

# Implications of Non-Linear Existentialism on Freud's Psychoanalytical Model

Written by Andrew Brooks  
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The *ad hoc* Applied and Theoretical Neurophysiological research leading into this present work started with the question of survival, and trying to determine the special aspects of human physiology that allows our species to thrive in so many environments. With the tentative response being the Central Nervous System's (CNS) ability to adapt to evolutionary pressures, it was then asked how this could be achieved within the confines of what is known about the CNS. Based on the response and how such a capability could feasibly foster the concepts of being and purpose, a plausible link to philosophy was formed in the paper entitled *Phenomenological Method Applied to Quantity and Quality as Framed by Heidegger's Existentialism and the Neurobiological Necessity of Non-Linear Existentialism*. However, there is still the question of individual development which is not considered in the generalities of philosophy.

## I. Objectifying Freudian Psychology

One of the results of this inquiry was to define the quality of 'Humanness' as the ability to produce a non-linear standard that is unique to the being producing the standard. Nevertheless, accept for the general stages given for the Self-Line Function and its Energetics, no explanation has been overtly offered for the formation of the person's psyche, or in other words, how do these theories relate to psychology? On the surface, the Self-Line and the Energetics that describe it appear to be unrelated to the study of human behaviour, but, since the various neurobiological energies that interact to produce the Self-Life Function describe the basic Need and Wants of a person developing within their environment, this is another way of describing the psychological process.

To emphasize the theoretical relationship between Energetics, Non-Linear Existentialism and Psychology, the Freudian Model of Psychoanalytical analysis will be employed as a comparative process. It should be noted to begin, that in order to render this comparison possible, the first step in this treatment will be to remove the qualitative aspects of Freud's theories. As mentioned in the paper on the Phenomenological Method of accessing quantity and quality, humans have internal standards which can cause them to subjectify their experiences, especially when it comes to subject matter, such as psychology, that is, by its very nature, open to interpretation.

Consequently, this thesis will involve transforming Freud's Psychoanalytical model into one that is neurobiological. The difficulty with such an undertaking, as hinted by Freud, is that the basic terms of his theories, such as Id, Ego and Superego are functional and not structural. This means that no specific anatomical areas of the brain are defined as belonging to any of these functions. Therefore, such a limitation makes it appear that this neurobiological transformation is not possible. However, as it will be shown in the following sections, the investigation will start with processes that appear to be neurobiological in nature and then link them to the more abstract terms.

## II. Neurophysiology: Charged and Uncharged Base States

Non-Linear Existentialism is a neurophysiological derived model that postulates the presence of charged and uncharged base states in the Central Nervous System. The difference between charged and uncharged base states is in respect to the average level of excitation (See Illustration 7, C especially underlined text) that occurs within a specified group of neurons or its processes. An Uncharged Base State (UBS) is in its resting level of polarization prior to being stimulated by external input. A neuron that is in a Charged Base State (CBS) is being continuously stimulated to sub-threshold levels of excitation by intra-cerebral sources prior to receiving external input.

For the purposes of this model, the Cerebral Cortex is divided into two areas: those that are in UBS and those that are in CBS. As indicated in previous work, *On the Significance of Amplified Macroscopic Probability in the Optimization of Learning* (built upon *Impetus of Thought*) Layer VIb of the Cerebral Cortex is postulated to emit a magnetic field that is generated by an electrical current in that layer. While this current is a result of input, it is produced by passive conduction and is non-linear to the active current. Those parts of the cortex where this field is produced as well as neighbouring areas affected by it are considered to be in a Charged Base State, while the rest of the cortex is in the Uncharged Base State.

The probability of the depolarization/hyperpolarisation of the post-synaptic neuron depends on the number and location of the pre-synaptic processes on that neuron. However, as the summation of these inputs becomes more unified, either to produce a depolarization or hyperpolarisation, the probability of a specific outcome becomes certain. The implication is that the larger the group of neurons that occur in an interactive collection, the more likely they will produce a stable pattern when stimulated.

It could then be further suggested that single or small groups of neurons in a Charged Base State can act like large group of neurons. If the probability of a resting single neuron firing or not is more uncertain than a larger collection because the larger group has more interactions which increases the chances of it receiving stimulation, then if a single or minor group of neurons are being stimulated at a sub-threshold level of excitation, then, like the larger groups, the certainty of a specific outcome in those neurons increases when they are stimulated by an external source. This point is important to note because with the Non-Linear Existentialism being based on a small collection of neurons at the point of the magnetic field, it would appear, without qualification, the system would be chaotic, instead of non-linear to the input.

The Cerebral Cortex consists of an enormous deposit of patterns with various levels of energy when stimulated. By virtue of considering the non-charged area of the CNS as consisting of groups of neurons that together have higher probabilities of producing specific when stimulated, the system can be defined by what level of energy, or voltage it will produce when interacting with the environment. The processes of decoding and encoding will be discussed later in Section IV.B. i. Decoding and Encoding; however it should be noted that through these phenomena the external world can be translated into meaningful patterns (Decoding) with meaningful levels of excitation (Encoding).

The concept of base states has been introduced to show how an adaptive level of stability can be created by combining two divergent sources. Although the Charged Base State is stable in terms of its own condition, it is still variable to external input. It is only when input from the more stable Uncharged Base State is processed by this energy source, that unique outputs can be produced. Having such a dynamic aspect to the system increases the chances of human survival, an idea that will be further explored in Section IV. B. Feedback Loops. For the time being, the possibility of internal variation and its linkage to quality will allow the reader to begin to see a connection between NLE and Freudian Psychology which will be discussed in the next section.

### III. Freudian Psychology

#### III. A. Instincts

In *Beyond the Pleasure Principle*<sup>1</sup> (BPP), Sigmund Freud opens the discussion by stating that the force which drives the central nervous system and hence the person to act are the instincts. The importance of instincts is given in the following quote, ‘Almost all the energy with which the apparatus is filled arises from its innate instinctual impulses (pg. 8).’ Freud then goes further to clarify instincts on page 40 of BPP:

The most abundant source of this internal excitation are what are described as the organism’s ‘instincts’ – the representatives of all the forces originating in the interior of the body and transmitted to the mental apparatus – at once the most important and the most obscure element of psychological research. . . .It will perhaps not be thought too rash to suppose that the impulses arising from the instincts do not belong to the type of bound nervous processes but of *freely mobile* processes which press towards discharge.

This statement implies that instincts are another name for free energy that is being emitted by a group of neuronal tissue in the CNS. From this, it could be inferred such energy produces a certain level of excitation in the CNS.

Having defined instincts as free energy that is produced by the CNS, Freud next speculates on the general function of this force. To him, instincts have the following purpose (BPP, pg. 43):

*It seems then, that an instinct is an urge inherent in organic life to restore an earlier state of things which the living entity has been obliged to abandon under the pressure of external disturbing forces; that is, it is a kind of organic elasticity, or, to put it another way, the expression of inertia inherent in organic life.*

To reinforce this idea, Freud goes further (BPP, pg. 50 – 51):

The repressed instinct never ceases to strive for complete satisfaction, which would consist in the repetition of a primary experience of satisfaction. No substitutive or reactive formations and no sublimations will suffice to remove the repressed instinct’s persisting tension; and it the difference

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<sup>1</sup> Freud, S. (1961). *Beyond the Pleasure Principle (The Standard Edition)*. (James Strachey, Trans.) New York: W.W. Norton and Company Inc. (Original work published 1920)

in amount between the pleasure of satisfaction which is *demand*ed and that which is actually achieved that provide the driving factor which will permit no halting at any position attained .

To Freud it is clear that an instinct is an electrical force emitted into one area of the CNS by another region, and will be continuously emitted until the reason for it being emitted is reached.

These statements then beg the following questions: what are these forces and how does the system emitting the force know when the reason for the force being emitted is satisfied? Freud devotes a large part of the text to the first question, coming to the conclusion that there are two instincts or forces at play. The first is the Eros, or that which continues life, the second, Thanatos (death), or that which limits life. Freud states the following (BPP, pg. 55):

. . . with forces operating in it, have been led to distinguish two kinds of instincts: those which seek to lead what is living to death, and others, the sexual instincts, which are perpetually attempting and achieving a renewal of life ... For he [Weismann] only relates the distinction between the mortal soma and the immortal germ-plasm to *multi-cellular* organisms; in unicellular organisms the individual and the reproductive cells are still one and the same (Weismann, 1982, 38). Thus he considers that unicellular organisms are potentially immortal, and that death only makes it appear with the multi-cellular metazoa.

And on pages 48 and 49 of *Beyond the Pleasure Principle*:

They are conservative in the same sense as the other instincts in that they bring back to an earlier state of living substance; but they are conservative to a higher degree in that they are peculiarly resistant to external influences; and they are conservative too in another sense in that they preserve life itself for a comparatively long period. They are the true life instincts. They operate against the purpose of the other instincts, which leads, by reason of their function, to death; and this fact indicates that there is an opposition between them and the other instincts, an opposition whose importance was long ago recognized by the theory of neuroses.

Freud therefore argues that the living organism's existence and any neurotic conditions of the mental apparatus are a result of the conflict between these two forces.

While it is not difficult to understand the Life Instinct, the Death Instinct does not seem to have a discernable purpose. However, as hinted at in the previous quotes, death like life, is striving to re-attain a previous state. Freud's arguments are given in the following passages (BPP, pgs. 45 – 46):

The elementary living entity would from its very beginning have had no wish to change; if conditions remained the same, it would do no more than constantly repeat the same course of life. In the last resort what has left its mark on the development of organisms must be the history of the earth we live in and of its relation to the sun.

It would be in contradiction to the conservative nature of the instincts if the goal of life were a state of things which had never yet been attained. On the contrary, it must be an *old* state of things, an initial state from which the living entity has at one time or other departed and to which it is striving to return by circuitous paths along which its development leads.

If we are to take it as a truth that knows no exception that everything dies for internal reasons – becomes inorganic once again – then we shall be compelled to say that the '*aim of all life is death*'

Once more, Freud is putting forth an idea of a force or process trying to return to a previous state.

The idea of a return to a previous state comes to the forefront in the process which Freud believes regulates the instincts, namely the Pleasure Principle. Freud begins by giving a definition of the Pleasure Principle (BPP, pgs. 4, 5 and 6):

We have decided to relate pleasure and unpleasure to the quantity of excitation that is present in the mind but is not in any way 'bound'; and to relate them in such a manner that unpleasure corresponds to an *increase* in the quantity of excitation and pleasure to a *diminution*.

According to this hypothesis, every psycho-physical motion rising above the threshold of consciousness is attended by pleasure in proportion as, beyond a certain limit, it approximates to complete stability, and is attended by unpleasure in proportion as, beyond a certain limit, it deviates from complete stability. . . .The facts which have caused us to believe in the dominance of the pleasure principle in mental life also find expression in the hypothesis that the mental apparatus endeavours to keep the quantity of excitation present in it as low as possible or at least to keep it constant.

The pleasure principle follows from the principle of constancy: actually the latter principle was inferred from the facts which forced us to adopt the pleasure principle.

As such, the Life and Death Instincts each have their own levels of excitation they thrive to reach, as previous mentioned, a pre-set homeostasis. But instead of calling it a mechanism to maintain a stable level of neuronal-excitation in the CNS, Freud refers to it as the Principle of Constancy.

While both instincts have their own set-points, Freud believes that the Death Instinct has dominion over the Life Instinct. Freud likens the Death Instinct to a compulsion to repeat behaviours that go against Life and Pleasure that are attained through it. Because he witnessed compulsive behaviours in his patients that, to him, did seem to be pleasurable for that person, he believed that this was an indication of the Death Instinct and as such, has more power in the mind than the Life instinct (BPP, pg. 25):

Enough is left unexplained to justify the hypothesis of compulsion to repeat – something that seems more primitive, more elementary, more instinctual than the pleasure principle which it overrides.

Nevertheless, as previous asserted, in what almost appears to be a contradiction, the Death Instinct is still regulated by the Pleasure Principle (BPP, pg. 77):

The pleasure principle seems actually to serve the death instincts. It is true that it keeps watch upon stimuli from without, which are regarded as danger by both kinds of instincts; but it is more especially on guard against increases of stimulation from within, which would make the task of living more difficult.

Or in other words, although the Death Instinct is a more powerful instinct than the Life Instinct, it still adheres to the Pleasure Principle, meaning that it still has a stable level of excitation that it tries to maintain by way of the Principle of Constancy. It could be suggested, that the difference between the two instincts can be attributed to the definition of what is the homeostasis/set point the individual instincts are attempting to re-establish.

## **IV. B. Feedback Loops**

### **IV. B. i. Decoding and Encoding**

The environment is experienced by the individual through the body's sensory systems decoding and encoding ambient energy. Prior to information from the environment being processed by the central nervous system it has to enter it. The first step in this process is for external energy to be Decoded; meaning that the external world comes in contact and affects the internal world of the person. Energy from external objects affects specific sensors on the body, causing these sensors to fire impulses at specific rates to specific parts of the CNS. Once this energy is inside the body, it then is converted into a form that is meaningful to that person. This is Encoding.

The difference between Decoding and Encoding as it applies to the central nervous system as a feedback loop is important to emphasize. In the next section the basic function and the individual components are of the feedback loop are discussed, however, this does not explore the idea of external and internal worlds that are evident in decoding and encoding. The world outside of a person interacts with itself based on rules and regulations that are a result of the objective and subjective application of physical, electrical and chemical laws. This also holds true for the internal world.

To understand this better, let's take the process of experiencing a flower. Depending on how the flower is being experienced, energy from the flower in the form of odour, touch and sight may touch upon the surface of the person. Those surfaces with sensors specific to these energy sources will react and begin to fire impulses along axons specific to them. Decoding is complete when the specific areas in the central nervous system have been stimulated to represent the flower as it was sensed. However, it is not until this information which represents a flower is compared to the internal levels of stimulation previously experienced during a similar event that Encoding occurs.

As such, Decoding can be seen as taking external patterns and reforming them inside the CNS, whereas Encoding involves assigning meaning or internal energy to this pattern. Without this connection, the person would be unable to live. They would exist in an environment without meaning. With this preface given, it is possible to move onto the next section on components and how they can manipulate the energy within the loop.

### **IV. B. ii. Components**

Based on the processes that have been discussed, those being a system returning itself to electrical stability, Freud's Instincts behave as if they are part of and being controlled by a type of feedback loop. Feedback loops are able to increase or decrease changes that occur to a system. Positive feedback loops increase the extent of this change, and move the system away from the homeostatic level that the system is in, making it unstable. Negative feedback loops on the other hand, buffer or remove any destabilizing forces affecting the system. Such a corrective force would keep the system in homeostasis. Given these definitions, by removing the stigma of the terminology, the Death and Life Instincts, under the Pleasure Principle, behave like Negative Feedback Loops.

The similarity between Negative Feed Loops and Freud's Pleasure Principle and its relationship to the instincts will become clearer when the individual components of the feedback loop are considered. An engineering approach will be used to frame the hypothetical Psychological Negative Feedback Loop. The reason for this is that engineers usually apply such models to systems with changes in the electrical energy state of the system, such as the one indirectly proposed by Sigmund Freud's theories. In many ways, this system is similar to that of a thermostat engineered to maintain a set temperature in an area through the use of sensors and other components.

Based on standard engineering practices, there are five (5) parts to the Feedback Loop Mechanism (Closed-Loop Control Model)<sup>2</sup> used in controlling a dynamic system. The parts include: 1) Variable: the element being controlled; 2) Sensor: detects changes in the variable and sends these changes to the Effector; 3) Integrator: brings together the current state of the system (input from Sensor) and compares it to the Set Point; 4) Set Point: the 'normal' quantity of the variable the system is designed to maintain; 5) Effector: part of the system that brings about a change in the variable to bring it to a quantity equal to the Set Point. Variable (Neuronal Excitation) and Set point are shown in Illustration 1.

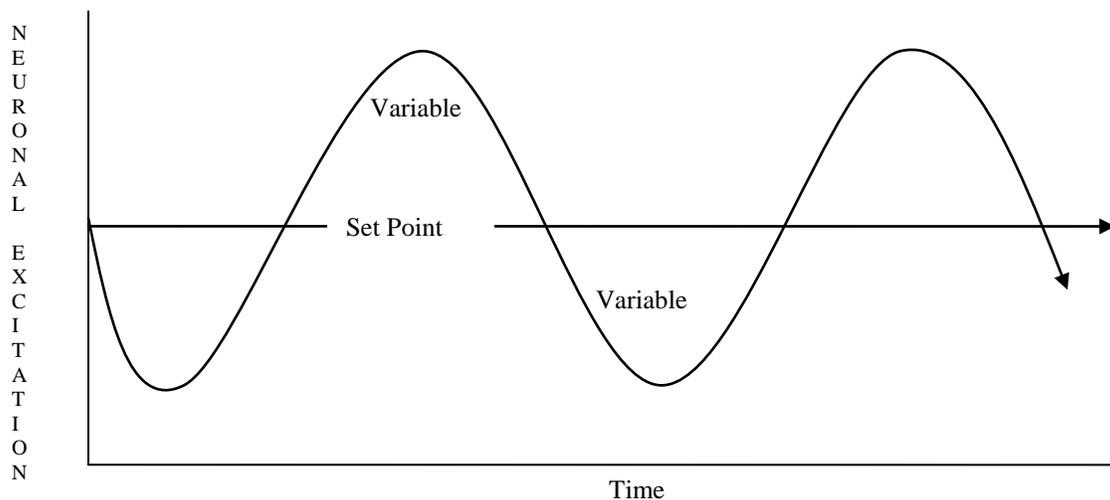


Illustration 1: Negative Feedback Loop.

If the variable being measured and controlled is the potential electrical energy, or voltage of a system, a Negative Feedback Loop is able to reduce variance to a specific set point. Quantifying neuronal activity into a measurable variable is the key to understanding how a Negative Feedback Loop would apply to the Death and Life Instincts. The system is not measuring what is Death and Life in a qualitative manner, but what these concepts are may be when represented through quantitative measurement, such as the driving force or voltage in the CNS. The question then becomes how is this done, and how, as conjectured by Freud, can both instincts adhere to the Pleasure Principle/Principle of Consistency (Feed back Loop) with the Death Instinct taking precedence over the Life Instinct.

<sup>2</sup> Lewis, F.L. (1992). *Applied Optimal Control and Estimation: Digital Design and Implementation*. New Jersey: Prentice-Hall.

In order to meet these criteria, it is necessary to ‘nest’ the Death Instinct within the Life Instinct. An operation is said to be nested within another if that operation is carried out before the second can occur. Based on Freud’s supposition, the Life Instinct is secondary to the Death Instinct which is nested inside of it. What this implies is that even though the Life Instinct tends toward its own set point, which is to increase the amount of neuronal excitation, because the primary operation is death, its set point, zero excitation, will ultimately prevail.

The result of having two diametrically opposed set points occurring simultaneously in the same system results in both forms of control loops manifesting themselves to varying degrees during the individual’s life. With the Death Instinct being the primary function, the first actions of the organism is correct for the reduction in excitation. As such, the dramatic rise of neuronal energy in the early stages of life can be viewed as the Life Instinct fighting the system’s basic tendency toward zero neuronal excitation. Such a struggle has the characteristic of a Positive Feedback Loop. However, with time, Death Instinct’s drive toward its set point (0) eventually supersedes the Life Instinct, causing the energy created by the Positive Feedback Loop to be extinguished by the continuous operations of the Negative Feedback Loop. This relationship is shown in Illustration 2. The dashed line in the Life Instinct indicates variation as shown in Illustration 1.

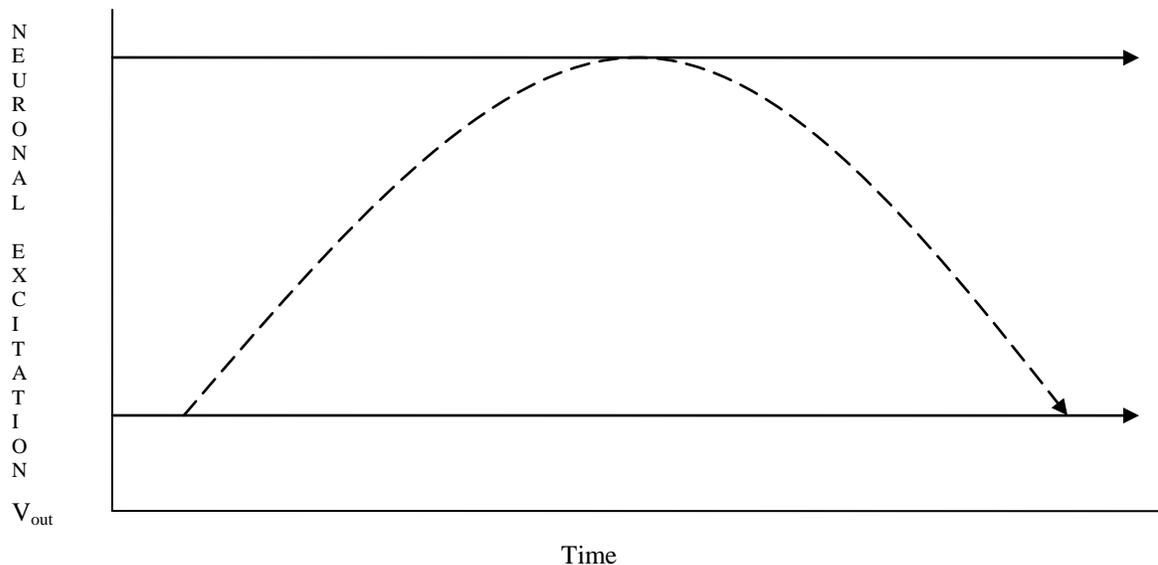


Illustration 2: Cortical Voltage output ( $V_{out}$ ) as a Function of the Freudian Model.

Before moving onto the specific functions that are implicit in this mechanism, it is important to re-emphasize the Freudian elements of this illustration. To Freud, due to the Principle of Constancy and the primacy of previous states, the purpose of Life is Death. His pragmatic view is given in the following quote on page 38 of *The Ego and the Id*:

On the basis of theoretical considerations, supported by biology, we put forward the hypothesis of a death instinct, the task of which is to lead organic life back into the inanimate state;

Consequently, Life can be seen as a form of disorder which Death corrects. Within the parameters of Life, Life and what it affects to maintain itself, through both Positive Feedback Loops (increase overall excitation) and Negative Feedback Loops (stabilize the organism during this increase), is order. However, in the scope of the primary function being Death, it is disorder and maximum disorder (top line) occurs when the variable (neuronal excitation) is furthest away from the set point (zero excitation – bottom line).

## **V. C. States and Functions**

The investigation will now move onto the specific Freudian Functions which should, given that they are authored by the same person, fit within the criteria given for the two instincts. These functions, while not having specific locations in the mind, are given a chronological order of developing in the person, that being: Id, Ego, and Super-Ego.

Furthermore, there is also the concept States, and what they may consist of. Freud does not overtly mention States, however, for this paper, the concept of States is implied in his work, and refers to an active condition realized at the interface between internal and external input (Section V. C.2.b. Ego). State is akin to a Sensor in a feedback loop except in this instance, State is the Sensor's response to the level of excitation.

Freud's theories on States will be discussed first, then the Functions. The purpose of this section is to see if these terms are compatible with the Feedback presentation of the instincts given in Section III, and how it compares to the Non-Linear Existentialism in Section VII.

### **V. C. 1. STATES**

#### **V. C. 1. a. Consciousness and Unconsciousness (Quantitative)**

Freud views Consciousness as that which we are aware of, and Unconsciousness as a lack of awareness. In *The Ego and the Id*<sup>3</sup> (EI) (pg. 4) he states the following:

... a state of consciousness is characteristically very transitory; an idea that is conscious now is no longer so a moment later. . . .Here 'unconscious' coincides with 'latent and capable of becoming conscious'.

These ideas are juxtaposed with the Pleasure Principle in this statement (EI, pg. 15):

Let us call what becomes conscious as pleasure and unpleasure a quantitative and qualitative 'something' in the course of mental events . . . . It [clinical experience] shows us that this 'something' behaves like a repressed impulse. It can exert forcing without the ego noticing the compulsion. Not until there is resistance to the compulsion, a hold-up in the discharge-reaction, does the 'something' at once become conscious as unpleasure

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<sup>3</sup> Freud, S. (1960). *The Ego and the id (The Standard Edition)*. (Joan Riverie, Trans.) New York: W.W. Norton & Company Inc. (Original work published 1923).

This statement implies the transition from unconsciousness to consciousness may be due to the quantity of stimulation experienced by the CNS. With the addition of resistance to the satisfaction of unconscious compulsion, there is, as predicted by the Pleasure Principle (electrical positive compensation as per the Negative Feedback Loop) a resultant increase in neuronal energy, and a subsequent conscious awareness of it.

Another example of a variation in the probability of awareness is the phenomena of Repression. Repression is usually described in terms of memories and other impressions in the CNS which are not experienced due to internal conflicts. In his description of why there are different levels of consciousness, Freud states (EI, pg. 5):

. . . psycho-analytic theory steps in and asserts that the reason why such ideas cannot become conscious is that a certain force opposes them, that otherwise they could become conscious. . . . We see, however, that we have two kinds of unconscious – the one which is latent but capable of becoming conscious, and the one which is repressed and which is not, in itself, and without more ado, capable of becoming conscious.

The greater the interference between CNS based patterns, the higher the probability of repression or reduction of these patterns and for such patterns to be experienced. However, even if there is extensive reduction, the pattern may still affect other patterns, but it, itself, will not be experienced because of internal resistance, and will remain repressed until the resistance is changed. This is referred to as the Unconscious. For those patterns which are capable of being experienced, but have not received the necessary stimulation to be experienced, Freud defines it as Preconscious.

### **V. C. 1. b. Thought (Qualitative)**

Though Freud imbues Consciousness with both Quantity and Quality he does not explain the difference. Based on the previous statements, it is clear that in keeping with the Pleasure Principle, Consciousness refers to a specific level of neuronal excitation the CNS must reach in order for a person to be aware of themselves in the environment. However, in page 3 of *The Ego and the Id* Freud states:

. . . psycho-analysis cannot situate the essence of the psychical in consciousness, but is obliged to regard consciousness as a quality of the psychical, which may be present in addition to other qualities or may be absent.

What Freud may have not considered in this statement is that he does not define what this quality is or why it should occur.

It could be hypothesized that the quality Freud speaks of is humanness, or that which makes a person that person. It is not logical to say a person feels like a person because they are a person. Such a tautology does not answer any questions. One could argue that quality is just a by-product of quantity; that by experiencing the environment, they *de facto* become who they are. This is true only if a person is viewed as a linear system and therefore, does not explain the non-linear character that creativity points towards. If this is the case, the level of excitation (Quantity), as an expressed of externally based input, is not what is unique to the person, but that which is not a result of external input (Quality).

By accepting this idea, then there are two phenomena or States that occur simultaneously when a person is aware of them in the environment. Consciousness takes place when the central nervous system has achieved a minimal level of excitation of their neuronal issues. The second aspect of awareness will be defined as Thought, or the ability to modified this excitation in a way that is unique to that person (the person's quality), and permits the separation of the person from their environment.

### **V. C. 1. c. Anxiety (Instability)**

The next State of the interaction between the external and the internal is Anxiety and its ability to sense the possibility of impending unpleasure. So far, Consciousness is our awareness of our own person in an environment, because neuronal excitation has been sufficient to achieve this awareness. Thought is an additional element which gives our own personal quality to these new experiences. In this guise, Anxiety becomes our awareness during Consciousness that there may be an impending reduction in this excitation due to previous or expected aspects of the environment (*Beyond the Pleasure Principle*, Pg. 11):

Anxiety' describes a particular state of expecting the danger or preparing for it, even though it may be an unknown one.

The word 'may' could be used by Freud because anxiety describes a reaction to something that has of yet happened. Therefore, Anxiety could be an inherent proactive State of the CNS to prepare itself for the possible reduction in excitation.

In contrast to normal anxiety, there is also dysfunctional anxiety. If seen as a psychological disorder in instances where this state becomes unmanageable, Anxiety shows itself as a hyper-awareness of the possibility of excitatory reduction. This awareness occurs because the system as an electrical function (Life Instinct) is already in an elevated state of variability, and if there is more input, which itself contains a certain amount of variance, the combined variability may overwhelm the system's stability.

In *The Ego and The Id*, Freud does not go into any detail on the mechanism of Anxiety, but does signify its importance. In the context of the following discussions on ID, EGO and Superego, we will see how Freud views Anxiety as the possible point of contact between the steady state inside the person (Ego) and the forces that may destabilize it (EI, pg. 58):

. . . we see this same ego as a poor creature owing service to three masters and consequently menaced by three dangers: from the external world, from the libido of the id, and from the severity of the super-ego. Three kinds of anxiety correspond to these three dangers, since anxiety is the expression of a retreat from danger.

It could be suggested, that this again implies that anxiety is a form of minor electrical instability that occurs prior to greater levels of instability. Perhaps, in those that are clinical Anxious, when certain electrical patterns are encountered (memories of an event) this causes the set point to become erratic. Such a pattern reduces the overall voltage in the CNS and is viewed as unpleasurable.

## **V. C. 2. Functions**

### **V. C. 2. a. ID**

Freud theorises the starting point of the person is the Id, and that only through interactions with the environment can it be controlled. In *The Ego and the Id* (EI), Freud argues that the core attributes of a person stem from the Id (pg. 17), 'We shall now look upon an individual as a psychical id, unknown and unconscious . . .' and (pg. 19), 'The ego, represents what may be called reason and common sense, in contrast to the id, which contains the passions.' Moreover, it is considered by Freud to be unalloyed and continuous, (pg. 35):

Reflection at once shows us that no external vicissitudes can be experienced or undergone by the id, except by way of the ego, which is the representative of the external world to the id.

And since, as will be shown in the section on Ego, the Ego is an expression of the Id (as modified by the environment), Id can only be controlled through using its own force against itself (Superego). Consequently, all psychic power emanates from the Id.

If the Id is the source of all psychic power, and Freud claims the instincts are an expression of this energy, then id and the instincts have to be closely related. Based on the theory of defusion, where Love and Hate simultaneously occur in an undifferentiated force, and are only realized as unique phenomena when they are separated, Freud reasons that it is possible for the Id to be the energy by which the Death and Life (libido) Instincts are created. However, as Freud argues, due to the prominence of the genetic predisposition of the biological system to go towards death, the Id's power (as expressed a neuronal energy) is channelled more toward it than life (EI, pg. 62):

The id, to which we finally come back, has no means of showing the ego either love or hate. It cannot say what it wants; it has achieved no unified will. Eros and the death instinct struggle within it . . . It would be possible to picture the id under the domination of the mute but powerful death instincts, which desire to be at peace and (prompted by the pleasure principle) to put Eros, the mischief-maker to rest; but perhaps that might be to undervalue the part played by Eros.

Therefore, Id's function is to provide raw undifferentiated neuronal energy that can be changed by interacting with external forces to develop into other functions that defines the individual. As such, energy, in the form of electrical excitation (Id), is the variable controlled by the loop.

### **V. C.2.b. Ego**

Freud views Ego as the point of contact between the outside and inside worlds, and based on the feedback loop, this part of the psych would be the Integrator. Page 19 of *The Ego and the Id*, the possibility of the Ego acting as the Integrator is implied:

'. . .the ego seeks to bring the influence of the external world to bear upon the id and its tendencies, and endeavours to substitute the reality principle for the pleasure principle which reigns unrestricted in the id.'

As mentioned in the previous section, the various States experienced by a person is a result of this integration, including Consciousness and Anxiety. By bringing together the various energies that comprise the Ego, enough neuronal energy is realized to produce consciousness (EI, pg. 8):

We have formed the idea that in each individual there is a coherent organization of mental processes, and we call this his ego. It is to this ego that consciousness is attached.

But such integration can also produce regression (BPP, pg. 20):

. . . we can say that the patient's resistance arises from his ego, and we then at once perceive that the compulsion to repeat must be ascribed to the unconscious repressed.

While neuronal instability is referred to as Anxiety, 'The ego is the actual seat of anxiety.'(EI, Pg. 59). It can therefore be concluded that Ego is created by forces that begin either inside (Id) or from the outside the person, and depending on how these forces interact, different levels of energy, with different levels quantities and qualities will be produced.

Based on this prospective, and keeping with the feedback loop comparison, the Ego is then the accumulated inputs from the senses and memories. Freud states as much in the following quotation from *The Ego and the Id*, (pg. 17) which he says is based on communications with George Groddeck:

. . . who is never tired of insisting that what we call our ego behaves essentially passively in life, and that, as he expresses it, we are 'lived' by unknown and uncontrollable forces. . .

The function of the Ego then is to make the person aware of changes in themselves and the environment. The Ego is the passive staging ground at which this occurs.

While Life and Death Instincts both come from the Id, the Ego by interacting with the environment can become more representative of the Death Instinct. In his earlier work, Freud emphasises the importance of the Sexual Instinct (libido) in its affects on life, however, in *Beyond the Pleasure Principle*, he views Ego as taking prominence (pg. 62) due to its relationship with the Death Instinct:

The upshot of our enquiry so far has been the drawing of a sharp distinction between the 'ego-instinct' and the sexual instincts, and the view that the former exercise pressure towards death and the later towards a prolongation of life.

Therefore, the rule based Ego, or what the Id becomes once it interacts with the environment, is given the function of Death, and Life Instinct comes from the libido. And since it has been argued that the Death Instinct is stronger than the Life Instinct, the sexual instincts are secondary to the Id-Ego. As we will see in the next section, this does not occur as a result of the passive nature of the Ego, but as a result of an unconscious part of the Ego (the Superego) which has become active by way of being constrained by elements of the environment (rules and regulations).

### V. C.2.c. Superego

Through the process of managing inappropriate urges towards a parent, the seeds of the Superego are developed in a growing child. Freud believes that the Superego is formed by the child endeavouring to resolve fundamental issues to do with their own growing libido. This process is referred to as the Oedipus Complex (EI, pages 26-27):

In a simplified form the case of a male child may be described as follows. At a very early age the little boy develops an object-cathexis for his mother, which originally related to the mother's breast and is the prototype of an object-choice on the anaclitic model; the boy deals with his father by identifying himself with him. For a time these two relationships proceed side by side, until the boy's sexual wishes in regard to his mother become more intense and his father is perceived as an obstacle to them; from this the Oedipus complex originates. . . . Its place may be filled by one of two things: either an identification with his mother or an intensification of his identification with his father.

The ability to resist inappropriate impulses is controlled by the Superego (EI, pg. 53): We know that as a rule the ego carries out repressions in the service and at the behest of the super-ego'. Freud emphasises its relationship to the other functions in the next quote (EI, Pg. 54): All these situations the super-ego displays its independence of the conscious ego and its intimate relations with the unconscious id.

Freud sees this process as a result of taking energy from the Ego, which was first transferred to it by the Id, and then depersonalizing it into a system of rules and regulations stored and storing it in the Super Ego. In simple terms: the ego forms its super-ego out of the id (EI, pg. 35). Freud elaborates on this as follows (EI, pg. 26):

But, whatever the character's later capacity for resisting the influences of abandoned object-cathexes may turn out to be, the effects of the first identification made in earliest childhood will be general and lasting. This leads us back to the origin of the ego ideal: for behind it there lies hidden an individual's first and most important identification, his identification with the father in his own personal prehistory.

And on page 30 of *The Ego and the Id*:

The super-ego retains the character of the father, while the more powerful Oedipus complex was and more rapidly it succumbed to repression (under influence of authority, religious teaching, schooling and reading), the stricter will be the domination of the super-ego over the ego later on – in the form of conscience or perhaps of an unconscious sense of guilt.

As before, all the psychic energy comes from the Id.

Superego is, as concluded in previous section, the part of the psych by which the Death Instinct is able to suppress and ultimately overwhelm the passive part of the Ego. In reference to the Super Ego, Freud states the following (EI, pg. 59):

Through its work of identification and sublimation it gives the death instincts in the id assistance in gaining control over the libido, but in doing it runs the risk of becoming the object of the death instincts and of itself perishing. In order to be able to help in this way it has had itself to become filled with libido; it thus itself becomes the representative of Eros and thenceforward desires to live and to be loved.

But since the ego's work of sublimation results in a defusion of the instincts and liberation of the aggression instincts in the super-ego, its struggle against the libido exposes it to the danger of maltreatment and death. In suffering under the attacks of the super-ego or perhaps even succumbing to them, the ego is meeting with a fate like that of the protista which are destroyed by products of decomposition that they themselves have created.

With its independence and control over the Ego, the Super Ego takes on the function of the Effector in the NLE Feedback Loop, modulating the overall level of neuronal excitation (Variable). The level of neuronal excitation currently being experienced by the Ego is compared (Ego-Integrator) to that which enters it. The outcome (Ego-Sensor) of the Integration is compared to the expected outcome. Any corrective actions are carried out by the Super Ego (Effector) which will affect the states of Consciousness, Anxiety and Thought. The final outcome of this system, then, is the reduction of the Ego until all the energy is removed from the psych, and the person is dead (Set Point).

## **VI. Freudian Feedback Loop and Functions**

The functions of the Freudian Psychoanalytical mode can be shown as a system of feedback loops. In illustration 3, it was suggested that the Death and Life Instincts could be modelled as variations in the amount of neuronal excitation or voltage in the CNS. While the Life Instinct would be shown as the line that continues to increase until the middle of the diagram, modulating itself based on the constancy doctrine of the Pleasure Principle, the overall strength of the Death Instinct would eventually cause the Life Instinct to go to zero. In this section, we will show how the Id, Ego and Superego, as discussed so far, can be interrelate and produce the overall variations in the Life and Death Instincts that Freud theorizes controls psychic development.

In keeping with Freud's theories, and casting the functions as a reflection of energy levels in the brain, the development of the psychic (Ego) is a result of a continuous conflict between these different energies. Based on Freud's writings, the process of development is driven by the Id. And while the Id is the primary source of energy within the system, due to it's disconnection with the Ego, the Ego begins at a low level of excitation, and since the Super Ego receives its energy from the Ego, it to is inactive. And as such, although the force produced by the Id is at Id Maximum<sup>4</sup> the dotted line which presents the development of the Ego begins at Id Minimum.

As input continues to flow into the central nervous system, the Ego attains its highest level of excitation, near to, but not equal to Id Maximum. Previously, there was a disconnection between the Ego and the Id Maximum. However, with time the person takes themselves as the object which Id desires. Or in other words, the Libido energy is given to the formation of the Ego and increases in strength at this stage because the suppressing counterforce of the Super Ego is not fully developed. Nevertheless, the narcissistic tendency of the Ego is not allowed to reach its full potential because the Super Ego is still present and stops the Ids from obtaining all of its passions.

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<sup>4</sup>Id Maximum Voltage is produced by the impulses from the Primary Needs Areas (Continuous and Episodic), and are represented by those areas that control (Continuous) breathing, heart rate, and thermoregulation, or, hunger and thirst (Episodic). Id can be seen as raw undifferentiated neuronal energy. Please note: These lists are offered as examples of Continuous and Episodic Needs, and are not complete.

With time, and further under the influence of society, the Super Ego starts to decrease the Id until it reaches Id Minimum. Here the Integrating Function of the Ego is primarily controlled by the Super Ego (Death Instinct). Even though the level of energy being produced by the CNS is still at Id Maximum, the Super Ego is able to completely suppress the Id with its own power. As such, the Ego can be seen to trace the pathway the Life Instinct (libido) should take if it is in conflict with the Death Instinct. While both instincts adhere to the Pleasure Principle, the Death Instinct is able to reduce the energy of the Life Instinct due to a modification of a part of the Ego into the Superego.

In Summary, the psychology interaction between the functional elements as suggested by Freud, when taken as an explanation for changes in the central nervous systems level of neuronal excitation, conforms closely to the actions of an ideal Negative Feedback Loop. The Ego (Integrator and Sensor) is a by-product of the conflict between the external inhibiting forces of the Super Ego (Effector) and the internal drive of the libido to go away and eventually toward zero (Set Point). All of these functions have the primary goal to either increase, decrease or keep constant the level of neuronal excitation (Variable) in the central nervous system based on the strength of the driving force.

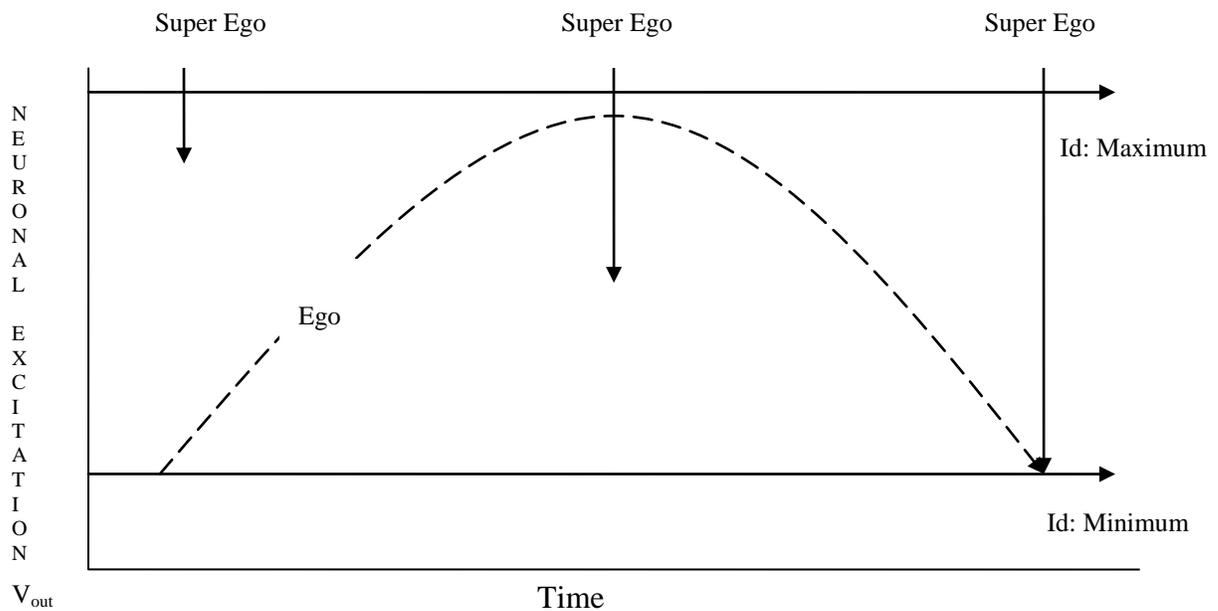


Illustration 3: Freudian Functions Plotted against Voltage Output ( $V_{out}$ ) of the Cerebral Cortex.

## VII. Non-Linear Existentialism

At the center of Non-Linear Existentialism is the emphasis on the division between the ideas of quality and quantity. As discussed in the paper on Heidegger's Philosophy, the ability to be human, and to experience humanness is a result a separation and modification of the neuronal stream in the central nervous system from the environment. Through this separation, the organism becomes an individual with standards that are unique to them. Given this hypothesis, the input into the individual is defined as quantity, and the systems ability to modify it into a person, is their quality.

## **VII. A. Instincts**

It was argued in the paper concerning Heidegger's Philosophy, that many of the terms he used were secondary to the biological imperatives of the organism. While a person can contemplate existence, and the source of their knowledge and its subsequent validity, such thoughts and higher ideals does not remove the importance of survival. In keeping with this, while Freudian Psychology does make many important points, if it is going to make reference to excitation and other neurophysiological terms, the higher states and functions are still required to agree with the basic workings of the central nervous system.

As outlined in the YouTube presentation on Energetics, it was theorized that an individual with the appropriate environmental supports, endeavours to return to a previous level of innate excitation. The beginning state of excitation in the CNS was termed the Primary Needs Baseline Activity (PNBA) Level, whose intensity of excitation in the neuronal mass was set by the continuous and episodic inputs from the Primary Needs (similar to Id). This activity was not subdivided, as Freud does, into Life and Death, and is assumed that this is another abstraction which can be used to illustrate his theory, but is not necessary.

However, this drive or instinct to come back to the original state of neuronal excitation is directly opposed to the Freudian relationship theorized to exist between the Life and Death Instincts. In Section III A. Instincts, it was shown that Freud postulates that even though the person strives throughout their life to live, there is a more primary drive to extinguish it. Non-Linear Existentialism proposes the opposite based on the simple point that it would not occur based on the Energetics of the system.

While in the context of his theory the primacy of Death is credible, it rests on the notion that the Death Instinct is the result of some phylogenetic predisposition to go back to the inanimate, which supersedes the temporary drive to live. To support this, Freud gives the central nervous systems reservoir of the psychic energy, the Id, the ability to give its energy away to other parts of the CNS (Superego) so it can reduce its own power and succumb to death. From a psychoanalytical perspective this idea is attractive, but not from a neurobiological theory such as Non-Linear Existentialism, and as a result, even though NLE can be still represented with a feedback loop, the energy diagram would be different.

## **VII. B. Feedback Loops**

Before progressing onto translating the concept of Non-Linear Existentialism into the language of psychoanalysis, it will be necessary to put it into the context of feedback loops. As with Freudian Psychology, a feedback mechanism can be used to show the interrelationships of the components of NLE as they are influenced by the primary instincts. Moreover, the driving energies of the instincts as processed by the Functions are shown to move away and toward their own individual Set Points.

Nevertheless, although the concept of the feedback loop can be used to describe the change in the voltage of the neuronal mass, the overall shape is, as mentioned, different because the outcome is different. As shown below in Illustration 5, the shape of the Life Line is an inverse relation to that in Illustration 2. Freud would have the Life Line starting at a low state of neuronal energy, growing in strength toward the middle of a person's existence, and then going back to zero, NLE, as stated previously, begins at a maximum level of excitation, and through interacting with the environment decreases until it reaches the lowest level of excitation, which through the efforts of the maturing person, begins to go back to the Maximum level of neuronal excitation.

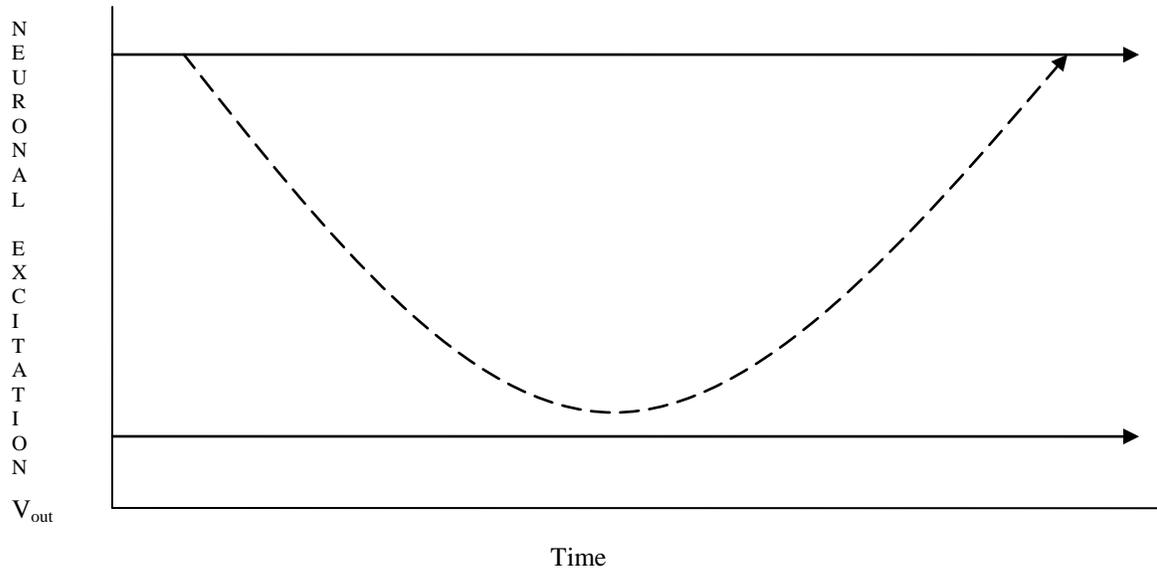


Illustration 4: Neuronal Mass Voltage Output ( $V_{out}$ ) as a function of Non-Linear Existentialism.

To emphasize the overall function of this model in terms of manipulating and increasing energy, the following sections on the States and Functions of the NLE will employ terms used to describe electrical events when referring to Freudian components. The first step in this process was introduced in Section II: Neurophysiology: Charged and Uncharged Base States. In this section the concept of manipulating the probability of a neuronal discharge was discussed. Such a discussion was necessary to show that this system, both at the level of decoding external input and encoding such input into relevant patterns, as well as changing them, has the necessary degree of stability that is needed for a feedback loop to operate, while at the same time permitting for non-linear processing in respect to input.

In keeping with the desire not to be caught up with interpretative language of Freudian Psychology, which can become convoluted and hyperbolize the mind, simplicity is the key. Psychologist as well as Philosophers sometimes read too much into their own ideas. As always, it must be remembered that the central nervous system is fundamentally an organ, and although its actions are difficult to understand due to our subjective involvement and our ethical inability to test it during its operation, its behaviours can still be described on the principles of neurophysiology.

## **VII. C. States and Functions**

### **VII. C. 1. States**

In the context of Non-Linear Existentialism, the (electrical) states represent the immediate reaction of the individual to the environment set against previous experiences in that environment. Externally, the lineage of these states begins with receptors being stimulated by different quantities in the environment and causing the related neuronal processes to fire. This creates a current which moves towards different parts of the CNS depending on the type of stimuli it is and the ability of the neuronal pathways to accept it.

Given Ohm's Law, the current (I) of the processes, and the resistance (R) equals  $V_{ex}$ , or the Voltage that is created by externally based sources. The quantity (external standard) of these states is determined by which channel the stimuli stimulated, and the linear decoding processes that follow. Internally, the same can be referred to as Voltage Internal ( $V_{in}$ ) and is generated by the Primary and Secondary Needs (Wants) either episodic or continually. The quality (internal standard) of these states depends on the degree which their amplitude is modulated by the VIIb layer of the cortex. The outcome of  $V_{ex}$  and  $V_{in}$  is equal to the output voltage ( $V_{out}$ ) of the system.

#### **VII. C. 1. a. Consciousness and Unconsciousness (Frequency Modulation)**

Based on the concept of binding through independent electrical interference, the frequency of the incoming quantified stimuli is modulated to allow for a unified experience which is called Consciousness. By modulating the frequency of the signals so that the individual neuronal excitations occur at the same time, the person experiences a unified representation of the world.

Consciousness is different from Unconsciousness in terms of the amount of neuronal energy. Those patterns stored within the cortex which shape the decoded message entering the area of unification are referred to as Unconsciousness. The person's ability to recall the meaning of these prior patterns would be based on the amount of resistance (see Super Ego) occurring in these patterns. Nevertheless, even if neuronal resistance blocks such understanding, these patterns still have shaped the Conscious experience.

#### **VII. C. 1. b. Thought (Amplitude Modulation)**

Key to the theory of Non-Linear Existentialism is the ability of the Central Nervous System to produce controlled variance. In order to survive, the organism has to experience the environment. Small neuronal processes in Layer VIIb of the Cerebral Cortex without myelin sheaths to negate external charges have been hypothesised to produce a continuous electrical current. This current then creates an electromagnetic pulse affecting nearby neuronal processes. Because the affected cells have no myelin sheath, the current is transferred to it, but at a lower charge. In review, the created sub-threshold stimulation is referred to in this paper as the Charged Base State, and is able to set the frequency of impulse going through it when it is stimulated to above threshold activity levels by input.

Next, the organism needs to optimize the connections between information they sense from the outside world and the needs that are experienced through the amount of excitation that occurs by experiencing them. If the first experiences felt by the organism were the ones to determine the ultimate configuration of these connections, the chances of survival would be greatly reduced. However, through modulating the amplitude of the decoded stimuli moving through consciousness via a minor degree of oscillation, variance is added to the neuronal stream so that more optimal connections can be formed.

### **VII. C. 1. c. Anxiety (Oscillation Control)**

Regardless of the complexity of the neuronal pattern, it is a by-product of a change in the amplitude and or frequency of an electrical pulse. Changes in the frequency are necessary so that common experiences are realized at the same time, and as such, would, if not experienced at the same time, lead to distortions in the perception of the person. Changes in the amplitude, as mentioned in the previous sections, are advantageous to creating new patterns but if too variable, are not advantageous to survival.

In the previous work on Existentialism, anxiety was viewed as state that reflects a reduction in the amount of voltage in the CNS, but not directly as a result of current inputs. While Heidegger was aware of the Psychological form of anxiety he primarily viewed it as a Philosophical State. To Heidegger, Philosophical Anxiety was a by-product of the existence of the person as a physical entity, and although he didn't state if it occurred to the same degree for each individual, he did say that it was experienced by everybody.

Consequently, I would hypothesize that there are two types of Anxiety. Anxiety that is inherent to the system, and formed by the magnetic field (Charged Base State), is Philosophical (System) Anxiety (Illustration 5). The second type of anxiety is the result of stored patterns (Uncharged Base State) in the system, and is termed Psychological (Input) Anxiety (Illustration 6). Either way, the system is not able to adequately control the gain of the amplitude, which can lead to increased oscillations (Instability). If such oscillations are too intense, the pulse is no longer able to repolarise before the next pulse created by the Frequency Modulation, leading to a reduction in the voltage of the system.

### **VII. C. 1. d. Incongruities (Resistance Modulation)**

Before moving onto the functions of the system, it should be briefly mentioned how anxiety relates to the topic of incongruities. As part of Energetics, two terms were defined: Instantaneous and Residual Incongruities<sup>5</sup>. If an area is supposed to produce x amount of stimulation, but now produces y, this would be an Incongruity and can produce anxiety. Change in the amount of stimulation is a result of Resistance Modulation (Section VII. C. 2. b. Super Ego). Because this difference can occur as a result of present input (Instantaneous Incongruency) or those from the past affecting the present (Residual Incongruency) Consciousness can be an admixture of these phenomena and is therefore, by implication, a by-product of Charged and Uncharged Base States.

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<sup>5</sup> The reduction of Residual Incongruities was also postulated to give purpose to life:  $RI = 0$ .

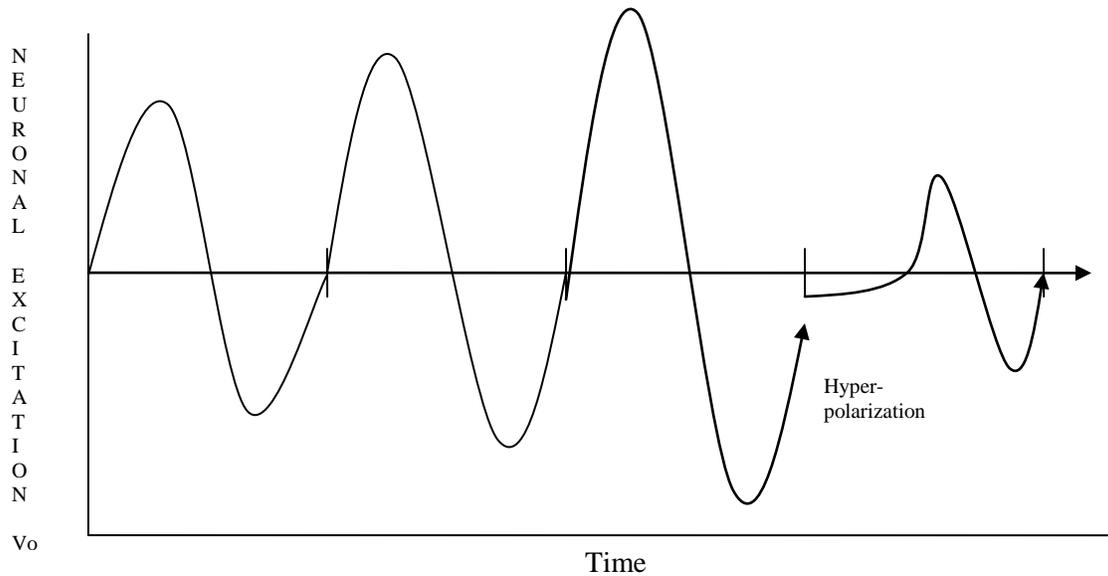


Illustration 5: Increasing Amplitude Oscillations as a Function of Magnetic Field hyper-polarisation. Each segment of this diagram represents a frequency interval produced in the CBS and shows the electrical profile of one impulse moving through the area. Input enters on the left and through 4 interval exits on the right. This diagram shows that the magnetic field in this part of the CBS is too strong and inadvertently increases the signals amplitude until the oscillations can not be repolarised before the new frequency pulse is occurs.

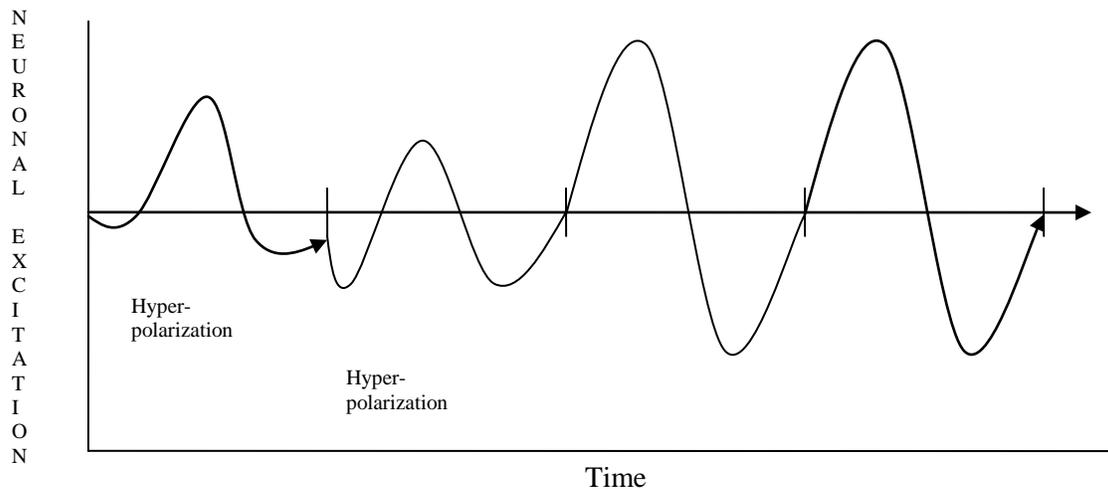


Illustration 6: Amplitude reduction as a Function of Input hyper-polarization. Due to the interference created by conflicting patterns, the input on the left side is already in a reduced state. Because the impulse can not reach the set point before the frequency occurs, it is further hyper-polarized. However, the impulse may be restored to normal levels by energy from the magnetic field.

Thus far, it has been demonstrated that a maturing system is at a state of voltage which is below the optimal, which was referred to as the Primary Needs Baseline Activity Level. However, the PNBA is itself a composite of the voltage of the patterns within the cortex, implying RI is the system's current state below the PNBA Level. Therefore, when RI equals zero, the PNBA will be optimized, implying that while RI might equal zero if static cerebral resistance becomes zero, Instantaneous Incongruity will and has to be positive due to present (dynamics) requirements to meet the bodies' needs.

## **VII. C. 2. Functions**

### **VII. C. 2. a. ID (Set Point)**

Simply put, the Primary Needs Baseline Activity (PNBA) Level in the CNS is the level of electrical activity the system attempts to achieve throughout the course of the system's existence. The interaction of the person with the environment causes the current level of excitation (Ego), in terms of Quantity and Quality, to deflect away from this former level. The drive toward this level would be equal to the Id of Freud's system, and unlike Freud's system, it is to be maximized. It is not labelled as good or bad, instead it is seen as something that is absolutely necessary for the survival of the person. However, behaviours and hence the patterns to be created in order to maximize the Id (Primary Needs), can lead to the formation of behaviours and hence patterns that are specific to the person (Second Needs, or Wants), some of which do not maximize the PNBA level.

### **VII. C. 2. b. Super Ego (Effector)**

Unlike the Freudian Model, the next functional element that is expressed in NLE is the Super Ego and, as an electrical component, is Resistance. As implied in Section C. 1. c. Anxiety (Oscillation Control) over the course of a person's life, it is inevitable that there will be many instances the person will experience not being able to achieve goals that are related to the PNBA Level. Through learning, the links between inputs from the environment that decreases overall input will be chosen less often than those that increase it. The experiences and those elements in these experiences that are responsible for the creation of the resistance between the component groups of neurons can be referred to as the Super Ego.

It is likely that a reduction in voltage is a result of Frequency Modulation at the level of the pattern in those neurons that are in the Uncharged Base State. Inhibitory post synaptic potentials within the pattern could be produced by having some of the neurons fired out (temporal) of phase with the others, disrupting the summation portions of neurons within the pattern. Therefore, Frequency Modulation in neurons in the Uncharged Base State, as apposed to the Charged Base State, leads to resistance (Resistance Modulation) and a reduction in amplitude. Frequency in either case interferes with the amplitude; Uncharged Base State having a lower level of conscious awareness attached to it as compared to the Charged Base State.

### **VII. C. 2. c. Ego (Integrator and Sensor)**

The last function in this system is the Ego, and is the by-product of the  $V_{in}$  and  $V_{out}$ . Although, I have placed the Ego as the last part to develop, I agree with Freud that it is the Integrative Area of the central nervous system. The States of Consciousness, Thought and Anxiety are the result of the summation of the two forces. If the Integration of the two forces moves the  $V_{out}$  toward the Primary Needs Baseline Activity Level, then the State is pleasurable, if not, it is not pleasurable. The relationship between the various Freudian and NLE elements are compared in Illustration 7, as well as the terms FM, AM,  $V_{in}$ ,  $V_{ex}$  and  $V_{out}$ .

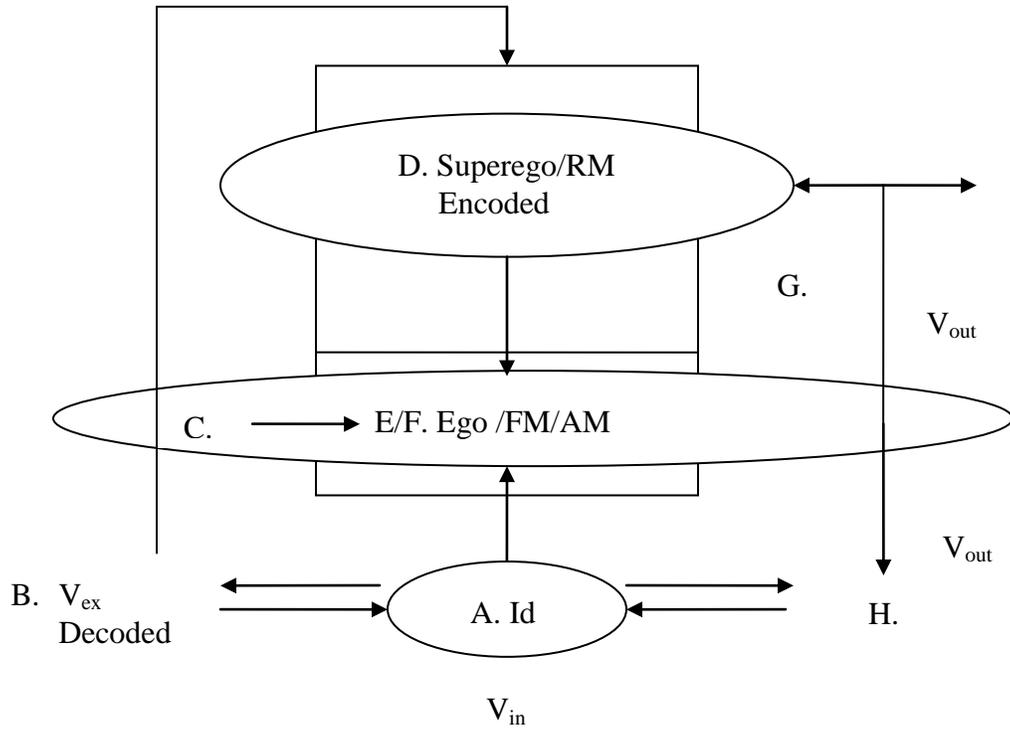


Illustration 7: Diagrammatic Representation the of Freudian Model with Electrical Equivalents

Due to input from External (B) and Internal Sensors (H) indicating a deviation from the Central Nervous System's Short Term and Long Term Set Points (A) the system goes into action to return to these Set Points (Short term  $II = 0$ , Long Term  $RI = 0$ ). Decoded Intra-Cerebral Input (B) enters the Cerebral Cortex with  $V_{ex}$  potential. Input is not affected by Frequency or Amplitude Modulation due to myelin sheath of axon carrying the electrical signal (these are non VIb neurons), however, output is. C) Electrical activity in the form of ion movement from the nodes of these neurons may affect and charge the processes producing the magnetic field as they pass through, thereby, causing a weak magnetic field to be generated prior to the current coming back into it. The pre and post encoding (D) events creates an average charged base state in this area. D) Encoding occurs with input being compared to patterns within the upper layers of the cortex. The pathway of the input will be modified by the resistance (RM) produced by internalized external standards (Superego). Input with Initial state of Id  $V_{in}$ . A) is compared to Decoded/Encoded  $V_{ex}$  from the environment at E), Integrator (Ego). Temporal comparison is possible due to Frequency Modulation (VIb layer) F). Voltage output ( $V_{out}$ ) may: G) stay intra-cerebral to affect other parts of the cortex (sensory or motor), or H) Inter-cerebral. Either route may be changed due to Amplitude Modulation (Thought - VIb layer) based on whether the difference between A (Set Point) and E (Current State) is reduced to an acceptable level of incongruity in the Short and Long Term time frame of the individual.

## VIII. Comparative Analysis

Although both theoretical systems can use nested feedback loops to describe the change in the psychic energy, Non-Linear Existentialism has a number of different interpretations of this activity. The major differences are rendered in Illustration 8 and discussed in the following sections.

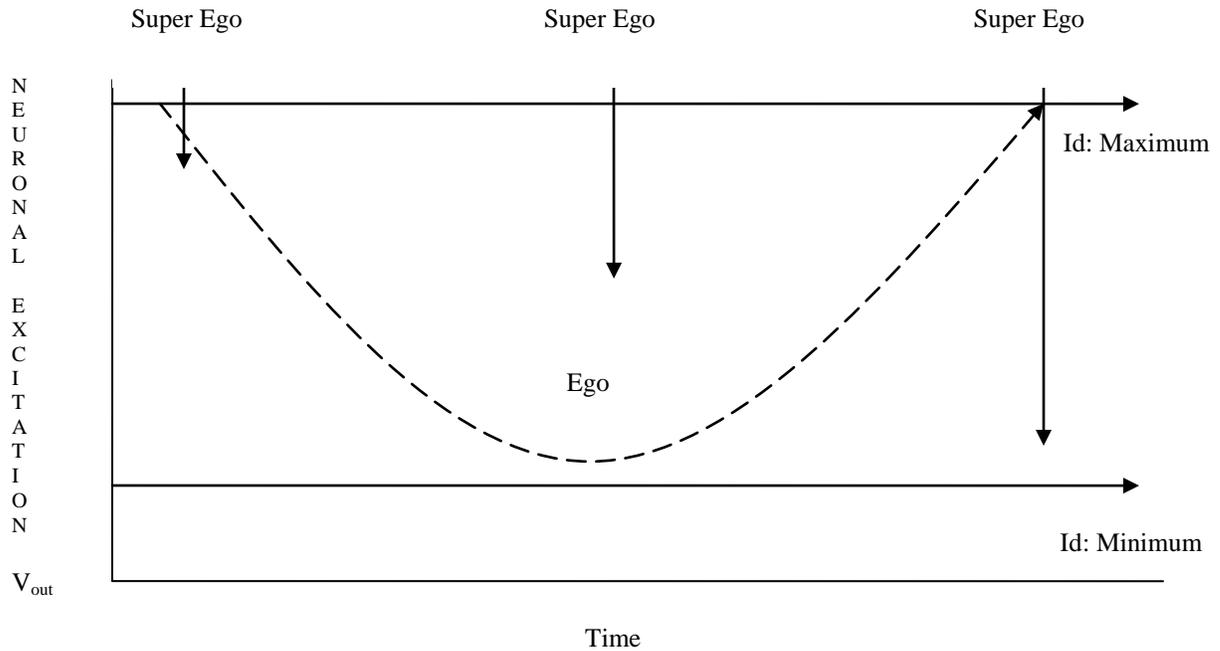


Illustration 8: NLE Functions Plotted against Voltage Output ( $V_{out}$ ) of the Cerebral Cortex.

### VIII. A. Developmental Time Line

By applying the electrophysiological demands of NLE to Freudian Psychoanalysis, the development of the Super Ego should, contrary to Freud's assertion, take place before the Ego. Based on Freud's work, and in agreement with NLE, the baseline energy is developed by the Instincts which becomes the Id however, instead of spawning the Ego, this paper supports the notion that the Superego is then produced. It is possible that the difference in sequence of the psychic functions comes from Freud imbuing the underlying biological state with qualities that are, themselves, not a true representation of the underlying tissue.

To Freud, the Superego is an extension of the world, and all of its complexities. It is an internalized representation of the father and all the requirements the society demands of its citizens. This then may of caused him to only show its existence when a person's higher ideas are evident, instead of being present during their initial development.

The simplest way to show a shortcoming in Freud's conclusion is given by re-visiting the Principle of Constancy/Pleasure Principle. If, as Freud claims, both instincts are controlled by the inherent need of the system to maintain a set point, then the components necessary to allow for this to occur have to be in place before the variable to be controlled can be controlled. To wit: if the variable to be controlled is the Ego (and its States), how is it possible for the Super Ego (Effector) to occur after it?

## VIII. B Subjective versus Objective

By not defining what is the quality of humanness Freud has unnecessarily subjectified the basic forces of the feedback loop. In Section V. c. I. b. on Thought, Freud acknowledged not only the importance of the amount of energy in the system but the uniqueness of this energy in terms of it having the quality of humanness. However because he didn't elaborate what this meant, he allowed myself to blur the lines between the two phenomena. Consequently, the apparent sins of the energy signatures (thought) which describes who we are (quality<sup>6</sup>) are also assigned to the underlying biologically neutral needs (quantity).

Freud's subjectivity and discountenance toward the Id is made clear in what he believes to be the ultimate goal of his own profession. As stated in page 58 of *The Ego and the Id*, 'Psycho-analysis is an instrument to enable the ego to achieve a progressive conquest of the id.' With Id being the basic representation of the person, and often described as illogical and dangerous by Freud, it is clear that he does not maintain an objective stance toward that which, based on his initial observations, is a necessary force required for a person to meet their basic needs.

## VIII. C. Biological Energy Conservation

The next notable difference between the proposed frameworks is in respect to the interaction of the Super Ego with the Ego and whether such an interaction is in keeping with energy conservation. Freud views the Super Ego as a force born from the Id that counteracts itself. By having the neuronal energy counteracting itself, this implies that resources would have been squandered by design. As such, Freud is indirectly concluding the system is energy inefficient and is in contrast to other biological systems in the body which have evolved to optimize the use of their resources.

The more acceptable approach would be for the influences of the Super Ego to be assimilated into the system. Conflict and assimilation are two means by which energy can interact with itself. For example, conflict in terms of two or more forces results in the interaction and reduction of those forces. Assimilation occurs when two or more forces, such as electrical impulses can interact, and through time, modulate the amplitude or Frequency Modulations in one another in order to reduce overall resistance. This is not to say that some people are constructed in such a way that they are self-destructive. The point being made is the CNS does not have to be designed in this way by default.

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<sup>6</sup> Nevertheless, Freud does appear to make a connection to the present reinterpretation of his model. On page 35 of *Beyond the Pleasure Principle*, Freud states, 'It may also seem probable that it has more than one quality (in the nature of amplitude, for instance).' Even though he makes the association between quality and the amplitude of the neuronal pulse with the CNS, Freud does not offer any other clarification. Is he implying that by changing the amplitude the quality changes? Or quantity can become quality or vice-versa once a specific range of amplitudes is reached by the neurons being stimulated. Moreover, by stating that amplitude and quality are associated with each other, does this mean that frequency and quantity share a similar relationship? He also does not discuss whether this amplitude is a result of electrochemical events entirely due to external experiences, or if amplitude is a result of events unique to the individual. Lastly, is this amplitude only experienced by humans, and due to experiencing it, are human? If so, why do other creatures that do not have the quality of humanness, not have this amplitude?

The last part of Illustration 5 depicts this by showing that even though the Super Ego is very strong the Id is still tending toward Id: Max. This occurs because through thinking (Amplitude Modulation) about the cumulated experiences of the system, it allows the person to implement the lessons that they have learned through interacting with the environment. The Ego of the person has become the Ego of the Environment. Perhaps, this is another case of Freud being too subjective, concentrating on the subject of conflict as it is manifested in behaviour, and then carrying it into his functions without determining if such a contention does not disagree with the fundamental workings of the body.

#### **IV. Conclusion.**

By converting Freud's Psychoanalytical model into a system of objective neurophysiological Functions and States, it can be compared and contrasted to another theoretical paradigm, Non-Linear Existentialism. For an interactive data collecting system such as the central nervous system, there is a fundamental requirement for it to modulate the electrical signals entering it so as to reduce electrical interference produced by the complexity of the environment. It has been suggested in this paper and those before it, that such efforts to manage this interference have first created Frequency, then Amplitude and finally Resistance Modulation. Even though these terms are not commonly used when referring to a person's behaviour or the structure responsible for it, in theory, such a comparison is possible.

The way by which these electrical phenomena are connected to the person and the environment he/she exists in have been indirectly described by Sigmund Freud through a number of Psychological States and Functions. Although his descriptions can explain many clinical conditions, as well as how the Life and Death Instincts can take place based on the Pleasure Principle, they do not, once objectified, hold to the basic principles of the electrophysiological information carrying system within the human body. Above all else, before the higher ideals can be considered, the system that permits this to occur must survive. To survive, the CNS must be able to adapt to its environment without squandering valuable energy inputs.

Freud was aware that some of his work was based on speculation and could be faulted for its assumptions. Due to his status as a pioneer in the field of psycho-analysis, he was at the very forefront of those who were attempting to bring logic to that which did not seem logical. Of the two works cited, Freud sees *Beyond the Pleasure Principle* as containing the most hypothetical theories. Freud laments this in this work on page 72, 'The deficiencies in our description would probably vanish if we were already in a position to replace the psychological terms by physiological or chemical ones.' In view of this, Non-Linear Existentialism, as it is has been applied to a selection of Freud's work, could be offered as the more objective approach Freud was referring to in this quotation.