *Lust-Kraft* an act of innovation.

In summary, *Lust-Kraft* is the power of adaptation as fundamental property (*Grundeigenschaft*) of the Self. In this section we have presented an exposition of this power with respect to the adaptation dimension of *psyche*. Our next step is the exposition of *Lust per se* in terms of the organizational dimension.

§ 7.4 *Lust* in the Psychic Dimension of Organization

Any process of adaptation, as an *organized* process, must contain in its organization four essential factors. There must first of all be some rule or rules which govern the process of transformation that an adaptation effects. There must be some means by which the performance of the adaptation can be measured. There must be some impelling cause standing as the reason the adaptation takes place. Finally, there must be some criterion against which the outcome of the adaptation can be compared. These are traits always encountered, either explicitly or implicitly in the concept of the system, in all cases where we say of a phenomenon that it is adaptation. We saw this in §7.1. Our concern in this section is with the organization of *Lust* as *organized* adaptation.

In the organizational dimension of *psyche* we look at *Lust per se* as the organized structure of adaptation. A structure is a system of transformations with self-regulating laws so that no new element engendered by the operations of these transformations breaks down the boundaries of the system and does not involve elements from outside the system except as aliments of assimilation [PIAG28: 15]. Because what we are after here is the *Lust*-organization that must accompany the *Lust-Kraft* of the adaptation dimension, our development of this idea of organization will require a synthesis of *Lust-Kraft* with some other idea of *psyche*.

Nine chapters ago, we discussed at length the idea of the data of the senses. It is this idea that stands as the other factor in our synthesis of *Lust*-organization. We recall that Chapter 6 is a chapter devoted to the discussion of *psyche*, but as it has been a long time since we set down this part of the theory, a brief review is in order here. The central topic of Chapter 6 was the sensorimotor idea, which is an *applied metaphysic* of *Self-Existenz* in the Organized Being model. Figure 6.8.1 provides the 2LAR of the sensorimotor idea. This 2LAR was developed in three parts: the transcendental sensorimotor idea; the empirical sensorimotor idea; and the data of the senses.

The ideas in the transcendental sensorimotor idea come from our metaphysics proper. In particular, these ideas are ideas connecting *psyche* with its condition, namely the transcendental Subject. The transcendental Subject (the “*I*” in the “*I think*” that necessarily is a part of every determinant judgment) is the Object of Rational Psychology. From this doctrine we have the transcendental *I* as a *noumenon* which we must regard: 1) in Relation as a substance; 2) in Quality as simple (that is, the *I* suffers no possibility of any real division); 3) in Quantity as identity in one and the same Subject throughout the multiplicity of time; and 4) in Modality as having actual *Dasein*, in respect to which all objective perceptions must be regarded as representations of accidents of *Existenz* (appearances) [KANT1a: 443 (A: 404)]. We obtained the transcendental sensorimotor idea as a pure idea of Reason by applying the Ideas of Rational Theology to obtain the pure and *a priori* boundaries in Reality of what we can attribute to *Self-Existenz* as a phenomenon. The transcendental sensorimotor idea is our bridgehead on the side of transcendental metaphysics proper in our applied metaphysic of *Self-Existenz*.

We obtained the empirical sensorimotor idea from practical anthropology (the science proper of the rules of man’s actual behavior). The empirical sensorimotor idea is our bridgehead on the side of phenomenal experience (this is why it is called the *empirical* sensorimotor idea) in the applied metaphysic. The empirical sensorimotor idea applied Rational Physics to *appearances* of the Self, as how we are to regard the accidents of appearance with respect to *psyche* as concepts and ideas of *Self-Existenz*. The Object of the empirical sensorimotor idea is sense *per se*, i.e. the idea contains the *Realerklärung* of sense.

The data of the senses is the idea of *transition* from metaphysic to the empirical sciences

(neuroscience, empirical psychology, etc.). It establishes the metaphysical rules to which a proper empirical anthropology (e.g. physiological anthropology) must adhere. This transition was obtained through the synthesis of the transcendental and empirical sensorimotor ideas. The data of the senses was our key objective in Chapter 6, which is why that Chapter is called “The Data of the Senses” and not “The Sensorimotor Idea.”

In terms of the ideas of our 2LAR of representation in general,

- 1) the transcendental sensorimotor idea is {identification, agreement, the internal, the determining factor};
- 2) the empirical sensorimotor idea is {differentiation, opposition, the external, the determination}; and,
- 3) the data of the senses is {integration, subcontrarity, the transitive, the determinable}.

We may note that the ideas of the data of the senses contain the logical notion of the universal (in integration), the transcendental notion of limitation (in subcontrarity), the transcendental notion of community (in the transitive), and the transcendental notion of possibility (in the determinable). These are notions we must require of the transition from metaphysics to empirical science. (This does not mean these notions are absent from the other two ideas; but in the other two these notions are in a mediate placement within the synthetic deductions, whereas the transition idea must place them in immediate relationship to empirical science). Empirical science strives to discover the laws of thorough-going *nexus* of diverse phenomena in one Nature (community) which are universal within limitation (in the topic), yet acknowledges that science admits of dubitability but still must conform to what is possible in regard to Critical epistemology (transcendental possibility) and cannot admit into its theories anything supernatural or utterly transcendent to experience in Nature.

The physiological idea is the synthesis of (unity of faculties) + (the anatomical idea). Unity of faculties is the idea of Self-organization in terms of the logical coordinates of mind and body; the anatomical idea is the idea of differentiation in logical division of faculties through functional differences. The physiological idea of this synthesis is the idea of dynamical rules of Self-organization as a system, i.e. *Self-Existenz* is a structure binding its accidents of appearance to rules of transformation.

Seeming is the idea of the synthesis of (condition of state) + (moving powers). The transcendental condition of state is the idea of state as a coalition of representations which, with empirical conditions via stimuli, is sufficient to determine empirical consciousness. The empirical idea of moving powers is the idea of the property of the Self to be a cause of changes in external relationships (in its structure). The synthesis of these is seeming, which is an idea that

understands the condition of state as representations of sensibility containing the grounds of causality.

Emergent properties is the idea of the synthesis of (information) + (agent-patient Relation). Information is the substance of all representations and contains the ground of the “in-forming” of the *Existenz* of the Self as impelling cause in all accidents of representation. Agent-patient Relation is the idea of determining sense as interior (*nous* → *nous*), outer (*soma* → *nous*), or internal (*nous* → *soma*). Emergent properties is the idea that understands the reciprocity in Self-organization whereby the systematic integrity of the Self *as a structure* is maintained.

State of satisfaction-dissatisfaction is the synthesis of (determination of sense) + (sensorimotor meaning). The idea of determination of sense is merely the idea of the actual *Dasein* of that *noumenon* we call sense *per se*. It is an idea of the *empirical* sensorimotor idea because the objectively valid ground for inferring the *Dasein* of sense is the actual experience of those phenomena we call the phenomena of the particular senses. Sensorimotor meaning in the transcendental sensorimotor idea is the idea of the necessity for regarding the Self as the determining factor in all representations of sense. One important consequence of this idea is that it forbids any idea of sensibility as a representation of some copy-of-reality. The idea of state of satisfaction understands the determinability of sense as *materia ex qua* for a state of well-being or ill-being.

These are the ideas of the data of the senses. Their Object is *noumenal* sense, and they are ideas of the *Existenz* as accidents of sense in the coordination of somatic activity and noetic representation. Sense and *Lust per se* are *noumena*, but the representations of the *Existenz* of each are phenomenal. It is in the representation of *Existenz*, and there alone, where we can, in Kant’s words, make these *noumena recognizable in practice*. To understand adaptation within the psychic structure of the Self, we must next make a synthesis of *Lust-Kraft* and the data of the senses. This is represented in 2LAR form in Figure 15.7.3 below.

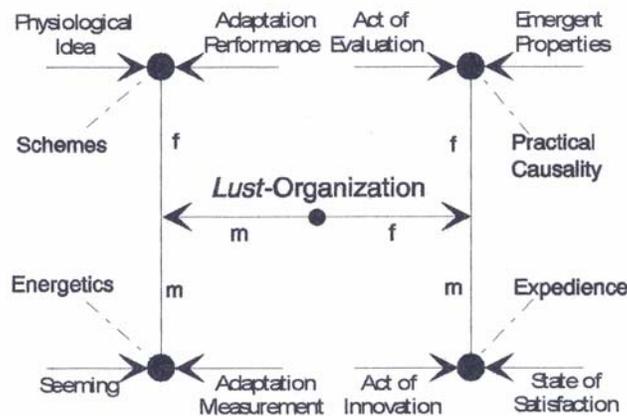


Figure 15.7.3: The Synthesis of Sense and *Lust-Kraft* in *Lust-Organization*

There are several things we must discuss concerning Figure 15.7.3. The figure depicts the synthesis of sense with *Lust-Kraft* but, unlike the synthesis depicted in Figure 15.7.1, here we bring the synthesis as Quantity with Quantity, Quality with Quality, etc. although this represents a synthesis of form to form and matter to matter – which we said we could not do in the previous synthesis. This requires an explanation.

First, let us note that in other synthesis operations, such as identification + differentiation → integration, we have already employed synthesis of form with form or matter with matter. Kant himself wrote that the third category under each heading of Quantity, Quality, etc. was the synthesis of the first two categories. In all of these cases, we are dealing with elements of the synthesis that are *already representationally homogeneous*. Unity and plurality are both categories of Quantity, as is their synthetic product, totality. In such cases, where the product of the synthesis lies under the same heading of representation as the concepts of the synthesis, the synthesis itself must be homogeneous, by which I mean that no transformation of heading in the representation takes place.

In the previous case of *Lust-Kraft* we combined from Objects that are not representationally homogeneous. One source was the 2LAR of the adaptive *psyche*, the other was the 2LAR of the faculty of pure consciousness, **which belongs to *nous*** rather than *psyche*. Although we make no real division of the Self between *nous*, *soma*, and *psyche*, we have a *logical* division in the structure. A synthesis crossing the logical boundary of such a division must *produce the homogeneity* in the synthesis. Such a synthesis is better called *anasynthesis*¹ since it involves an analytic division in the representations from two sources followed by a re-combination in a new representation of an Object that is transitive between the original sources (*Lust-Kraft* in *psyche* contains an interrelationship of the psychic *Fähigkeit* and consciousness).

In Figure 15.7.3, *Lust-Kraft* and sense both belong to *psyche*, as properties in the same logical division when *psyche* is regarded as containing a logical manifold. The relationships of *Lust*-organization are *inner* logical relationships (logical essence) of one and the same substance.

When we talk of the essence of things, then it proves to be of the logical essence (that subsists in the concept), not of the real essence (nature), which is dealt with in metaphysics . . . The logical essence is the quintessence of those marks that are sufficient to lead to what belongs to the essence [KANT8a: 464 (24: 728)].

Sense and *Lust* are each part of the essence (i.e. each is a *Grundeigenschaft*) of *psyche* as fundamental concepts (marks). Recall that a fundamental property (*Grundeigenschaft*) is not an *accident* of a substance. Thus Figure 15.7.3 represents a proper synthesis, not an anasynthesis. To

¹ Recall our much-earlier distinction between analytic, synthetic, and anasynthetic representation in Chapter 3 (§4.1). Anasynthesis may be regarded as the synthesis of heterogeneous concepts.

use a geometric analogy, *Lust-Kraft* and sense are merely different “dimensionally” in *psyche* in the same fashion as height differs from width or depth.² They are coordinates of organization.

Now let us turn from this fine point in transcendental Logic to the products of the synthesis. In Quantity we have the synthesis of the physiological idea with the *Lust-Kraft* idea of adaptation performance. Thus we are combining the requirement of the data of the senses (that the structure of *psyche* contain dynamical rules of Self-organization) with assimilation, accommodation, and equilibration regarded as noetic *Kraft* (adaptation performance). The synthetic product represents Quantity in *Lust*-action as organized rules of transformation, and Piaget has given us a name for this idea. A **scheme** is a constructed organization of activities generalizable and repeatable in an action [PIAG15: 4fn]. **The form of the matter of *Lust*-organization exhibits as schemes.**

In Quality we have the synthesis of seeming (which is the idea of representations of sensibility as containing a ground of causality – i.e. an “inducement”) with adaptation measurement in *Lust*-action. What shall we call the measurement of an “inducement in sensibility” viewed in the organization dimension? As sense, it must be an organizational idea firmly combined with the affectivity of the action, and as measurement it must present this affectivity as intensive magnitude (according to the principle of Anticipations of Perception from Rational Physics). As matter of that for which schemes are the form, this idea of *intensity of an inducement* is well described by stealing another of Piaget’s words and calling it the idea of **energetics** of *Lust per se*.

In Relation we have the synthesis of emergent properties (the structural Relation of reciprocity that maintains the integrity of the system, a self-regulation property) with the *Lust*-act of evaluation. Now recall that every adaptation requires an impelling cause as ground for the adaptation to take place. As fundamental property of *psyche*, *Lust* stands in no immediate relationship with environment, and so we can posit as impelling cause no object in external Nature. Equally, since *psyche* is neither *soma* nor *nous* but is instead the faculty of animating principles, the *transcendental place* of an impelling cause contained in a *Lust*-act of evaluation (seen as a Self-regulation) can have for its object only that which we place in intelligible Nature. This type of cause is *practical* and the *determination* of any change by which the change is established according to *general rules* (regulations) is *causality*. Relation in *Lust*-organization is therefore an idea of **practical causality** *from the judicial Standpoint*. In this idea, *the judicial and practical Standpoints meet* in the Idea of *Lust per se*. One could call it *psychic causality* as well.

Finally, in Modality we have the synthesis of state of satisfaction (determinability of sense as state of well-being or state of ill-being) with the *Lust*-act of innovation (the bringing forth of a

² This distinction between synthesis and anasynthesis is a fine point in the transcendental Logic of meanings. There is nothing like it in symbolic logic, which removes the material meaning from its “variables.” Without this material factor there is no distinction between synthesis and anasynthesis.

new accidental state-of-being). Here we must remember that adaptation is an idea that always contains a reference to some end or “reason for” or, in short, some *determining factor*. Now, expedience is the congruence of a thing with that property of things that is only possible in accordance with purposes, and here in the Modality of *Lust*-organization we find an idea that places state-of-being with the determinability of sense (as *materia in qua* of well-being or ill-being). But this is nothing else than a *judicial* idea of expedience *as the standard-gauge of evaluation* in adaptation. The matter of the form of *Lust*-organization is **judicial expedience** falling under the regulation of the principle of the formal expedience of Nature in *Self-Existenz*.

This completes our *Realerklärung* of *Lust per se* except for one remaining thing. *Lust-Kraft* gives us the dynamical elements of psychic action and act, and *Lust*-organization gives us the structure. However, all of this has real meaning and objective validity only in the context of *acting*. Action is the change of state, act is the determination of the cause of this action, but acting is the realization of the *Existenz* of accidents. Our picture of *Lust per se* is not complete until we have the rule for the determination, i.e. *the pure reason for acting*. This, of course, is the fundamental acroam for all acting in the particular.

§ 7.5 The *Lust* Principle

Actions lie in sensible Nature, acts in intelligible Nature. A general principle of acting in the particular must therefore be the principle of a function of unity that understands in one Object both the sensible and intelligible Nature of *Lust per se*. This Object stands as a natural law of Organized Being, and so the exposition of the *Lust* principle falls under Rational Physics with regard to sensible Nature and Rational Cosmology with regard to intelligible Nature.

The *Lust* principle also contains an Idea of a pure reason for acting. This sort of consideration involves the idea of an “aim” or purpose. An Idea that combines sensible factors with an intelligible “because” will have a teleological character. Now, as Kant pointed out in his critique of teleological judgment, considerations of this sort call for the utmost care if we are to avoid transcendent speculation passing beyond the horizon of possible experience. The realism of Aristotelian philosophy, for example, becomes transcendent in moving from experience to the *nexus finalis* of teleological causes in a “prime mover” and, as our earlier remarks have shown, both Bacon and the “positive science” of the nineteenth century moved relentlessly to purge science of teleology. Realism in its various forms, reliant as it is on an implicit copy-of-reality hypothesis, tends to produce a specious teleology.

In the Critical Philosophy epistemology is prior to ontology. Nature is our world-model, the objects in which stand under Kant’s Copernican hypothesis. A consequence of this is coordination between objects that are sensible and those that are merely intelligible. Teleology in the Critical Philosophy subsists in the thinking Subject and not in a specious external final cause.

Now nature in the most general sense is the *Existenz* of things under laws. The sensible nature of rational beings in general is their *Existenz* under empirically conditioned laws . . . The supersensible nature of the very same beings . . . is their *Existenz* in accordance with laws that are independent of any empirical condition and thus belong to the *autonomy* of pure reason . . . The law of this autonomy . . . is the moral law¹, which is therefore the fundamental law of a supersensible nature and of a pure world of understanding, the counterpart of which is to exist at the same time in the sensible world but without detriment to laws. One could call the former the *archetypal* (*natura archetypa*) which we recognize only in reason, and the latter could be called the *ectypal* (*natura ectypa*) because it contains the possible effect of the Idea of the former as ground of determination of will [KANT4: 38-39 (5: 43)].

Let us note that Nature refers to the *Existenz*, not the *Dasein*, of all objects in Nature, and this holds for Self-cognition as well as for cognition of the not-Self. The proper view of teleology in Nature is based on this distinction between *knowledge* of phenomena and *function of noumena*, the function of a *noumenon* being merely that of a transcendental Object in which unity is brought to concepts. The exhibition of the law of autonomy is seen in the necessary presupposition of a *natural order* in appearances in Nature. Such a natural order is not presented in the data of sensations. Mere sense perception carries no universality nor necessity, i.e. no copy of reality, and so if we see order in nature, it is Reason alone wherein lies the *ground* of this natural order.

Note also that the supersensible objects of the “archetypal world” and the sensible objects of the “ectypal world” of appearances must be *conceptualized* as coexistent in subjective time, and therefore sensible and supersensible “natures” fall under the constraint of the category of community. The regulation of mental acts of reasoning by the categorical imperative is consequently to be seen as the governing principle of judgmentation (*Beurtheilung*) in judging internal expedience in organized beings, and this principle is one of reciprocity. When we discussed practical causality earlier in this treatise, we saw it is a requirement that teleological causes must likewise be capable of expression as physical causes in sensible Nature if such a cause is to have objective validity. This is none other than a principle of reciprocity of what might be called archetypal-ectypal reciprocity. Teleological causes (purposes) can be objectively valid if and only if their ideas have a possible expression in ectypal appearances.

This principle, at the same time its definition, states: *An organized product of nature is one in which everything is reciprocally purpose and means as well* [KANT5c: 247-248 (5: 376)].

The transcendent illusion in most teleology lies with vesting the means in something outside what Kant called “the organized product of Nature.” With Aristotelian realism, this outside agent is the “prime mover” (nature itself seen as an organizing force of some sort). In Judaism, Christianity, and Islam this agent is usually God. In psycho-evolutionary theories of emotion and motivation, it is evolution. In the Critical Philosophy, the thinking Subject who thinks Nature contains both

¹ i.e., the categorical imperative of pure Reason.

means and purpose of representation within itself as an Organized Being.

With respect to *Lust per se* the law of archetypal Nature is one under which practical causality from the judicial Standpoint (psychic causality), the act of evaluation, judicial expedience, and the act of innovation are subsumed. This principle must be seen here as a principle for judging only the *internal* expedience of the representations of the Organized Being. The law of ectypal Nature is the law under which schemes, adaptation performance, energetics, and adaptation measurement are subsumed. Yet both laws, in order to be objectively valid, must be united in a relationship of reciprocity, which is to say that these laws are merely members of the disjunction of a law that understands both.

So far as the archetypal principle is concerned,

The idea of perfection in the *practical* sense is the fitness or adequacy of a thing for all sorts of purposes. This perfection, as *property* of the human being and so as *intrinsic*, is nothing other than *talent* and what strengthens or completes this, *skill* [KANT4: 36-37 (5: 41)].

Lust per se as matter of perfection from the practical Standpoint falls under a principle of *acting to perfect*, and this means nothing other than acting on the grounds of the formal expedience of noetic representations. As an *intrinsic property* it belongs to the transcendental Subject but its *possibility* necessarily presupposes the talent (innate capabilities of the Organized Being as a whole) to take actions in service of the purpose of perfection. We can probably foresee at this point that this means our considerations of teleological reflective judgment are going to be required to tie *Lust per se* to ideas of *dispositions* and *instincts*.

As for the ectypal principle, this principle belongs to the sensible in Nature. In reflective judgment this has reference to sensuous desire and thereby to an Organized Being's *disposition to act* on the basis of matters of desire. This disposition to act is, of course, the principle of happiness, which is a purpose for Reason. To take action on the basis of the matter of desire means to make an appetite from this matter. The idea of happiness is the idea of the consciousness of a rational being of the pleasantness of life uninterruptedly accompanying his whole *Dasein*, and happiness from the judicial Standpoint is merely the Ideal of a state-of-being that a rational being would seek out under merely empirical conditions.

When we discussed happiness in Chapter 13 we noted that Elaine and Arthur Aron called happiness a “neutral gear.” In other words, it was not so much the experiencing of a state of happiness that was a spur to action as it was the experiencing of a state of unhappiness (whether this was felt to be mild or a mere absence of “happiness” or whether the feeling was more acute). Happiness, in other words, tended to correspond to inactivity; the *pursuit* of happiness presupposes the absence or imperfection of happiness. Locke held a similar view:

When a man is perfectly content with the state he is in - which is when he is perfectly without any uneasiness - what industry, what action, what will is there left, but to continue in it? [LOCK: 186]

. . . We are seldom at ease and free enough from solicitation of our natural or adopted desires, but a constant succession of uneasinesses out of that stock which natural wants or acquired habits have heaped up, take the will in their turns; and no sooner is one action dispatched . . . but another uneasiness is ready to set us to work [LOCK: 190].

This view is rather like Hull's drive reduction theory of emotion as this theory was later amended by the addition of "secondary drives."

Freud viewed *Lust* as a something that consciousness was "charged with" in proportion to the degree to which a person's state of being is above some "threshold" that "approximates to complete equilibrium"; *Unlust* he viewed similarly except that in the case of *Unlust* the approximation was proportional to the "departure from complete equilibrium." The idea of "aesthetic indifference" was Freud's version of the Arons' "neutral gear" and *Lust* and *Unlust* were distinguished as a kind of "directionality". We could paraphrase this by saying that *Lust* carried the connotation of "things getting better" while *Unlust* held the connotation of "things being worse". Freud's *Lustprinzip* was ascribed to the id, and it remained an unsolved puzzle for him how the ego and superego could overcome the impulses and drives arising from the *Lustprinzip*.

Now, to adapt is to seek an equilibrium in the processes of assimilation and accommodation. We can view this equilibrium from the practical side only as an idea of a state of practical perfection and *Lust per se* is regarded as the matter of such a perfection. The sensuous aspect of *Lust per se* is the aspect of the measurability of this condition, the representation of which we call the feeling of *Lust* or *Unlust*. The *form* of this perfection is the idea of the particular act and action the acting takes on, and the determination of *Lust*-form belongs to the power of spontaneity in the Organized Being. Such a determination requires an act of judgmentation (*Beurtheilung*). Acting to realize a state of equilibrium in response to disturbances is a practical *law* of pure Reason under the formula of the categorical imperative as the formal *pure* and *a priori* purpose of practical Reason. This is, in regard to Modality of *Lust*-act and *Lust*-organization, the determining factor of *Lust*. The determinable subsists in possible appetites, which may be blind appetites (instincts) or objective appetites (inclinations). Acting in the particular requires the determination be made and so, from the noetic shoreline of *psyche*, the principle of acting in the particular must be a principle of judgmentation in general.

This determination can be made on the basis of conditions which are either immediately sensuous or immediately intellectual, and the particular condition therefore has a transcendental place. In Chapter 9 we said that *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. We saw that to orient thinking is to satisfy a subjective *need of Reason* (that need being to think the form of an object). Thinking, however, is merely one type of action among many. The *Lust* principle is the general principle under which orientation in thinking is but one example.

What is this general principle? All acting is orienting the state of the Self according to an Ideal of perfect expedience in the whole of *Self-Existenz*. The categorical imperative expresses this Ideal as an ideal of equilibrium. But what is an "ideal" equilibrium? The dictionary defines equilibrium as a state of balance², e.g. equality between opposing forces, different desires, etc. Reber cites four psychological definitions of equilibrium, noting that all use equilibrium "basically . . . as a synonym of balance" in one way or another. That which we commonly call a state of equilibrium is often characterized as *the absence of further change of state*.

Now here we have an idea that requires Critical examination. Every moment in time necessarily marks a change in condition (that is, a change in the accidents of sensibility) from the previous moment. The idea of an absence of change of state taken absolutely would be an idea that would require *the utter suspension* of the succession of moments in time. This, likewise, would require an absolute cessation of reflective judgment (which marks these moments in time). Such an absolute cessation is a transcendent idea because for us, as living beings, such an absolute cessation can never be *experienced*.

Therefore, equilibrium cannot be the absolute absence of further change of state of *Existenz* as a whole. Rather, the idea can have objective validity only in a very limited way, namely as *the cessation of further innovations in the totality of the state of Existenz*. Here is where the transcendental ground of the idea of a **life cycle** enters the picture. An anticipation is knowledge through which an Organized Being can recognize and determine before the fact (*a priori*) what belongs to empirical cognitions. A subjective innovation denotes a condition of *Existenz* in which there exists the perception of an incongruence of fact with a sensible anticipation. A **sensible cycle** is defined as a recurring succession of accidents of *Existenz* that can be represented in sensibility. Regarded as an object, a cycle is constituted as a succession of perceptions, connected as successive moments in time, that can be conceptualized and anticipated because a cycle repeats itself. This defining mark of cycle constitutes a persistence in time, i.e. the notion of the substance in a cycle is represented by **repetition** (an *Unsache*-thing).

A subjective **disturbance** of a cycle can therefore be defined as **any innovation in the comparison of actual perception with the anticipated perception of the cycle**. A cycle is said to be a **stable cycle** with respect to a disturbance if, after the disturbance, the cycle is resumed without requiring any accommodation. This means the disturbance is either rejected (e.g. is

² The dictionary also defines "balance" in terms of "equilibrium" - a circular definition.

ignored) or immediately assimilated. In such a case, we have a situation in which assimilation and accommodation can be said to be “in an actual balance” requiring no adaptation. **A state of equilibrium** is therefore an actual state of *Existenz* characterized by a stable sensible cycle.³

This definition is compatible with Piaget’s use of the term “equilibrium”. Note that “stable” does not imply never-changing. “Never,” it has been said, “is a very, very long time.” States of *Existenz* are contingent and future events can (and do) lead to the rupture of particular cycles. A cycle as a structure is said to be “more robust” than another similar cycle if the former is maintained in the presence of innovations that would lead to adaptation or cycle rupture if experienced during the latter. **An ideal equilibrium is the idea of an equilibrium (*Existenz* in a cyclic state) that is absolutely robust**, i.e. can never be ruptured nor require accommodation as the result of any subjective innovation whatsoever. The attempt to attain to this ideal state of equilibrium is the pure and *a priori* purpose dictated by the formula of the categorical imperative.

Now, the actual occurrence of subjective innovations (disturbances) is a fact of experience exhibited in all cases of adaptive accommodation. The accommodations we experience are of two kinds. First, the cycle (the antecedent state of *Existenz* prior to the innovation) may be changed to assimilate the disturbance. Second, the cycle may be ruptured and a *different* cycle established. This could be called an “accommodation in the global sense” since the previous cycle is not maintained but the Subject nonetheless establishes a new cycle by which the disturbance is removed or assimilated. The key factor in consideration of either case is the presupposition that the disturbance is a sensible innovation, i.e. is actually *perceived* through comparison with an anticipation. Note also that, except in the simplest cases, we often have difficulty in recognizing that a new cycle is in fact established since a succession of innovations implies a succession of adaptations, e.g. Locke’s “constant successions of uneasinesses . . . ready to set us to work.” Indeed, since innovations can originate from intellectual as well as sensuous sources, and such intellectual innovations are those most often at work in complex actions, we can regard the acting in establishing complex successions of adaptations as a *third kind* of accommodation, that which is manifested in what we call **goal-directed behavior**.

Yet, for all of this, the acting Subject does not act discontinuously. In perception accidents follow one upon another in continuous connection in subjective time. We can only speak of a cycle in equilibrium in context with anticipations of a possible cycle, regardless of whether the object of anticipation is recognized in terms of an external appearance or subsists in an aesthetic Idea. Furthermore, there are two ways in which an innovation stands in relationship to

³ The mathematical analogy to this *Realdefinition* is called a “limit cycle.” In system theory we have another analogous situation in which the stability of a system is said to be “stable in the sense of Liapunov.” Many (but not all) nonlinear systems that are “stable” in this sense exhibit their stability in the form of a limit cycle.

anticipation.

The first relationship is one where the innovation combines through an aesthetic Idea to bring about a connection with some rule or maxim (re-presented in intuition) from which is obtained an anticipation of inexpedience if the cycle should be maintained. Such inexpedience can be either the perception of the state as one of unhappiness (sensuous inexpedience) or of intellectual inexpedience (incompatibility with the manifold of practical laws, i.e. immediate perception of incongruence with the formula of the categorical imperative). Such a perception is that which we generally call the feeling of *Unlust*, and *Lust per se* in this case can be viewed as an orientation for acting to abolish a current state of *Existenz*. This is *Unlust*.

The second relationship is one where the innovation combines through an aesthetic Idea to bring about a connection with some rule or maxim from which is obtained an anticipation of expedience in the establishment of some new cycle or in the re-establishment of the disturbed cycle. The anticipation in this case is either one of possible happiness (sensual expedience) or the recognition of the possibility of acting to perfect expedience by means of a more perfect concept of a categorical ideal (intellectual expedience). The perception in this case is called the feeling of *Lust*, and *Lust per se* in this case can be viewed as an orienting ground for acting to establish (or re-establish) a specific anticipated state of equilibrium.

In relationship to anticipation of equilibrium, the first case can be regarded as a kind of “negative” *Lust per se*, the second as a kind of “positive” *Lust per se*. In the first case the orientation for acting is in opposition to a specific *Existenz* while the later expresses agreement with some possible *Existenz*. As matter of perfection, *Lust per se* has an *intensive magnitude* that we can call **the degree of expedience in acting**. We can also attribute a *direction* to expedience, but *only in regard to the relationship of the innovation to the anticipation of equilibrium* inasmuch as the orientation of acting is either that of abolition (negative direction, i.e. *Unlust*) or of production (positive direction, i.e. *Lust*) of an anticipated *Existenz*. Here we are reminded of Freud’s view of *Lust* and *Unlust*, the former expressing an “approach toward complete equilibrium,” the latter expressing a “motion away from complete equilibrium.” Freud’s view is not entirely compatible with our explanation given here, but the flavor of his idea is also not altogether dissimilar.

Regardless of whether the acting is from *Lust* or from *Unlust*, the condition of the **satisfaction** of *Lust per se* is the same, namely **the negation of the intensive magnitude of *Lust per se***. The degree of expedience viewed in this fashion can be likened to a kind of “force”; *Unlust* is “repulsive” – driving the acting Subject away from a particular state of *Existenz* – while *Lust* is “attractive” – drawing the acting Subject toward a particular equilibrium. Now, in regarding the character of *Lust per se* in this manner we must bear in mind that we are by no means presupposing that sensibility must contain only one or the other *feeling* of *Lust* or *Unlust*

nor even that sensibility cannot contain multiple incompatible anticipations associated with the feeling of *Lust* or *Unlust*. If such a condition exists in sensibility, we can speak of *opposing directions* of orientation in *Lust per se*. We will discuss this idea in more detail later on when we address Kant's idea of positive and negative intensive magnitudes. For now, however, the main idea is that of the intensive magnitude of *Lust per se* as matter of perfection, for in this idea we find the principle of acting in the particular. **The *Lust* principle is: Orientation in acting is the determination (in act) of an action judged expedient for the negation of the intensive magnitude of *Lust per se*.** The feeling of *Lust* or *Unlust* is the perception of an innovation as a disturbance, i.e. incompatibility with the condition of equilibrium (either sensuously or intellectually). The dictate of the categorical imperative tolerates no persistence in such a state of *Existenz*.

The judgment of orientation in acting is not itself the judgment of an object of cognition, and therefore belongs to either the process of reflective judgment or to the process of practical judgment (or both) rather than to the process of determining judgment. Furthermore, because orientation in acting is practical rather than aesthetic, this implicates a teleological character in the process of judgmentation in general. We next turn to the examination of this process, beginning with the examination of what we will call the teleological function of judgmentation.