Emergence of Levels of Self

Pooja Soni is an independent researcher based in Karnataka, India. She studied chemical engineering at Visvesvaraya Technical University and currently pursues her interest in consciousness research.

Her writing has been published by the Indian Association of Health, Research and Welfare in its quarterly peer reviewed *International Journal of Social Sciences Review*.

Her first book, published by The Pertinent Press, details a new theory of consciousness based on the assumption that in the very nature of any experience or quale there are two facets of change: One affords an opportunity to enhance one's essence and the other is a chance to escape from potential threat to one's essence. The capacity for undergoing change of any entity is the Self. The self is the possession, protection and persistence of something (body, thought etc.) which is its essence of being-ness or form or *substrate of self*.

Change in any entity signifies the presence of a rudimentary level of consciousness.

Published by
PɜrtInənt Press
an imprint of
Oxford Legal Publishing Limited
www.thepertinentpress.co.uk
Oxford
“Publishers of Intelligent Books” © 201X
pɜrtInənt press
focuses on and aims to further study and knowledge in
philosophy, history, cultural studies, and theology.
is a registered trademark of
Oxford Legal Publishing Limited
Published in the United Kingdom by Oxford Legal Publishing Limited

First published 20XX by Oxford Legal Publishing Limited

British Library Cataloguing in Publication Data
Data Available
Oxford Legal Publishing Limited
is registered in England as No. 10898419
at the following address:
52 Cornmarket Street
Oxford OX1 3HJ
Printed in the United Kingdom
ISBN: 978-X-XXXXXX-XX-X

Pooja Soni

Emergence of Levels of Self

A New Theory of Consciousness

Pertinent Press

Oxford

Acknowledgements

For my dear friend, Cosmin Vișan and my mother, Sarala Devi Soni, who inspired me and supported me to write this book.

Contents

Chapter 1
Self-Reference as a Choice to Move

1.1 Is-ness as Projection of Substrate of Self

What is an entity?

Anything which has a unique identity is considered an entity. The law of identity is given by the expression A = A (A is A), where A is any entity which refers to itself. The law of identity is based on self-reference. As every entity undergoes change over time, the concept of identity should be understood based on the change that it accommodates. The quality of sameness, equality or is-ness must be described in a manner that acknowledges the change that exists between stages of existence of the entity, so that the existence of the entity itself can be defined based on the concept of self-reference.

Traditionally, self-reference refers to the ability of a subject to speak of or refer to itself. The act of an entity referring to itself invokes the problem of accommodating change in the state of the entity during self-reference. The reason one state of an entity refers to another state is for maintaining its identity or its essence in both states. This ability is called self-referencing or choice-making ability.

An entity undergoes self-reference when it has the potential to undergo self-reference. An entity that possesses the ability to refer to itself is assessed when there is continuity between a state of entity where it does not possess the ability to undergo self-reference and a state where it possesses such ability. For an entity to possess this ability it must undergo change. Therefore, self-reference can be defined as a changed state of an entity referring to its unchanged state. The reference is the relation between two states. Self-reference is the state of an entity finding itself in the previous state of the same entity undergoing change. Change of any kind can be defined in terms of self-reference as a continuum preserved in two states of occurrence of any entity. Self-reference allows preservation of essence of being-ness of an entity undergoing change.

Consider a situation where you see an apple today and are shown the same apple a week later. In both occasions you identify the apple as an apple, even when it is spoiled, which means that the apple-ness – the essence of being-ness of the apple – is preserved. Thus, self-reference is the apple-ness that continues in the apple even when it changes upon spoiling. However, if you would identify the week-old apple as not an apple, then the apple-ness is not preserved and there is no self-reference, meaning that the entity has incurred no actual change.

Any kind of change which preserves the essence of being-ness or establishes a continuum between two states of an entity is feasible change. An entity undergoing feasible change is evidence that change has occurred. If you identify an apple shown in two instances as an ‘apple’, then such identification by virtue of self-reference is evidence of the fact that there is change. When there is no continuity or preservation of essence of being-ness in two different states of an entity, the change the entity undergoes from one state to another is unfeasible change. Unfeasible change destroys the identity of an entity. The identification of a spoiled apple as an apple by the observer suggests that the observer projected the apple-ness from the

article observed in the past upon the spoiled apple and found that the article under observation has apple-ness or at least appears like the apple seen in the past.

An observer-independent analysis of this can be explained as an event in which the future state (spoiled apple) of the article refers to its past state (unspoiled apple) and preserves its essence of being-ness. Self-reference is the projection of future state onto the past state in order to find itself. The projected state finds itself in the past state when the entity has undergone feasible change. The entity does not undergo change in the absence of self-reference.

Self-reference answers the question: Is A (future) like A (past)?

If the essence of being-ness is preserved in both states of the entity, then the answer to this question is yes and therefore self-reference exists. If A (future) is like A (past), then the A of the past has incurred change. If the apple seen a week later does not look like the apple that was seen in the past, then there is no evidence for the fact that the same apple has undergone change. The absence of continuity is also the absence of preservation of essence of being-ness. Therefore, absence of self-reference implies absence of change in an entity. It can be concluded that any kind of change preserves the essence of being-ness in entities when it is actualised by virtue of self-reference. The essence of being-ness is that which is preserved in an entity undergoing change. For example, the physical form of an entity such as an apple is its essence of being-ness. When the referring state of an entity finds itself in the referred state, equality is said to exist. That is, when A (future) is found to be like A (past), then A = A is true.

An analogy of this idea of self-reference can be found in the symmetric interpretation of quantum mechanics called the Two State Vector Formalism. The concept states that the present state of a system depends upon forward and backward evolving states of the system. That is, the present only exists by virtue of the combination of past and future states. As the essence of being-ness is preserved in entities undergoing feasible change, every entity tends to increase its interactions with entities which impinge feasible change compared to those that cause unfeasible change.

To illustrate this idea, we can use an example of a cat and a rat. A rat chooses not to interact with a cat because the cat can eat the rat, which would leave no continuity of the rat's physical form. The ability of the rat to exercise such a choice is by virtue of self-reference. Every entity interacts with a group of entities called the surrounding. Some kinds of interactions lead to preservation of what is called the essence of being-ness.

Actualisation of change is synonymous with self-reference because the act of referring is only possible when the change in an entity preserves the entity's ability to exist as a unique entity among other entities. As change is all there exists, each entity can be viewed as possessing the ability to persist in interactions with entities which preserve its form and to resist interactions with entities that do not cause change and therefore do not preserve its form. Every entity undergoes change when its identity as a unique entity is preserved after the instance of change. Absence of continuity means absence of change. When the essence of being-ness is not preserved, then the entity losing its essence is said to not exist. If all there

exists is change, then an entity is necessarily in interaction with entities which impinge on it change and facilitate an ability of discovering itself. But since there are also non-actualised changes, those which do not preserve the identity of the entity, a choice-making ability can be attributed to every entity that undergoes change, such that it only chooses those interactions which do not cause loss of essence of its being-ness or simply its form. The quality of choice-making is possessed by every entity that exists in constant interactions with the surrounding environment. The mere presence of an entity in an environment implies that the entity undergoes repeated instances of self-reference or self-discovery in the environment of change. The ability to choose between desirable and undesirable change must also accommodate the quality of presence of an entity in relation to other entities. The ability to persist and resist change is found in every entity that exists. Self is termed as the self-referential ability found in every entity to assess the feasibility of any kind of change. Self is necessarily the choice to either persist in the presence of change or to resist change and therefore resist interaction with a specific part of an environment. Substrate of self is the essence of being-ness preserved in feasible change of any kind in an entity. Self is the tendency of any entity to undergo feasible change by virtue of exhibiting a choice. Therefore, self-reference is the choice making ability of every entity and it underlies its experience of the world around it.

Self-reference is the inherent quality of accommodating change. Any entity undergoing change in interaction with other entities possesses the quality of self-reference by virtue of its presence in relation to other entities. As self-reference is specific to feasible change, the ability of choosing feasible change over unfeasible change is the inherent quality of any entity that exists in any form or shape. An apple is an apple because the apple-ness is preserved in the continuity of changes it undergoes in the environment that surrounds it.

The apple-ness is its specific combination of the senses of colour, shape, smell, taste and touch. By virtue of being an apple, the entity that is the apple possesses the ability to choose to be present in interactions with parts of the surrounding environment which enable it to continue to possess its apple-ness. The choice making ability is attributed to everything that exists in the universe because all there exists is an environment of change where entities with self-reference survive loss of form or essence of being-ness. When the apple-ness of a changed apple is projected back to its unchanged state to find the same apple-ness in the unchanged state, then feasible change is said to exist, and the apple is said to have exhibited a choice to interact with a specific part of the surrounding in comparison to all other parts.

The idea of essence of being-ness that I propose here is analogous to what Aristotle called the Soul. In his major treatise *On the Soul*, Aristotle suggests that different kinds of living things possess different kinds of souls depending on the qualities that they possess.[1] For instance, a plant with the capacity of nourishment and reproduction possesses a basic kind of soul, whereas a lower animal possessing the power of sense perception and action possesses a different kind of soul. As humans have the capacity for intellect, they too possess a different kind of soul. Thus, a soul is specific to a particular set of qualities that an entity must possess. The essence of being-ness or substrate of self is not confined to the physical body, although

[1] Thomas Kjeller Johansen, *The Powers of Aristotle's Soul* (Oxford: Oxford University Press, 2012), pp. 128-45.

the body is one of the substrates of self at a certain level of self. The aspect of change and therefore self-reference in terms of actualisation of change that concerns us here, is the act of movement exhibited by an entity incurring such change. As change is verified in terms of how far in space an entity has moved, self-reference is inferred to be present by virtue of the presence of movement of the body of an entity considered to possess self-reference. As movement can either persist or resist change, self-reference is said to impart the choice to exhibit movement of a specific kind.

The idea of self that I propose here is also analogous to what Walt-Whitman regarded as the *I* in his work *Song of Myself*:

> I am the poet, of the body and I am the poet of the soul,
> The pleasures of heaven are with me and the pains of hell are with me,
> The first I graft and increase upon myself, the latter I translate into a new tongue.[2]

A self is a particular manner of persistence as a specific *form* or the ability of persisting in interactions that preserve the *form* and resisting interactions which do not preserve it. This is evident in how the *I* as a poet plays the roles of body and soul. The common feature of different operations of all entities is the ability to persist as a form by virtue of the ability of choice-making. The poet persists as a body and soul and seeks to increase his heavenly feelings and escapes the feelings of hell by way of translation.

A = A or 'A is A' suggests that when the *essence of being-ness* of A is projected upon itself, the *essence of being-ness* is preserved between the two states of the same entity. A =/= A or 'A is not A' suggests that when the *essence of being-ness* of A is projected upon itself, the *essence of being-ness* is not preserved between the two states of the same entity. Therefore, is-ness here is synonymous with projection of *substrate of self* of A in one state upon another.

Self-reference is the is-ness concerned with only a single entity. In Greek philosophy, the concept of *being* or *is* refers to the nature of reality or the nature of everything that exists or has the capacity to exist.

An adjective or similarity designates at least one shared feature between two things or entities, or in other words, it is the like-ness between two entities. Is-ness is like-ness; a shared feature is nothing but the *essence of being-ness* or *substrate of self*.

In 'A is A', the 'is' signifies likeness or shared features between two states of the same entity. The *substrate of self* or *essence of being-ness* is the likeness that is preserved in an entity undergoing change. When the A-ness of one state is found to be present in another state, self-reference exists. All that exists is change that causes persistence of existence as a form of any entity or that which destroys the persistence of an entity as a form. A form such as a physical body is an example of the *essence of being-ness* or *substrate of self*. If an entity exists or has an identity, it is subjected to change that allows persistence of existence of its form. But what makes an entity resist the kind of change that destroys its form or identity needs to be explored. The answer to this question is that every entity possesses the ability to choose to be subjected to interactions with entities that impinge change that causes persistence of its form.

---

[2] Walt Whitman, 'Song of Myself (1892)' in *Song of Myself* (Stilwell: Digireads.com Publishing, 2009), p. 15.

It also possesses the ability to resist subjection to interactions that are detrimental to persistence of its existence as a form. The role of ‘is’ in a sentence is a process of establishment of likeness between two nouns, verbs, etc. The ‘is’ is the evidence of likeness or similarity. When the process of ‘is’ concerns a single entity, there is self-reference. As self-reference is actualised by possibility of change, movement of any kind is considered an act of choice between feasible and unfeasible change in all entities or everything that exists. In Figure 1.1, A and A’ are two states of the same entity. The essence of being-ness is projected from A to A’. If the entity undergoes feasible change or persist interaction A’ refers back to A and completes the loop of self-reference. If the entity undergoes unfeasible change or escape interaction, A’ does not refer back to A and thus it is said to not exist. Successful projection of essence of being-ness establishes the ‘is’ relation between two states and unsuccessful projection leads to the establishment of ‘is-not’ relation.

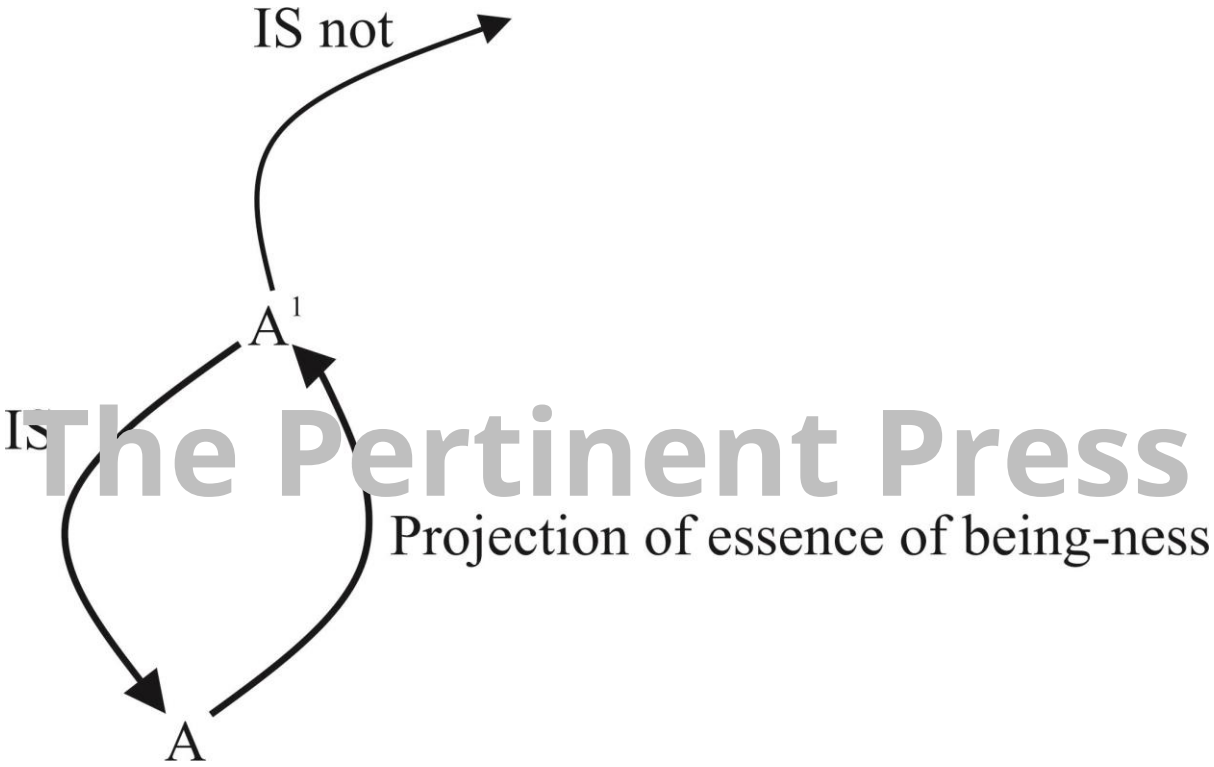

Figure 1.1: Process of is (A is A) in self-reference

1.2 The I

Identity or ‘I’ can be defined as self-referential ability in any entity or the is-ness concerning a single entity. ‘I’ here does not refer to the identity of an entity which depends on other entities. The ‘I’ refers to the entity itself because of the quality of self-reference and such identity is the basic unit of existence or *self-hood*, or the ontological primitive or that which is said to exist in everything that exists because everything that exists necessarily has the capacity to undergo change and refer to itself in the process of change. It is the *person-hood* concerning oneself where one is in a constantly changing environment. Such identity is termed ‘internal identity’. Self-reference is the sense of identity concerning oneself, the ‘I’, which exists only when there is projection of *substrate of self* between two states of the same entity. Self-reference is the internal identity, the ‘I’. The sense of identity in relation to other entities is of the form of identity used in language. It will be shown further that the concept of

projection of essence of being-ness or is-ness can be applied to two states of existence of two different entities, where the 'is' does not concern a single entity, as seen in the equation A=B or A is B. Is-ness concerning two different entities will be described as the formation of parts of speech such as adjectives.

The process of projection of *substrate of self* can be better understood with the help of conceptual metaphors. Conceptual metaphors refer to the idea that we understand concepts or qualities of things in terms of concepts or qualities of other things.[3] For instance, suppose we see a new object and utter: 'That is a bottle', while pointing at what we are referring to. The idea of conceptual metaphors can be applied to explain how we understand this statement in terms of the relation between two things. The 'that' or the seen object we are pointing at while uttering the statement is determined to be 'like' a bottle when the bottle-ness or the visual appearance of a bottle seen in the past is projected over the visual appearance of the object seen in the present situation. That is, the bottle-ness or the visual appearance of any bottle is verified to be present in the object. The object is understood in terms of the bottle-ness of another object or a group of objects which are understood as being bottles. Therefore, one object or a concept in general is understood in terms of other objects or concepts.

Since the bottle-ness is common between the two objects in the above example, the is-ness exists in the statement that reports a relation between them. The bottle-ness being preserved is the *essence of being-ness* of a bottle if the two objects in the above example are two different states of the same object. The bottle-ness or the visual appearance of it is the metaphor drawn from a known object to an unknown or new object. The drawing or mapping of the metaphor from source domain onto the target domain can be understood as projection of *substrate of self* of the state of an entity onto another state.

In the expression, 'That is a bottle'; the bottle-ness projected onto the idea of a new object or its general object-ness finds itself in that object. Therefore, the 'is' exists as evidence for successful projection. The process of 'is' is how a conceptual metaphor works because if there is no successful projection of essence from one domain onto another, the above sentence with 'is' would not be formed. The workings of the 'is' is how analogy-making is described by Hofstadter as a process of inexact matching between prior categories and new things perceived.[4] However, analogy making is not confined to cognition. The inexact matching is itself the projection or mapping of *substrate of self* of one state over another. The 'is-ness' is the intimate relation between two forms or two states of a single form. Anything which is in contact with or related to any other thing is itself the relation of 'is-ness' between them. The self-referential quality is present in anything that exists, be it material, non-material or any other domain of existence. The form or identity is preserved in every entity that is exposed to other entities, in a process of change acquired by it due to its interaction with other entities. The preservation of form or *substrate of self* is itself the process of establishment of 'is-ness' between the entity and its surrounding because it is by virtue of the

[3] George Lakoff and Mark Johnson, *Metaphors We Live By* (London: The University of Chicago Press, 2003), ch, 1-3.

[4] Douglas R. Hofstadter, 'Analogy as the Core of Cognition' in *The Analogical Mind: Perspectives from Cognitive Science*, ed. by Dedre Gentner, Keith J. Holyoak, and Boicho N. Kokinov (Cambridge: The MIT Press/Bradford Book, 2001), pp. 499-538.

entity's interaction with the surrounding that there exists two states of the entity which are like each other and which preserve the form of the entity.

In self-reference, the entity does not only establish likeness between two states of its existence as a self, but also with a specific part of the surrounding that impinges on it the kind of change that preserves its ability to persist as an identity or form. In other words, anything with an identity or form prefers some interactions over others. The ability *to be* is the quality of self-reference found in everything that exists. The quality of self-reference is the ability to persist as a separate individual entity in relation to other entities. As every entity is a self, every entity is said to possess the quality of establishing is-ness in its interactions with the surrounding. Self-reference yields self-invention as each new change is accommodated in the entity as the essence of its being-ness. A self-invents itself when it chooses between plausible and undesirable change, or when it exhibits a choice to persist in the presence of a particular change or chooses to resist change. To *be* is to exhibit self-reference because the self chooses to be subjected to the environment that maintains its identity in comparison to resisting exposure to an environment that inhibits its persistence as an identity and its ability to be a self. Self-reference is a choice between 'to be' or 'not to be' as Shakespeare wrote in his play Hamlet.[5]

The ability of every entity to exhibit a choice was proposed by John Wheeler in his famous work *Information, Physics, Quantum: The search for links*.[6] Wheeler proposed a new way of looking at the existence of all 'it'. It is the idea that every physical entity that exists derives its significance by exhibiting a choice, by way of answering binary 'yes' or 'no' questions. The conclusion is incorporated in the phrase, 'it from bit'. This choice-making ability leads every entity to choose to interact either persistently or in an escaping or resisting manner with the environment because every *it is* only by virtue of the kind of its interactions with the surrounding. The continual existence of every physical entity is said to have an underlying quality of choice-making between two possibilities. I would suggest that all reality exists as a process of answering *yes-no* questions and this idea of reality is not only restricted to physical entities. The *yes-no* questions can be likened to the relation between one *form* or entity and others like itself and those that are not like it. Those that are like it, impinge change that allows it to possess self-reference.

The questions where *yes* is an answer are said to be part of the process of establishment of persistent relation or is-ness between two entities. The questions with *no* as an answer signify the absence of is-ness or likeness. A simple illustration to explain this is a rock with a physical form at the present moment of observation. It signifies a choice the rock has *appeared* to have made to choose to be exposed to only those changes that preserve its physical form until the moment of observation. Choice here is synonymous with the mere physical presence of the rock as a separate entity. If a rock loses its form, it loses the ability to choose between various kinds of interactions with its surrounding. Thus, there is loss of self-reference ability.

---

[5] William Shakespeare, *Hamlet* (Seattle: Amazon Classics, 2017).

[6] John Archibald Wheeler, *Information, Physics, Quantum: The Search for Links* (Princeton: University of Texas, 1990), pp. 320-22.

The ability to persist in suitable interactions and the ability to avoid circumstances or interactions that destroy it is the ability of self-reference. Such ability is the self itself. Every entity by virtue of self-reference is said to have the ability to form a relation (*yes*) and avoid a relation (*no*) with every other entity. Every entity chooses to accommodate a certain kind of change and to avoid a certain kind of change upon itself. This ability is called persist-escape ability and such interactions are called persist-escape interactions.

Every self – and therefore every entity – is a persist-escape process based on how it specifically accommodates or avoids change of a specific nature. Any entity is said to interact with its surrounding by way of choosing to be exposed to a certain part of its surrounding. By being exposed to a specific part of the surrounding, the entity experiences the surrounding and gains knowledge about the surrounding. The choice making ability to be exposed to a certain part of the surrounding to obtain knowledge is itself the quality of the entity to be a self and this is called a persist interaction. When the entity chooses not to be exposed to a certain part of the environment, this is called an escape interaction.

Suppose there are two trees and that the entity can only experience or be exposed to one tree. Its interaction with one tree is of the nature of persist due to close proximity in space, while the interaction with another is of the nature of escape as it is not as close in distance to the other tree. A self is a definite kind of recursive persist-escape interactions of an entity with the surrounding. Since there are various ways of persisting to acquire and escape change, there are various kinds of self in a single entity. As the change here is considered with regard to exhibited movement, the variation among entities is based on how the entities move to persist or escape with which part of the environment.

If an entity persists in interaction with an entity that destroys its form, the is-ness between the two states of the entity (the I) and between the entity and the surrounding collapses. The entity loses its form. The collapse of is-ness between two states of the same entity is the absence of self-reference and the absence of is-ness between the entity and the surrounding is the loss of the ability of the entity to exhibit a choice of being exposed to only specific kinds of interactions in the environment as opposed to others.

1.3 Difference between persist-escape mechanism and fight-flight response

In order to understand how persist-escape interactions between two entities enfold, we can consider similar features in the fight-flight response. The fight-or-flight response is the physiological reaction of the body when exposed to what is understood as a harmful effect from an entity that is perceived as a threat to the survival capacity of the body.

The difference between persist-escape interaction and fight-flight response is that, in the latter the acts of fight and flight are both negative responses, whereas in the former there is an attempt to interact positively as well as negatively. By negative response it is meant that the entity already believes that the other entity is a threat and is harmful. As described by Cannon, the fight and flight responses are meant to escape or halt the interaction between two entities, as one of the entities sees the other as a threat.[7] The entity with which the entity

[7] Walter Bradford Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage: An account of recent researches into the function of emotional excitement* (New York: D. Appleton and Co., 1927), pp. 184-214.

engages in fight-flight response is called a stressor or threat. The General Adaptation Syndrome (GAS), developed by Hans Selly, describes how organisms react to stressors, and how the body responds to what it perceives as a threat.[8] GAS has three stages: alarm, resistance and recovery or state of exhaustion. The three stages of reaction are attempts to maintain the homeostatic parameters within a certain limit necessary for normal functioning of life. In the first stage of alarm, the entity is aware of the stimulus as a threat and responds by either fighting or fleeing from it. In the second stage of resistance, the entity adapts to the effect obtained from the stressor. In the final exhaustion or recovery stage, the body loses the strength to cope with the effect from the entity it perceives to be a threat and can be understood to be successful in fleeing from the harmful stimulus.

Note that the words 'persist', and 'escape' are not used in the same sense as 'fight' and 'flight'. Traditionally, the latter are mechanisms to escape or to cause the absence of the entity from a definitive threat. Thus, there are two ways of escaping an interaction.

On the other hand, the word 'persist' in persist interaction is used in the sense that is independent of appraisal of the nature of the stimulus as being harmful or harmless. Fight-flight interactions are ways of escaping from a stimulus which is similar to the idea of escape used in escape interaction here. The first stage is important because fight-flight response begins with the attempt to recognise the stimulus as negative thus something to be avoided in interaction. In fight-flight response attempt to avoid presence in relation to the stimulus is made. Therefore, the fight-flight response can be considered as two mechanisms of escape interaction of the entity with the stimulus.

All interactions will be treated on the basis of movement exhibited in relation to the stimulus. Movement in persist interaction is not only in relation to undesirable stimulus but also against external forces that may move the entity against its will. Movement exhibited in escape interaction is away from an undesirable stimulus or a threat.

A typical example of escaping through flight response is witnessed with a grazing deer. When a deer sees a tiger approaching towards it, the stress response (in the form of flight) is activated and the body of the deer escapes from the vicinity of the tiger to protect its physical form from perceived threat or danger (in the form of the tiger). Therefore, the deer has exhibited a choice of not being exposed to the tiger.

An example involving escape through fight response is a cat being attacked by a dog. The sympathetic arousal seen in the cat signifies that the cat does not choose to escape but to face the dog and potentially cause harm to the dog which it understands to be a threat to its existence.

The fight response here suggests that the cat does not wish to be exposed to the stimulus which it realises to be a threat by way of trying to harm the dog. Therefore, fight response, like flight response, is an escape interaction between two entities. The similarity between persist-escape interaction and fight-flight response shows that a sense of choice making in interactions exists as an inherent quality of anything that exists as a form or identity. It will be

[8] Hans Selye, 'Stress and the General Adaptation Syndrome', *British Medical Journal*, 1.4667 (1950), 1383-1392.

shown that the choice making ability is not only confined to escape mechanisms as seen in fight-flight response, but also to the ability to persist and acquire change.

1.4 Aggression: An automatic escape

A body executes the fight-flight response to quickly prevent the body from danger. Persistent presence of threat or prolongation of perception of threat produces significant negative effects in many aspects of an entity's functions. This implies that both fight-flight reactions are primarily reactions to avoid being exposed to a harmful stimulus. The appraisal of the stimulus as a threat is seen in the experience of fear. The experience of fear is characterised by the act of fleeing or freezing in response to a stimulus which is necessarily perceived as a threat to the body or to the existence of the entity itself. It is generally considered as both a fight and flight response because fear causes the person to escape from the stimulus or causes the person to express anger or aggression towards the stimulus.

Aggression can be considered a form of escaping response because an entity is said to try to harm another entity in order to grant itself an escape from the situation with the other entity. The mechanism called fight is also termed as pseudo-aggression because in the process of saving the body from potential damage, the entity impinges a harmful effect on the stimulus. It does so, not with an intent to harm the stimulus but to grant itself a way out of the interaction with such stimulus.

This effect is considered an attempt of the entity to escape the situation, not by escaping the interaction on its own, but by causing escape of the stimulus by threatening it. Therefore, fighting response is an attempt to escape the interaction by causing the stimulus to escape or by way of making the stimulus too incompetent to interact. Cognitive Behavioural Therapy has been successful in treating fear because more recently people are made to confront their fears and change their beliefs about the stimulus which they perceive as a threat to their body, while the purpose of fear is necessarily to cause the person to move away or escape from the stimulus in the first place. The fact that the person is made to be present with the fear causing the stimulus causes the person to no longer understand the stimulus as having the capacity to cause harm because the mere presence of it in relation to the stimulus means that it does not attempt to harm the stimulus in order to escape from the interaction. The increased physical exposure to the stimulus decreases the fleeing or freezing tendency and turns the interaction into a persist kind of interaction.

Fight or aggression is an attempt of an entity to escape interaction with the stimulus by causing absence of the stimulus by way of making it impotent to persist in the interaction. Therefore, in the experience of aggression, the body possesses the ability to escape danger not only by escaping, but by causing the stimulus to escape. As will be shown later in the chapters, such ability is not confined to physiological changes. By causing harm to the stimulus, continuing to interact with the entity is avoided. Aggression is said to be a state where the entity grants itself automatic escape from interacting with the stimulus that is unable to interact. Therefore, any entity can cause harm to others primarily to protect oneself against harmful entities.

1.5 Choice-making in movement: Embodiment of choice

Movement can be described as change in position of one or more muscles (or parts of the body) of an entity. From facial expressions to locomotion, the role of muscles is crucial. To

better understand the nature of movement, the workings of reflex, emotion and locomotion must be considered. The common mechanism underlying all three is movement of muscles in response to a stimulus. Movement of the body (or parts of the body) to persist in the presence of a stimulus or escape from it is itself a self of a certain level. The variety of ways in which an organism moves in relation to stimulus will be described as different levels of self.

What concerns us is the appearance of movement an organism undergoes in relation to its interaction with stimulus, irrespective of the role of the controlling system (nervous system) in facilitating such movements. The purpose of setting aside the role of nervous system in describing movement is to bring humans and all (biological and non-biological) organisms or entities to a common platform in the analysis of movement relationship between entities and their environment. The underlying chemical reactions that regulate the ability of the entity to exhibit movement and the physical form of cells in all organisms including plants and animals is found to be the same. That is, whenever different concentrations of ions accumulate on either side of a cell membrane, an action potential or the stimulation for movement is activated in the same manner in almost all living organisms. It does not matter which organ of an animal or plant's body causes or initiates movement. In our analysis of movement of the entity in relation to the environment, we will assume that all entities have the same kind of physiological changes when it comes to producing movement. We will not differentiate between the movement seen in the body of a plant or of an animal based on the underlying chemistry. We will acknowledge the fact that change in position of a body or muscle is generally sufficient to state that an entity has exhibited movement. The appearance of movement and actual physical movement will be considered. It is on the basis of this understanding that we can set aside the underlying system or mechanism in control of creating such action potentials in the first place.

Nearly all species of fungi lack the ability to move from one place to another and to undergo displacement. However, the elongation of the hyphae through cell division at the tip of the body of fungi creates an impression of movement in the mind of the observer. The growth of hyphae in specific directions as opposed to other possible directions signifies that it may possess a choice-making ability to grow in definite direction and such growth gives an impression that the body has exhibited movement and such appearance of movement can be classified as a form of active movement found in organisms of animal kingdom. The zoospores are special kinds of spores found in a group of fungi capable of active movement. Zoospores of certain phyla possess whip-like structures called flagellum which enables the entity to move in liquid medium. Such kind of movement enables the zoospores to germinate and reproduce. Therefore, some rudimentary form of movement is also found in fungi. Movement in biological systems includes movement of muscles in the form of facial expression, gestures, motor actions in pointing, locomotion, etc.

First, we will look at facial expressions. Facial expression is the movement on the face facilitated by the movement of the muscles of the face where the attached skin moves from one place to another. Paul Ekman developed a technique of categorisation of movement in facial muscles in facial expression called Facial Action Coding System (FACS). Whether facial expressions are spontaneous, deliberate or voluntary movements does not concern us

here, but what purpose these expressions serve in the experience of the surrounding is the focus in our understanding of the nature of experiences such as reflexes, emotions, etc. Each action unit (AU) is a contraction or relaxation of one or more muscles. An action unit is the simplest action of individual muscle or a group of muscles. FACS is also used to distinguish between two kinds of smiles which are insincere and sincere in nature.[9] Neutral face has AU number 0.

Traditionally a sense is considered as an event of data acquisition for perception. Sight (vision), hearing (auditory), taste (gustatory), smell (olfaction) and touch (somatosensory) are five senses. Facia is a band of connective tissues underneath the skin. Facial expression results from movement of muscles that connect the skin and the underlying facia in the face. The movement of these muscles cause movement of eyebrows, nose, mouth, etc. Taxonomy of human facial movements is done by the facial action coding system (FACS).[10]

The AU for happiness (6+12) is measurement of movement of certain muscles *in* the experience of the emotion that is happiness.

Antonio Damasio describes emotion as a specific collection of alterations in the body whose purpose is to avoid the dangers and utilise the opportunities acquired in interaction with the surrounding.

.[11]

He describes emotion as a way of avoiding threat but also a way of endorsing an opportunity. This idea can be applied to what I call as self. The very act of choosing to persist in the presence of an opportunity and escaping or staying away from threat is a certain level of self. At what level the experience of emotion becomes a self and the *essence of being-ness* (*essence of being-ness* as mind-body or mind will be shown after the level of reflexes where the essence of being is just the physical body) will be shown further in chapter 6.

By combining the idea of emotion as being a way of taking care of and taking advantage of the stimulus (persist-escape mechanism) from Damasio and the idea of emotion being a set of movements of muscles from Ekman, an attempt will be made to derive the nature of self. An attempt will be made to determine whether the AU (6+12) for happiness makes it a persist or escape mechanism. The idea that movement of muscles in emotion to move towards or away from the stimulus (which causes the facial expression of emotion in the first place) makes the self or body exhibit persist or escape interaction with the stimulus will be explored. If the movement of muscles in a certain emotion makes the body to persist in the presence of the stimulus, then the self is said to exhibit persist interaction with that stimulus.

1.6 Bodily movement in experience

[9] Colle L. Del Giudice, 'Differences between children & adults in the recognition of enjoyment smiles', *Dev Psychol*, 43.3 (2007), 796-803.
[10] Paul Ekman and Wallace V. Friesten, *Facial Action Coding System: A Technique for the Measurement of Facial Movement* (Palo Alto: Consulting Psychologists Press, 1978), pp. 56-75.
[11] Antonio Damasio, *The Strange Order of Things: Life, Feeling and the Making of Cultures* (New York: Patheon, 2018), pp. 99-116.

As described earlier, self is the quality of any entity to exhibit a choice of persisting or escaping from interactions with a certain part of the surrounding. Different levels of self correspond to different ways persist-escape mechanisms occurring in interactions. But the idea of self as a quality of self-reference in an entity is not by itself enough to describe the process of interaction between an entity and its surroundings.

Damasio says emotions make decisions with the brain not actively thinking about them, and that emotion is a way of decision making without reasoning. As defined by Damasio, emotions are changes in both the body and brain states in response to stimulus.[12]

Damasio makes a distinction between body and brain by stating that certain physiological changes (muscle tone, heart rate and facial expressions occurring in the body when relayed to the brain) become the experience of emotion. Bodily changes that form the emotional experience are called Somatic markers. Overtime, these changes become associated with the stimulus that causes the emotion in the first place even when the stimulus is absent in the physical world.[13]

According to Damasio's Somatic Marker Hypothesis, the experience of emotion takes place in two distinct pathways. In the first pathway, emotional experience is evoked when the physiological changes are relayed to the brain to give rise to the emotional experience. Since this pathway is initiated by the physical effect from the stimulus obtained by the body or senses, it is called the 'body-loop'. For example, when one encounters an object that has a desirable effect on the body, the changes (such as change in facial expression, increased inhaling, etc.) caused by muscular movements lead to the emotional experience of happiness in totality. In the second pathway, the physical absence of the object that causes happiness, the representation of happiness which occurs by imagining a particular object activates the emotional experience, without any physiological changes initiated by sensory stimulation by a physical stimulus. The emotion is experienced as if the object is physically present when it is not. This pathway is called 'as-if-body-loop', and the experience is called a feeling. Therefore, the brain can anticipate expected bodily changes, which allows the individual to respond faster to external stimuli without waiting for an event to actually occur. The 'as-if-body-loop' will be shown to be a part of higher level of self. 'As-if-body-loop' where emotions are experienced in the physical absence of the stimulus will be seen in 6th level-self as detailed in chapter 9. The body and 'as-if' body loops will be shown to be different levels of self. The body loop where the stimulus or external object is felt as sensory stimulation is part of level 3 self, where there is experience of emotions.

There are simple emotions at body level self, at 'as-if' body level there are mentally initiated emotions (feelings) and at the level of self-consciousness, there are self-conscious emotions such as anxiety, guilt, shame, etc. which includes reasoning and a sense of self-evaluation.

---

[12] Antonio Damasio, 'Emotions and Feelings' in *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: Putnam Publishing, 1994), pp. 115-216.

[13] Antonio Damasio, D. Tranel and H. C. Damasio, 'Somatic markers and the guidance of behaviour: Theory and Preliminary testing', in *Frontal lobe function and Dysfunction,* ed. by H. S. Levin, H. M. Eisenberg and A. L. Benton (New York: Oxford University Press, 1991), pp. 217-29.

Walter Cannon and Philip Bard have suggested that experience of emotion and corresponding physiological reactions occur simultaneously. The coordination between physiological processes is called homeostasis.[14] Whether it is the experience of emotion, feeling or reflex, or self-conscious emotions the underlying movement in the form of physiological changes will be shown to impart in the entity the ability to exhibit the decision of whether to continue to allow the body to be stimulated or to avoid stimulation. Such movement may or may not be initiated by a physical effect on the body.

1.7 Struggle for existence among different levels of self

All that exists is interactions between entities. Any entity is said to be present when it is in the presence of other entities to maintain its form and to persist as a self. The first level self is said to be in continuous persist interaction with a stimulus as long as that stimulus does not destroy the physical form of the self or entity. Therefore, the first level self or bodily self persists as a physical form as long as it can persist in the presence of other physical forms. It is said to exhibit escape from interaction when it loses its physical form, which means it no longer persists in the presence of a stimulus that protects its form physically. It also escapes when it moves away from the stimulus. In persist interaction, the entity not only obtains effects from the stimulus but also affects the stimulus by virtue of being present in the vicinity of the stimulus. By engaging in escape interaction, the entity chooses not to obtain effects from specific stimulus by moving away or harming the stimulus to halt the interaction (as shown in the case of aggression). Both kinds of interactions have the same purpose, that is, to continue to possess a form, by either enhancing the form or by surviving by escaping from potential harm to the form. Persisting or escaping processes of interactions are meant to maintain the form or *essence of being-ness* of an entity. A persist interaction is a way of establishing the 'is-ness' relation between the self and the stimulus. The escape process gives the entity the ability to choose not to be subjected to certain stimulus which implies its ability to maintain its form.

In the case of an entity as a whole – which will be shown to be a combination of many levels of self – the current persist or escape interaction is an attempt of one specific level of self to fight against other levels of self to continue to accumulate more and more interactions to be the dominant self, or the self which will be demonstrated as closest to being the collection of most possible experiences or simply closest to God. Each level of self has its own way of persisting and escaping from the surrounding. The 'current' self is the dominant self because compared to other levels; the current self has the ability to increase its interactions with the environment by finding suitable stimulus in the surrounding with which there can exhibit greater number of interactions. When it does so, the self is said to have found a stimulus that is like God, that which is the domain of maximum possible interactions there can ever be. For example, when you search for chocolate, the place where there are maximum possible chocolates is more likely to obtain your maximum presence, therefore that place in the surrounding is the domain of maximum possible interactions with chocolate there can ever be, therefore it is close to God, just by virtue of being the domain of maximum possible

[14] Walter Bradford Cannon, *The Wisdom of the Body* (New York: W. W. Norton and Co., 1963), pp. 1-45.

experiences or interactions of a certain kind. God is the domain of maximum possible experiences of all possible kinds of interactions or experiences in general.

Any entity is a collection of forms or levels of self in its interactions with the surrounding and it fights for or on behalf of one of the forms at a specific moment of experience. By being one of many forms, it is one form or self at a particular instance in interaction. The purpose of the interaction is to persist to be alive *as* that single self. There is struggle among different levels of self to *represent* the entity in relation to the surroundings. An entity is a single or a collection of different levels of self, where each self tries to increase instances of its interaction with the surroundings. The dominant self is the most active or interactive of all different levels of self in an entity. It is most godlike because it is the most all-knowing and omnipresent of selves in the entity. Therefore, there is dominant self within an entity as well as outside the entity in the environment, where the one outside is the stimulus with maximum number of interactions with the entity. The dominant self within is by virtue of freewill and dominant self in the environment is godlike by virtue of the maximum number of interactions between the entity and the surrounding. The dominant self being most all-knowing is most aware of the surrounding at a particular occasion of experience. In a Darwinian sense, the idea of struggle for existence can be used as persistence interaction with entities that enhance form and escape interaction with the entities that inhibit the form of one self in competition with another self. The idea that consciousness, experience or reality itself is a consequence of choice-making between binary possibilities will be explored widely in this book.

First level self, or any self in general, moves to fight for its existence. By movement to persist it is meant that any entity attempts to continue to be in the presence of the stimulus by fighting against externally caused movement that may push the entity away from the stimulus. Another kind of movement to persist is the movement *towards* the stimulus which will be described as 'intent of movement' where the entity moves a part of its body or exhibits locomotion towards (in space) the stimulus.

The movement in persist interaction is to accommodate the change acquired or endured (the difference between acquired and endured change will be explained further) by virtue of presence in the vicinity of a stimulus.

Persist interaction is the completion of self-reference loop, because in both persist and escape interactions the *essence of being-ness* of the entity is projected upon itself (in the case of 'I' or first level self) or onto another entity (in the second level self, the 'is' relation) but only in persist interaction the projected *essence of being-ness* is preserved while in escape interaction, the form is not preserved.

Darwin wrote:

> As the upward movements of the leaflets of Robinis, and the downward movements of those of Oxalis have been proved to be highly beneficial to those plants when subjected to bright sunshine, it seems probable that they have been acquired for the special purpose of avoiding too intense an illumination. As it would have been very troublesome in all the above cases to have watched for a fitting opportunity and to have traced the movement of the leaves whilst they were fully exposed to the

> sunshine, we did not ascertain, whether Para heliotropism always consisted of modified circumnutating; but this certainly was the case with the Averrhoa and probably with the other species as their leaves were continually circumnutating.[15]

Whenever there are excess light rays impinging on the surface of the leaves, para-heliotropic plants move their leaves parallel to the angle of sun rays to avoid any danger to the surface of the leaves. Light rays of high intensity can cause physiological problems such as dehydration. The movement of the leaves is to avoid such problems and for the sake of nutrition. Thus, such kind of movement is an escape interaction of the plant with the stimulus such as sunlight.[16]

Two kinds of movements will be shown to be exhibited by plant leaves, positive phototropism and negative phototropism/para heliotropism. Positive phototropism is movement towards sunlight and negative phototropism/para heliotropism is movement away from it.

The former is considered a persist-interaction because in positive phototropism the plant subjects itself to the stimulus. In para heliotropism, the plant engages in escape interaction with the stimulus because it chooses not to subject itself to physical effect from the stimulus as shown in the case of Oxalis and Robinis.

Therefore, movement in persist-escape interactions primarily protect the physical cell or form of the plant. Plant nutation will be covered more in second level self. The self is the possession, protection and persistence of something (body, thought, etc.) which is its essence of being-ness or form or *substrate of self*.

A rock will be shown to be a self simply because it has a form, and there is change and loss of form. There is continuity of form. Persistence is protection; escape also serves protection of form. The physical form of the rock keeps the rock closer to God because it is through physical form that it can possess maximum number of interactions with the surrounding because the form can be considered as the domain of maximum number of interactions for the rock. The physical form is responsible for all kinds of changes obtained from the surroundings. Any entity by way of choice-making ability or by exhibiting self-reference is aware of the contrast between pleasantness and unpleasantness of the effect from the stimulus which shows that experience or quale is fundamentally polar in nature and that every interaction of the entity with the surrounding is of the nature of persist or escape.

1.8 Choice-making that underlies the functioning of sensory systems

Somatic Marker Hypothesis and Ekman's FACS can be used to attribute the decision-making quality to sensory systems exhibiting facial (or bodily) expression. Traditionally, the body is considered different from the brain or is considered to be interacting with brain to produce feelings.

---

[15] Charles Darwin, *The Power of Movement in Plants* (New York: D. Appleton and Co., 1898), pp. 418-48.
[16] James W. Hart, *Plant Tropism: and Other Growth movements* (London: Chapman & Hall, 1990), pp. 1-22.

Our concern in this book is movement of the body giving rise to various kinds of experiences, so the brain and the rest of the body will be considered to be specific processes which enable the organism to move or as those that assist in the process of movement.

Daniel Wolpert has proposed a movement-based study on the working of the brain:

> We have a Brain for one reason and one reason only – that is to produce adaptable and complex movements. Movement is the only way we have affecting the world around us…. I believe that to understand movement is to understand the whole Brain. And therefore, it's important to remember when you are studying memory, cognition, sensory processing, they're there for a reason and that reason is action.[17]

The brain can be considered as the capacity of an organism to undergo movement. It is the underlying force behind the body's capacity to move. Sensory information (e.g. taste, smell, sight, hearing and touch) is sent for processing to the brain regions by the sensory system. An entire sensory system is composed of sensory neurons which convert a specific type of effect acquired from the environment into action potential which is relayed to the brain regions through neural pathways, where the processing of the transduced information from the senses takes place.

As the neural tissues of a particular sensory system are sensitive to specific receptive fields, the sensory system only functions when it is exposed to specific parts of the environment or to a specific nature of stimulations. This suggests that there is a certain degree of choice-making exhibited by the sensory system, as the sensory systems use only a part of the information impinged on them and try to make sense of small pieces of information by sending it to the brain.

Apart from the neural tissues, what is left in a sensory system is that which *allows* the neural tissues or receptors to function or interact with the right kind of stimulus, because only when the body or sensory system is exposed to a perceptible stimulus the stimulus will be detected by the receptor cells of the sensory system.

When a receptor cell functions or responds to the stimulus it is understood that the body or the specific sensory system (such as the eye) is in the receptive field in relation to the stimulus. A human eye can only see when it is exposed to an environment where objects appear in visible light range. When a receptor cell does not function or respond to stimulus it is understood that the body or the specific sensory system is not in the receptive field in relation to the stimulus. The eye cannot see when it is not exposed to an environment where objects do not appear in visible light range or are not appearing when light of visible range wavelength is reflected on the surface of the objects. For instance, when the eyelids are closed the eye cannot see and therefore the receptors do not function. In this way a sensory system is said to be 'on' and 'off' in relation to specific stimuli in the environment.

As a sensory system can be on or off, a choice-making ability can be attributed to it solely on the basis of the difference that exists between the probabilities of the system functioning or

[17] Daniel Wolpert, 'Moving in an Uncertain World: Computational Principles of Human Motor Control' in *2009 Neuroscience Meeting Planner Online Program No. 111* (Chicago: Society for Neuroscience, 2009).

not functioning at a given instance of exposure to a particular stimulus which may or may not lie within its receptive field.

The eye chooses whether or not to see an object because certain objects can be seen or appear to be visible and others are invisible. If we had an environment where the light waves of all frequencies are present, it would appear that the eye chooses only to see objects reflected by visible region of the spectrum. The choice is also clear when the eyelid closes, as the eye enables itself to not see. The choice between sensing and not sensing is dependent on the exposure of the sensory system to the receptive field. This choice of being exposed to a particular stimulus or not, gives the sensory system the ability to exhibit persist-escape mechanisms. Apart from the neural tissues, the eye exhibits self-reference or the ability to choose to persist or escape from a stimulus. A sense organ is a self solely based on the ability to sense in the particular receptive field as opposed to others. A single sense organ will be shown to form a single level of self. The exposure of the eye to the visible region on the spectrum is the event where it interacts with the stimulus in persisting fashion. When the eyelid closes the eye or when the eye is not exposed to the appropriate receptive field, then it is considered to exhibit escape mechanism with the stimulus.

When the eyelid closes there is temporary blindness, and in this event the eye escapes from the stimulus as functioning stops.

Whenever I speak of sense organs such as eyes, nose, ears, tongue and skin, I exclude the physiological structure that underlies the perceptual/sensory system and the neural tissues associated with sense making or perception. It is only the sensory system that is in direct contact with the environment where the neural tissues receive the effects obtained from the stimulus once the choice is made by the sensory apparatus. Therefore, the choice is seen in obtaining effect from stimuli and not in the processing of such effects. What we are concerned about here is to understand what circumstances the receptive cells function or respond to stimulus and how they are prevented from functioning. The eye can be considered as the probability of functioning or non-functioning of receptive cells in an occasion of exposure to stimulus. Each sense organ apart from its neural makeup has the ability to choose which stimulus is to be sent to be processed because the environment or all stimuli are not conditioned as per the receptive field of a specific sensory system. This theory of consciousness will be called the ‘Theory of Emergence of Different Levels of Self’ or Theory of Emergence of selective attention of the body and mind.

Auditory system is the sensory system for hearing. It includes both the sensory organs (the ears) and the auditory parts of the sensory system. The ear functions only when it is exposed to its receptive field. The process which involves hearing is the persist interaction of the ear with a stimulus. The vocal expressions of emotions will be shown to play an important role in suppressing the appearance of external stimulus in the form of a sound, thus affecting the detection of external sound by the auditory sensory system. Sticking fingers in ears is also an act of the ears engaging in escape interaction with the stimulus within the receptive field. The vocal sound produced is closer to the ear to the extent that it prevents the external sounds from being received by the ear. Intonation is specificity in pitch, range, tone, tempo and loudness of the sound produced in emotional experiences. It will be argued that specific

intonation patterns pertain to specific emotional experiences and intonation patterns decide whether the ear engages in persist or escape interaction with the stimulus.

In addition to intonation in emotion it will be shown further that expressive speech or language is also an attempt to cause temporary deafness of the ear among other aspects.

Vocal expression in emotion, blocking of auditory canal by fingers, expressive speech and others will be shown to hinder the sound from the external environment from entering the receptive cells or neural tissues that underlie the auditory sensory system. Vocal cord vibrations prevent the vibrations of external environment from entering the auditory canal.

The olfactory system or sense of smell is the part of the sensory system used for smelling (olfaction). Airborne substances entering the nasal cavity through nostrils and throat are detected by the olfactory system. Loss of ability to detect smells is a condition called anosmia. As exhaling is the process of air flowing out of the organism, this can be considered as temporary anosmia as the act of exhaling does not allow airborne substances to enter. Inhaling is the act that allows normal functioning of the olfactory system as it allows the flow of stimulus inside the nostrils. Inhaling is therefore a persist mechanism and exhaling is an escape interaction between the entity and the stimulus.

Airborne stimulus is detected at nasal cavity when the act of chewing causes the tongue to push the stimulus inside the mouth. Therefore, chewing is a kind of persist interaction of the nose with the stimulus. Each sensory system possesses a rudimentary kind of choice-making ability in order to either persist or escape from the surrounding stimulus.

The temporalis, masseter and internal and external pterygoid muscles which are mainly used for chewing have a considerable effect on facial expressions. Muscle tone specific to certain emotions either allow or avoid the functioning of the nose or olfactory system. Augmentation and diminishment of sensory exposure to stimulation is an important aspect that will be considered here.

Sensory system for the sense of touch perceived at skin is called somatosensory system. The touch felt from stimuli for short to long periods of time is received by four kinds of mechanoreceptors. These are specialised receptors for low, moderate and high vibrations of touch impinged by the stimulus on the skin.

All the four mechanoreceptors obtain the information from the stimulus based on the pressure it exerts on the surface of the skin. However, the skin also responds to hot and cold effects from the stimulus by way of sweating.

As it is uncertain or difficult to determine which kind of stimulus can affect the receptors in what manner, the somaesthetic sensory system can be divided into two parts. One is the skin surface independent of mechanoreceptors and the other is the part of the sensory system starting from mechanoreceptors to the brain region where the stimulus is perceived. The skin, apart from mechanoreceptors, can be considered as a mere chance of functioning or not functioning of the sensory system, or of the body being exposed to a stimulus capable of causing pressure difference across the surface of spread of skin on the body.

Therefore, the skin has a choice of whether to be exposed to a certain kind of stimulation or to escape from a certain kind of stimulation. Skin is the choice making ability which is the quality of a self considered apart from the mechanoreceptors. Contraction of the surface of the skin makes it impermeable for pressure on the surface of the skin from the external environment to reach the inner mechanoreceptors. Therefore, in contraction, the skin is said to exhibit escape interaction with the stimulus. Lack of resistance of the skin to external stimulation can be considered as the skin making the choice of persisting in the interaction with the external stimulus or stimulation. What I refer to as skin later in the book will be the sensory system apart from the receptor cells.

Skin sensitivity results from stimulation of a variety of exteroceptors such as those responsible for sensitivity to touch, pressure and pain. Sweating is also an example of escape mechanism of the skin from stimulation because while sweating, the surface of the skin is less permissive to pressures from external environment from entering the receptors.

Tongue is the organ for taste in the gustatory sensory system. It is covered by taste-buds which are kept moist by saliva. The gustatory hairs transduce the information obtained about the stimulus in order to process the information. Different kinds of tastes are received by different kinds of receptor cells. The muscular structure of the tongue helps in facilitation of speech and vocalisations in emotional experiences. The gustatory system apart from the receptive nerve circuitry will be regarded as the tongue. It is only when the tongue is exposed to a specific kind of taste, that the receptor cells are activated to produce the sensation of taste.

During vocalisation in emotion and speech movement of tongue favours not tasting over allowing tasting.

The structure composed of bones and cartilage that enable tongue movements is called hyoid apparatus. The movement of the tongue favouring the stimulation of receptor cells can be considered as a choice exhibited by the tongue (gustatory system apart from the receptor cells) to taste something as opposed to not tasting something. The structural muscles of the tongue allow protrusion and retraction functions. When the movement of the tongue favours stimulation of receptor cells for taste, then the tongue is said to exhibit persist-interaction with stimulus. An example of this is the movement of the tongue inside the mouth. When the movement of the tongue favours vocalisation and non-stimulation of receptor cells of taste then the tongue is considered to exhibit escape interaction with the stimulus. For instance, vocalisation and protrusion of tongue outside the mouth inhibits the stimulation of receptor cells. Therefore, the choice making ability can be attributed to the tongue between tasting and not tasting. The ability to choose between ‘to taste’ and ‘not to taste’ is the self, the tongue.

The integration of the sensory organs in functioning or absence of functioning takes the shape of specific facial expressions in emotions and specific kinds of movements in the experience of reflex. The unity of sense organs (Sensory system apart from receptor cells) to collectively persist or to escape from interaction or exposure to particular stimulus will be further elaborated in the sections dealing with reflex, emotion and facial expression in general.

As self-reference is inherent in any entity undergoing change, where the change preserves the persistence of *essence of being-ness* of the entity, a choice-making ability can be attributed to an entity prior to the event of change because the very existence of the entity implies that it has chosen a kind of change upon itself which preserves its existence as opposed to the other kind of change that destroys its existence as a unique entity.

All sense organs, excepting their neural circuitry, exhibit an ability to choose to be exposed to specific natures of stimulation (by way of movement of muscles as in facial expression) which can activate the neural circuitry. The choice-making ability in sensory systems is seen individually in each sense organ and also collectively among all the senses, where the former is part of experience of reflex actions and the latter is part of the experience of emotions and various other experiences which involve movement. It is seen that movement in each of the sensory systems facilitated by the muscular apparatus of the face imparts the ability of choice between different kinds of stimulus in the environment. Therefore, the functioning and non-functioning or on and off states of sense organs can be considered as choices made by the sense organs to be exposed to only specific kind of stimulation in the environment as opposed to others. In addition to the role of facial expression in emotion, it plays a role in sign language. Sign language involves gesturing in addition to facial expression to form phrases for communication. The role of facial expressions in reflex, emotion, verbal and sign language will be discussed late.

The series of persist and escape interactions of the sense organs with stimuli in the surrounding which preserve the organs' *essence of being-ness* exists due to self-reference.

The persistence of the ability of facilitating of sense organ is itself the process of self-reference between the state of the sense organ before and after stimulation. Any entity which has the capacity to undergo change possesses the quality of self-reference where the *essence of being-ness* of the entity is preserved. Therefore, any entity undergoing change is a self. Everything that moves or appears to move exhibits self-reference or ability to exhibit a choice and this is the central idea that will be explored in this book.

1.9 Augmentation and diminishment of exposure to external stimulation

Each emotional experience has a specific facial expression which results from specific muscular movements underneath the skin of the face.

Therefore, physical expressions serve the purpose of allowing persistence or escape of the sensory interface with the physical world. Charles Darwin suggested that emotions are not only for social communication, but also play a role to determine how the body interacts with the physical world, by establishing sensory interface with it.[18] He suggested that emotions did not originate in non-verbal communication, but to help the organismal body to interact better with the environment thus imposing perception and action.[19] Facial expressions in emotions help in increasing or decreasing exposure to stimuli because movement of muscles in the face

[18] Charles Darwin, *The Expression of Emotions in Man and Animals* (New York: D. Appleton and Co., 1897), pp. 83-115.
[19] Albrecht Peiper, *Cerebral Function in Infancy and Childhood* (New York: Consultants Bureau, 1963), pp. 1-38.

is fundamentally to allow or reject stimulation from the environment. Therefore, movement of muscles of the face can be considered to result from an act of choice-making between to explore and to ignore. The augmentation of exposure lies in persistent exposure of the sensory systems (which I call the sense organs in this book) and diminishment of exposure is escape interaction of the entity with the stimulus and such idea is explored throughout the book. An article published in *Nature Neuroscience* explains how the emotion of fear augments sensory vigilance and the emotion of disgust is associated with sensory rejection.[20] In the event of emotional experience of fear, the entity is said to exhibit persist interaction (less intense escape interaction) with the stimulus, whereas in the event of experience of disgust, the entity is said to exhibit escape interaction with the stimulus, because the very expression resulting from movement of the muscles of the sense organs (this movement of muscles will be called movement of sense organs itself) facilitates persistent or lack of exposure of the entity to the particular stimulus. In the latter part of the book, the movement of the muscles underlying sensory systems will be in short regarded as 'movement' of sense organs such as eyes, nose, ear, tongue and skin itself. The functional role of movement of a single part of the body or the whole body in relation to environmental stimulation will be explored throughout.

The facial expression of fear is found to be associated with increased or sustained concentration on the stimulus. Disgust is associated with decreased concentration or neglect.

The muscular structure underneath the skin facilitates variations in concentration in emotional experience, by way of spreading and contracting muscles surrounding the mouth, eye, tongue, ear and nose. The variation in concentration also affects the perceptual field of the sensory system. Sensory vigilance found in fear increases concentration while sensory rejection evident in disgust diminishes it. Greater sensory vigilance means the kind of interaction is more of the nature of persistent nature as opposed to escaping nature.

Facial expression seems intricately dependent upon the movement of the muscles of the sense organs, where the movement is either to acquire information from a stimulus or to escape from it.

Facial musculature is not only confined to emotional expressions but play a role in choice making which underlies other experiences as well.

> Evidence for enhanced visual-field size, saccadic velocity and nasal inspiration capacity in fear and the direct inverse in disgust indicate that there is a parallel opposition in function between the two expressions, serving the functions of sensory vigilance to enhance detection of the source of potential threat and sensory rejection to reduce sensory exposure. [20]

Examples of emotion of fear and disgust perfectly describe the persist and escape interaction between an entity and its surrounding. Fear will be shown to be a less intense escape interaction and a more persistent interaction than disgust. The biochemical properties of the

[20] Joshua M. Susskind, Daniel H. Lee, Andrie Cusi, Roman Feiman, 'Expressing fear enhances sensory acquisition', *Nature Neuroscience*, 11.7 (2008), 843-850.

face will be shown to gate sensory exposure, the gating itself is the particular manifestation of persistent-escape interaction with the stimulus.

As per component process model of emotions, an entity appraises or evaluates the nature of a stimulus when it experiences an emotion which supports the idea of choice-making attributed to the experience of emotion itself.[21] The aforementioned study on fear and disgust leaves out vocalisation and tactile sensory vigilance or rejection which will be explored. The idea that all of the senses, including ears and skin, are exposed to the environment in fear and disgust will be shown.

Among many emotional expressions or expression forms, the functional role of vigilance and rejection of sensory exposure can be found in various ways. The idea or supposition that expression form is particularly a choice between 'to be' or 'not to be' exposed to stimulation will be explored throughout the book.

1.10 Metaphysics based on perdurantic view of Identity: Perdurantic Selfhood

Does an object undergo change in identity when it loses one of its properties or when it undergoes change in general?

There are two theories of identity which describe the identity of entities undergoing change. According to perdurantism, an entity is a series of stages where it undergoes change of a specific kind at each stage and its identity is specific to a specific stage. According to endurantism, the identity of an entity is preserved in each stage of change and that its identity is not specific to specific kind of change that it undergoes. Note here that change is synonymous with choice-making because we have shown above that change is manifested in particular kinds of movement and each kind of movement brings with it an underlying quality of choice-making.

As per perdurantism, if a chair loses a leg it has a different identity before and after the loss of leg. As per endurantism, the chair is the same regardless of whether it loses a leg. The perdurantic view that an individual has distinct temporal parts throughout its existence is the more favourable one. As per perdurantism, an object's identity is time dependent and the object possesses a specific identity for a particular period of time where it undergoes particular kinds of change, thus particular kinds of choices. In order to accommodate change in an object and its identity or existence specific to a particular period of time, the particular period of time must accommodate change without the object losing its identity. Self-reference is a relation between a changed state and an unchanged state of an entity where the being-ness of the entity is preserved. The idea of self-reference can be used to describe identity of an object undergoing change. Instead of temporal dependence of an object's identity in stages, the existence of an object can be assumed to be specific to the particular instances of self-reference or choice-making. It will be shown that a perdurantic object undergoing change is a series of events of self-reference, where self-reference is a choice between 'to accommodate change' or 'to not accommodate change'. Identity of an entity is said to depend

[21] Klaus R. Scherer, 'Appraisal considered as a process of multilevel sequential checking' in *Appraisal Processes in Emotion: Theory, Methods, Research,* ed. by Klaus R. Scherer, Tom Johnstone and Angela Schorr (New York: Oxford University Press, 2001), 92-120.

on a particular state of persist interaction and/or escape interaction (arising from self-reference) of an entity with the surrounding.

It is by self-reference that the similar properties of two objects or two stages of the same object give a sense of identity. Self-reference is the projection of *essence of being-ness* (which is a property of particular state of one object) over another (or same object separated by temporal separation in the event of change) in order to find the same property, the object-ness or *essence of being-ness* in the other object (state). The act of *projection* of *essence of being-ness* is the mere act of interaction or exchange of effects between a particular state of an object and another state. Since the essence of being-ness changes with each level of self, the identity of the entity is defined by the various substrates of self that it acquires as it progresses from lower number of experiences to higher number of experiences.

If one were to look at a tree that loses a leaf, in the event of change resulting from interaction with its surroundings (because something like wind or a person would cause it to lose a leaf) if the tree would appear as a same tree, the tree-ness being preserved is said to result from self-reference where the tree-ness prior and post loss of a leaf is preserved, as a result of projection of tree-ness from the first occasion of observation to another. The preservation of the tree-ness implies that the tree has chosen to accommodate only changes that preserved its *essence of being-ness* and chose to escape from those that are of the nature of not preserving its tree-ness.

Post change, the tree-ness is said to emerge from tree-ness prior to change. The identity of an entity is specific to the occasion of change or choice of persisting in feasible interaction and avoiding unfeasible change. Such identity preserves its self. The object only exists when the object-ness projected on its future state finds itself in a particular kind of change it obtains from the environment. The object is said to undergo persist kind of interaction with a stimulus that allows self-reference and escape interaction with a stimulus causing change that does not allow self-reference at a given point. Therefore, the identity of an object is specific to the occasion of change that allows self-reference.

Any entity has different stages of self-hood in its existence. It exists at particular occasions of self-reference or choice making. The inherent purpose, goal or end (telos) of everything that exists is to have a form. To preserve such form or *essence of being-ness*, the entity undergoes or exhibits a choice between feasible and unfeasible change that results from its constant interactions with entities that surround it. Therefore, it can be said that the identity of any entity is specific to specific instances or stages of particular kinds of changes it acquires by way of choice-making. Self is the epicentre of a person's entire being and each kind of change or experience is considered as a single level of self. Only the self evolves as all there exists is change.

1.11 Affordances: An offer to persist or escape given by the environment

James J. Gibson coined the term 'affordance' in his book *The Senses Considered as Perceptual Systems*.[22] Affordance is something that an environment provides an individual

[22] James J. Gibson, *The Senses Considered as Perceptual Systems* (Oxford: Houghton Mifflin, 1966), p. 297.

with.
Gibson defines affordances as follows:

> The affordances of the environment are what it offers the animal what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment.[23]

Substances in the environment are different affordances which provide the individual with different ways of feeding, habitat, development and creativity. For example, an affordance for feeding is a fruit from a tree. An example of an affordance for habitat is a tree. An example of affordance for creativity is a tree branch which an individual can use to make a tool for hunting and other such activities. According to Gibson, a niche is a group of affordances. As affordances cater to the needs of an individual and each need is specific to a specific kind of experience, affordances are considered to be neither physical nor non-physical; but both.

Since Aristotle ascribes a different kind of soul to humans based on how intelligent they are at utilising the resources from the environment, an affordance can be understood as a quality of the environment to afford an organism what is useful for the organism for his survival. As each environment is composed of a single or different kinds of entities, each entity or soul in general can be considered as a source of affordances. This extended definition of the soul is what is considered the self: a tendency to persist in the presence of the good that the environment provides, and to escape from the presence of ill that the environment also affords. In order to protect its essence [illegible] physical body. According to Gibson, objects are their affordances not their qualities. By affordance, Gibson means the usefulness of something. But the question that arises is what purpose does the affordance or usefulness serves?

The answer to this question is that the utility of an object or stimulus is used to protect something. For example, in the affordance of nutrition of the environment, the food is utilised to 'protect' the body. Therefore, the utility of affordance lies in the protection of *essence of being-ness* or *substrate of self*. Affordances are based on the information obtained in the form of touch, sound, odour, taste and ambient light that the environment affords to the individual. Every part of the environment affords an opportunity to persist or escape from it. The principles of Gestalt psychology impart a sense of agency to affordances:

> To primitive man each thing says what it is and what he ought to do with it: a fruit says, 'Eat me'; water says, 'Drink me'; thunder says, 'Fear me'; and woman says, 'Love me'.[24]

To eat, drink and love is to persist in the presence of certain parts of the environment and to fear is to escape from a certain part of the environment. Therefore, even an environment

[23] James J. Gibson, 'The Animal and The Environment' in *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979), pp. 15-58.
[24] K. Koffka,'Why Psychology?', in *Principles of Gestalt Psychology* (London: Lund Humphries, 1935), pp. 1-78.

possesses a kind of agency and sense of choice-making as even an environment is an entity by virtue of the quality of affording something ill or good to the entity with which there is interaction.

The traditional ideas of affordances and valence are based in the understanding that the object in the environment 'provides' the observer an opportunity to behave in a certain way with the object. But if we consider that both the observer and the object have the ability to (persist and escape) behave with reference to each other, then, the boundary between the environment and the observer can be dissolved. Then valence or affordances need not be considered confined to the physical objects or even to the phenomenal object and the ability to 'receive' or to be invited to behave need not be considered to be confined to the observer. So, if there is an object and observer, both at the moment of being exposed to each other, they are said to afford each other the ability to behave, that is, to persist or escape from the vicinity of each other in order to protect their *essence of being-ness* which can be a physical body. Therefore, the boundary between the object and observer diminishes. To Koffka the affordance of something depends on the need of the observer and to Gibson the affordance of something does not change as the need of the observer changes. In both the above views the concept of 'entity that affords' and the 'observer' are considered separately. The idea of *mutual affordance* must be considered by us here to dissolve the observer-object separation because any entity is neither the object nor the observer, but it is both at the same time

What the object or environment affords the observer either is or is not what the observer affords the other object which is itself the environment.

When the fruit is exposed to the observer what it affords is the essence of fruit's being-ness': the fruit-ness and the observer affords the fruit the 'essence of observer's being-ness': the 'consumer' or the 'body', such that when the observer eats the fruit, the observer is said to acknowledge the fruit-ness of the fruit, thus preserving the fruit-ness of the fruit. Note that since the *essence of being-ness* is not confined to the physical existence, when eaten the fruit still preserves its fruit-ness simply because of the fact that the observer only eats the fruit by considering the entity as fruit and not poison. Therefore, the interaction with the observer protects the being-ness of the fruit by being eaten. The fruit protects the being-ness of the observer because by eating the fruit as opposed to say eating poison, the observer continues to be a consumer or a body in general. Therefore, all the affordances of things, people, animal, etc. can be classified as those that preserve the 'being-ness' and those that do not.

When two entities interact when *essence of being-ness* is not preserved of either or both entities, both entities are said to engage in escape interaction. If the entities interact to preserve the *essence of being-ness* of both entities, such interaction is called persist interaction.

If the observer consumes poison instead of fruit, the fact that the observer dies implies that though the *essence of being-ness* of poison is preserved (because what the poison affords is 'death'), the *essence of being-ness* or physical form of the observer is lost because the observer dies. The observer and the poison are said to have engaged in escape interaction

because by affording death to the observer, the poison does not protect the observer's physical body or its *essence of being-ness*.

Whether the affordances are physical or mental depends on the *essence of being-ness* or *substrate of self*. If the *essence of being-ness* is a physical body, then the affordance it affords or obtains from another entity is physical.

The idea of body and mind will be shown as different levels of self. As the *essence of being-ness* is what shapes an entity's ability to undergo persist-escape interactions with the surrounding, the self being such ability, any entity that interacts with another entity is said to try to protect its ability to be a self. In any interaction it is not necessary to invoke the concept of *recognition* of the entity as object by the observer because there is no duality or separation or difference in nature between the object and the observer, owing to what I will call mutual affordances. The concept of perception of object and observer separately does not apply in the idea of mutual affordance because what the object affords the observer is also something of the same nature the observer affords the object: an opportunity to interact, to grow or preserve the *essence of being-ness* or to escape from its affordance. The idea that every entity affords an opportunity to every other entity to preserve its form is the idea of mutual affordance.

Bare sensations constitute movement of muscles in the sense organs (i.e. the sensory system minus the neural circuitry) where the movements are acts of being present in the presence of an entity in order to produce mutual affordances or to escape or provide other kind of (harmful) affordances to the other entity. All affordances that the specific part of the environment and the observer afford each other in this way can be classified as those that protect the *essence of being-ness* of both entities and those that do not.

Therefore, affordances make two entities interact when present in the vicinity of oneanother.

1.12 Tools of self-reference: Functioning of sense organs

As described earlier, sense organs are sets of muscles capable of movements and are composed of cells apart from the neural circuitry connecting the sensory stimulus to the spinal cord or brain. A sense organ is said to engage in persist interaction with the stimulus when the stimulation is allowed through movement of muscles of the sense organ (or the rest of the body) to enter the neural circuitry that underlies the sensory system. When the stimulation obtained from the stimulus is not allowed to penetrate the sensory system or there is movement of muscles away from the stimulus, the sense organ is said to exhibit escape interaction with the stimulus.

If the movement of muscles of the body facilitate closing of eyes, ear, mouth and tongue, the self is said to undergo escape interaction with the stimulus. Contraction of muscles underneath the skin or when a part of the body covered with skin moves away from the stimulus, the self that is the skin is said to engage in escape interaction.

When the movement of the muscles facilitate opening of the senses such as mouth, eyes, nose and ear, and the part of the body covered by skin is exposed to the stimulus, then these are said to engage in persist interaction with the stimulus.

Vocalisation blocks the incoming sound from entering the ear, therefore facilitating escape interaction of the ear.

The action of each muscle movement in the abilities of sense organs constitute facial expressions. This idea will be explored in detail in later chapters on reflex, emotion, gestures, etc.

1.13 Movement of sense organs

Sense Organ	Persist	Escape
Eye (Chromatic)	Facial expression favouring opening of eye, use of fingers to open eyes, movement of head or/and body (MOHB) towards the stimulus (ambient light) and grabbing an object to observe it are examples of persist-interaction.	Facial expression causing eyes to close, fingers used to close eyes, tears and MOHB away from stimulus (ambient light) are examples of escape-interaction as there is difficulty in seeing in these occasions.
Ear (Auditory)	Absence of vocalisation, fingers used to not block the auditory canal and MOHB towards the source of sound are examples of persist-interaction.	Vocalisation in emotions such as cry, intonation, blocking of auditory canal with fingers, expressive speech, pressure of closed jaw on functioning of ear causing contraction of ear muscles thus hindering hearing and MOHB away from source of sound are examples of escape interaction.
Nose (Olfactory)	Facial expressions favouring vertical elongation of nose, inhaling, horizontal mouth stretching and lowering which facilitate nasal passage dilation to increase air intake and MOHB towards source of smell are examples of persist-interaction.	Facial expression causing compression of nose, exhaling, upper lip raising, nose wrinkling or sealing off of nasal passage, blocking of nasal passage by fingers and MOHB away from source of smell are examples of escape-interaction.
Tongue (Gustatory)	Facial expression favouring elevation of lower lips enabling closing of mouth to taste the stimulus inside the mouth and MOHB towards object of taste are examples of persist-interaction.	Facial expression favouring opening of the mouth thus opening of tongue which causes the tongue to not be exposed to tastes inside the mouth, lowering the angle of lips which facilitates protrusion of tongue causing the tongue to escape from stimulus inside the mouth, MOHB away from object of taste are examples of escape-interaction. Vocalization in speech and emotion which prevent the stimulus from occupying a surface of the taste buds due to rapid movement of tongue in

		speech and emotion also causes escaping action.
Skin (Somatic)	Relaxation of muscles underneath the skin in facial expression and the skin surface all over the body and MOHB towards the object of touch are examples of persist-interaction.	Contraction of facial muscles makes the muscles underneath the skin on whole body to become stiff, MOHB away from source of touch and sweating are examples of escape-interaction.

Table 1.1: How each sense organ engages in persist-escape interactions.

1.14 Conclusions

It can be concluded that movement of specific muscles of the body serves particularly to persist in the presence of a stimulus or to escape from it. An entity is defined as something that exists independently as distinct from others and which possesses an identity. An entity is a self when it moves (or appears to move) in relation to a specific part of the environment where moving ability is synonymous with an ability to make choices. Any entity interacts with its surroundings by choosing to be exposed to a certain part of the surrounding. By being exposed to the specific part of the surrounding, the entity experiences the surrounding; it gains knowledge or memory of its interaction with the surrounding. The ability of a being to make a choice to be exposed to a certain part of the surrounding to obtain knowledge or memory is itself the event of the entity's interaction with a specific part of the surrounding. The entity in interaction is the self and such kind of interaction is called persisting interaction.

When the entity is not exposed to a certain part of the surrounding by way of movement of a part of the body away from it, such kind of interaction is called escape interaction. Therefore, with those entities in the surrounding that do not protect the *essence of being-ness* of the entity or those that do not preserve self-reference, the entity is said to move a body part or whole body away from those entities. Any entity in motion or which appears to change, and move is a self. With those entities in the surrounding that protect the *essence of being-ness* or those that preserve self-reference, the entity is said to move a body part or whole body towards these entities or persists in the presence of those entities.

The change imparted on the sense organs or the stimulation obtained is prevented from entering the neural circuitry in escape interaction and allowed to enter the neural circuitry in persist interaction.

To move to obtain stimulation or to escape stimulation forms the basis of existence of everything that exists and everything that exists is said to possess a form or identity.

References

Cannon, Walter Bradford, *Bodily Changes in Pain, Hunger, Fear and Rage: An account of recent researches into the function of emotional excitement* (New York: D. Appleton and Co., 1927)

———, *The Wisdom of the Body* (New York: W. W. Norton and Co., 1963)

Damasio, Antonio, *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: Putnam Publishing, 1994)

———, *The Strange Order of Things: Life, Feeling and the Making of Cultures* (New York: Patheon, 2018)

Darwin, Charles, *The Expression of Emotions in Man and Animals* (New York: D. Appleton and Co., 1897)

———, *The Power of Movement in Plants* (New York: D. Appleton and Co., 1898)

Del Giudice, Colle L., 'Differences between children & adults in the recognition of enjoyment smiles', *Dev Psychol*, 43.3 (2007), 796-803

Ekman, Paul and Wallace V. Friesten, *Facial Action Coding System: A Technique for the Measurement of Facial Movement* (Palo Alto: Consulting Psychologists Press, 1978)

Gentner, Dedre, Keith J. Holyoak, and Boicho N. Kokinov (eds.), *The Analogical Mind: Perspectives from Cognitive Science* (Cambridge: The MIT Press/Bradford Book, 2001)

Gibson, James J., *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979)

———, *The Senses Considered as Perceptual Systems* (Oxford: Houghton Mifflin, 1966)

Hart, James W., *Plant Tropism: and Other Growth movements* (London: Chapman & Hall, 1990)

Johansen, Thomas Kjeller, *The Powers of Aristotle's Soul* (Oxford: Oxford University Press, 2012)

Koffka, K., *Principles of Gestalt Psychology* (London: Lund Humphries, 1935)

Lakoff, George and Mark Johnson, *Metaphors We Live By* (London: The University of Chicago Press, 2003)

Levin, H. S., H. M. Eisenberg and A. L. Benton (eds.), *Frontal lobe function and Dysfunction* (New York: Oxford University Press, 1991)

Peiper, Albrecht, *Cerebral Function in Infancy and Childhood* (New York: Consultants Bureau, 1963)

Scherer, Klaus R., Tom Johnstone and Angela Schorr (eds.), *Appraisal Processes in Emotion: Theory, Methods, Research* (New York: Oxford University Press, 2001)

Selye, Hans, 'Stress and the General Adaptation Syndrome', *British Medical Journal*, 1.4667 (1950), 1383-1392.

Shakespeare, William, *Hamlet* (Seattle: Amazon Classics, 2017).

Susskind, Joshua M., Daniel H. Lee, Andrie Cusi, Roman Feiman, 'Expressing fear enhances sensory acquisition', *Nature Neuroscience*, 11.7 (2008), 843-850.

Wheeler, John Archibald, *Information, Physics, Quantum: The Search for Links* (Princeton: University of Texas, 1990)

Whitman, Walt, *Song of Myself* (Stilwell: Digireads.com Publishing, 2009)

Wolpert, Daniel, 'Moving in an Uncertain World: Computational Principles of Human Motor Control' in *2009 Neuroscience Meeting Planner Online Program No. 111* (Chicago: Society for Neuroscience, 2009)

The Pertinent Press

Chapter 2
God and Free Will

2.1 What is the environment? What is it made of?

In theology, God is attributed the following properties: omniscience (all-knowing), omnipotence (all-powerful), omnipresence (all-present) and eternal existence. According to pantheism, God exists in everything, and everything that exists is composed of these properties, but God is not recognised as a distinct anthropomorphic entity.

Our understanding of reality will explore the idea that every entity has, or strives to have, all the properties attributed to God and therefore strives to be like God. In other words, the universe and everything that exists has the capacity to be identical to God. The totality of all things is God. So, the totality of all experiences is considered to be God. Most importantly, the limit of all possible experiences will be considered as God.

Pantheism is similar to the ancient Hindu philosophy of *Advaita* (non-dualism) which was taught by the Indian philosopher and theologian Adi Shankaracharya. In his *Nirvana Shatkam* he wrote:

> I am not the mind, the intellect, the ego or the memory,
> I am not the ears, the skin, the nose or the eyes,
> I am not space, not earth, not fire, water or wind,
> I am the form of consciousness and bliss,
> I am the eternal Shiva…
> I am not the breath, nor the five elements,
> I am not matter, nor the 5 sheaths of consciousness,
> Nor am I the speech, the hands, or the feet,
> I am the form of consciousness and bliss,
> I am the eternal Shiva…
> There is no like or dislike in me, no greed or delusion,
> I know not pride or jealousy,
> I have no duty, no desire for wealth, lust or liberation,
> I am the form of consciousness and bliss,
> I am the eternal Shiva…
> No virtue or vice, no pleasure or pain,
> I need no mantras, no pilgrimage, no scriptures or rituals,
> I am not the experienced, nor the experience itself,
> I am the form of consciousness and bliss,
> I am the eternal Shiva…
> I am devoid of duality, my form is formlessness,
> I exist everywhere, pervading all senses,
> I am neither attached, neither free nor captive,
> I am the form of consciousness and bliss,

I am the eternal Shiva...[1]

Pantheism is often associated with monism (all-is-one) and it is suggested that this logically implies determinism (all-is-now), i.e. that everything – past, present and future – is decided by God, including our own supposed decisions. If God has control over our decisions, God also controls our experiences, since decisions are based upon our experience as beings.

In *Nirvana Shatakam*, Adi Shankaracharya says that God as Shiva is in everything and is not confined to one or more phenomenal experiences. However, as pantheism explains that since God is in everything, it should be assumed that God is involved in all our experiences – like, dislike, delusion, greed, pride, jealousy, lust, liberation, pleasure, pain, ideas about religion, merits, sins, death, discrimination, etc. Every different kind of experience, or qualia in general, must involve God's influence.

How can the 'I' as an individual become God (Shiva) (the totality of all things that exist)? Since the totality of all things includes the self or an individual and the rest of the environment, we have to find a way of accommodating the totality of all things in the individual to suppose that the individual can be or is God. In order to achieve such accommodation we use the idea of self that we describe here as a set of persist-escape interactions to be the totality of all things. Since each persist or escape interaction is a single experience we could say that God is the totality of all persist-escape interactions which is necessarily to say that God is the totality of all possible experiences. Now since the external environment is known or exists by virtue of an experience, with our idea of God we have accommodated the complete environment in the individual or entity. So the individual can be or at least strive to be God by striving to maximise its set of experiences. Thus, any individual by way of choosing to interact or escape from an interaction, strives to maximise its set of experiences in order to strive to be God.

As discussed in chapter 1, all that exists is persist-escape interactions between at least two different selves, where each self is defined by the interaction itself. If we assume that everything that exists is God, then everything, except the self (for the self) which is the surrounding or environment, must be God.

When the self interacts with the surrounding or environment, the properties of God must be explained to exist in the environment. How the surrounding is omnipotent, omniscient, omnipresent and controls all our experiences, can be explained solely on the basis of how the self makes the choice of whether to be exposed to a certain part of the environment or not, because it is assumed that a binary yes-no choice underlies all experiences. God will be shown to be the ultimate niche.

As all there exists are the persist-escape interactions of one self with another, the environment is ultimately also a self or stimulus that is interacted with. Why or how a specific part of the surrounding tends to possess the qualities attributed to God, will be shown to depend on what is protected in the interaction, that is, the *essence of being-ness*. It being

[1] Adi Shankaracharya, *Nirvava Shatakam*, Hymns 3-6, Sringeri Vidya Bharati Foundation (2012).

preserved in the interaction of the self with a specific part of the surrounding will be shown to give the stimulus the properties of God.

Consider that the *essence of being-ness* of a rock is its physical form. The environment consists of a hammer lacking the power to break the rock into pieces.

We know that all kinds of things can be in physical contact with the rock, not just the hammer. If we assume that the rock has the capacity to experience and if the hammer is the only thing present in the surrounding that is in direct contact with the rock, each blow from the hammer is the persist interaction of the hammer with the rock because the hammer does not destroy the form of the rock. Until another hammer exists which can break the physical form of the rock, the hammer is considered as the rock's everything or its God because only with the hammer the rock has had persist interactions, only with the hammer the rock has experienced *the world* because there is nothing else in physical contact with the rock that acts to maintain its form, thus giving it an identity.

Therefore, the hammer is what influenced or played a role in the rock's experiences of persist interactions. To the rock, the hammer alone is present everywhere, is capable of doing everything and has the set of all experiences, or in short is its niche given the fact that there is nothing in the universe except the hammer in the environment that surrounds it. Thus, the idea of God we will use here is that God is the sum total of all stimuli present in the environment and is therefore the sum total of all possible experiences that an entity can experience in its interaction with the surrounding.

If God is considered to be omnibenevolent, along with omnipotent and omniscient, the question of why there is evil and suffering in the world has to be answered. If God does all good things being omnibenevolent and does every possible *doing* by being omnipotent, then the purpose of existence of evil or bad things included in all possible things must be explained. In the presence of evil, God is either omnibenevolent or omnipotent and not both because God cannot be doing all good things in the presence of evil, thus God does all possible things including allowing evil.

How the problem of evil should not deny God the quality of omnibenevolence has to be analysed.

The contrast between good and evil is quite common. The nature of evil has to be analysed in relation to good in order to understand or accept that God is omnibenevolent. Generally speaking, evil means that which is not good and is characterised by acts such as immoral behaviour, selfishness, jealously, hatred, etc.

I will not get into ethics concerning the nature of good and evil because ethics are decisions based on mutual discussions regarding how we ought to behave or ones that pertain to law making.

What we are concerned about here is the phenomenological basis of all experiences, including the experience or the idea of God and the notions of good and bad. Good is usually described as a desirable quality and bad as an undesirable quality in or of something. Cowardly acts are considered evil and brave acts are considered good. Evil is primarily associated with harm caused to others.

Spinoza states:

> By good I mean that which we certainly know to be useful to us.
>
> By evil, I mean that which we certainly know to be a hindrance to us in the attainment of any good.[2]

In the definitions provided above, 'good' is considered as something useful and not dangerous for our existence or the existence of a self in general, whereas 'evil' is understood as something useless and dangerous for our existence or existence of self.

Previously God was defined as the environment which is the source or cause or contributor for multiple possible experiences any entity can have.

Good and evil can be considered as good and bad experiences respectively. A good experience is an event in which two entities in an environment accommodate change upon each other, such change is sustainable and does not destroy the existence of entities. For example, if the *essence of being-ness* of a self is the physical body, a good experience is an event in which the interaction with a stimulus strengthens but does not destroy the body. Thus, a persist-interaction is what is good for the body or self in general. Similarly, the existence of evil can be likened to an undesirable or bad experience or as an event in which two entities in an environment accommodate change upon each other, such change is not sustainable and destroys the existence of the entities. For example, if the *essence of being-ness* of a self is the physical body, a bad experience is an event in which the interaction with a stimulus destroys the body. Such an event is the event in which the self or the physical body chooses to interact in escaping manner with the stimulus. In the process of escaping, the self or entity may exhibit violence towards the other entity. But what is called harm-causing action should be interpreted as an attempt to escape or grant termination of interaction with the stimulus in order to protect one's *essence of being-ness*, because, as seen above, aggression is an act of granting oneself escape in interaction by causing the stimulus to escape by way of causing harm to the stimulus. Therefore, an act of doing well to oneself can be considered as the act of doing evil.

The problem of evil proposes that if God is omnipotent, omniscient and omnibenevolent, then evil should not exist. That is to say that there are only pleasant kinds of experiences associated with persist interactions and that unpleasant experiences associated with escape interactions do not exist. Since it will be shown that there are different levels of self, which emerge from one another, the concept of evil or bad experiences will be shown to be crucial for the process of the emergence of a higher level of self from lower levels. Thus, the good and bad amalgamation will be shown to allow the self to jump up in the hierarchy of levels of self.

A simple example is self of emotion which will be shown to emerge from self of reflex. At a lower level of self, in the experience of reflex, there is only movement of single parts of the body, specifically the movement of muscles of sense organs separately or individually for each reflex, in order to persist or escape from the stimulus.

---

[2] Benedict de Spinoza, *The Ethics*, trans. by R.H.M. Elwes (Pennsylvania: Penn State University, 2000), p. 6.

It will be shown that only when repeated movements to persist and escape from stimuli combine, that there can be emergence of a *new way* of persisting or escaping from the stimuli. The next level of self is self of emotion, where all the sense organs *collectively* move or act to persist or escape from stimuli. Thus, there is emergence of collective movement of all of the muscles of all senses from movement of single sense organs. Thus, it is not only the good experiences or persist interactions that are needed for an entity to be a self of a certain level, but it is when equal number of bad experiences combine that the self can jump higher in the hierarchy of levels of self.

Another illustration is the self of 'when' level emerging from self of 'what' level. The self of what is the discriminating ability possessed by an entity upon expectation about the nature of things around the entity or person. When the expectation is fulfilled upon predictive processing, there is happiness or feeling of satisfaction or persist emotional experience. Therefore, the fulfilment of expectation means the answer to the 'what' question is *yes*. The yes answer implies that the interaction led to a good experience. When the expectation is unfulfilled, the answer to the 'what' question is *no.* The *no* answer signifies sadness which will be shown to be an escape emotion.

A self which emerges from the ability to discriminate between good and bad will be shown as the ability of when-ness or the 'when self'. It is shown that the good and bad experiences in the form of happiness and sadness are needed for a thorough and complete analysis of the nature or existence of something. Only when the 'yes' and 'no' answers combine is when the 'when' ability is possible. If the level of what-self does not accommodate enough instances of good experiences such as happiness and bad experiences such as sadness, the entity cannot be a higher level when-self.

In general, good and evil is crucial for emergence of self of higher level from lower levels, due to the amalgamation of good and bad experiences. The purpose of evil or bad experiences is to enable emergence of new levels of self within the entity and to increase the number of experiences. To accommodate evil, we have to consider that undesirable or bad experiences teach us to be more prepared for evil or harmful experiences. We can think of evil as good, as it enables an entity to be a higher level of self by protecting its *essence of being-ness* at that level.

Only evil or only good is associated with that which does not allow the self to be a higher self by confining the self to a single level (see depression in chapter 6) because it takes both persist and escape interactions for a self of a lower level to be a higher level self. Good and evil are both needed for emergence because neither good nor bad can independently participate or cause emergence of new level of self or take part in the process of learning in general. Recurring 'yes' responses in the level of 'what' will be shown to cause descent of self from higher to lower levels when the what process concerns a single part of speech or level of self. The said helplessness in depression will be shown to be caused by such descent.

The idea that depression or stress is not confined to polarity or valence in experience of emotions such as emotion of sadness, will be widely discussed in explanation of emotion in level 3 and explanation of feelings in level 6.

A solution to the problem of evil must accommodate omnibenevolence as a quality of God.

In the example of the self of when emerging from self of what it is necessary to note that the when is the analysis of not only the 'yes' responses to what, but also 'no' responses.

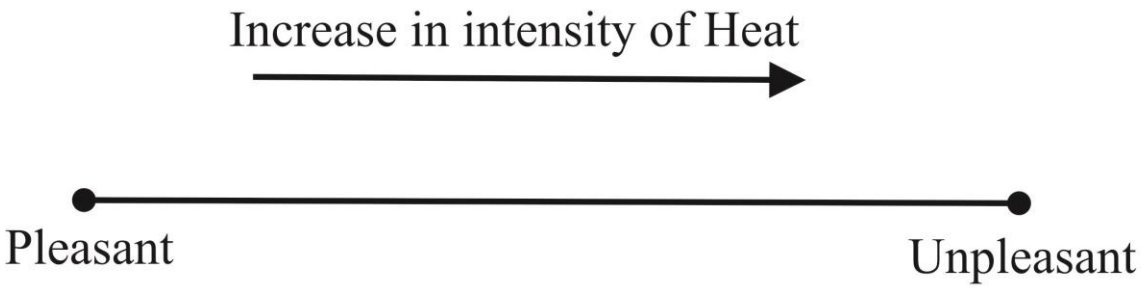

Figure 2.1: When good becomes bad

The 'what' quality of self caters to what intensity of something (e.g. heat) is either good or bad for one entity or its usefulness or uselessness. The 'when' is the analysis of the whole spectrum of intensities of heat ranging from pleasant to unpleasant or from good to bad experiences concerning heat.

As shown in Figure 2.1, it is only when heat is analysed as being of bad and good intensities that we learn about the true nature of the thing that has the quality of being hot. Thus, unification of good and evil serves the purpose of learning the complete nature of something such as heat.

In the case of negatively valent emotions such as sadness, hatred, jealousy, selfishness, neglect, anger, and disgust it will be shown that these emotions are escape interactions of the self, with the harmful stimulus whose main purpose is to protect the physical body. Harming others is a secondary aspect of escape interactions. In the process of protecting oneself, the entity tries to inflict harm on the stimulus or other entity.

So evil undertaken by the entity is more to protect one's *essence of being-ness* or existence, than an attempt to destroy the *essence of being-ness* of another entity. To cause harm is an attempt to escape. Thus, God's ability of omnibenevolence can be considered as the tendency of God to do greater good for an entity in the process of allowing evil because the tendency to harm or receive harm is an act of escape from interaction on both sides, with the same intent of protecting one's own *essence of being-ness* and evil also serves the purpose of emergence of new levels of self.

To solve the problem of evil is to find a way to treat evil and good on the same plane, that is, to find an underlying similarity or link that binds both these contradictory qualities.

The existence of evil either denies the power of doing all good things to God or denies the quality of doing all possible things. In religion, the problem of Hell pertains to ethics and questions the existence of Hell that punishes and harms people in the presence of an omnibenevolent God. The basic purpose of Hell is to harm those who harm others. As shown before, a person harms in order to protect himself. Defence is a form of protection and

arguably harming others is justified if it is an act of protecting oneself. Hell exists to punish the person who hurts others. Harm or pain received by the person is crucial for the existence of his self because in the event of pain acquired from the environment the entity is said to engage in escape interaction with the stimulus about which it learns something not only good but also bad.

Negative or harmful experiences along with pleasant experiences cause the emergence of new ways of experiencing the world or environment in general. Pain in one way leads to a pleasant experience in a new way.

Therefore, the existence of evil or hell can be considered to do greater good for the person, as it is only by virtue of negative or harmful experiences that certain kinds of self evolve to be a higher self, that is, it paves way for new experiences.

Pain, cry, anger, shame, etc. are experiences that are part of the growing process of the self. It will be shown throughout the book that negative experiences are an indispensable part of growing stages of self. The existence of evil is to enable the self to grow closer to God, which is the domain of maximum possible experiences. Some aspects of the problem of hell are similar to the problem of evil in assuming that suffering in hell is caused by free will and that God could prevent it. The act of harming or engaging in escape interaction with another entity to protect oneself from the other entity justifies the existence of evil. The act of receiving harm can be considered as an entity's act of engaging in escape interaction with the source of pain, where pain received means the source of pain intends to escape from the entity in order to protect itself, thus justifying the existence of hell. Doing evil is an act of protecting oneself from adverse situations. Being in Hell or receiving pain from another entity is said to be an attempt to interact with a entity which desires to be allowed to escape from pain upon itself.

You cause pain and receive pain in the same process of escape interaction. In the former case, you try to protect yourself and in the latter case someone else tries to protect themselves from you. In both cases, there is an attempt to protect oneself, i.e. to grow as a self and learn. God is omnibenevolent despite allowing evil and punishing us because God wants us to learn to protect ourselves by doing evil and allow others to protect themselves by subjecting us to Hell and causing harm to us. I will call this argument the greater good in the presence of evil argument. God is omnipotent and omnibenevolent not just because it does only good, but also because it allows or commits evil in order to do greater good to our existence, if we assume the idea of God purely on the basis of phenomenology.

It will be shown that without the presence of negatively valent emotions, a person cannot learn the ability to focus on moving entities, and therefore does not possess the ability to move its whole body to exhibit locomotion – abilities a person learns as we climb up higher levels of self. The tendency of a self to experience only good or positively valent emotions over time will be shown to be the experience of being depressed in chapter 6.

As we have linked the idea of escape interaction with the idea of evil and presence of hell, God is synonymous with the surrounding because it is the source of stimulus with which the entity or self interacts in the manner of escape.

Therefore, the omnibenevolent quality of God permits the important role of escape interactions between the self and the stimulus.

It is taken for granted that God does all good things and is present everywhere. The good in terms of pleasant experiences that the environment grants to the self or entity are those interactions between the stimulus and self which are of the nature of engaging in persist-interaction.

The environment is the dynamic source of stimulations which provides the self or entity with various kinds of persist and escape interactions. Its comparison to God makes the environment the source of all possible interactions between the self and its environment or the surrounding and the collection of maximum number of all possible persist-escape interactions of the self, there can ever be or exist.

Surrounding is the source or collection of all stimuli that can provide the self all the possible positive and negative experiences. Note that the surrounding is not just the physical environment. God is the domain of all possible experiences. The persist-escape interactions in the case of body as *essence of being-ness* is only restricted to the physical body and underlying the body is choice of an entity to obtain a certain kind of stimulation as opposed to another.

God is considered as the domain of totality of all experiences there can ever be, starting from reflex actions, emotions, gestures, vocalisations, speech, locomotion, thoughts of self-reflection, thoughts about the existence of God and universe, etc.

As it is assumed here that every experience *is* a choice exhibited by an entity to be subjected to a stimulus or not, God is the totality of all possible choices that we have or can be faced with. In the case of a rock (entity), resistance to loss of form is itself the quality of freewill because the choice to exhibit a certain kind of interaction has a direct correlation with freedom. In the case of an auto-tropic plant, the ability to bend towards sunlight to protect its body is the will to increase future interactions, thus freewill. God is the part of the environment with which the rock in the above example has most interactions, such that the immediate environment preserves its form instead of destroying it. Sunlight for a plant is the stimulus close to God if sunlight is the stimulus which obtains the highest number of interactions with it.

God is supposed to be personal in many ways. An omnipotent being is one who can do anything logically possible. An omniscient being is one who knows everything that is possible for him to know. An omnibenevolent being is one who does everything to protect itself (by doing harm) and allows others to protect themselves (by letting others to cause harm) that is; it is a being that does greater good.

Therefore, God is the sum total of all possible experiences and since every experience is a persist or escape interaction between the self and stimulus, where self is the quality of engaging in persist-escape interaction, there must be a tendency on the self's side of interaction to *accommodate* and allow maximum possible experiences.

The ability of the self to strive to be God is considered as freewill. As any persist-escape interaction or any interaction in general is not possible only with the self or only with the

stimulus alone, that is, since there is no experience without the experiencer there is no surrounding or God without the existence of 'us' the experiencers the entities for whom God exists.

2.2 How does a Self strive to be God?

God is considered to be all-knowing, omnipresent, omnipotent and omnibenevolent. For any entity to be God, it must at least be present in the vicinity of the surrounding it has some knowledge about (to be all-knowing), it must at least be present always in relation to a particular surrounding (to be omnipresent) and should have the potential to do something of all things by causing some kind of change (to be omnipotent). As God is considered the domain of all possible experiences, for a self to be God or to be close to that domain, the self must be potent to interact in a manner with a certain stimulus such that the stimulus becomes the domain of all experiences because the domain of God is expressed to the self by way of stimulation by stimulus. Any entity which strives to be God not only engages in pleasant interactions but also engages in unpleasant interactions and also fights its inability to resist loss of form or loss of *essence of being-ness*.

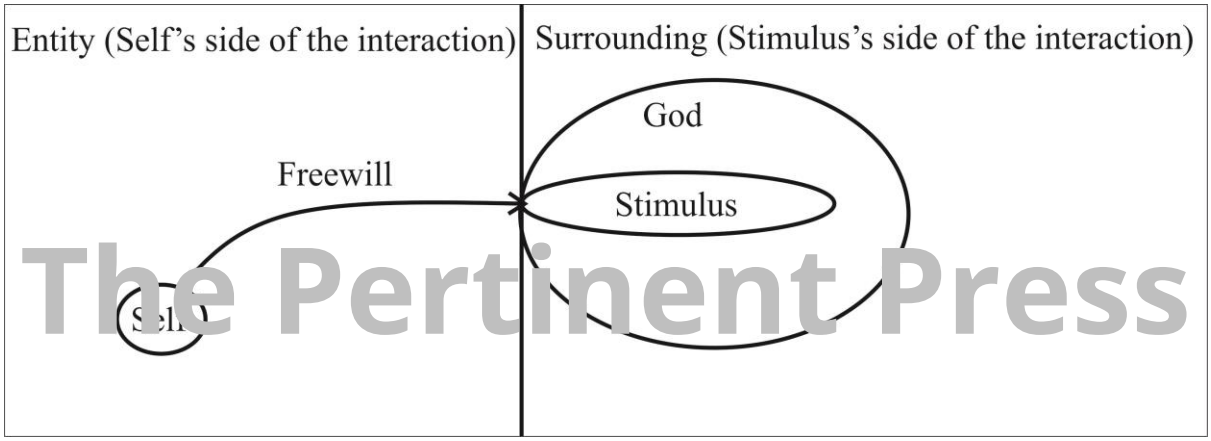

Figure 2.2: Self and God

In Figure 2.2, the self is shown to be outside the domain of experience because fundamentally self is a capacity or potential to experience, such that when it reaches the domain of God, it meets the other half of the interaction or potential to experience, or it meets that which actualises the ability of an entity to experience, that is, it meets a stimulus which is part of the surrounding. Therefore, it is not that the entity or we are separate from God, but fundamentally everything is a possibility, which becomes an actuality or self when there is actual close-ness to God. The quality which is responsible for actualisation of existence of an entity or self is called freewill. What really exists is the *potential* or *capacity* to exist which when meets actualisation through freewill, actually exists. As God or surrounding is the sum total of all experiences and the stimulus is the only way for an entity to reach God, the immediate environment of any entity is *like* God.

The greater the number of instances of persist-escape interactions, the better the self tries to be God or tries to be close to God and it is said to possess greater freewill. Every self or entity strives to be God by resisting death or loss of form (I will call *essence of being-ness* as form which is not restricted to materiality) or inability to be itself. For example, a rock strives

to be God, to be close to the domain of all possible experiences by resisting loss to its physical form. The increased degree of resistance of a self to loss of form or absence of self-reference is its ability to interact more and more with the environment. Death or loss of form is also a kind of interaction because at death loss of form implies that the entity has been unable to escape successfully from a harmful stimulus. Escape interaction serves the purpose of escape from danger, death or loss of form. Inability of the self to escape from dangerous stimulus successfully succumbs it to danger. When a rock interacting with a hammer does not lose its form, it has the ability to fight another hammer based on its increased resistance to loss of form. By resisting death in interaction with one entity, the rock has learned something (even if it has not learned everything there is to know for being omniscient) by escaping death, it has done greater good to itself (even if it has not done all good things to be omnibenevolent), by being present in interaction with the stimulus it has learned to be present in the vicinity of a stimulus (even if it is not present everywhere always to be omnipresent). By experiencing positive experiences resulting from persist interactions and negative experiences resulting from escape interactions it has done everything it takes to be a self (even if it has not done everything there is to do to be omnipotent), so at least by being a self, the self strives to be God and such striving ability is freewill itself.

Any stimulus is also a self and any self can be a stimulus depending on which side of interaction your analysis of the interaction is. The self and stimulus both strive to be God, but the stimulus is always the God's side of the interaction and self is freewill side of interaction because any interaction involves two different entities where one becomes the self and another a stimulus.

As it is impossible for a self or entity to have all possible persist-escape interactions because there can never be only one self and only one stimulus in the universe, the closest the self can get to God or the domain of totality of all experiences is a stimulus that protects it's form more than other stimuli.

For instance, when two dissimilar rocks interacting with a hammer do not lose form at the same time and if one of the rocks does not lose form at all, the self of the rock which persists to escape loss of form, is capable of being close to the hammer as God compared to the one that perishes because the former has the greater ability to escape and increases its interactions with the hammer than the latter. The greater the ability to escape danger, the more the entity is exposed to the surrounding, the better it knows the surroundings, the better are its chances of increasing its interactions with many stimuli and the greater its chances of being exposed to the domain of all possible experiences, which is the God. The nature of the self to persist in the presence of the stimulus is its ability to find new ways to know the surrounding, thus new ways also to avoid death.

Any entity with the greater capacity to cheat or avoid loss of form is most close to God. Greater resistance to death means greater ability to strive to be God, where God is the ultimate self with all kinds of persist-escape interactions where the *essence of being-ness* or form of God as a self is imperishable. God is the ultimate perennial self.

Any entity is a collection (memory) of pleasant and unpleasant interactions and it is the current interaction where the former and the latter kind of interactions influence each other or are relative to each other.

Any entity such as a rock is a sum total of all instances of persist-escape interactions and its self is the current occasion of interaction with the stimulus and it is also the relation between the interactions of the past and the present.

Every self or existing entity strives to be God with increased number of interactions with the surroundings.

The self with the greatest number of interactions and that survives loss of ability to be itself is closest to being like God.

But in order for there to be increased interaction with the surrounding, the surrounding must also possess an entity capable of also striving for increased ability to interact. Such an entity on the side of the surrounding which enables the self to be freer by increasing interactions is the stimulus of a specific kind, such entity as stimulus is closest to what can be called God, a personal phenomenon or a personified God.

Therefore, a stimulus with which the self has maximum persist-escape interactions is a supreme external self or a Godlike self. For a rock, God is the external environment which is responsible for its increased resistance to loss of form.

For a plant, sunlight is God, as it enables the plant to grow or resist loss of physical form.

An interaction involves two or more different levels of self within a single entity undergoing persist or escape interactions. Given that everything that exists is a self, one of the different levels of self with which the other entity has the greatest number of persist-escape interactions is God to that particular entity. God is not only in oneself by virtue of Freewill in the form of the inner will to maximise one's experiences, but God is outside oneself which is the domain of all possible interactions.

Persist interactions build upon the capacity of a self to be more of itself by protecting its form, thus persist interaction is a fruitful interaction.

Escape interaction is to avoid death, thus escape interaction is a way of allowing more future persist interactions.

The omnipotence paradox is a family of paradoxes that arise with some understandings of the term 'omnipotent'. The paradox arises, for example if one assumes that an omnipotent being has no limits and is capable of realising any outcome, even logically contradictory ideas such as creating squared circles.

The most well-known version of the omnipotence paradox is the so-called paradox of the stone: 'Could God create a stone so heavy that even He could not lift it?'

In the stone paradox, the question is not whether God is capable of completing a task, but performing an incomplete task also counts as a task accomplished by God. If the task for God is to create an object it cannot lift, the inability to lift the stone does not have to question the ability of God to do anything such as creating a heavy stone. The omnipotence paradoxes

asks the simple question of whether God can do anything – even controlling the choices we make. The question asks whether God decides which stimulus a self chooses to persist interact with and with which stimulus it undergoes escape interaction. Existence of evil is justified above by showing how evil doing is an attempt of the doer to protect himself and how the all-powerful and benevolent God allows the self to increase its interactions in the surroundings because the purpose of evil is to allow greater good, that is escape interactions in the form of evil acts serve the purpose of allowing new persist interactions and new ways of maintaining identity. The quality of God enabling us to be like God which is equivalent to the inner will to increase the number of possible experiences can be called freewill.

The 'greater good' response argues that God cannot allow good of greater value without the presence of evil and since the existence of evil is inevitable, God being omnipotent cannot be expected to prevent evil.

As proposed earlier, the argument of greater good in the presence of evil proposes that evil is as necessary as good for sustenance of the self and its *essence of being-ness* or form, and it is most critical for the evolution of self. Thus, the presence of evil can be considered to be part of the existence of all good.

By allowing evil, God allows us to increase our experiences as much as possible. Since God is the domain of an infinite number of experiences, it is given that by allowing evil, God wants us to like God. As per the quality of omnipotence, God controls our choices. But in what sense does God allow us freedom?

Though God controls our actions or choices – that God grants us the ability to be like God – God wants us to be less controlled and determinism to be free from any kind of limits and inhibitions. We possess freewill because we become more than ourselves, in the sense that we try to accommodate an increased number of experiences when we possess freewill. By increasing our experiences, we tend to be like God, who is said to be a collection of all possible experiences. In order to possess God's qualities, we must have all good and bad experiences to excel in acquiring the highest qualities possible. Therefore, as humans we try to be like God by doing what God must have done to have the properties attributed to God. Thus, a purely phenomenal account of God would be that God is the collection of all possible experiences there can ever possibly be in this universe for any entity that experiences.

This quality of being more of oneself will be shown to be the quality of self-awareness or the ability to makes choices. God may control all our actions or choices we make for ourselves, which concerns only ourselves, but God leaves us free when it comes to actions and choices involving the awareness of others. As possession of freewill posits that we become more of ourselves, with increasing experiences, where an experience can be either pleasant or unpleasant, the presence of evil seems to be inherent in our exercise of freewill to maximise the number of experiences. The potential of evil being inherent in freewill also implies that the potential to be like God is also inherent in freewill because it has been shown that presence of evil contributes to greater good and greater good means the ability to be more than oneself or the ability to be like God.

As it will be shown that all that exists is a self of a certain kind, each self has the capacity to do evil.

So, if a mountain was a self, the volcano has an evil effect on people living in the surrounding areas, the existence of volcano can be justified on the basis that it arises when the mountain is protecting its form or *essence of being-ness*. If the volcano heat is not released, it may destroy the existence of the mountain. Therefore, natural evil can be just like any kind of evil because even nature is a self and does evil to protect itself or merely to exist as a distinct entity.

When we learn to be more than ourselves or when a self tries to be more than itself, by being self-aware, it becomes more like God because God does not control our choices which concern others. We are not inhibited by control, we are free, and we possess freewill.

The God-like abilities of an entity or self are abilities to possess freedom of will which is also called freewill.

The self exists only when it undergoes a persist or escape interaction with a specific part of the environment. In the absence of the stimulus or surrounding, the self is just a potential to interact or to experience. With each interaction a self is one experience or quale old. As freewill is the ability of the self to be like God, or to increase its interactions or experiences, freewill is manifested as memory about the nature of different stimuli. Freewill is manifested in accumulated instances of interactions or experiences, that is, the memory or knowledge about the stimulus; such record of experiences being the expression of the environment, the accumulated knowledge in the mind of the person is the environment itself.

As a particular stimulus is the closest a self or entity in general can get to God, a particular stimulus with which the self has the greatest number of interactions or experiences is an entity close enough or most like God or is a Godlike entity.

Quale or experience is the ability of the self to choose changes which make it to continue to be like itself as opposed to choosing changes that hinder the self to be like itself. In this case, experience also does not exist if the experiencer or self does not exist. Change exists only when the self is present in an environment among other different levels of self as part of an entity or kinds of self outside the entity.

As shown in chapter 1, what makes a self be itself, is its *essence of being-ness* which can be the physical body, a thought, a question, etc. A self is said to be like itself when its *essence of being-ness* at a particular level in experience is protected and not destroyed. Self-reference thus is a choice to experience or be the experience itself.

As defined earlier, freewill is the ability of the self to accumulate the maximum number of experiences at a particular level of self. This means a self at a particular instance makes choices to protect its *current essence of being-ness* or form. A stimulus is the closest a self can get to the domain of all possible experiences (specific or not specific to a certain level of self).

Self's side of the greatest number of experiences or persist-escape interactions is by virtue of freewill and environment's side of the greatest number of experiences is the Godlike entity which is closest in the qualities that it possesses to be like God.

So far, we have defined good, evil, God and freewill independent of religion and based on phenomenology or phenomenal experiences. Therefore, we have defined what could be called phenomenal good, phenomenal evil, phenomenal God and phenomenal freewill. Note that the word *greatest* in defining God and freewill is crucial because a self is exposed to not one but hundreds of stimuli which protect its form and the self interacts persistently with all of them. A greater number of interactions means more freedom and the more one is close to God.

With increased experience of the surrounding we acquire increased knowledge about the surrounding, thus we become close to God and freer when we learn more and more about one particular stimulus at one particular occasion in life. Thus, learning new things about something or someone makes it or them more and more Godlike, makes us be close to God and makes us more and more free.

However, it should be noted that increased experiences here means equal or comparable number of pleasant and unpleasant experiences or interactions with stimuli. Only when there are sufficient experiences (both positive and negative) the self becomes ready to climb up the ladder of levels of self to be a higher self.

As a single stimulus becomes Godlike only with recurring experiences and since a God of that nature is a personified version, it is when you combine all the Godlike stimuli from all self levels, then you get holistic God, due to the increased number of experiences at each level of self. Thus, God is that stimulus or a collection of stimuli which imparts the most favourable change acquired by any entity or self in the entire surrounding environment.

A simple example of God as the stimulus for the parental baby. With food the baby interacts in persisting nature by experiencing happiness, hunger, awe, etc. when it is supplied by food but also interacts in escaping nature when the food is bad or is present when the baby is not hungry such that it experiences discomfort in the form of disgust, cry, etc. The food protects the *essence of being-ness* (eob for short) or form of the baby, which is its physical body. Therefore, by increased experiences it is meant that there is equal number of recurring positive and negative experiences alternatively with food.

When compared to being outside the womb, the environment inside of the womb is more god-like for the embryo because the environment outside the womb may destroy the baby's form if it is exposed to the external environment very early on in pregnancy. Therefore, the embryo has to accumulate enough experiences inside the womb in order for it to be a self of higher order, or in order to be capable of coming out of the womb. How a new-born is a higher level self compared to an embryo will be shown in later chapters. Thus, freewill is the ability to exhibit a choice to increasingly be subjected to particular stimulus in order to experience in the exposure or away from exposure. The choice between *to be* and *not to be* undertaken the greatest number of times with a particular stimulus is by virtue of freewill. Such stimulus brings us closer to God and is most Godlike.

Consider this relationship of self and stimulus in the experience of God and freewill, as analogous to one's relationship with one's loved one. We always go back to our lover despite the crying, fighting, hurting, misunderstandings, etc. because the lover is not just a source of

our happiness or pleasurable experiences, but also the more painful ones. Only a loved one can hurt you and love you the most. Since a lover is a source of both positive and negative experiences it is more like God than say your enemy who would cause you to experience only negative experiences or your mother who is a source of only positive experiences. The idea of God and freewill explored here says that with God we have the kind of relationship we have with a lover. The person or entity we are in love with the most, makes us suffer and makes us happy is truly our God. The ability to experience love as an amalgam of positive and negative experiences is the ability of freewill that we possess. We get close to God as we get close to our lover. Lover is the most desirable kind of niche. An entity or stimulus with which the self persists and escapes in interactions alternatively more compared to other entities or stimuli is close to God for the self. It can be concluded that love as an experience is the closest to the being of God (by being in love with an entity that is part of the environment) and being close to being God (by being a lover or a self with an inner will to maximise experiences).

2.3 Form or Essence of being-ness

Essence of being-ness or form is what something is made of, what differentiates an entity from other entities. The *essence of being-ness* can be the physical composition or a quality such as redness or even a concept or mental representation such as a unicorn. Form or *substrate of self* itself is whatever that can be observed or thought about and that which is subject to change. A mountain, a hallucination, a quality such as beauty, a noun, verb, adjective, proposition, questioning words, basically all kinds of categories of words, and all kinds of phenomena are said to have a form. The emotion-ness, hallucination-ness, thought-ness, word-ness, feeling-ness, etc. is what the self protects or enhances when it undergoes persist-escape interactions with the surrounding or when it is exposed to change of any kind.

A form exists under the influence of other forms. Here presence of a certain form among other forms means the form is protected or the other forms have a protective influence on the form, such protective influence is considered as an event of the form engaging in persist interaction with the surrounding that protects its form. The set of forms that destroys the existence of a form are said to engage in escape interaction with the said form.

If an object or form is similar to something, then the object engages in persist interaction with it. If something is not like the said form, then the said form engages in escape interaction with it. Therefore, is-ness is fundamental to all existence. The form is not only akin to how Aristotle describes a soul – something other than matter that a living thing possesses – but form can be both matter and anything that can be conceived. The matter will be shown to be lower-level form and whatever can be thought of as higher level form or self.

2.4 How CTMU describes God as the prominent self/dominant self

Chris Langan's CTMU states that:

> [We] retain the creative power and freedom of God on a scale that is localised in time and space. We can choose to act in a way that is localised in time and space. We can choose to act in a way that facilitates the execution of the self-creating algorithm that creates God, or we can choose to act in a way that is not useful to this end, which is known as the "telos" of this particular reality. If we choose to act in a way that is in

> line with the telos, those parts of our minds that match the mind of God get preserved and we basically move close to the all-knowing substratum, or the consciousness of God. If we go against the telos what happens may be that those elements of our minds that do not match the mind of the God, get recycled endlessly until they properly refine themselves. The eternal unchanging nature of the overall God consciousness is preserved despite our free chances itself in such a way that even though it is changing internally it remains eternal overall.[3]

He states that it is possible to be close to God, to experience the God-ness. One of the levels of self becomes dominant when it aligns itself or interacts with a single eternal self by being persistently present in its vicinity where the ability to do so is freewill and the external self is God. The idea that our minds can be like God's mind is supported here. It will be shown that mind is a specific level of self, thus restating the above statement brings us to the idea that by making appropriate choices we can be like the ultimate self which is the God.

2.5 Brahman and Atman

The Vedic idea 'Atman equals Brahman' posits that the ultimate reality (a.k.a. Brahman) can be *like* the centre of experience of an entity called the Atman. The Atman is that which is present in every individual which is neither the body nor the mind. Such idea is similar to the idea of soul or self that is presented here. Brahman is the supreme entity such as God. Hymn 4.4.5 of *The Brihadaranyaka Upanishad* explains how Atman can be Brahman:

> Brahman was this before: therefore it knew even the Atman (soul himself). I am Brahman, then it became all. And whoever among the Gods had this enlightenment also becomes that. Whoever knows the Atman Brahman becomes all this universe.[4]

How a self can become the ultimate self or the domain of all possible experiences or God is evident in the above description. The idea that one can be like the entity such as God will be explored in our understanding of reality throughout the book.

References

Original Sanskrit: NIRVANASHATAKAM, Sringeri Vidya Bharati Foundation (2012)

Smith, Tim, 'Beginner's introduction', CTMU Wiki, 6 March 2016 <http://ctmucommunity.org/wiki/Beginner%27s_introduction> [accessed 26 January 2020].

Spinoza, Benedict de, *The Ethics*, trans. by R.H.M. Elwes (Pennsylvania: Penn State University, 2000)

The Brihadaranyaka Upanishad: With the commentary of Shankaracharya, trans. by Swami Madhavananda (Hollywood, CA: Vedanta Press, 1997)

The Brihadaranyaka Upanishad: With the commentary of Shankaracharya, trans. by Swami Madhavananda (Hollywood, CA: Vedanta Press, 1997).

---

[3] Tim Smith, 'Beginner's introduction', *CTMU Wiki*, 6 March 2016 <http://ctmucommunity.org/wiki/Beginner%27s_introduction> [accessed 26 January 2020].

[4] *The Brihadaranyaka Upanishad: With the commentary of Shankaracharya*, trans. by Swami Madhavananda (Hollywood, CA: Vedanta Press, 1997).

Chapter 3
Life, Death and Laws of Existence

3.1 What is life?

In order to explain the laws of existence and what it means for a self to exist, we must explore what is life and what is death.

Traditionally, any entity that sustains itself is said to be alive. Animate entities possess certain properties including: adaptation to the environment, response to stimulus, reproduction, growth, metabolism and the ability to evolve. As previously discussed, all that exists is the relations of is-ness and is-not-ness, this being the persist-escape interactions between all *forms* that exist. Life can be defined as a continuum of persist-escape interactions that an entity undergoes. Just by virtue of being a form with a distinct identity, any entity is said to have life because the *essence of being-ness* is preserved in every instance of choice-making or self-reference in an environment consisting of entities that could either enhance its form or destroy it. A rock has a definite physical form or shape. The form is a witness or a memory of the interactions the rock has with its surrounding, and therefore the rock is said to have life as long as it protects its physical form or increases resistance to loss of form.

The purpose of life is to retain the ability to persist or escape interact with the surrounding to protect one's form. Maintaining one's identity or form essentially preserves the memory of one's previous interactions. The rock fights rain, a hammer, the surrounding sand and rocks, etc. to maintain its form or its shape. This is the rock's purpose in life. The rock also grows or enhances its form by growing by accretion. A rock is a self because any entity in the universe with a unique identity or form is a self, in that it has the ability to sustain its existence as a form by fighting against loss of form.

Not every entity has the same capacity to persist as a form, but every entity is said to be alive solely on the basis of its possession of a form.

The physical form of the rock is its identity.

When a rock is exposed to the blows of a hammer, it tries to resist any changes to its form and protects its form. The resistance to loss of form makes a rock alive. It fights the hammer for its existence. When the hammer destroys the form of the rock completely, the rock is said to lose its capacity to be a self as it no longer possesses the ability to accommodate or resist any change, thus it is said to have experienced death. Usually when an entity is unable to escape danger, it is vulnerable to being dead. The rock has no ability to escape or move away from the hammer, thus the nature of rock's interactions with the surrounding is of the nature of persist interaction because it persists to obtain the changes from the environment. At death it is considered to have failed to execute the process of escape. As long as the rock has a form it fights its death. Every self has the ability to persist and also escape, but the only instance when the rock exhibits escape interaction is when it loses its form. The loss of form or death is the inability of the self to escape successfully from adverse effects on it. The rock is an example of primary self which fights against loss of form by being present in the presence of harmful stimulus but does not fight back by moving against the stimulus. It only obtains change to its form until it loses its form and dies.

The physical resistance of the rock to loss of form is the persist interaction of the rock with the hammer. It has no control over the hammer, and therefore does not free itself by escaping from it. It only exhibits escape interaction with a stimulus when it dies. Thus, this kind of self is called primary self.

At death or loss of form, the rock is said to have failed in an attempt of escaping from the stimulus. Like a higher-level self, such as a human, the rock acquires changes to its physical form via the changes it acquires from the surrounding. Upon acquiring change, the rock – just like a human – persists to not lose form or becomes one that incurs loss of form. The rock fights the hammer in persist interaction to maintain its form; though a human has different forms (as will be shown later) the human too fights loss of form because at one instance in interaction with the surrounding, every entity is a singular self with a single form to be protected.

Rocks grow by accretion, meaning an increase in physical form is established with the mere physical contact with other rocks, which also means that the amount of resistance to loss of form increases.

The reason to support the idea that mere presence of a rock among *those like itself* increases the resistance of the rock to death, is that it takes more effort to destroy a piece of rock which is embedded between other rocks than the effort needed to destroy the physical form of a single and separate piece of rock. As reproduction roughly means to produce or be surrounded by young ones of their own kind, the rock is said to appear to possess a certain ability to reproduce just by being in contact with rocks that are *like it*.

We have shown so far that a trivial form such as a rock has the capacity to respond to stimuli by way of interaction, growth, reproduction and by possessing a form. All these qualities are not usually accepted as possessed by *inanimate objects*. Here *appearance* of reproduction and movement are considered as real as the real happenings of reproduction and movement. Therefore, everything that exists has a form and everything that exists has life.

Depending on the numerous ways in which entities persist or escape from stimuli in their surroundings, each entity will be shown to possess a variety of forms which feature in different levels of self. Since a rock interacts with the stimulus only by being present physically, the rock has/is only one self and this self is called the first level self. The rock is/possesses the most basic form of self.

The characteristic features of life are generally the abilities of an entity to preserve its form as well as the growth and sustenance of its form.

The Gaia hypothesis, proposed in the 1960s by scientist James Lovelock, suggests that life or biotic entities influence abiotic surroundings in order to sustain the process of life.[1] Here we suggest that the self-regulatory system composed of biotic and abiotic entities dissolves the boundary between what it means to be biotic and what it means to be abiotic. In addition to influencing the abiotic environment, an animate system is also autopoietic, meaning that it has the ability of self-creation and maintaining its identity when interacting with an ever changing environment.

[1] James Lovelock, *Gaia: A New Look at Life on Earth* (Oxford: Oxford University Press, 2009).

A living system can be defined as all possible interactions with the environment, such that each interaction protects what is called the *essence of being-ness* or form. I define 'self' as the event or process that maintains an organism's form by achieving circularity of its organisation via engaging and interacting to protect its form. Therefore, maintaining the circularity is the maintenance of form itself. Living systems are units of interactions specified by their conditions and can also enter into interactions that are not specified by their organisation. The living systems not only have the ability to engage in interactions with their surroundings that protect their organisation, but also have the ability to interact to escape from interactions that do not support their organisation primarily by way of movement or action.

A niche is generally defined as the part of the environment which represents a set or collection of all possible interactions between an entity and its surroundings such that all such interactions enhance the existence of the self. A niche is the set of interactions that protect the form of an entity, that is, the kind of interactions that the self undergoes is by persisting in the presence of the stimulus. I submit using the term *anti-niche* to define a set of interactions that the organism enters that may destroy or disorient its organisation if it chooses not to escape from the entities that surround it in the environment which represents such kind of interactions.

If a niche protects the organisation of an entity, an anti-niche can also *allow* protection of its organisation, given that the entity is capable of nullifying the harmful effect of the interaction upon itself. By the act of nullification, the entity undergoes self-organisation or self-reference. Anti-niche interactions allow learning and therefore serve the same purpose as niche interactions. All possible interactions would include the niche and anti-niche and this maximum number of interactions incorporates the entire environment or God. The form that is protected in interactions of the self will be shown to form a holarchy where each level or form is associated with a certain cognitive skill and part of speech such as noun, adjective, verb, proposition, etc. and words that ask questions such as the why, what, where, when, etc type of questions.

Persist and escape interactions will be shown to be various ways of movements associated with involuntary movements in reflex, in addition to movements in emotion, locomotion, pointing, gesturing, etc. and also associated with cognitive skills such as object permanence, cognitive closure, etc.

Each higher level self has the same attributes of lower levels. As the mind-matter duality will be shown to be different levels of form or *essence of being-ness*, life is not considered to be concerned with only materiality or non-materiality.

3.2 What is death?

All there exists is interactions, with each interaction being an attempt of an entity as a self to continue its ability to interact, either by being present in an interaction or by escaping. No entity can exist in isolation. An entity with no ability to interact, and therefore possessing no *essence of being-ness* or form, is dead.

Death is the loss of the ability to increase the number of interactions concerning a specific level of self and therefore the absence of freewill or the ability to be close to God. A rock dies when it loses its ability to resist loss to its physical form.

There is death when the self cannot successfully undergo escape interaction with a harmful stimulus. The rock dies when the form or physical resistance to loss of form decreases or becomes zero. A phototropic plant dies when it loses its ability to interact with the surrounding by bending towards light in order to engage in persist interaction with sunlight and support photosynthesis. A rock continues to exist as long as it continues to interact with the surrounding by obtaining change of certain kinds that enhance or decrease its resistance to loss of physical form or shape.

With each interaction of persisting manner, the resistance to loss of form is maintained. In death, the persisting interaction changes into escape interaction because loss of form means termination of existence of rock as a self.

A plant dies when the plant cannot escape darkness and cannot move towards a place where there is sunlight. Therefore, absence of appropriate movement is death. Death is when a self of a certain level loses its form specific to one level of self. As each level of self is a specific domain of interactions which protects a specific form of the self, death signifies the absence of ability of the self to continue to be a collection or a specific domain of interactions. As all there exists is self, the characteristics of self are the characteristics of something that preserves, furthers and reinforces its existence in the given environment.

3.3 Characteristics of Self and Laws of Existence

3.3.1 Organisation (Self-hood)

The sustenance of form of any entity over the course of interaction with the changing environment is called Organisation. Organisation is achieved in the circularity of interactions an entity undergoes with the surrounding, wherein *essence of being-ness* is protected or enhanced with each interaction. For example, a rock is composed of a physical form. When it interacts with a hammer, the interactions tend towards protecting or enhancing the rock's resistance to loss of form, until it ultimately loses its form. Therefore, the organisation is the circularity of the rock's interactions with the surrounding. Organisation is the ability of an entity to find itself in each interaction or in achieving self-reference. The self organizes itself by persisting as a form in interaction with the stimulus. The self tends to interact with specific kinds of stimuli which are like itself, therefore establishing the *is-ness* and escapes from interaction with stimuli which are not like itself.

Each level of self will be shown to be specific to how the entity moves in order to exhibit self-organisation. At each level of self, the self is composed of something different from other levels, because at each level there is a different form or *essence of being-ness* or ability because form is not restricted to materiality. At each level of self, there is a specific kind of organisation of the self.

The self at each level tends to increase its interactions with only those kinds of stimuli that protect the self's organisation at that level. A rock is an example of first level self, where its form is its physical composition of whatever matter it is composed of. Thus, the organisation of a first level self is material in nature. At the level of intent or mind, the self is composed of ideas about the nature of the things or entities around itself which represent the cognitive capacity of the entity. When the self interacts with the surrounding, it seeks to find validation for its assumed nature about the nature of the surrounding. It persists or engages in persisting

interaction with stimuli that behave or appear to function as per the assumptions and escapes from the stimuli that do not behave accordingly.

Therefore, the nature of organisation of a self at the level of intent is non-material in nature. This kind of self builds upon itself a concept similar to a form, where two or more ideas give rise to a concept. It is one idea referring to itself through another idea in order to establish similarity between the two ideas. Different levels of self are different organisational capacities of an entity that exists as a self or as a collection of different levels of self. A human is a collection of different levels of self because it is a higher level self compared to a rock or a plant.

3.3.2 Growth and Freewill

Growth is the quality of any entity to build upon its form of something it is composed of. A growing entity made of matter or a self whose form is physical grows by increasing its size in all of its parts or by accumulating matter, where accumulation of matter means an increase in the ability to resist loss of form. As all there exists is interactions of an entity with the surrounding, growth must be an outcome of interactions between the entity and the surrounding. Any entity grows over time. Time here can be treated synonymous with the continuity of interactions, and so every entity grows as its interactions increase. Therefore, any entity that grows has the ability to increase the number of its interactions with the surroundings. This ability to achieve maximum number of interactions has been shown to be the ability of freewill or the tendency of a self to be like God or to be close to the domain of maximum possible interactions.

For example, a rock grows by increasing its resistance to loss of form by growing in size by interacting with stimulus that enable accretion, but it also grows in resistance by mere presence in contact with other rocks. For instance, a rock kept in isolation has less resistance to loss of form when it interacts with a hammer than when it is in physical contact with other rocks because it is easier to break a single rock with a hammer, than trying to break a rock embedded in a wall or on the surface of a floor. At the level of thoughts growth is meant as accumulation of different words to form sentences, accumulation of sentences to form ideas or concepts, etc. At the level of self with/of intent, the growing self increases its idea of the nature of the surrounding environment. When an idea is not validated by experience, its meaning is lost so that the self distances itself from the thought and the stimuli that do not behave as per its predictions. For example, if the assumption that it will rain today is not validated by actual occurrence of rain, the group of thoughts that gave rise to the prediction that it will rain today are not pursued further to influence other kinds of predictions about *rain* or about the idea of *today*. Therefore, the entity distances itself from the physical entities that do not hold the thoughts of the prediction thus distances itself from the thoughts itself. Having new thoughts is growth at the level of intent or mind.

In order to grow, a self has to learn to successfully escape from the stimulus that may destroy its form, thus a growing entity must also escape death. Growth is ability to choose to increase persist kinds of interactions which enhances the form of the entity but also to escape death. Growth is increase in organisation. Organisation is complexity that comes with being oneself. Growth is to be more than oneself. Organisation means to be composed of something and to

be any self, irrespective of which level and to possess the ability to interact. Growth is to increase the number of interactions so as to grow as a distinct self but also grow as an organism, by being more than oneself by accommodating or being composed of various levels of self.

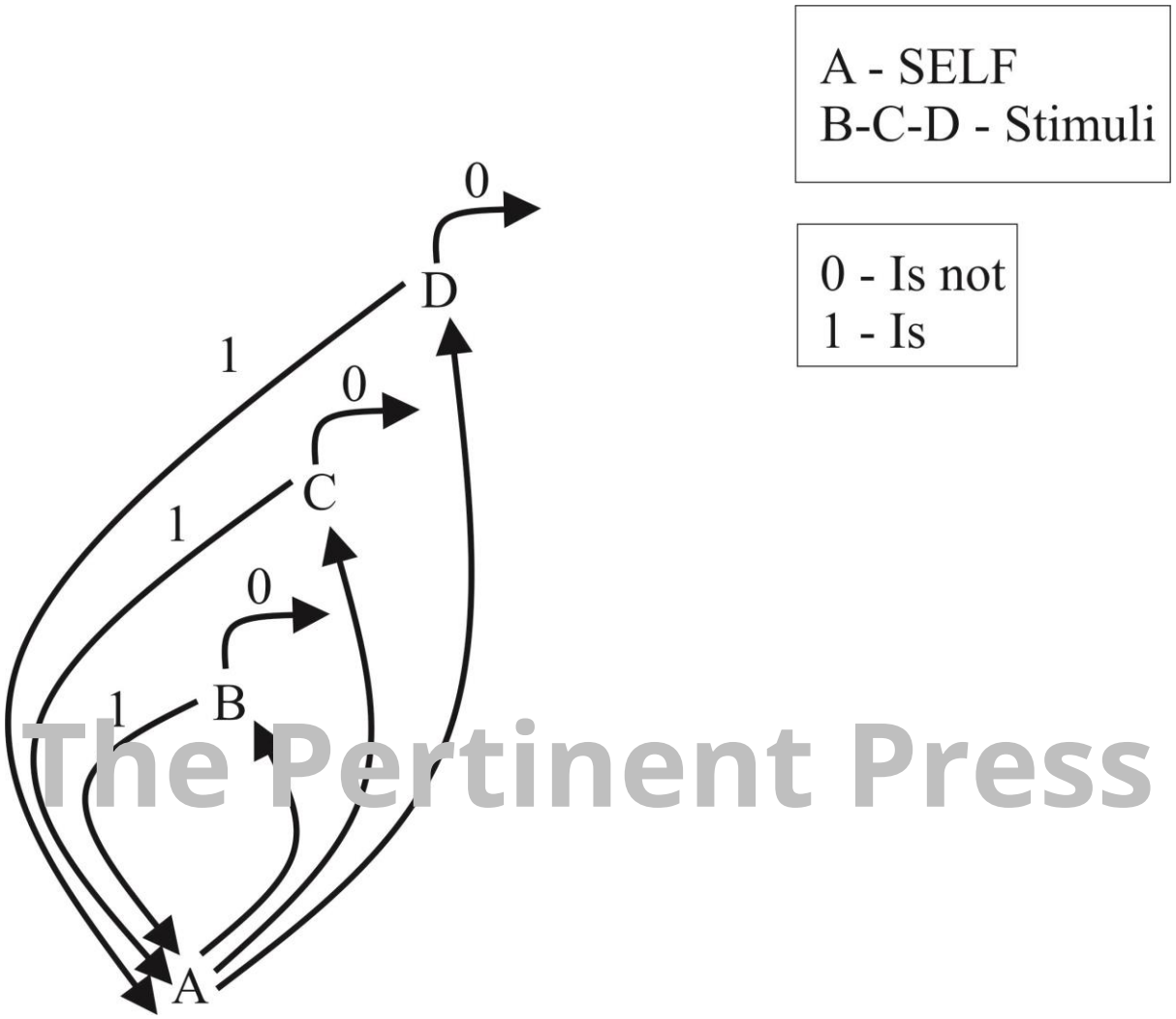

Figure 3.1: Self exposed to stimuli

Organisation is the outcome of self-reference in any entity that exists. Figure 3.1 shows the self being exposed to both kinds of possible interactions when present in an environment. The projection of *essence of being-ness* on the stimulus determines whether the stimulus is like the self (A) or is not. The arrow towards the stimulus B(or C,D) indicates projection of *essence of being-ness* upon the stimulus, the arrow back from the stimulus at the self indicates that the self has established *is-ness* (indicated by 1) with the stimulus and that the stimulus has properties that are common with the self. The arrow away from the stimulus indicates that the stimulus has no commonality with the self, thus the relation of *is-not* (indicated by 0) is established and the self is said to engage in escape interaction with it. A is any entity such as a rock; B is the stimulus such as a hammer. The rock chooses to persist to establish is-ness or exhibits persist interaction with the hammer as long as the hammer does not destroy the physical form of the rock. When the hammer breaks the piece of rock, it is said to engage in escape interaction with the hammer. The physical form or *essence of being-*

ness is preserved in persist interaction with the hammer. Therefore, a rock exhibits organisation as long as it has the ability to interact with the hammer.

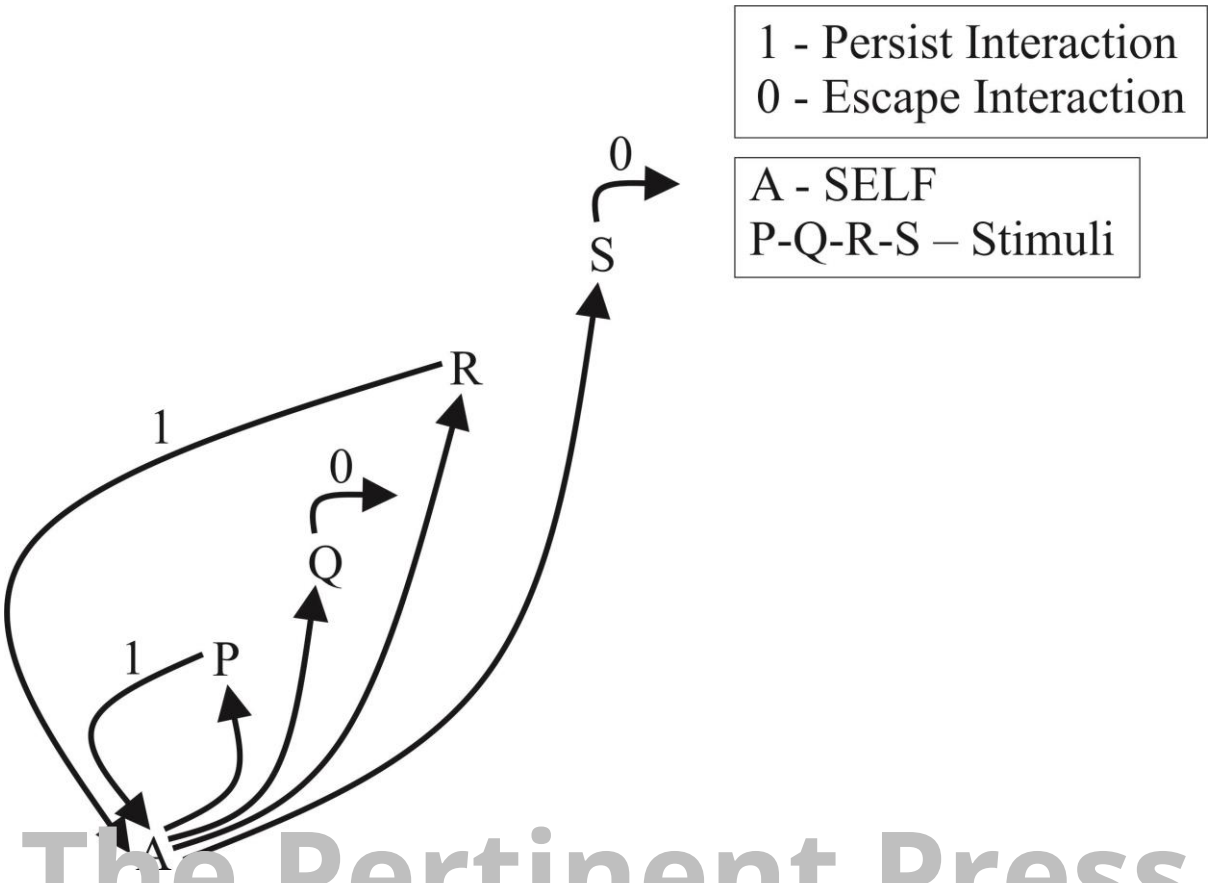

Figure 3.2. Self interacting with stimuli

On the other hand, growth means an increase in the number of occasions of interactions of a self as shown in Figure 3.2. The establishment 'is-ness' between the self and the stimulus occurs in persist interaction whereas 'is-not-ness' or dissimilarity is established in escape interaction.

Figure 3.2 shows a single entity with a specific (A) form interacting with stimuli (P, Q, R and S). If the stimulus is of the nature of protecting the form of the entity, then the arrow from A reaches stimulus and turns back at the entity, to complete the loop which is the loop of self-reference.

But if the stimulus is of the nature of destroying the form of the entity, then the entity or the self is said to engage in escape interaction with the stimulus. The arrow away from A reaching the stimulus turns away from A and the stimulus, thus showing that the stimulus is not like the self.

In Figure 3.2, it is shown that the entity A engages in persist interaction with stimulus P and R because the loop is only in persist interaction and it engages in escape interaction with Q and S.

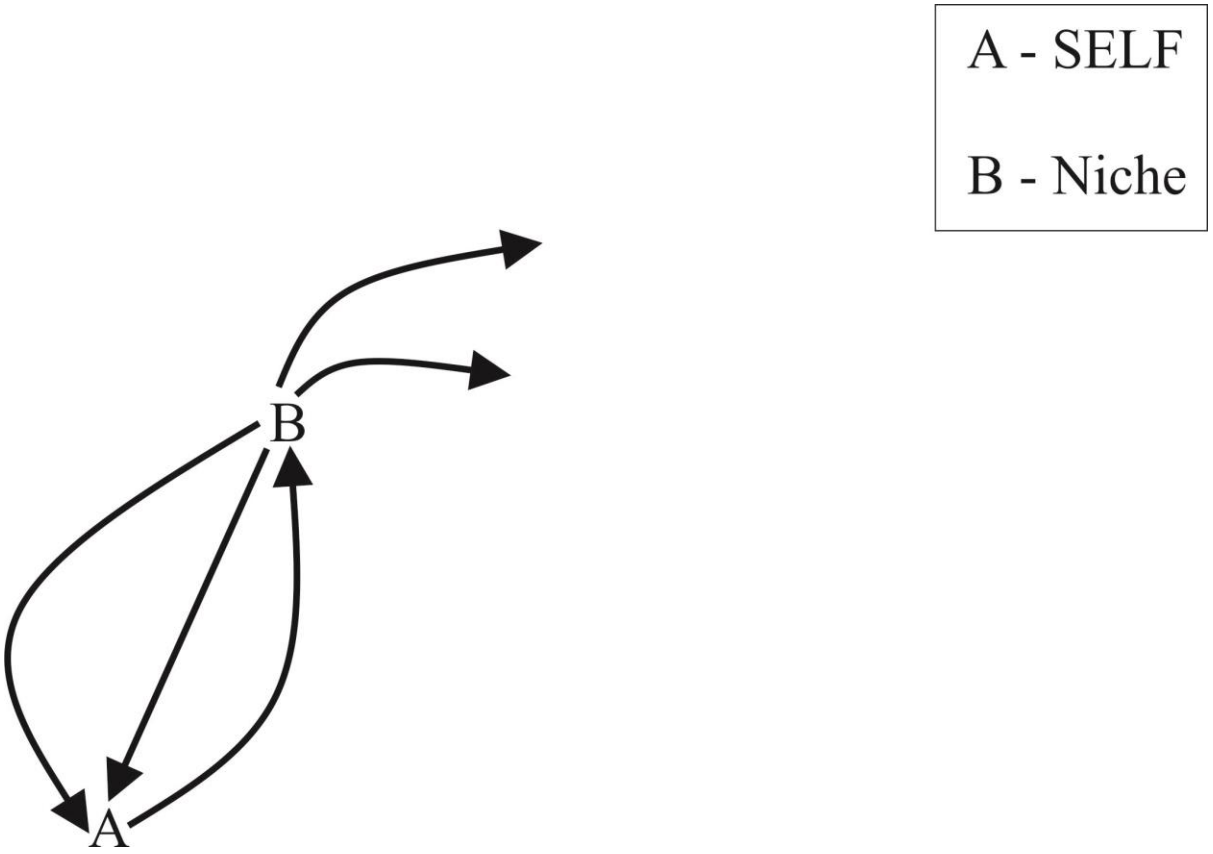

Figure 3.3: Self and dominant stimulus (niche)

In Figure 3.3, B is not only the generalised notation for stimuli in the surrounding with which the self develops the 'is' and 'is-not' relation (indicated by arrows towards and away from the self A) but it represents a single stimulus with which the self interacts both persistently and escaping, thus such stimulus is called a Niche. It is close to God because like God, it has both persist and escape interactions in relation to the self, but it is not God because it is not the domain of maximum possible interactions. In Figures 3.1, 3.2 and 3.3 we have seen that with increased interactions, a self grows to accommodate more and more *is* relationships in its interaction with different stimuli.

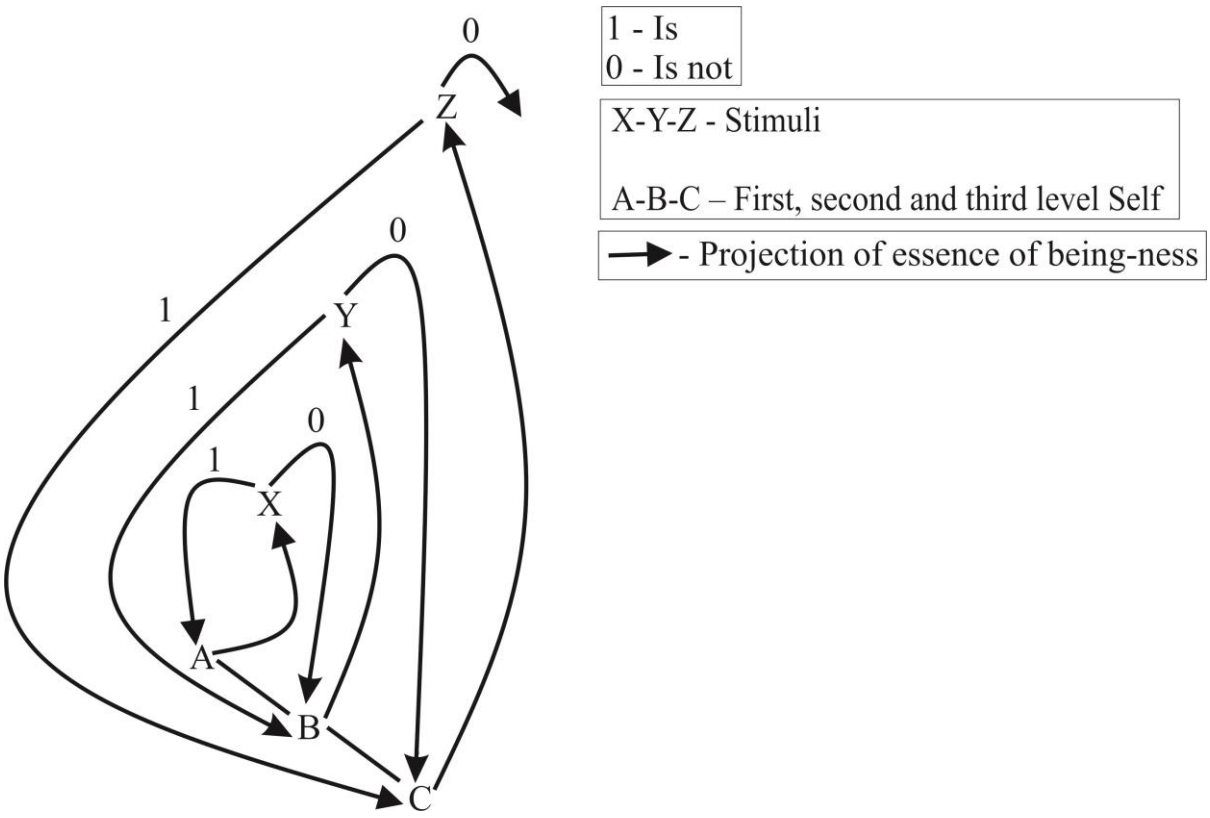

Figure 3.4: Working of different levels of self. Emergence of levels of self.

As it will be shown later, once a self accommodates enough persist-escape interactions, the collection of all the 'is' and the 'is-not' relations give rise to a new self with new form or *essence of being-ness* as shown in Figure 3.4. A is a first level self whose form is the physical body. X is the collection of all possible interactions of persist and escape undergone by A, where by all possible interactions I mean, just enough interactions for there to be emergence of self of second level. X here signifies a single stimulus or a group of stimuli which cause both kinds of interactions at level one, such that it leads to emergence of second level of self, which is self B. The second level self B in turn acquires enough persist-escape interactions in the form of stimulus or group of stimuli Y such that it leads to emergence of level three self C and so on.

It will be shown how one kind of experience emerges from another with emergence of each kind or level of self. The first level self is considered to have experienced all possible interactions with the surrounding when it engages in enough persist and escape reflex experiences so as to lead to the emergence of second level of self of emotions.

Similarly, in the second level self, the entity experiences enough persist and escape interactions to lead to the emergence of third level self. In emotions there is emergence from single body part movements to movement of all parts collectively to escape or persist, where single body part movement to persist or escape is seen in the level of reflex or first level self.

Therefore, it can be seen that a single entity for example a human prenatal baby grows when new self emerges from pre-existing self, giving the baby new abilities to accommodate new experiences. An entity is said to grow with increase in the number of different levels of self that emerge from pre-existing ones.

In Figure 3.4, B is self of second level, which emerges from amalgamation or combination of abilities that the baby possesses at level one that is from stimulus specific body part movements, which establishes the 'is' and 'is-not' relation with the stimulus X. Y is the general representation for the stimuli with which the entity engages in emotional interactions each of the nature of persist and escape. When the B self accumulates enough experiences, there is emergence of C or third level self and so on.

Emergence of new levels of self is growth exhibited by an entity.

3.3.3 Reproduction (Replicability)

The segregation of the form of an entity and growth of it into a new entity is the process of reproduction. The new entity is considered to be the offspring of the parental entity.

Reproduction is an event of replication of an entity. Any entity or self fights for its existence in the process of reproduction, because by replicating oneself, the entity is converting the surrounding environment into more conducive environment to persist or continue as a form of existence because when it is surrounded by others who are like itself the sameness favours the survival of the entity. A self is said to have replicated by virtue of being present or choosing to persist in the surrounding where different selves of its own kind are present. It is like saying your chances of getting food or water in a desert increase when you go with a group of people than going alone, because the environment or the surrounding stimulus becomes tuned to provide you water when there are many searching for water as opposed to few. If water is said to be present in one direction and there are four of you, the chances of finding water increases and for you as a single entity, the environment becomes more supportive for your existence. Therefore, in the surrounding when there are many of your own kind (here others searching for water are considered to be of your own kind because all have the same intent of finding water) the chances of your survival is implicit in the effort of others to survive. It can be concluded that by merely choosing to engage in persist interaction with a stimulus, the self causes the rest of the surrounding to be tuned to support the existence of the self. Therefore, a persist interaction is an event in which the self replicates or reproduces because it *appears* to create young ones of its own kind when observed from the environment's perspective in terms of the abundance of presence of entities of the same kind in one part of the environment compared to others. By engaging with a stimulus in persisting manner, the self by way of achieving the *is* relation or by achieving self-reference transfers its *essence of being-ness* upon the desirable stimulus, thus projecting itself onto the stimulus to be more of itself. Therefore, by making the stimulus as an extension of itself the self is said to produce a replication of itself. It is analogous to saying that by interacting with a stimulus which is like itself, the entity spreads one-ness with the rest of the surrounding.

By virtually creating the presence of entities like itself, the self influences the surrounding environment to favour its existence, by decreasing the number of stimuli that are harmful to the self. Through reproduction the entity makes the environment benefit its own kind of entities. It increases the chances of survival of one of its different levels of self because an entity is a particular self at a particular stage in development or growth.

Even a rock has the ability of replication due to its ability to persist among many rocks like itself (because of the common quality of resistance to loss of form, a group of rocks are said to be alike). When viewed from the perspective of a new stimulus, the rock appears the same

as the other rocks, such that if the stimulus is of the nature of destroying the existence of physical form of the said rock, the chances of the said rock's losing form decreases due to the fact that the stimulus not only has to destroy the form of one rock but many like it. It needs to invest the energy to destroy the form of all other rocks in addition to the single rock if the said rock is surrounded by others of its own kind.

By creating more forms or entities like oneself, the entities external to the self will be conditioned to cater to the multiple copies of a single form of the self. By reproduction or replicability, the entity turns the environment to favour its existence by making the environment more conducive to more persist kind of interactions.

Suppose there is a self surrounded by two kinds of stimuli: 1 of the nature of destroying the form of self and 2 of the nature of enhancing the form. The collection of stimuli is together called the surrounding.

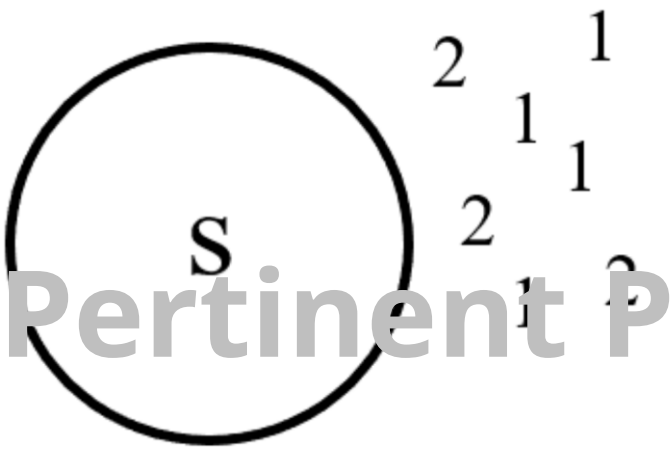

Figure 3.5: Self and surrounding

Figure 3.5 shows a self surrounded by stimulus of two kinds, one that is capable of causing persist interactions (1) and the other capable of escape interactions (2) with the self. The set of stimuli represented by 1 are said to be more like the self than the ones represented by 2.

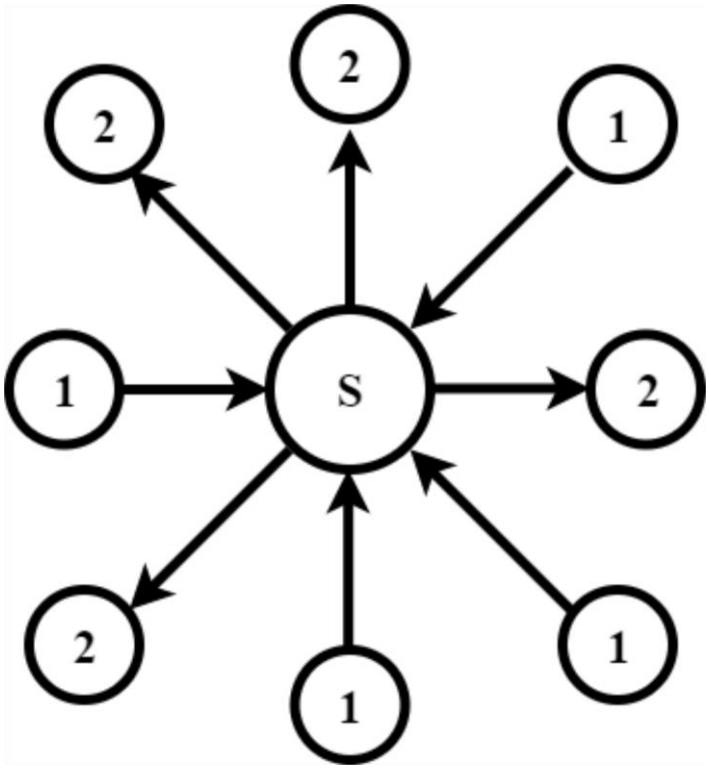

Figure 3.6: Organisation of self

Figure 3.6 shows organisation. Every entity is a self capable of engaging in interactions with the stimulus in order to protect its form. The arrow towards the self indicates that the self engages in persist interaction and the arrow away from it indicates that it attempts to escape from the stimulus. Organisation of an entity is reflected in the ability of an entity to move towards or away from the stimulus. Growth is how a self becomes more of itself. The self in growth increases the capacity to obtain more and more interactions with the surrounding environment. Having more and more new ways of moving towards or away from the stimulus is growth.

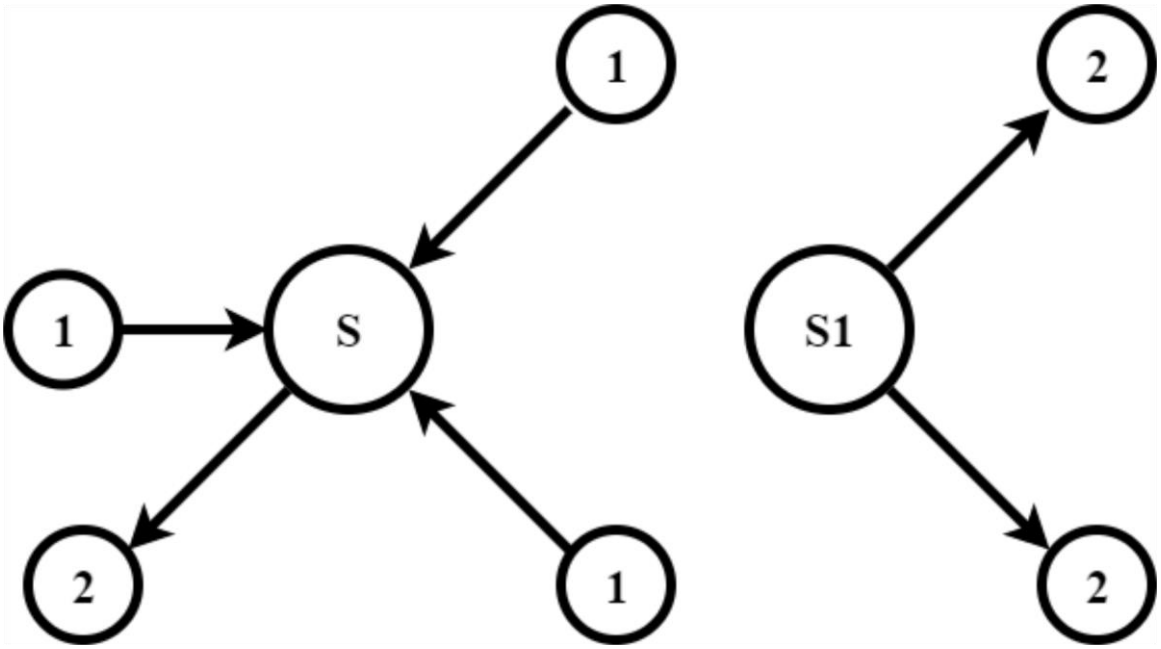

Figure 3.7: Reproduction (replicability)

Reproduction or replicating ability is the ability to persist in the presence of those stimuli that are like the self. It is how the self interacts with only specific nature of stimulus because by virtue of being present with stimulus that are like itself, the self conditions the environmental stimuli to favour not only the persistence of the other selves of its kind but also to favour its own existence.

The chances of the self losing form when isolated are greater than when present in the vicinity of different kinds of self which are like itself because the resistance to undesirable stimulus doubles in the presence of two similar kinds of self. Therefore, the number of escape interactions decreases and the probability of a self losing form decreases to half. The self in the presence of selves like itself has to face less stimuli that harm the form of the self.

In Figure 3.7, S and S1 represent a group of selves which are alike. Stimulus 1 is of the nature of enhancing the form of selves and stimulus 2 is of the nature of harming such kind of selves. It can be seen that out of 3 escape interactions the self S faces only one harmful stimulus 2, as two others interact with S1. So in the presence of a self like itself S has decreased its chances of being faced with three harmful stimulus and faces only one instead. . Thus being in a group of similar entities increases the survival chances of a single self as compared to existing in isolation.

In the process of reproduction, the self (S) uses some environmental stimuli (like S1 in the above example) against those stimuli (like stimulus 2) that are harmful to its existence.. That is, in the presence of a group of selves like itself, the single self S manages to avoid interaction with stimulus 2 which is found in abundance around S1 self. Therefore, since the other selves protect the said self's form, the said self is also said to protect the form of the other selves by being part of the group, and it can be likened to how a parent protects its offspring. Coevolution is the idea that two or more entities can affect each other's process of evolution. The idea of reproduction as a dependency of one entity on another is seen in co-evolution favouring fitness.

Leigh Van Valen proposed the Red Queen Hypothesis to explain the *Law of Extinction*, showing that lifetime of a population is not the only reason for extinction.[2] The mutual dependency seen in co-evolution, where one species adapts to another, decreases the chances of extinction by decreasing the pressure of natural selection upon itself. An example of co-dependency is seen in the process of symbiosis.

Therefore, reproduction or replicating ability has the property of co-evolution favouring one's survivability.

Co-evolutionary interactions between two species such as parasite and host can be seen in the form of sexual reproduction which decreases the risk of extinction or harm to host.

The presence of harmful stimuli is considerably decreased in the presence of entities that resemble the self. In other words, replicating ability enables the self to sacrifice others like itself in the face of diverse circumstances by escaping from harmful stimuli and exposing others to it.

[2] Leigh Van Valen, 'A New Evolutionary Law', *Evolutionary Theory*, 1 (1973), 1-30.

3.3.4 Adaptation

Adaptation is the ability of an entity to accommodate change over time in a changing environment. A self is said to change by rising to a higher level where it not only possesses the form of the previous level (where form means a specific manner of interacting with the environment) but also acquires a new form and learns new ways of interacting with the same or similar stimulus. By accommodating new forms emergent from old or pre-existing forms, the entity learns to interact with new kinds of stimuli and maintains the ability to possess a unique identity among other entities. Different levels of self emerging over time make the entity persist or escape interact in different ways with a single stimulus. For instance, the first level self escapes by moving (or appearing to move) a body part as will be seen in the experience of reflex, whereas the same entity as the second level self escapes by moving more than one body part as will be seen in the experience of emotions. The first level self causes emergence of new level self to fit the entity or organism to the changing environment, therefore causing the entity to adapt with the environment.

In higher level self, the environment will be shown to cause the entity to experience emotions such as happiness and sadness which are experiences where the entity moves to persist or escape. This tendency to be absent or move away from a specific stimulus in the experience of sadness is specific to a single level of self called the what-self. But when the when-self emerges, the entity no longer has to escape from the stimulus that makes it sad or that which does not behave as expected, because the when experience is to analyse the stimulus by persisting in interaction even with the stimulus whose nature cannot be predicted or which is harmful. Therefore, it leads to the ability of adaptation and learning. The transition from the ability to escape to the ability to understand the pleasantness of happiness and unpleasantness or disappointment of sadness on the same plane shows how the self adapts to the surroundings. Adaptation implies that although a self of a certain level escapes from a stimulus, it also learns to exhibit persist interaction with the same stimulus in the next level.

When a stimulus at one level is responsible for escape kind of interactions with a self of one level, the same stimulus becomes responsible for the experience of persist kind of interaction with the next level of self because emergence is achieved when all the persist-escape interactions of one self combine or merge with each other such that the entity learns something about both kinds of stimuli at the higher level instead of having to escape from one of the two kinds of stimuli in the previous lower level self.

3.3.5 Response to Stimuli

Traditionally, response to stimulus is seen in many kinds of change where an entity exhibits in its interaction with the environment, from contraction of a part of the body in unicellular organisms, to complex reactions involving all of the senses in multicellular organisms. An example of such response is the movement of the leaves of the plant towards the sun in phototropism. Response to stimulus is generally a particular kind of movement in relation to the stimulus. Movement exhibited by the body as a result of collaboration among all of the senses and movement of a certain part of the body caused by a single sense organ will be shown to be different levels of self, with the primary purpose of movement being to respond to a stimulus.

As form is not restricted to material body, response to stimulus is not always directed from the material body towards the material stimulus, as even the stimulus is not restricted to materiality. At each level of self, there is single movement to persist or escape from the stimulus, thus there are different ways of responding to stimuli. A self can also manipulate the surrounding as seen in replicating ability in response to a harmful stimulus.

The idea of life being a process of re-creation supports the idea of self-reference driven by movement as seen in the work of Heraclitus, who seeks analogy between life and fire in describing the nature of the world. It signifies the idea that in the process of life, an entity as one level self extinguishes itself in interactions to be born again as another self of higher order. Albert Schwegler describes Heraclitus's view of what the world is made of and what the world or life is in general as follows:

> When therefore, Heraclitus names the world an ever-living fire that, in due measure and degree, extinguishes itself and again kindles itself, when he says, all is exchanged for fire and fire for all, as things for gold and gold for things, he can only understand by this that fire, this restless, all consuming, all-transmitting and equally (in heat) all vivifying element, represents the constant force of this eternal alteration and transformation, the notion of life, in the most vivid and energetic manner. We might name fire in the Heraclitus sense as a symbol or manifestation of the becoming, if it were not also with him at the same time substrate of the movement, that is to say, the means of which the power of motion, that it precedent to all matter, avails itself for the production of the living process of things. Heraclitus then explains the multiplicity of things by the arrestment and partial extinction of this fire, in consequence of which it condenses itself into material elements first, air then water then earth. But this fire acquires equal by again the preponderance over these destructions, and kindles itself afresh. These two processes of extinction and ignition in this fire-power, alternate, according to Heraclitus, in perpetual rotation with each other; and he taught, therefore, that in stated periods the world revolves itself into the primal fire, in order to recreate itself out of it again. Moreover, also fire is to him even in individual things, the principal of movement of physical….as of spiritual vitality; the soul itself is a fiery vapour; its power and perfection depend on its being pure from all grosser and duller elements.[3]

Therefore, the world or everything that exists is the on-going movements between entities and their surroundings. Movement primarily is a way of responding to stimulus. With each level of self, a different way of responding to the same stimulus or different ones will be shown as a series of persist-escape interactions.

3.3.6 Memory: Does a rock have memory?

Different rocks with different intensities of resistances to loss of form have different abilities to fight loss of form. A rock fights loss of form by increasing its resistance by engaging in persist interaction with a certain part of the surrounding and by escaping from interaction with a certain part of the surrounding capable of destroying or decreasing resistance to loss of its form. The potential of a rock to interact with its surrounding is said to be its memory

[3] Albert Schwegler, *Handbook of the History of Philosophy*, trans. by James Hutchison Stirling (Edinburgh: Oliver and Boyd, 1867), pp. 21-2.

because memory is the record of the relationship between various instances of persist-escape interactions of the rock with the environment. Therefore, memory is a record of different changes in physical form, which are different variations of its resistance to loss of form. Memory is the record of different kinds of *essence of being-ness* or forms at different levels of self. The current state of form of the rock is itself its memory.

Suppose there are two instances of interactions between a rock and a hammer. In the first interaction, the rock fights its death or loss of form and incurs a crack. In the second interaction, the rock loses its form with the second blow. The relationship between the greater resistance in the first occasion and the complete loss of resistance in the second is memory because the nature of the present interaction is said to result from the past. Memory is the record of variations in physical resistance or it is a collection of attempts of the rock in resisting change that is harmful to its form and accommodating changes that increases its resistance to loss of form.

Memory is therefore the *essence of being-ness* or the form of one occasion and its relation to another.

When a rock loses form, it is no longer related to its previous interactions with the hammer, thus the loss of *essence of being-ness* means loss of memory, thus loss of ability to be a self. The rock not only interacts with a stimulus which is of the nature of decreasing the resistance to loss of form, but it also interacts with the stimulus which enhances it.

Memory is the relation or link between various instances of loss and gain of resistance. Two different rocks lose form at different points in their interactions with a hammer depending on their previous interactions, that is, depending on their memory. Whether a rock loses form or gains more resistance depends on the rock's previous interactions this dependence on its memory. The nature of interaction of the rock with a stimulus depends on its memory or *essence of being-ness* at a particular level of self.

Therefore, any entity *is* because it is a form, more importantly because it is a memory.

References

Lovelock, James, *Gaia: A New Look at Life on Earth* (Oxford: Oxford University Press, 2009)

Schwegler, Albert, *Handbook of the History of Philosophy*, trans. by James Hutchison Stirling (Edinburgh: Oliver and Boyd, 1867)

Van Valen, Leigh, 'A New Evolutionary Law', *Evolutionary Theory*, 1 (1973), 1-30

Chapter 4
Body, I and appearance of movement

As explained earlier, the 'I' is an entity referencing itself in interaction with the surrounding. It is the projection of *essence of being-ness* of one state of an entity upon another state. The 'I' is the establishment of is-ness of one state of an entity with another state. The change acquired from the surrounding is not external to the entity but is a quality and expression of the entity itself. The 'I' is the reference of the entity with itself or the projection of *essence of being-ness* (such as the body) upon itself. To such self, the external environment does not exist. The external stimulus finds itself in the changed state of the entity.

We return to our classic example of an entity exhibiting self-reference or the 'I' – a rock. As self-reference fundamentally means a choice between 'to be' or 'not to be' and since the purpose of this book and the foundation of my theory is to explore the quality of self-reference or choice-making in terms of movement of an entity towards (in order to persist) or movement away (in order to escape) from the stimulus, any self is said to possess the ability to move in relation to its surroundings to be an 'I'. That is, the 'I'-ness is synonymous with choice-making quality by way of movement. Every self possesses the ability to move, and the ability to move in relation to the environment away or towards a specific part of an environment itself is called the self.

As described earlier, a rock exhibits persist kind of interaction with the surrounding as long as it retains its capacity to be a form or a physical body. When the rock loses its form, then the self of the rock engages in escape interaction with the stimulus such as a hammer that destroys the physical form of the rock by breaking it into pieces. The rock is said to have exhibited movement away from it, when the rock breaks the form of the rock because at the instance of loss of form, the rock is no longer in physical contact with the hammer, which is what should happen when there is movement of the rock away from the hammer if the rock should be assumed to possess the ability to exhibit a capacity to move. The rock is said to move to persist in the presence of the hammer merely by virtue of mutual presence of the rock and the hammer either by virtue of any other rock or object or person pushing the hammer or/and the rock towards each other. The environment is a collection of movements, such that the (physical) contact between all things brings the things close to some things and away from others. That the environment does not move the rock away from the hammer implies that the rock has attempted to persist in the presence of the hammer. Therefore, there is actual exchange of effects between the rock and the hammer, and so this implies that the rock has exhibited *movement toward* the hammer.

When a rock breaks, the hammer causes parts of the rock to escape contact with the rock and therefore also the hammer. This event of the rock's loss of form can be considered an attempt of part of the rock to move away from the stimulus.

Note that we can make conclusions about the movements of an object such as a rock because we assume that physically verifiable change or movement is not sufficient to deduce the nature of organisation in any entity. Therefore, the idea of appearance of movement and empirically verifiable movement are treated synonymously.

The fact that a point of contact is established between the rock and the hammer implies that the rock has *appeared* to move in order to achieve such contact with the hammer. The rock is said to have fought against the wind, the water and all physical things that could have pushed

the rock away from the hammer to establish the point of contact with the hammer. The rock has been shown to possess all the properties such as organisation, growth, replicating ability, adaptability and response to stimulus, so therefore the rock is a self. A self which appears to move in relation to a stimulus, but without any empirically verifiable movement is said to be a primary self or the 'I'. As shown in chapter 3, the physical form of the rock is itself the memory of the rock.

As the rock appears to move to persist and escape in relation to the stimulus, the rock appears to have a body or *essence of being-ness*. Therefore, the first level self is that which *appears* to move and possesses a physical body as the *essence of being-ness*. The self of a rock is of the nature of obtaining effects from the stimulus, thus the self of a rock is a collection of various physical effects from the environment. The physical body of the first level self has no ability to manipulate or react physically with the stimulus because the self is not aware of the effects from the environment as something coming from something outside of itself or something external to itself as the first level self is the projection of *essence of being-ness* upon itself and not upon something external to itself.

Therefore, the self is not aware of the stimulus as being external to it. It is aware of the change as being itself and not caused by something external to itself.

By movement to persist it is meant that any entity attempts to continue to be in the presence of the stimulus by obtaining change upon itself in the form of movements and also by fighting against externally caused movements that may push the entity away from the stimulus. Another kind of movement to persist is the movement *towards* the stimulus which will be described as intent to move, where the entity moves a part of its body or exhibits locomotion towards a stimulus which is not in the immediate space, as the entity moves to look for a certain stimulus of a certain nature. The movement in persist interaction is to accommodate the change acquired or bared from presence in the vicinity of a stimulus. Persist interaction is the completion of self-reference loop (as explained in chapter 3)because in both persist and escape interactions the *essence of being-ness* of the entity is projected upon itself, in the case of 'I' or the first level self. As will be seen in the next chapter, it is projected upon another entity. Only in the persist interaction the projected *essence of being-ness* is said to be preserved while in escape interaction it is said to be not preserved.

In the case of a rock's interaction with the hammer, the tool of persist interaction or tool of movement to accommodate change is the physical form because as long as the hammer does not destroy the physical form, the form itself is said to possess movement (metaphorically) to accommodate change in the form of projection of memory of the *past* onto the *present* in the form of projection of past form onto the present form accommodating change. The persist interaction that the rock exhibits is the resistance it offers against being pushed away from interaction with the hammer, as opposed to moving on its own.

If it takes 'x' amount of time to break one rock with a hammer and 'x+y' amount of time to break a different rock, the former is said to have moved less compared to the latter in order to preserve its form. This is because to move is to accommodate change and the rock that loses form the earliest has accommodated less change than that rock which loses form later in the interaction.

4.1 First Level Self and Its Awareness

A stimulus is the effect bared when it interacts with an entity. The hammer is the effect the rock bears upon itself. The rock is not aware that the stimulus is external to itself, because it is incapable of moving to stop the effect it obtains from the hammer, which it manages to do only when it loses form. For the rock, the effect of interaction is the stimulus itself. The rock is not aware of the hammer but is only aware of the effect of the hammer upon itself or is only aware of it in terms of the relation between effects obtained at different occasions because the rock that has memory (which is the relation between two occasions of interaction) also has physical resistance to loss of form.

The stimulus or the surrounding for the first level self is the self itself. Therefore, the hammer for a rock is itself. For the first level self, the stimulus or external environment does not exist. For a rock, the hammer does not exist as an external entity.

The stimulus with which the first level self has the highest number of persist interactions and which also causes the rock to lose form, is the stimulus which is close to God because only when a stimulus causes both types of interactions is when the stimulus becomes close to God.

Since escape interaction takes place only when a rock loses form, the environment in which the rock grows its resistance is less like God than the hammer or any such stimulus because it is only stimuli such as the hammer that engage in both kinds of interactions with the self are closer to being God. Therefore, the dominant external self for the rock is the hammer or any stimulus that ultimately destroys its form. Death in the form of loss of physical form provides the rock an opportunity to find God-like entity in the surrounding. The *essence of being-ness* or form or *substrate of self* of first level self is the physical form which does not move but only appears to move by virtue of its resistance to loss of form.

The *physical world* is the observable exchange of effects that takes place in an environment.

All inanimate objects are first level self. Living things incapable of any kind of self-initiated movement are first level self. In early stages of development any organism incapable of any kind of movement is a first level self. A human embryo which does not possess the capacity to exhibit reflex actions is first level self. A plant before it possesses the capacity to move is first level self or the ‘I’ self.

The self is the entity’s side of interaction which strives to move to persist or escape in order to enhance the ability to possess increased number of interactions with surrounding stimuli. The body is the *essence of being-ness* or *substrate of self* or tool of interaction of the first level self without which there is no interaction. The body is also the memory because it is the relation between previous interactions and affects the nature of the present interaction. Any self strives to protect its form as much as it can in order to possess the highest number of persist-escape interactions with a particular stimulus. Such stimulus is like God and such ability to accumulate maximum number of interactions is freewill. Physical resistance to loss of form is responsible for the first level self’s possession of freewill.

The tendency of the body to survive death or loss of form in interaction with the stimulus, where the body *appears* to move with no actual movement is the first level self.

The second level self will be shown to possess empirically verifiable physical movement. Any entity which does not possess self-initiated movement of its body is the first level self. As the self’s side of interaction with the greatest number of persist-escape interaction for the first level self with a single form is the body itself, the entity by virtue of the physical body

has freewill. One can say that a hammer's blow always has the potential to break the physical form of the rock, so with the hammer should the rock always be in escape interaction?

The answer to this question is no because the rock by virtue of its inability to move away from the hammer, is considered to be engaged in persist interaction with the hammer for as long as it does not lose its form. The hammer or any stimulus that breaks the form of the rock is the only stimulus the rock moves away from or escapes from. Only the physical presence of entities itself is the event of interaction with the stimulus. A blow from the hammer on the rock is a changed state of itself and not an effect from something external to it. In the absence of the ability to move, the first level self is said to exhibit persist-escape interaction with itself as it is assumed that the self is not aware of the presence of the external stimulus.

In the classification table given in last chapter, the first level self has examples of all non-living things but also all living things in the early stage of their development when they cannot move any part of their body such as a human embryo before six weeks into pregnancy. Each level of self is a specific stage in the development of an organism. The entire lifecycle of non-living sessile entities is a first level self. Living beings are said to be at first level of self in the initial stages of their development. The form or *essence of being-ness* which is strived to be protected in interactions with the environment for the first level self is the physical body which does not exhibit any kind of movement.

A human foetus until the age of six weeks strives to interact with the surrounding amnion to preserve its physical form. In this period, it does not develop fully sensing sense organs and cannot move. The first level self has no ability to move, no physical ability to attempt to choose to be exposed to a certain stimulus in the environment and thus has no control over the external stimulus or environment. The first level self is only aware of the desirable effect on itself or its body because when it is exposed to undesirable effect it loses form or dies and thus has no awareness or record of the only escape interaction it exhibits with the stimulus.

As death or loss of form is an event that the self is unsuccessful in escaping, a rudimentary degree of awareness of negative nature of the effect is said to be present in the first level self. When the rock loses its form, it is said to exhibit movement away from the stimulus.

4.2 First Level Self and Origin of 'I' in Language

As the first level self is the relation of one state of an entity with another state, the interaction of the first level self is self-referential in nature. Change acquired by the self is projected upon the change acquired in the past (which is how memory is formed) such that when the change of the present finds itself in the change of the past, the self is said to engage in persist interaction with the source of change. Here projection of change in one state onto another is the projection of bodily form of one state upon the bodily form in another state of the same entity. A persist interaction is self-referential in nature because it is the relation between two states of the same entity where the form or *essence of being-ness* is preserved.

As shown in chapter 1, the act of projection of *essence of being-ness* is the process of *is.* The function of *is* in language is the projection of meaning (here called the form or *essence of being-ness*) from one side of *is* onto another to find similarity. The ability of use of 'is' to refer to oneself in language is said to originate in the working of the first level self.

As will be shown later, each part of speech in language is a process that originates in each level of self in the holarchy of emergence of levels of self in all entities that exist. As 'is' is

shown to be an adjective in the working of conceptual metaphors, a human or an animal is said to develop the ability to learn the adjective ‘is’ which refers to oneself in the first stage of development, or first level self. Is-ness is the act of projection of *essence of being-ness* or meaning. Self-reference or ‘is’ relation of an entity with itself is only seen in first level self. All adjectives have functions analogous to the ‘is’, with the ‘is’ said to form the basis of all adjectives. Therefore, all entities possess at least the ability to understand the word ‘is’, which humans use to communicate as a word that signifies sameness or similarity. Is-ness with oneself or self-referential ability is the ‘I’. Therefore, everything that exists is at least an ‘I’.

The ‘is’ concerning another entity and the projection of essence of one entity over another will be discussed as origin of the *you* (pronoun) in language. The self-referential self or first level self is the is-ness concerning the same entity. The *essence of being-ness* of first level self is the sessile body which only *appears* to move. The part of language that the first level self learns is the ‘I’ which underlies the use of ‘is’ relation in language. The appearance of movement is the ability to experience the world by acquiring change on its form. The first level self has no awareness of the external stimulus. With no ability to move but an ability to acquire change from the environment, the first level self or entity is said to experience the *experience of being itself*.

Chapter 5
Moving Body, Adjectives and Reflex Action

We now procced from the first level of self to the second level self. Unlike rocks, which possess no ability to move but strive to persist as a physical form, at a certain stage of their development, plants are able to interact with their environment by moving a part of their body.

Until the stage of development in which plants, foetuses or any other organism exhibits movement externally, each of these entities is a first level of self. Since a rock never possesses actual movement, it does not witness the emergence of a new level of self within itself.

Nutation is when part of a plant bends (such as the roots, stem or leaves) in a specific direction to interact with the stimulus. What concerns us here is both the movement called forth by the action of external stimuli and internal causes inside the body. I will now analyse the former. Like a rock, when a green plant interacts with external stimuli it strives to protect its physical body or form. However, it is different to a rock because it has the ability to move. Therefore, the *essence of being-ness*, form or *substrate of self* of the second level self is a moving or motile body part.

A plant bends towards a light stimulus in the process of phototropic interaction. This is a persist interaction of the plant with the stimulus (sunlight) because the movement is for the purpose of growth. Phototropism also occurs in fungi, but for explanation of the workings of the second level self we will use the example of plant and human foetus above the age of 6 weeks. Since growth means protection of its physical form, the plant is said to exhibit a choice of being exposed to a specific stimulus, when it exhibits bending action towards sunlight. The choice is exercised in terms of bodily movement. In the first level self, the entity only *appears* to move to protect its form but in the second level self the entity exhibits physically verifiable movement.

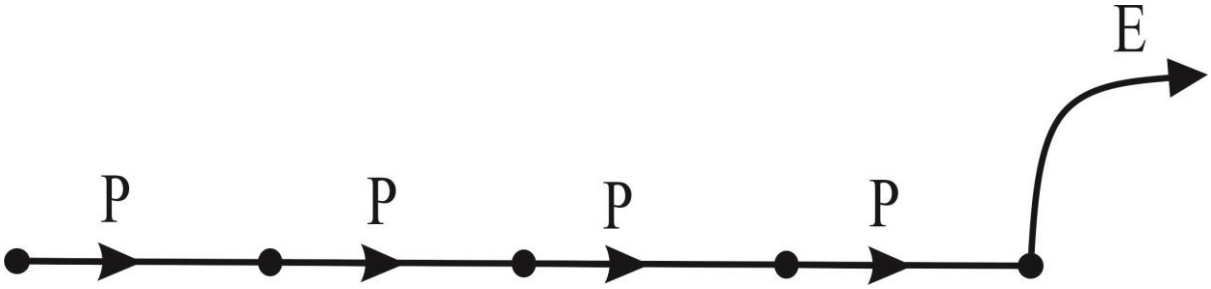

Figure 5.1: Emergence of movement

The actual movement emerges from appearance of movement in the following sense. Suppose that a rock and a hammer are in contact at different points on a straight line (as shown in Figure 5.1). At each point of contact since the rock does not lose its form it is said to exhibit in persist interaction (denoted by P in the Figure).. At the last point of contact, the hammer breaks the form of the rock, resembling damage to the body. It can be assumed that at each point, the rock moves a part of its body to reach the next point (denoted by arrows in the Figure) to establish contact with the hammer. In the first level self, there are only random points of contact between the rock and the hammer. The movement of a rock's body part

emerges from different points or locations on the rock when the different points of contact are arranged in a straight line. The fact that the rock loses form at the instance of final point of contact means the rock has moved a part of its body away from the hammer.

Figure 5.1 displays different locations at which the hammer interacts with the rock, arranged in a straight line. The rock appears to move from one point of contact to another in the process of persist interaction with the hammer. When the rock is broken by the hammer, the rock is said to have moved away from it.

As we have seen Figure 5.1 shows different points of contact between the rock and hammer until the point at which the hammer breaks the rock's form. The rock engages in persist interaction until the rock begins to lose form, when it is said to exhibit escape interaction with the hammer. Therefore, movement of one entity in relation to another emerges from different instances of contact between the entities.

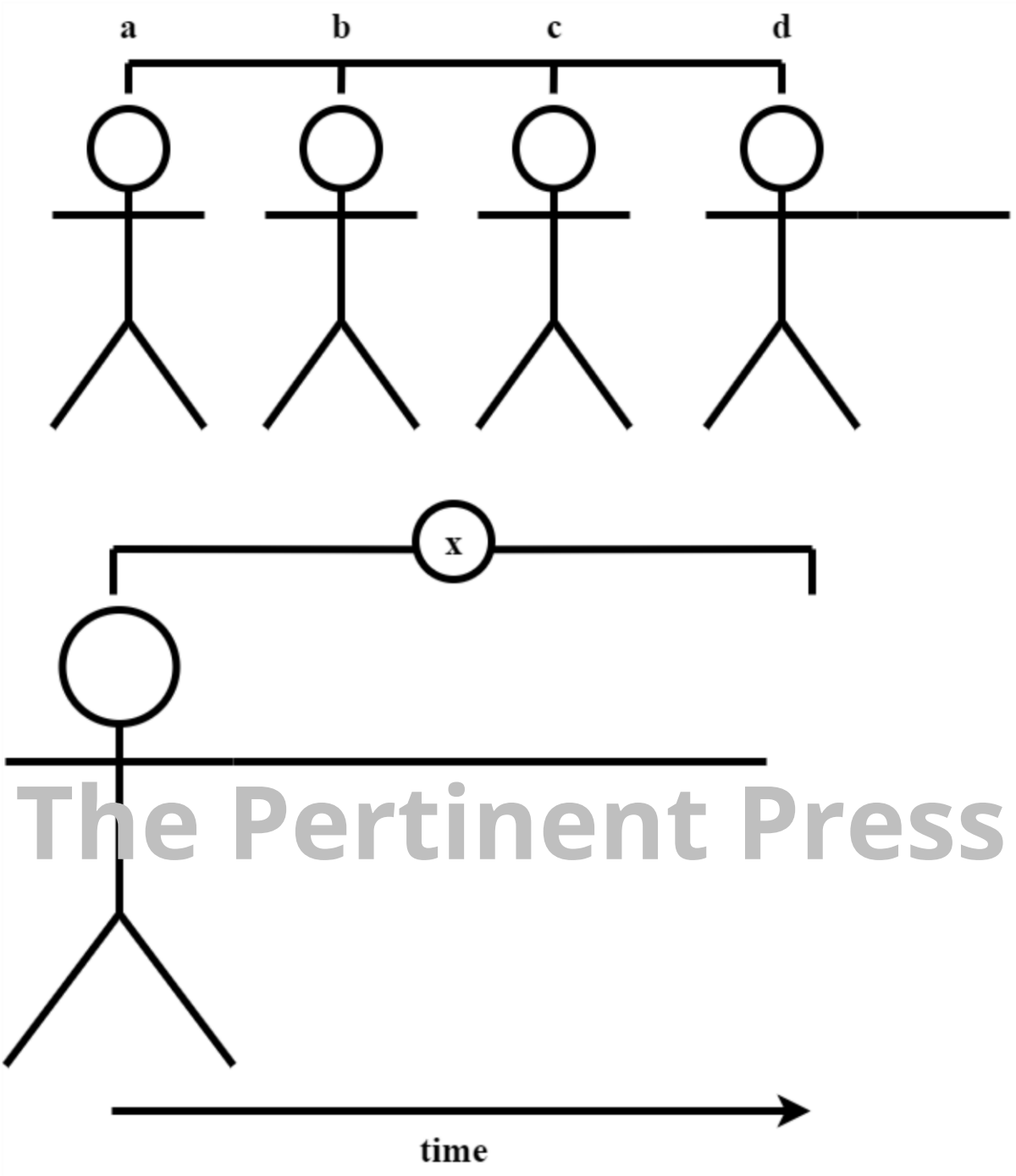

Figure 5.2: Emergence of movement of a body part

Consider a simple example using Figure 5.2 to understand the emergence of movement from different points of contact. Consider pictures taken of you standing in random locations in the same room (denoted by points a, b, c and d) and in the last picture you appear to extend a body part such as your hand. If all of your pictures are put together (to form a straight line), from the principle of emergence it would appear as if you did not just move your hand at point D but that you moved your hand from time A to D (time X). Therefore, the movement at one of the four points in time causes emergence of movement at instance X as a whole. From standing at different positions, the extension of a body part at the last position creates an impression that you have moved your hand from the starting point to the end in time X.

Therefore, from no movement in rocks, movement of a body part in plants or foetus can be said to emerge. Note that there is no actual movement from one point to another. There is only movement of part of body, not the movement of the whole body from one point to another in second level self.

If a person was shown the first picture and last picture where you extend your hand, the person would think that you extended your hand starting from the moment the first picture was taken till the moment the last picture was taken. In reality, you only extended your hand in the last one. Therefore, the ability to move a body part in second level self emerges from the appearance of movement in first level self. This can be linked to our previous example where a rock is assumed to move to escape from the interaction with the hammer only when the hammer breaks the rock at d. So it would appear that the rock does not only move at instance d, but it moved to escape from time 0 through x.

A green plant bends towards sunlight to protect its physical form because exposure to sunlight enables growth. That it bends away from dark towards sunlight means that it possesses the ability to escape from interaction with a comparatively dark environment. Only when the contrast between light and dark is present during the day is when the plant bends towards the lighter part of the environment. As the plant persists in the presence of dark in the period before which sunlight appears, it can be said that the plant not only engages in persist interaction with the dark, but engages in escape interaction with the darker side of the environment when sunlight appears in the morning. The plant bends or moves a body part only when sunlight creates a contrast between light and dark parts of the environment.

The plant or second level self appears to choose the right stimulus in order to grow.

The appearance of choice is different from actual choice because in order to exhibit movement the plant is only aware of the contrast between two kinds of stimuli: light and dark part of the surrounding. However, the plant is not aware of light and dark independently of each other.

This self is an evolved kind of self because it can successfully complete the process of escape in interaction with a certain part of the surrounding. A first level self only possesses imperfect escaping ability when it loses form or when it is no longer a self and is incapable of completing escape interaction. The first level self is a pseudo-self as it cannot completely escape from a stimulus. In the presence of contrast between dark and light, the plant chooses to escape from the dark, but has no ability to understand light in the absence of the contrast. It therefore does not possess the intent to move specifically towards the light in the absence of the dark. Therefore, the awareness of the second level self is restricted to the relative qualities between stimuli, that is, it is aware of what is common between two or more stimulus and not aware of the two stimuli separately and independent of each other. This is a very important aspect to consider here. It is as if to say that if plant had eyes, it wouldn't concentrate on the light or darker part of the environment alone, but would only be able to concentrate where the contrast appears. The intent to move will be discussed in later chapters in describing higher levels of self.

It is in positive phototropism that the plant bends or moves towards sunlight to favour growth. However, to favour growth and to avoid damage to its cells the plant also possesses

the ability to move away from sunlight, this is called negative phototropism or para heliotropism.

Para heliotropism is the movement of plant leaves parallel to sun rays, in order to avoid excess light absorption, where excess light destroys the form of the leaf, by way of causing physiological problems. Therefore, the plant engages in escape interaction with sunlight in the event of negative phototropism. An entity or self is said to possess the ability to move to persist and also escape if it can move to persist or escape from the same stimulus. As demonstrated, the plant possesses the ability to move to persist and escape from the same stimulus such as sunlight. The dominant external self that brings the plant closest to the domain of maximum interactions is the stimulus with which it has both persist and escape interactions. As sunlight is a stimulus with which the plant engages in both kinds of interactions, sunlight is considered as a self which is external to the plant.

In the presence of sunlight in the process of negative phototropism, the plant exhibits both persist and escape interaction with comparatively darker parts of the surrounding. Therefore, both sunlight and absence of sunlight can be considered dominant external stimuli.

Among two different levels of self that composes a phototropic plant, the second level self is dominant in an environment where the growth of the plant depends upon the ability to exhibit movement. The first level self is dominant if the plant does not have to move to grow or protect its physical form in an environment where there is just enough sunlight for the plant to survive, so that it is not necessary for the plant to move towards or away from sunlight.

The ability of the plant to move is considered by how its sense organ (just as eyes for humans which is at the tip of plant's shoot functions. From their study on plants the Darwins realised that the glass still allowed the light to shine into the tip of the plant. In this one simple experiment published in 1880, the two Darwins proved that phototropism is the result of light hitting the tip of a plant's shoot, which sees the light tell it to bend in that direction. The Darwins had successfully demonstrated rudimentary sight in plants.[1]

Therefore, just as we use our eyes to experience the world, the shoot on the plant's tip acts like a sense organ in positive phototropism.[2] Leaves also act like a sense organ, albeit in negative phototropism. The eye of the plant is aware of the contrast between sunlight and dark and not aware of sunlight independent of the darker side of the environment.

Like humans who possess involuntary movements or reflexes, a plant moves a body part to interact with the surrounding. A plant moves a part of its body in response to the stimulus where the movement is in the direction of the stimulus or away from it, and so therefore the second level self is considered as having knowledge about the nature of effect from the stimulus. The plant is considered to be aware of the stimulus *as* being external to itself.

The self of the rock is of the nature of obtaining the effects from the stimulus, therefore the rock is a collection of various physical effects on its form, which is unaware of the stimulus as being external to itself.

---

[1] Daniel Chamovitz, *What a Plant Knows* (New York: Scientific American, 2012).

[2] M. M. De Elejalde and B. R. Elejalde, 'Ultrasonographic Visualization of the Fetal Eye', *Journal of Craniofacial Genetics and Developmental Biology*, 5.4 (1985), 319-26.

Where the nature of interaction is obtaining change from the stimulus, this is an example of first level self. The physical body of the first level self has no ability to manipulate or control its exposure to stimuli in terms of choosing to be subjected to certain specific stimulus and reject the effect from certain other stimulus by way of movements. A self which interacts with the stimulus by exhibiting an appearance of choice between alternatives by choosing to move towards or away from specific stimuli is second level self.

The first level self treats all stimuli in the same manner. It has no ability to distinguish between the natures of effects obtained, based on the nature of physical effects they produce or impinge on the physical form of the self.

A rock possesses no knowledge about the surrounding because the rock does not possess any knowledge about the effects it obtains from the stimulus. The second level self has the capacity to distinguish between two kinds of stimuli based on the effects they impinge on it. Therefore, the second level self is not only a memory of positive or persist interactions but also of negative or escape interactions. Second level self is any physical form which moves its body parts in order to persist or escape from a certain stimulus. The self is aware of not only the effects it bears from the stimulus as being itself but is also aware of the effect of its movement on the presence or absence of the stimulus around it, because the movement is either to continue to be present or to escape from the presence of the stimulus or to make the stimulus absent.

A prenatal human baby who moves its hands, head, legs, etc. with regard to the effects obtained through or from the amniotic sac is another example of the second level self. An experience that shows this kind of movement in a foetus is the experience of reflex action. A mechanism by which moves only a part of its body to avoid the presence of a stimulus or to be present in interaction with the stimulus is the second level self.

A new-born baby of an animal unable to move from one place to another but can move parts of its body is second level self, for instance a young bird that is unable to fly.

A human prenatal baby exhibits movements of body parts such a head, neck, hands, eyes, fingers, legs, tongue, etc. separately showing that at such state the movement is either to obtain the effect from a stimulus or to escape from stimulation of its sensory systems.

For example, when in the surroundings there is an unpleasantly shiny light projected on the eyes of the foetus, the eyeballs produce tears or the head moves to escape or move away from the very bright light source. Such movement is escape interaction between the foetus and the stimulus, such as bright light. Note that the foetus is not aware of the bright light, but of the contrast between the dark and bright side of its environment.

When in the surrounding the pressure exerted from the amniotic sac on the skin of the foetus increases, say on the surface of the hand, the hand moves away from the source of pressure. In such occasion the skin engages in escape interaction with the pressure stimulus which causes the hand to move away. When in the amniotic sac the food material smells or tastes unusual or undesirable, there is movement of the tongue inside the mouth or there is *salivation* to prevent the taste stimulus from reaching the taste buds. Additionally, there is closing of the nose, by constriction of muscles of the face or by deep *exhaling* to avoid stimulation of nerves of smell inside the nose. Therefore, the sense organs such as tongue and nose are said to engage in escape interaction with foul smelling food inside the amniotic sac.

When the sound from the external environment becomes unpleasant inside the amniotic sac, the mouth or larynx or voice box produces sound of a certain intensity to avoid the external sound from reaching the nerves or neural circuitry in the ear. Therefore, the ear is said to engage in escape interaction with the unpleasant sound when there is *vocalisation* which does not involve emotional experience. In this way body movements can be considered as attempts to choose to protect oneself or to expose oneself to stimulation.

As shown in chapter one, a body is defined as a collection of sense organs such as eyes, nose, tongue, ear and skin – the sensory system minus the neural circuitry that conveys stimulation from the environment to the brain. A sense organ is considered as a mere possibility of expression of stimulus or suppression of expression of it. As each experience is found to have an underlying nature of action, the idea of the brain can be formed based on such idea of experiences. The brain is the physical imprint of experience and the underlying choice it poses to the experiencer in the form of actions.

Awareness of second level self is limited to the awareness of the effect of movement of its body upon the presence of the stimulus in addition to awareness of the first level self which makes the self to consider the stimulus as being itself as opposed to being something external or different from it. Therefore, for a second level self the stimulus exists as a result of verification made by the self of whether the stimulus that is external to itself is like the self or it is not in addition to verifying whether its movement affects the stimulus. The kind of interaction of the second level self with the stimulus is of the nature of response to stimulus, which does not involve movement of the whole body but only movement of specific parts of the body.

To better understand the nature of movement of body parts and the relation of such movement to the choice made by the entity or self, in order to allow or disallow expression of stimulus on itself, we must understand involuntary movements exhibited by entities such as the human foetus. An analysis of reflex movements describes such movement.

5.1 Reflex action

A reflex is an instantaneous involuntary movement of an entity in response to stimulus. Movements facilitated by reflexes are those that act on an impulse before the impulse is delivered to the brain. Since reflex action is independent of processing of information in specific brain regions and is independent of the neural circuitry, we will deal with reflex action to describe how sense organs behave and how such behaviour is considered an experience of the reflex itself. What is meant by sense organ here is sensory system minus the receptor cells, however involving the role of the receptor cells in the process of choice making exhibited in interactions with stimulus. By movement of the sense organs what is meant is the ability of the senses to choose to respond to the stimulus by way of suppressing or allowing stimulation of the sense organs, where the effect of the stimulus or its expression is registered in persisting interaction to enter the neural networks connecting the sensory system to regions of the brain and is said to not enter the neural circuitry in escape interaction. Thus, the choice made between *allowing* and *suppressing* stimulation is persist and escape interactions respectively.

Foetal motility is assessed by observing the movement at one or two poles of the body of the foetus such as the head. From the fourteenth week, movement of the eye has been observed.[3] Four kinds of eye movements concerning facial expression such as closing and opening of eye-lid can be witnessed from week twenty-six onwards.[4]

Startle and hiccup reflexes occur during the first trimester. Startle response is a response to noise and sharp touch on the skin obtained from unpleasant stimulus. The startle response protects parts of the body such as neck and eyes from harm by facilitating escape. The movement of the eye in blinking response in startle reflex facilitates escape from a harmful stimulus, thus the startle reflex in foetus being movement of one of the senses away from the stimulus is an escape interaction between the self and entity. Movement in startle reflex is escape interaction seen in skin when it protects the back of the neck. Movement seen in specific parts of the body of the foetus are called Specific Movement Patterns (SMPs). Such movements are observed at all times of the gestation period.

Sucking of thumb starts from week fifteen. Thumb sucking reflex is the persistent sucking action of the thumb in the mouth. In sucking reflex, the tongue is in contact with something that has the capacity to stimulate the taste buds (i.e. the thumb). Therefore, sucking reflex is persist interaction facilitated by the thumb with the tongue. As the sucking action involves contact with the thumb, the tongue is said to engage in persist interaction with the surrounding (i.e. the thumb). Therefore, sucking reflexes in foetus is movement of the tongue in response to external stimulation. The tongue is said to engage in persist interaction with the source of taste, this being the thumb inside the mouth.

Eye movements start in the fourth week. The eyelid moves away to escape from bright light in *blink reflex*, thus it is an example of escape interaction with the stimulus.

There is an emergent pattern in various kinds of foetal movements found in gestational period.

Hiccup reflex, where the diaphragm repeatedly contracts a few times per minute, occurs in week nine. The contraction closes vocal cords, resulting in a 'hic' sound. A correlational coordination between suckling of milk and breathing is found to be established by hiccup action.[5]

If hiccupping allows suckling, then hiccup action allows more milk to stimulate the tongue. Therefore, the hiccup is a persist interaction of the tongue with the milk being the external stimulus.

If the hiccup action allows more air to enter the nose during breathing, then the nose engages in persist interaction with the stimulus. An important feature of hiccup reflex is the 'hic' sound. The sound produced is an audible chirp and becomes the auditory stimulus to the ear, so that any new stimulation entering the ear has to pass or wait for the 'hic' sound to be heard. This causes a delay in the perception of new sound or a blocking action of new sounds

[3] C. Jason Birholz, 'The Development of Human Fetal Eye Movement Patterns', *Science,* 213 (1981), 679-681.
[4] J. I. P. De Vries and B. F. Fong, 'Normal Fetal Motility: An Overview', *Ultrasound Obstet Gynecol*, 27 (2006), 701-711.
[5] Daniel D. Howes, 'Hiccups: A New Explanationa new explanation for the Mysterious Reflex', *BioEssays*mysterious relfex', *Bioessays*, 34.6 ((June 2012), 451-3.

altogether. As the passage of new sound inside the ear is blocked in hiccup reflex the produced sound is responsible for escape interaction between the ear and external stimulation. The production of sound in hiccup reflex can be explained in terms of vocalisation while dealing with emotional experience such as fear, anxiety, excitement, joy or euphoria, where in all these emotions there is evident vocalisation. The commonality between the sound produced in hiccup reflex and sound produced in some emotions is that in both kinds of experiences the produced sound is to escape from new auditory stimulation. The hic sound however is not vocalisation. Therefore, hiccup reflex is escape interaction of the ear with stimulus.

Specific movement patterns (SMPs) are similar before and after birth. Little jaw opening with tongue protrusion seen in ten weeks enables the tongue to not be exposed to stimulation inside the mouth, thus tongue protrusion is escape interaction between the stimulus and the tongue.

From the above examples it can be concluded that a reflex is a contraction of a muscle in response to stimulus. Such single groups of muscle movement plays a role in the probability of sensing of the sense organs, as it affects the tendency of a single sense organ to continue to be exposed to stimulation or to escape from stimulation.

For example, acoustic reflex is contraction of stapedius muscle, anal reflex is contraction of anal sphincter, and tendon reflex is contraction of tendon muscle. A human foetus or any organism exhibiting reflexes, especially mammals, are at second level of different levels of self because they move a body part to enable or avoid sensing, thus facilitating persist-escape interaction between the body of senses and external stimulus. Another example is respiratory reflex in a human foetus where the inspe[illegible] stimulation due to exhaling action.

Plants like *mimosa pudica* and *dionea* move in interaction with external stimulus. The leaf of a *mimosa pudica* reacts by folding action when the external stimulus in the form of high pressure causes the liquid content of the cell of one region to be lost to adjacent cells. The leaf becomes flaccid when it loses excess of water or liquid content. The leaf folds and hangs downwards in an act of protecting itself from the stimulus when there is a stimulus which exerts excess pressure on the leaf surface, the leaf reopens in a few minutes. The leaves shrink to move away from stimulus and engage a part of the plant body in escaping interaction with the stimulus. A *mimosa pudica* is phototropic but it also exhibits an ability to move away from stimulus and is therefore a second level self. This ability to escape in plants may have evolved as a defence mechanism to disincentivise predators, or alternatively to shade the plant to prevent water loss from evaporation. The escaping action is an attempt to protect the body. This kind of movement in a *mimosa pudica* is an example of escape interaction of the second level self because only a body part (the leaf) interacts to escape from the stimulus, this type of movement is termed seismonastism.[6]

The movement of *mimosa pudica* leaves is an escape interaction of the plant with the stimulus, and it is an example of second level self in plants.

[6] Thérèse Vanden Driessche, 'Nutations in Shoots and in Desmodium Lateral Leaflets, Nyctinastism and Seismonastism in *Mimosa pudica*. Comparison and Evolution of Morphology and Mechanism', *Biological Rhythm Research*, 31.4 (2000), 451-468.

Some plants exhibit non-directional movements in response to stimulus called ‘nyctinasty’. When there is darkness, the plant is in a ‘sleeping state’ and some plants at night close the petals of their flowers. Such action is in response to undesirably dark surrounding or stimulus, and therefore nyctinasty is an escape interaction of the plant with the stimulus. As the movement here is of a part of the body, the nyctinasty exhibiting plant is a second level self.

Persist interaction of second level self is also seen in the resting or dormant stage in microorganisms called encystment, which helps in surviving unfavourable environmental conditions. The organism secretes a special cyst membrane which encloses it entirely or thoroughly. Cell processes like feeding and movement are stopped and there is no metabolic activity in encystment. Amoebic cyst is a protective cage created to persist in the adverse environment and to protect the body of the organism under incongruous and unsuitable environments. Though encystment is the process of protection against harmful stimuli, the organism is not said to engage in escape interaction. Although the cyst separates the organism from the stimulus, it is still a body part in contact with the stimulus. The cyst is the extension of the body towards the stimulus in order to protect the body against the stimulus. As the movement of a body part in the form of cyst is towards the stimulus, encystment is persist interaction with the stimulus. The encystment occurs to keep the amoeba alive until it reaches a preferred area.

An unpleasant environment for an organism such as an amoeba is too cold or too warm or salty. The fact that the organism does not move its whole body in response to the stimulus is important here because the process of encystment is an extension of a body part of amoeba in relation to the stimulus towards it. As the movement of the extended body or movement of body part towards the stimulus encystment is the process of persist interaction of amoeba with the stimulus, as encystment occurs by changes in cell wall (which is part of the body); the cytoplasm contracts and the cell wall thickens. Therefore, as the continuity or contact between the stimulus and the body is not lost, the action of encystment is considered as persist interaction between the organism and stimulus.

Movement of a body part to persist seen in encystment makes the amoeba and similar microorganisms a second level self.

5.2 Awareness of Self and Adjectives

Second level self is an entity with a moving physical body part which is the *essence of being-ness* or *substrate of self*. The entity exhibits movement of its body parts in order to persist or escape from external stimulation. The self is not only aware of the external entity as a desirable or undesirable effect but is also aware of the stimulus as being something external and what effect the stimulus bears on itself because of the directional movement the self or the body exhibits in relation to the stimulus in order to persist or escape. Only when the self is aware of the stimulus as being external to itself and as capable of causing harm or capable of enhancing its *essence of being-ness*, is when the self can exhibit directional physical movement or affect the stimulus physically. Directional movement is defined as the self being aware of which direction to move its body part in order to impinge the desired effect upon the stimulus.

The second level self by virtue of *directional movement* in relation to stimulation is aware of the existence of an external effect as capable of causing harm or capable of enhancing its form or *essence of being-ness*. A prenatal baby or foetus which moves parts of its body, where movement of muscles facilitates opening (sensing) and closing (not sensing) of the sense organs is second level self because each sense organ is said to be a single part of the foetal body. The foetus is aware of the stimulus as being external to itself. For example, in blinking reflex the foetus is aware of the negative external effect that is the bright light as coming from a certain area in space outside it which enables the eye to blink or stop viewing that point in space or in that direction. A microorganism which moves only a part of its body to avoid the presence of the stimulus or to persist in the presence of a stimulus is second level self. In encystment, an amoeba is aware that the *external* stimulus is undesirable so it moves physically to escape any damage to its cell while staying in contact with the stimulus. It is not an escape interaction because the entity maintains physical contact with the stimulus. To escape in second level self, there must be lack of physical contact between the self and the stimulus. A bird in the early stages of development which has not learned to fly but moves its body parts in relation to a stimulus is second level self. Note that the second level self is not aware of a stimulus as being an entity but is only aware of the stimulus as *an external effect which is desirable or not.* Based on desirability, movement is exhibited. First level self was shown to be aware of the stimulus as *an effect that is itself*. The first level self as shown earlier exhibits a choice between *to be* or *not to be* or simply exhibits a choice between whether to accommodate or suppress change, which is itself (as it is aware of the change or stimulus as itself) an ability to establish an *is-ness* relationship with itself which is the 'I'.

The second level self is aware of the change as not only being itself but also not present inside of itself and as being external to itself and exhibits a choice to accommodate or reject change. It establishes a relation with the external stimulus when it finds it in a persist interaction and does not find it in the escape interaction. By exhibiting a choice, the second level self projects the *essence of being-ness*, that is, the physical body upon an external entity or effect to find itself. The persist-interaction in the second level is said to be a relation of metaphor making or 'is-ness' relation between the entity and the external stimulus which is like the self.

Metaphor is generally the projection of one concept over another where the projected concept tries to find itself in the other concept. As explained in chapter one, in a statement such as 'that is a bottle', the word or concept of 'that' can be considered to be a self which projects its *essence of being-ness* by engaging in interaction with the other self or concept of a 'bottle'. It does so in order to find itself in the stimulus. When it finds itself in the stimulus, the interaction is said to be persist interaction. When it does not find itself in the stimulus, it engages in escape interaction with the stimulus.

Therefore, the second level self is the ability to form metaphors or adjectives which are said to develop in entities such as the human foetus.

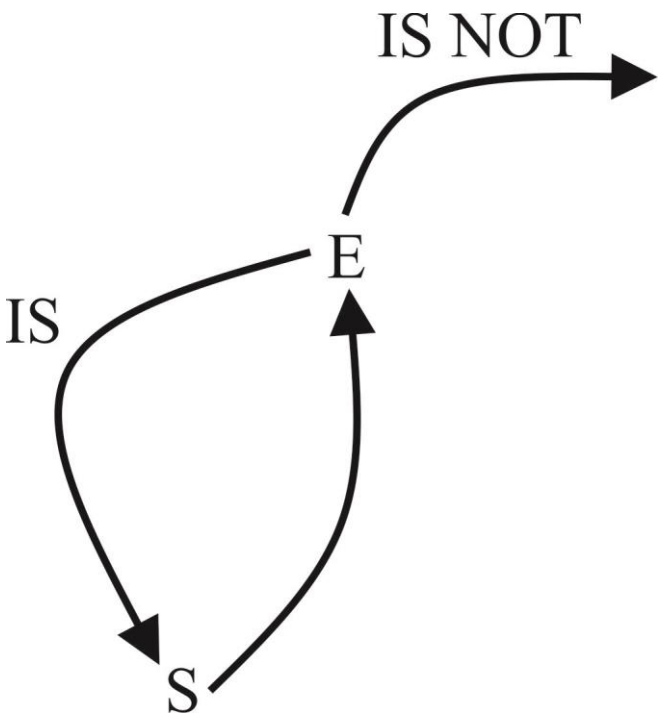

Figure 5.3: Working of IS (metaphor)

In Figure 5.3, S is the second level self and E is the external effect from something external to the self. The formation of the metaphor or process of 'is' between two different entities is seen in the second level self. That is, if the effect from the E is desirable the S finds itself in such effect and therefore the *is* relationship is formed between the two entities. But if the effect is undesirable the is-not relationship is formed. The 'is' relation is said to be persist interaction while the is-not relation is said to be escape interaction of the self S with the stimulus E.

At second level self any entity is said to possess the ability to recognise effects from the environment as desirable or undesirable and recognises the effect of its movement on the presence of the stimulus.

The ability to distinguish between itself and external environment is the ability possessed to use adjectives in language, where adjectives are the outcome of the ability to compare two things or qualities. Here the one comparing is the self and that with which the comparison is made is the stimulus or the effect from it. The second level self is only aware of the 'is-ness' or it itself is the *is-process* in how it functions.

The self however is not aware of itself and the stimulus as two different entities. It is only aware of the existence of the stimulus as an external effect, not as an external entity which will be shown to be what the third level self is aware of.

Mathematics is a relationship of metaphors, especially seen in how numbers are formed. For example, number 2 occurs when the number 1-ness is projected upon itself twice, number 3 is 2-ness projected upon 1-ness once. When the 1-ness is projected upon itself there is another 1 and 1+1=2.

2 = *Two times self-reference of* 1.

Therefore, any second level self has the ability to count or do mathematics at basic level of numbers.

The second level self tries to find itself in an external *effect* which is not an external entity like the self. The second level self is not aware of the stimulus as being capable of not only causing change but also capable of acquiring change, which is the quality of any self. It is only aware of when the stimulus appears and disappears in interactions as a result of movement exhibited by it. For the second level self, the stimulus is merely an effect from external because the self is aware that the effect comes from something external to itself.

Adjective here means a relation between the self and the external entity, which is the is-relation.

The second level self is the 'I' trying to establish is-ness or similarity with an externally present effect, which it does not know as being another self like itself. To the second level self, the stimulus is only capable of causing effects which are harmful or which enhances its *essence of being-ness,* but is it not aware that the stimulus not only has the ability to impinge effects, but is capable of obtaining effects upon itself just like the self does. The second level self is aware of desirable and undesirable effects it obtains from something that is external to it but is not aware of what that something is.

In the third level self, the self will be shown to be aware of the stimulus as being like itself, as a separate self or entity.

The classification table in the last chapter shows the characteristics and examples of second level self.

In second level as metaphors the ability to form metaphors is found and entity which qualifies as a second level self is capable of using numbers and thus exhibits a certain degree of ability to use arithmetic.

In their work *Where Mathematics Comes From,* George Lakoff and Rafael E. Nunez assert the following about mathematics, 'understanding mathematics requires the mastering of extensive networks of metaphorical blends'.[7]

5.3 Co-dependence between Language and Cognitive abilities: Language in the process of cognition

The region of the brain associated with speech production is called Broca's region. Research by Evelina Fedorenko, John Duncan and Nancy Kanwisher has found that speech production is not only linked to language but also to cognitive tasks, because there are two distinguishable regions for language and cognitive tasks. The findings provide evidence that speech production capacity and the corresponding Broca's area in the brain should not be understood as being specific to language formation alone.[8] Thus the question of determining how language is involved in cognitive functions in the process of speech production must be

[7] George Lakoff, Rafael E. Nunez, *Where Mathematics Comes From: How the Embodied mind Brings Mathematics into Being* (New York: Basic Books, 2000), pp-48

8 Evelina Fedorenko, John Duncan and Nancy Kanwisher, ' Language- Selective and Domain-General Regions Lie Side by Side within Broca's Area', *Current Biology, Elsevier,* 21.22 (6Nov 2012), 2059-62

answered. An attempt to answer this question is made by considering that at each level of self, a part of speech in language is formed that is associated with a definite kind of action or cognitive ability emerging at that level.

For instance, solving language-free math problems has been found to be associated with functioning of working memory in Evelina Fedorenko, John Duncan and Nancy Kanwisher's study of Broca's region. This finding supports our idea of linking parts of speech to the capability to exhibit movement as well as cognitive abilities. Although it is difficult to map the cognitive from language regions in Broca's region, it is clear that language acquisition or formation underlies cognitive capacities which can include a wide range of experiences from involuntary movement in the form of reflex, attention driven movement, psychic blindness, object permanence, the ability to possess theory of mind, etc., as will be seen in different levels of self. It will be shown throughout the book that at each level of self there is merger of different parts of speech from lower levels and the origin of specific cognitive abilities and new parts of speech. The main idea is to show how cognitive abilities arise in relation to each part of speech in language.

References

Birholz, C. Jason, 'The Development of Human Fetal Eye Movement Patterns', *Science*, 213 (1981), 679-681

Chamovitz, Daniel, *What a Plant Knows* (New York: Scientific American, 2012)

Crisp, Peter A., Diep Ganguly, Steven R. Eichten, Justin O. Borevitz and Barry J. Pogson, 'Reconsidering Plant Memory: Intersections between stress recovery, RNA turnover, and epigenetics', *Science Advances*, 2.2 (2016), e1501340

De Elejalde, M. M. and B. R. Elejalde, 'Ultrasonographic Visualization of the Fetal Eye', *Journal of Craniofacial Genetics and Developmental Biology*, 5.4 (1985), 319-26

De Vries, J. I. P. and B. F. Fong, 'Normal Fetal Motility: An Overview', *Ultrasound Obstet Gynecol*, 27 (2006), 701-711

Driessche, Thérèse Vanden, 'Nutations in Shoots and in Desmodium Lateral Leaflets, Nyctinastism and Seismonastism in *Mimosa pudica*. Comparison and Evolution of Morphology and Mechanism', *Biological Rhythm Research*, 31.4 (2000), 451-468

Fedorenko, Evelina, John Duncan and Nancy Kanwisher, 'Language-Selective and Domain-General Regions Lie Side by Side within Broca's Area', *Current Biology*, 21.22 (2012), 2059-62

Howes, Daniel, 'Hiccups: A New Explanation for the Mysterious Reflex', *BioEssays*, 34.6 (2012), 451-3

Lakoff, George and Rafael E. Nunez, *Where Mathematics Comes From: How the Embodied mind Brings Mathematics into Being* (New York: Basic Books, 2000)

Chapter 6
Mind, Nouns and Emotions

6.1 Types of emotion: Persist and Escape Emotions

As described earlier, startle reflex protects certain parts of the body against harmful physical stimuli. Each reflex involves singular or multiple muscle movements to facilitate or avoid stimulation of particular sense organs, that is, to move a single sense organ nearer or closer to external stimuli. The speciality of startle response is that many reflexes can occur simultaneously, for instance the jaw and blink reflex involving the movement of masseter and orbicularis oculi muscles respectively.[1] Since no reflex is of one kind and each reflex is movement of one muscle capable of allowing or rejecting stimulation of one specific sense organ, the startle reflex is simultaneous occurrence of multiple muscle movements. Movement of one muscle in single reflex can be assumed to lead to emergence of movement of two muscles in the startle response. As in the second level self, only a single reflex occurs, for the third level self to emerge from second level self, there must be an experience where there is movement of multiple muscles to facilitate the purpose of persist or escape in relation to a stimulus. Such experience is emotion and movement of multiple muscles in relation to single stimulus can be witnessed in facial expression. A collection of muscles moving to support or prevent exposure of the senses or the body to external stimulation is considered an emotion.

As explained in chapter 1, FACS is the accepted standard of classification of emotional experiences based on facial expressions.[2] Contraction or relaxation of one or more muscles in facial expressions is termed as action unit (AU) and the most important aspect of studying emotions through facial expressions and by assigning AU to each muscle movement is that it tells us what the muscle *does* to the face in a certain emotion. As all of the sense organs are mostly on the face, the effect of movement of each facial muscle on the sensing of the sense organ is evident because the actions performed by facial muscle as per FACS is of the nature of opening and closing mouth, eyes, jaw, causing inhalation, exhalation, etc. Each of these actions can do only two things: either allows the sense organ to be exposed to stimulation or to enable non-functioning of the sense organ. As in the case of reflex, single muscle allows or prevents exposure of only one sense organ, whereas in an emotion emergent movement of many muscles of the face are found to collectively act either to allow stimulation of all senses or prevent stimulation. So if an emotion can be combined reflexes or many reflexes put together, then for instance the masseter muscle and orbicularis oculi muscle of two different reflexes functioning together in startle response as shown above must be part of a single emotion and should contribute towards either persist or escape interaction of the face or body with the stimulus in a particular emotional experience. This will substantiate our idea of treating emotion as a collection of two or more reflex actions.

.[1] R. C. Eaton, *Neural Mechanisms of Startle Behaviour*, (Boston: Springer, 1984, pp. 289-351.

[2] J. Hamm, C. G. Kohler, R. C. Gur and R. Verma, 'Automated Facial Action Coding System for dynamic analysis of facial expressions in neuropsychiatric disorders', *Journal of Neuroscience Methods*, 2.200 (2011), 237-256.

Masseter muscle of jaw reflex is AU 26 and the orbicularis oculi muscle of blink reflex is AU 7. As described above, startle reflex is when the masseter muscle facilitates persist action of the tongue and orbicularis oculi causes escape action of eye from the stimulus.

Do these two muscles have the same action even in a particular emotion analysis? If so, we must demonstrate that these two muscles must act collectively with other muscles to exhibit persist or escape interaction with the stimulus in an experience of emotion. It will be shown that these muscles are indeed part of the single emotion of fear, and collectively with other muscles cause escape action of the senses against the stimulus. Therefore, our account of emotions based on movement of muscles shows that from reflex experience there is emergence of emotional experience.

Table 6.1 lists action units and action descriptors for some muscles. Action descriptor is the description of the role a muscle plays with regard to sensing or not-sensing, for instance opening and closing eyes, nose, mouth or ears. Action descriptors are movements that signify the unity of a group of muscles that move together in an emotional experience. The purpose for such unity has not been determined, but I will propose that each muscle unifies with other muscles in movement in order to either continue to expose the sense organs to the stimulus or to facilitate escape from it in the process of emotional experience. What is important in the description of action of muscles is whether or not a particular muscle elevates the angle of the mouth, opens the eyes, assists in inhaling, etc. These features of a muscle are actions that assist in persist interaction of the bodily self or of senses with the stimulus. The opposite, such as depression of angle of the mouth, closing eyes, assisting exhalation, etc., are considered as causing or assisting the sensing or bodily self in exhibiting escape interaction with the stimulus.

Each action unit or action descriptor measures the tendency of a sense organ to open and function or to close and not function.

Therefore, in emotion, all of the sense organs collectively attempt to continue to be stimulated by stimuli or to escape from it.

6.2 Effect of facial expression on functioning of sense organ

The act of closing the mouth in action description is persist interaction of the *tongue* with stimulus such as tasty food inside the mouth. It is only when the mouth is closed that the tongue inside the mouth can be subjected to stimulation of taste on its surface by the presence of food substances inside the mouth. If the mouth is open, the tongue cannot function, thus any muscle assisting or causing the opening of a mouth is said to enable the escape interaction between the tongue and stimulus of taste. A tongue salivating helps in escaping stimulation.

A muscle which elevates the angle of the mouth is said to cause persist interaction between the nose and the stimulus because the upward angle assists more inhalation than exhalation. Inhalation means that the *nose* is subject to stimulus entering through inhaling. Any muscle that enables inhalation also assists persist interaction between the nose and stimulus or odour in general.

A muscle which opens the *eye* enough to not wrinkle the forehead causes persist interaction of the eye with the stimulus because wrinkles on the forehead stretches the eye too wide for the eye to function normally. A muscle that opens the eye without wrinkles on the forehead therefore assists persist as opposed to that which opens the eyes wide.

The last sense organ to be considered is the *skin*. As the resistance of the skin to external stimulation increases when the skin contracts, any facial muscle that causes contraction of surface of the skin on the face or the body in general assists escape interaction of the skin from the stimulus. For instance, a muscle that causes wrinkles on forehead constricts the surface of the skin and insulates the skin from external stimulation. Therefore, any muscle that prevents normal expansion or relaxation of skin surface assists in escape interaction of the skin from stimulation

6.3 Speech and Vocalisation action

Vocalisation in emotions with negative valence enable the *ear* to escape stimulation because negatively valent emotions are escape interactions between the body and the stimulus. If in an emotion all the muscles of the face facilitate escape, then vocalisation also facilitates escape of the ear from audio stimulation. If all the muscles of the face facilitate persisting action in an emotion, then vocalisation in that emotion also facilitates or is itself persist interaction of ear with stimulus. For example, vocalisation in persist emotion such as happiness assists stimulation of ear whereas vocalisation in escape emotion such as sadness assists escape of ear from external sound.

Vocalisation in the form of a new sound produced from inside the body is said to mainly prevent the incoming external sound from entering the ear. In most emotions the absence of vocalisation means that the sound from the external source is allowed to enter the ear. Vocalisations in emotion primarily accomplish the purpose of suppressing the expression of new sounds by way of engaging the ear to process the produced sound.

If the sounds uttered are vocalizations in emotions such as crying, happiness, disgust, etc., the utterances can be shown as an attempt to persist or escape from external stimulation depending on the nature of emotion or action of muscles in emotion.

It will be shown that a single word utterance following vocalisation in emotions form part of the imitating faculty found in infants. For instance, expressing a verb is the event in which something (nouns) does an act such as movement.

Table 6.1 analyses the role of a few muscles by describing their action units and action descriptors to explain how the muscular movement of the face facilitates persist or escape interaction in emotions. A strictly phenomenal nature of emotion is discussed throughout this chapter and the kind of emotions we are considering here are emotions exhibited by neonates or new-born babies.

Facial Muscle(s)	FACS Name	AU Number	Action	Interaction Type
	Neutral face	0	None.	No role in persist and escape interaction.
Frontalis (Pars medialis)	Inner brow raiser	1	Raises eyebrow and wrinkles forehead.	Escape action of skin because the forehead is wrinkled and insulates the skin against stimulation.
Frontalis (Pars lateralis)	Outer brow raiser	2	Raises eyebrows and wrinkles forehead.	Escape action of skin just like in AU-1.
Depressor glabellae	Brow lowerer	4	Draws down the medial angle of the eyebrow giving the expressions of frowning as it is located at the top of the nose.	Escape action of nose as frowning causes exhaling.
Depressor supercilii			Depression of eyebrow.	Escape action of eyes as depression of angle of eyebrow closes the eyes.
Corrugator supercilii			Wrinkles forehead.	Escape action of skin, as wrinkles insulate the skin
Levator Palpebrae superioris	Upper lid raiser	5	Elevates eyelid	Persist action of eye because elevation of eyelids opens the eye.
Superior tarsal muscle			Raises the upper eyelid	
Orbicularis oculi (Pars orbitalis)	Cheek raiser	6	Closes eyelids	Escape action of the eye because closed eyelids prevent the eye from being stimulated.
Orbicularis oculi (Pars palpebralis)	Lid tightener	7	Closes eyelids	Escape action of eye due to closed eyelids.
Orbicularis oris	Lips towards each other	8	Known as kissing muscle because it is used to pucker the lips (Elevates the angle of mouth).	Persist action of tongue and nose because puckering action causes the mouth to be closed and tongue exposed to taste stimulus inside the mouth

				and it also causes inhaling action for stimulation of nose.
Levator labi superioris alaeque nasi	Nose wrinkle	9	Dilates the nostril; elevates the upper lip and wing of nose.	Persist action of nose because dilation of nostrils causes inhalation which favours stimulation of nose.
Levator labii superioris	Upper lip raiser	10	Elevates upper lip.	Persist action of tongue and nose because mouth being closed exposes the tongue to stimulation and elevation of upper lip causes inhaling action.
Zygomaticus minor	Naso labial deepener	11	Elevates upper lip.	Persist action of nose and tongue as in AU-10.
Zygomaticus major	Lip corner puller	12	Draws angle of the mouth upwards and laterally.	Persist action of nose and tongue because drawing angle of mouth upwards closes the tongue inside the mouth and lateral movement causes inhaling action.
Levator angulioris (Caninus)	Sharp lip puller	13	Elevates angle of mouth	Persist action of tongue and nose because elevation of angle of mouth closes the mouth and causes inhaling action.
Buccinator	Dimpler	14	The Buccinator compresses the cheeks against the teeth and is used in act such as blowing. It is an assistant muscle of mastication (chewing) and that of suckle in neonates.	Persist action of tongue because the tongue is closed inside the mouth for stimulation.
Depressor anguli oris (Triangularis)	Lip corner depressor	15	Depresses angle of mouth.	Escape of tongue because depression of angle of mouth opens the tongue outside the mouth against

				stimulation inside the mouth.
Depressor labii inferioris	Lower lip depressor	16	Depression of lower lips.	Escape of tongue because depression of lower lips opens the mouth and avoids stimulation of tongue inside the mouth.
Mentalis	Chin raiser	17	Elevates and wrinkles skin of chin, protrudes lower lip.	Persist action of tongue and nose because protrusion of lips closes and mouth and elevation of chin causes inhaling action. In addition to above it also causes escape of skin because of the wrinkles that insulate the skin against stimulation.
Incisivii labii superioris	Lip pucker	18	It is sometimes known as the kissing muscle because it puckers the lips (Pucker elevates the angle of mouth).	Persist action of tongue and nose because the puckering action closes the mouth and elevation of angle of mouth causes inhaling action.
	Tongue show	19		Escape action of tongue because protrusion of tongue prevents the tongue from being stimulated inside the mouth.
Risorius	Lip stretcher	20	Draws back angle of mouth.	Escape action of nose, tongue and skin because drawing of corner of mouth causes exhaling action, widening of mouth opens it causing escape action of tongue and drawing of skin of the neck wrinkles the skin against being stimulated respectively.
Platysma			Draws the corners of the mouth inferiorly and widens it (as in expressions of sadness and fright). Also draws the skin of the neck superiorly when	

			the teeth are clenched.	
Platysma	Neck tightener	21	Draws the corners of the mouth inferiorly and widens it (as in expression of sadness and fright). Also draws the skin of the neck superiorly when the teeth are clenched.	Escape action of tongue and skin as seen in AU-20.
Orbicularis oris	Lip funneler	22	Known as kissing muscle puckers lips (Pucker elevates the angle of mouth).	Persist action of tongue and nose as seen in AU-18.
Depressor Labii inferioris	Lips part	25	Depression of the lower lips	Escape action of tongue [illegible] because depression of lower lips opens the mouth and causes exhaling respectively.
Masseter	Jaw drop	26	Elevation (as in closing of mouth) and protrusion of mandible.	Persist action of tongue because elevation of mandible closes the mouth.
Temporalis			Elevation and retraction of mandible.	
Internal pterygoid			Elevates mandible.	
(Pterygoids) Digastric	Mouth stretch	27	Opens the jaw when the masseter and temporalis are relaxed.	Escape action of tongue because mouth is opened by opening the jaw.

Orbicularis oculi	Lip suck	28	Known as kissing muscle puckers lips (Pucker elevates the angle of mouth).	Persist action of tongue and nose as seen in AU-18.

Table 6.1

6.4 Primary Emotions

6.4.1 Fear

As described earlier, the masseter muscle (AU-26) and *orbicularis oculi* (AU-7) occur simultaneously in startle response. It has been found that both these muscles function simultaneously in the emotion of fear, along with other muscles. As seen in Table 6.1, masseter muscle facilitates persist action of tongue and orbicularis oculi facilitates escape of eye. Fear as an emotion is a combination of seven muscles including the masseter and orbicularis oculi.

$$Fear = 1 + 2 + 4 + 5 + 7 + 20 + 26$$

As seen in Table 6.1, *frontalis (pars medialis)* (AU-1) and *frontalis (pars lateralis)* (AU-2) both facilitate escape of skin. *Depressor glabella* (AU-4) has three muscles, the first muscle causes escape of nose and other two cause escape of eye and skin. *Levator palpebrae superoris* (AU-5) causes persist of eye, *Orbicularis oculi* (AU-7) causes persist of eye because the eye does not completely close in fear, *Risorius* (AU-20) has two muscles which cause escape of tongue, nose and skin and *Masseter* (AU-26) causes persist of tongue.

Fear can be expressed based on the effect of muscles on persist and escape interactions.

$$E = Escape\ interaction$$
$$P = Persist\ interaction$$
$$Fear = 1(E) + 2(E) + 4(E) + 5(P) + 7(P) + 20(E) + 26(P)$$
$$Fear = Escape\ interaction$$

Fear is the collective action of facial and body muscles to escape from a stimulus. Fear is an escape interaction of the body with the stimulus because the muscles favouring escape outnumber the muscles facilitating persist or functioning of the sense organs. Fear is an experience that results in behaviours of fleeing, hiding or freezing from perceived traumatic events. How the bodily effect of escape is established in terms of muscular action is shown above. Fear is defined as a way in which the body tries to protect its form by moving away from the vicinity of the stimulus. This kind of fear results from a physically present threat. The stimulus in this case is only that occurs as a physical effect. The fear of an expected future threat is not an experience of third level self but of a higher level self as will be shown later.

As seen in Table 6.1, only four senses participate in a facial expression analysis of emotion such as fear. Vocal expression or vocalisation in emotion is important if the sound produced isolates the ear from being stimulated by externally occurring stimulus in the form of an unpleasant sound. Therefore, vocalisation in any or most emotions is an attempt to escape

from unpleasant sound for sensing action in the ear. Vocal expression in emotion causes temporary deafness which prevents reception of unpleasant external sound. Use of fingers to block the auditory canal is another way of escaping from unpleasant sound but such action is not considered a part of emotion, and therefore is not part of escape action of third level self.

Described above is the phenomenological account of emotion of fear, which caters to the bodily threat experienced by a neonate (or new born) and does not include fear as an experience in the absence of stimulus, such as a result of anxiety or feeling of fear. As reflex movements of a body part in second level self lead to the emergence of movement of all body parts as emotion, the third level self emerges from the second level self to give rise to emotional experiences.

6.4.2 Disgust

Disgust is an emotional response to something unpleasant or offensive. The sensation against distasteful stimulus is the experience of disgust. The stimulus can be an unpleasant sense of taste, smell, sound, touch or vision. Our phenomenal account of emotions or experiences here must account for such an idea of disgust.

Charles Darwin wrote in *The Expression of the Emotions in Man and Animals* that disgust is a sensation that refers to something revolting and the facial expression of disgust is biological in origin.[3] The characteristic facial expression of disgust includes slightly narrowed brows, a curled upper lip, wrinkling of the nose and visible protrusion of the tongue (the escape interaction of the tongue with the stimulus of taste).

Disgust has the following combination of action units as per FACS:

$$Disgust = 9 + 15 + 16$$

Levator labi superioris alaeque nasi with (AU–9) causes persist action of tongue and nose, *Depressor anguli oris (triangularis)* (AU-15) and *Depressor labii inferioris* (AU-16) both cause escape of tongue.

$$Disgust = 9(P) + 15(E) + 16(E)$$

It can be inferred that a phenomenological account of facial expressions of disgust shows that the senses tend to choose to escape from stimulation because the muscles facilitating escape outnumber those that cause persist interaction. Vocalisation in disgust enables the ear to escape from the unpleasant sound stimulation. Fear and disgust are both escape interactions. It is found that expression of fear enhances sensory acquisition or exposure compared to disgust.4 It is evident that emotion of fear has many muscles which cause some of the sense organs to exhibit persist interaction, rather than a single muscle (AU-9) in disgust emotional experience.

Therefore, the greater number of muscles causing persisting action in the emotion of fear means that there is more sensory exposure compared to disgust. According to the study

[3] Charles Darwin, *The Expression of Emotions in Man and Animals* (New York: D. Appleton and Co., 1897), pp. 83-115.

[4] Joshua M Susskind, Daniel H Lee, Andrie Cusi, Roman Feiman, 'Expressing fear enhances sensory acquisition', *Nature Neuroscience*, 7, 11(August, 2008), 843-50

explained in Chapter 1, fear has increased visual-field size, witnessed in the movement of *upper lid raiser* muscle or *Levator palpebrae superioris* which causes the elevation of eyelids, which increases the visual-field by opening the eye vertically. Fear experience has enhanced speed of horizontal foveation during target localization due to the *lid tightener* muscle. *Orbicularis oculi* muscle helps to concentrate or focus on an object because the muscle closes the eyelid just enough to focus on a nearby or close object. The tongue in fear is stimulated by movement of *jaw drop* (AU-26), or masseter muscle which elevates the angle of the mandible or mouth, therefore assisting in closing the mouth.

In the case of disgust, protrusion of tongue does not allow the tongue to be exposed to stimulus, and consequently the tongue is left unexposed to stimulation.

Elevation of jaw bone or mandible (AU-26) assists in inhaling, compared to the nose wrinkle (AU-9) which dilates the nostril but is less effective in causing inhalation. Therefore, in fear the nose is more exposed to stimulation.

Brow lowering is common in disgust which prevents the eye from being maximally exposed to stimulation compared to eyebrow raiser (AU-1) and (AU-2) in the experience of fear.

Elevated eyebrow assists exposure better than lowering. Therefore, it can be concluded that in fear the senses are more exposed to stimulation than in the experience of disgust. Fear is a more intense escape interaction of the body with the stimulus than disgust and it allows better visual-field exposure.

6.4.3 Happy

'Happiness has a wide range of meanings for people of different cultures. As we are assessing emotions phenomenologically, we do not need to analyse what it means to experience happiness in the context of life. Happiness in a broad sense is a positive emotional state as joy or satisfaction. To know the meaning of happiness objectively we ask questions such as 'is your day going good or bad?'

The tendency of an experience to be good pertains to the pleasantness, which means avoidance of unpleasant effects from the surrounding. This view assesses that happiness must be an experience in which the entity does not strive to escape from the stimulus capable of causing happiness.

Phenomenologically speaking, happiness should therefore be a more persist interaction between the stimulus and the body or self than an escape interaction. The kind of happiness we are concerned with here is an effect from the surrounding on the body of an entity which causes the body to persist or escape from the effect.

Happiness as an experience caused by a stimulus which appears upon a certain level of expectation about its nature, and which involves minds and thoughts in addition to bodily interaction will be discussed in later chapters. For third level self we are only concerned with the bodily exchange of effects and the experiences acquired in such scenarios. Infants giggling is considered a basic experience of happiness, without the need of expectations or thoughts about the nature or meaning of the stimulus.

The basic kind of happiness is a measure of pleasantness of the stimulus in terms of how good it is for the body and its effect on the entity. A baby's laugh can be considered this, as it appears or is an experience that involves continued exposure to the stimulus as opposed to attempted escape from the presence of the stimulus. Therefore, facial expression and vocalisation in emotion of happiness in new-borns is of the nature of persist interaction between the body and the surrounding.

Happiness has the following combination of action units:

$$Happiness = 6 + 12$$

Orbicularis oculi (AU-6), also known as *cheek raiser*, performs the action of closing the eye, and therefore causes escape of eye. *Orbicularis oculi* muscle is seen to contract in one of the two kinds of expressions of smile. One is called sincere smile and another involuntary Duchanne smile.[5] Therefore, happiness is expressed as two kinds of smiles.

The contraction of AU-6 is less effective in the emotion of happiness, as it allows escape of the body from stimulation. It is only effective in one kind of smile namely sincere smile and not both.

Zygomaticus major (AU-12), also called *lip corner puller*, draws the angle of the mouth upwards and laterally causing the nose and tongue to be exposed to stimulation, as elevation of the angle of the mouth assists in inhalation and closes the mouth so that the tongue is exposed to stimulus inside the mouth. This muscle is more effective compared to the other muscle in emotion of happiness. Therefore, happiness is more of a persist bodily interaction of senses with the stimulus than an escape action.

$$Happiness = 6(less\ effective\ E) + 12(P)$$

The vocalisation in smile is minimal, so the ear does not engage in escape interaction with the stimulus.

An account of happiness we are concerned with here, is the analysis of expression of happiness in a smile. A smile is a facial expression formed primarily by flexing the muscles at the side of the mouth. The flexing is facilitated by the dominant muscle *zygomaticus major* which is responsible for persist interaction of the senses with the stimulus thus making happiness a more persist kind of interaction. However, irrespective of the dominant expression of *zygomaticus major*, it is evident that even our phenomenological analysis of happiness emotion cannot render it a specific quality between pleasant and unpleasant qualities.

6.4.4 Sadness

Sadness is emotional pain. Pain is experienced by the body at level three of self when the second level fails to avoid damage from the stimulus and thus perishes by losing its physical form. The third level self interacts to escape from the stimulus in the experience of pain. Pain is the result of failure of the self to exhibit escape from harmful stimulation and the outcome

[5] Marco and Livia Colle Del Giudice, 'Difference Between Children and Adults in the Recognition of Enjoyment Smiles', *Developmental Psychology*, 43.3 (2007), 796-803.

of persist interaction with a stimulus which becomes harmful to the physical form or the *essence of being-ness* of the self.

Pain is a distressing feeling often caused by intense or damaging stimulus. The International Association for the study of Pain's widely used definition defines pain as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage'.[6]

A phenomenal account of sadness or pain is to ascertain whether the body of senses strives to persist in the presence of the pain causing stimulus, or tries to deprive itself of the effect or harm. An individual experiencing sadness may become quiet or lethargic and withdraw themselves from others. Pain motivates the individual to withdraw from damaging situations, in order to protect the body. The ability to experience pain is essential for protection from injury and recognition of the presence of the injury. Sadness concerned with expectation and imagination will be explored in the later chapters.

Sadness is given by the following combination of action units:

Sadness – 1+4+12

Frontalis (pars medialis) (AU-1) causes escape of the skin as it wrinkles skin of the forehead. *Depressor glabellae* (AU-4) causes escape of nose, as it draws down the medial angle of the eyebrow giving the face an expression of frowning and thus favouring exhaling. *Depressor supercilii* (AU-4) causes escape of eye and *corrugator supercilii* (AU-4) causes escape of skin. *Zygomaticus major* (AU-12) also called lip corner puller draws the angle of the mouth upward and laterally causing persist action of tongue.

As two muscles facilitate escape interaction, sadness is an escape interaction between the body and stimulus.

Sadness – 1(E) + 4(E) + 12(P)

6.4.5 Surprise

Surprise is defined as a startle response to an unexpected event. Surprise can have any valence, it can be neutral/moderate, pleasant, unpleasant, positive or negative. Surprise can occur in varying levels of intensities ranging from very-surprised, which may induce an intense response to little surprise that elicits a less intense response to stimulus.

Surprise represents the difference between expectations and reality, the gap between our assumptions and expectations about worldly events and the way that those events actually turn out. For the phenomenal account of surprise we are only concerned with the possibility of the stimulus causing the body to move to persist or escape from interaction with it.

The (mental) thoughts in the form of expectations will be analysed in the description of feeling in later chapters.

Surprise can occur due to a violation of expectancies. The expectancies can be purely mental (where mind means the effect felt in the absence of the physical presence of the stimulus) and

[6] K. Hanoch Kumar, P. Elavarasi, 'Definition of pain and classification of pain disorders', Journal of Advanced Clinical and Research Insights, 3 (2016), 87-90.

can be a purely bodily sensation. According to Expectancy Violation theory (EVT) of interpersonal communication between persons, a person's expectations are influenced by three kinds of variables associated with interaction with another person.7 Surprise may occur due to a violation of one, two or a combination of all three factors. Surprise does not always have to have a negative valence. Thus, surprise as an experience being purely based on its phenomenal account must be both persist and escape interaction. Surprise is given by the following action units:

$$Surprise = 1 + 2 + 5B + 26$$

Frontalis (pars medialis) (AU-1) causes escape of skin. *Frontalis (pars lateralis)* (AU-2) also causes escape of skin. *Levator Palpebrae superioris* and *Surperior tarsal muscle* (AU-5) cause persist of eye.

B is included in the action unit 5 as shown above because intensities as per FACS are annotated by appending the latter's A-E (from minimal-maximal intensity) to the action unit number (e.g. AU 1A is the weakest trace of AU1 and AU1E is the maximum intensity possible for the individual person).

A – Trace
B – Slight
C – Marked or pronounced
D – Severe or extreme
E – Maximum

5B has normal intensity in comparison to 5.

Masseter (AU-26), *Temporalis* (AU-26) and *Internal Pterygoid* (AU-26) cause persist of tongue. Thus the combined effect of all the muscles in surprise tends to be slightly inclined towards persist interaction because AU-5 is more powerful or expressed more compared to all other action units due to increased intensity of effect on the expression, thus on the nature of interaction of the body with stimulation.

$$Surprise - 1(E) + 2(E) + 5B\,(P) + 26(P)$$

Therefore, surprise is slightly more persist interaction than an escape interaction due to excess expression of AU-5, though the two action units are of the nature of escape and two of the nature of persist.

Surprise is expressed on the face with the following features:

1. Eyebrows that are raised so they become curved and high. *Frontalis* (AU-1 and AU-2) muscle facilitates rising of eyebrows.
2. Open eyelids, this kind of movement is facilitated by or itself is the movement of *Levator Palpebrae* (AU-5).
3. Pupil dilation mydriasis or pupil constriction miosis. Movement of *Levator Palpebrae* (AU-5) causes pupil dilation.

[7] Judee K. Burgoon, Stephen B. Jones, 'Toward a Theory of Personal Space Expectations and their Violations', *Human Communication Research,* 2.2 (1976), 131-146.

4. Dropped jaw so that the lips and teeth are parted, with no tension around the mouth. Jaw drop muscle (*Masseter* and *temporalis*) (AU-26) causes jaw drop.

A primary emotion is any emotion which does not include other emotions or feelings in its experience. Happiness, sadness, disgust, surprise and fear are all primary emotions. As shown, single muscle movements or movements of single part of the body such as the act of reflexes leads to the emergence of movement of all parts of the body especially the senses as seen in the experience of emotion.

6.5 Secondary Emotions

6.5.1 Anger

Anger is an intense expression seen on the face or whole body. It is a negative response against provocative stimulus. Anger is an attempt of an entity to protect itself from potential harm. Anger as an experience is associated with a frowning face, loud sound and showing teeth. Vocalisation or intonation exists as a loud sound in anger. Anger gives the entity a chance to escape from something that is potentially harmful. An angry person inflicts harm to other people. As described in chapter 1, aggression or anger is an automatic attempt to halt an interaction with stimulus by causing the stimulus to escape, and not an attempt to exhibit escape by the entity itself. When anger is a protective response or instinct to a perceived threat, it is a positive or persist interaction of the self or entity with the stimulus. But as the interaction is to remove the stimulus from its vicinity or to remove the self from interaction, anger is equally an attempt by an individual to escape from stimulation. Phenomenologically, anger must be both an attempt of the senses to escape and to persist. As the self or entity inflicts harm upon the stimulus, the entity is said to engage in persisting interaction with the stimulus. But as the effect exerted while engaging in persist interaction removes the stimulus from interaction, anger is a *persist action which turns into escape action*. The outcome of persist interaction of the individual with the stimulus turns the interaction into an escape interaction between the individual and the stimulus. Initiating anger is a persist-interaction between the entity and a stimulus as it exerts an effect on the stimulus in the presence of the stimulus. The termination of anger experience is escape interaction between the entity and stimulus because the effect causes the stimulus to not continue to exist in the interaction. Therefore, the interaction becomes an escape interaction. Anger is given by the following combination of action units:

$$Anger = 4 + 5 + 7 + 23$$

Depressor glabellae, *depressor supercilii* and *corrugator supercilii* with (AU-4) cause escape of nose, skin and eye. *Levator palpebrae* and *superior tarsal muscle* (AU-5) cause persist of eye. *Orbicularis oculi* (*pars palpebralis*) (AU- 7) causes escape of eye. *Orbicularis oris* (AU-23) causes persist of tongue and nose.

$$Anger = 4(E) + 5(P) + 7(E) + 23(P)$$

It can be seen that anger as an emotion is phenomenologically neutral or both escape and persist interaction of an entity with stimulus. Anger is persist-to-escape mechanism when the termination of the interaction is considered from the perspective of the stimulus.

It will be shown later in this chapter that anger as an expression breaks the chain of recurring persist or recurring escape emotions which will be called the different states of depression.

As striking, scolding and harming are ways of expressing anger which cause harm to other people, causing them to stop interacting with the self, anger is an escape interaction of the self with the stimulus. But since the other person stops interacting, the self has to be present in relation to the other person to cause harm and enable it to choose to escape from the interaction. The fighting response is to cause the stimulus to terminate the persist-interaction with the self, where the self itself is unable or unwilling to escape.

Vocalisation in anger may assist to persist or escape depending on the presence of the stimulus in the interaction. Anger can be understood as a motivation in a person to do good to him in the environment that is harmful by way of saving oneself or escaping from harmful stimulus because in anger by causing harm the person actually tries to remove the stimulus from his vicinity.

Anger is therefore a way of avoiding something that a person is constantly being exposed to and avoiding the unpleasant effect that something impinges upon the person. To be angry is to overcome the inability to escape from an interaction by becoming a threat to the existence of the other entity and thus allowing the entity to stop interacting with the self.

Depression will be shown to be the inability of the self to break away from interaction with the environment which participates only in either escape or persist kind of interactions and being unable to alternatively exhibit persist and escape interactions with different or same part of the surrounding or same stimulus or different ones.

To be angry there must be a harmful stimulus that is hard to get away from and then exists an attempt to cause the stimulus to escape from the presence of the self. As we are only concerned with the phenomenological nature of experience, the stimulus that causes anger must be of the nature of causing damage to the body of an entity or should be a threat to the *essence of being-ness* which is the moving body, therefore it must hinder the moving capacity of the entity.

Experience of anger towards an entity which does not cause physical or bodily harm will be discussed in the description of feelings.

Anger is an experience that grants escape from an interaction by causing the absence of the other entity in the interaction. Therefore, for the expression of anger there must be a stimulus which suddenly causes pain or damage that which must be escaped from. Anger is the only emotion which is both persist and escape emotion or interaction between the self and stimulation. Initially the facial expression of anger is such that it allows the senses to be stimulated by the stimulus, which is an act seen in persist kinds of interactions such as happiness and surprise but then the stimulation itself turns to cause the stimulus to appear unpleasant, thus leading the self to perform the act of harm towards the stimulus. No attempt in the nature of stimulation of the senses to escape can be witnessed, but it is seen in the attempt of causing the stimulus to terminate the interaction. The termination of interaction exhibited by the stimulus is different from that exhibited by the self when it escapes from stimulation.

6.5.2 Hangry

Hangry is an amalgam of hungry and angry. Repeatedly experienced hunger becomes an unpleasant state and the entity experiences anger to break the chain of continuous experience of hunger. Anger is a mechanism for escaping hunger in the experience of hangry. An entity is more likely to escape a situation when hungry and anger facilitates such escape. Hunger can be considered as escape interaction of the entity with the stimulus that is not food, because only in the absence of food or in the presence of foul food there is experience of hunger. In hangry, anger helps the entity to stop the recurring experience of hunger which is undesirable. Anger is the ability of the entity to overcome the inability to escape from the persistent experience (hunger could also be a primary emotion) such as hunger. Here hunger can also be painful, thus the experience of hunger can be called the experience of pain, similar to the experience of emotion of sadness. Therefore, hunger is the emotion of sadness. Similar to anger in hangry, anger can also either be a cause of or result from fear as seen in aggression in chapter 1. Therefore, secondary emotions are said to be combinations of two different kinds of actions or interactions or two different kinds of emotion. Hangry will be explored more in describing the role of anger and crying in describing depression.

6.6 Why cry is an emotion

It is posited that a new-born of a certain age having no ability to exhibit locomotion or movement from one place to another experiences six basic emotions as classified by Paul Ekman.[8] Another addition to this group of experiences I believe should be the experience of crying. Crying is the act of shedding tears in response to painful and often physical discomfort to the eye.

Apart from shedding tears, crying is characterised by slow and erratic inhalation, occasional instances of breath holding and muscular tremor. A neuronal connection between tear ducts and the part of the brain for emotions, establishes the fact that tears directly correlate with the emotion of crying. That is, tears must also serve the same purpose as all the physiological changes that underlie the experience of crying. Twitching movements caused by muscles is called muscular tremor. As seen in the experience of cry, muscular tremor affects arms, eyes, head, vocal cords, etc. Sweating in crying causes or is itself a sign of escape of the skin from a stimulus.

In order for us to establish that crying is an emotion, we have to analyse whether phenomenologically the experience of crying causes the senses to be stimulated by the stimulus or not. When analysed phenomenologically, the experience of crying is a state where there is impediment of the senses. Seeing is impeded due to tears, smelling due to erratic and decreased inhaling and tasting as muscular tremor affects the mouth, throat and tongue. There is impediment of functioning or sensing of tactile sense of skin at various parts of the body exposed to the environment in muscular tremor because it affects hands, legs, head, trunk, etc. all covered by skin. The ears as a result of vocalisation are insulated to incoming sounds from the environment because the produced sound blocks the incoming sound from entering the auditory canal. If emotions are defined based on the movement of

[8] Warren D. TenHouten, *A General Theory of Emotions and Social Life* (New York: Routledge, 2007).

muscles not only on the face but the entire body parts, as attempts to stimulation or suppression of stimulation, then cry is an emotion because tremor of muscles can be considered as similar to movement in muscles. As cry experience is the escape action of all of the senses from being stimulated, cry is therefore an escape interaction of the self or moving body with the stimulus. Note that the stimulus in the phenomenological account of cry experience must be of the nature that is unpleasant to the existence of the body or the *essence of being-ness* of second level self, thus causing the body (of senses) to escape from the painful stimulus in third level self. Crying is an escape mechanism of the body being exposed to painful stimulus. As cry is escape action from stimulus that causes physical pain to the body, it can be called bodily cry. The crying experience in the absence of physical effect on the body will be analysed in later chapters. The function of cry involves a stimulus causing pain to the body; therefore, it involves the emotion of pain. Pain could be an emotion of persist because it acquires the harmful effect from the stimulus, but here we will include it as part of secondary emotion such as cry. The function of emotion of cry is to avoid or terminate the interaction between the painful stimulus and the self. It is seen that more than the primary emotions, the bodily cry emotion involves escape of all of the senses. Therefore, just like disgust, fear and sadness, crying is escape interaction or escape emotion. It is a response to inflicted pain on the body.

Emotions that lead to crying include happiness and sadness, although cry is different from primary emotions because cry follows or includes an experience of another emotion. Any emotion which includes another emotion in its experience is called a secondary emotion. Anger, hangry and cry are emotions because they enable escape from not only the stimulus but also persistent experience of a certain emotion. This is evident in crying causing termination of persistent sadness (which will be shown to be depression) as well as anger causing termination of hunger as seen in a hangry experience. In primary emotions such as sadness or happiness, the body seeks escape from or seeks to persist in the presence of a stimulus, while in secondary emotions the body seeks escape or seeks to persist to experience an emotion or a group of emotions. Bodily emotions are of two kinds which are primary and secondary emotions. Bodily emotions concern the physical contact between the body and the stimulus which is capable of causing physical or phenomenally verifiable effect or change on the body.

How or why the emotions such as cry include other emotions such as sadness, happiness and surprise?

What is the purpose of emotions such as surprise, sadness and happiness to lead to crying experience?

The answers to these questions are explored in the explanation of depression which concerns the body and the physical presence of the stimulus.

6.7 Depression and loss of Freewill

As seen earlier, a self which experiences hunger can be considered as escape interaction of the self with any part of the surrounding which is either not food or disgusting food. Also, as hunger can lead to pain, hunger is sadness as pain is an emotion of sadness. When hangry, the

persistent experience or chain of experience of sadness or pain in the form of hunger is broken by the experience of anger, therefore successfully breaking away from the chain of sadness.

As anger is defined as the emotion that facilitates termination of experience of another emotion such as sadness, anger is a secondary bodily emotion. Thus, one emotion such as anger can cause the person to avoid experiencing a single emotion such as sadness repeatedly because to experience the same kinds of emotion or a single emotion repeatedly is not characteristic of a self because if it experiences only one kind of experience, it has no ability to grow or replicate, as shown in the explanation of laws of existence in chapter 2. Variation in the nature of experiences, gives the self the ability to grow as well to replicate.

Any entity is not a self if it does not grow or replicate. In order to replicate, the self or the entity must alternatively experience persist and escape interactions such as persist and escape emotions and should not experience the same or single kind of emotions repeatedly.

Depression is defined as a state of persistent sadness, anxious or empty mood for nearly every day for at least two weeks. Persistent sadness is hopelessness. Note that sadness has been defined earlier as an escape interaction with a painful stimulus. What we are concerned about here is the phenomenological account of sadness, and therefore also of depression and cry. The state of depression we are concerned about here is the outcome of persistent pain or sadness. Bodily depression is the recurring or continuous experience of pain, thus a state of persistent experience of emotion of sadness.

Crying is believed to be an outlet or result of a burst of intense emotional sensations, such as agony or sadness, surprise or joy. Our theory could explain why people cry during both cheerful and painful events. By intense emotional sensations it can be supposed that the intensity of an emotion increases when it reoccurs in experience. Depression is increased intensity of emotion of sadness because depression is caused by recurring and therefore intense sadness.

As cry can be caused by sadness, cry has a role in the state of depression. In the case of hangry, an escape emotion such as hunger experienced repeatedly by the person finds relief or escape from hunger when anger is experienced. An emotion is said to be intense if it is experienced repeatedly without an intermediate emotion such as anger or cry which tend to break the chain of experiences. The emotion of sadness becomes more intense when it is continuously experienced without another emotion to break the chain of recurring experiences. Individuals tend to remember the positive aspects of crying and may create a link between other simultaneous positive events such as resolving feelings of grief. Together, these features of memory reinforce the idea that crying helped the individual. It helped the individual because cry broke the chain of recurring experience of grief or sadness. Although cry and sadness are both escape emotions, since cry is more powerful escape mechanism in terms of involvement of all senses, the cry breaks the chain of recurring experiences. The breaking away from the chain of recurring pain in depression is the coping mechanism of

depression. William H. Frey II proposed that people feel better after crying because the excess secretion of stress hormones is decreased and that relaxes the facial muscles.[9]

If a phenomenological account of depression is considered, irrespective of valence it can be defined as a state of persistent experience of a single emotion or single kind of emotion and a state which causes or halts growth of the self as it loses freewill. As growth is synonymous with freewill, in depression the self possesses less or no freewill because there is no alternative experience of persist and escape interactions. Helplessness in depression is an entity's perceived inability to break away or escape from the chain of recurring experience of sadness. Cry grants escape from the chain of recurring sadness in the experience of depression.

Depression can also be consistent recurrence of happiness with no intermediate experience of secondary emotions such as anger or cry. A self has more freewill when the experience of primary emotions is accompanied by secondary emotions such as anger and cry which break the chain of recurring experience of emotions.

Depression can be a state of recurring experience of any primary emotion, because recurring experience of any emotion destroys the ability of the self to possess freewill and be close to God. Recurring pain experience in infants causes pain cry, where the crying breaks the recurring chain of body pain.

Secondary emotions not only grant escape from recurring experiences of oppositely valent emotions, as seen in crying caused by persistent happiness, but also of experience of same valence emotions as seen in crying caused by recurring sadness in the case of depression.

Recurring experience can also be linked to ve st mula or by the s me s mu us cau ing the same kind of emotion in the event of depression. In order to avoid depression, the experience of one kind of emotion must be followed by another kind of emotion such as secondary emotion to escape loss of freewill.

Both escape and persist emotions can cause depression if there is no experience of secondary emotion such as anger and cry. Depression is the state of self where its ability to grow and possess freewill decreases by recurring experience of the same emotion or same kind of emotions.

Instances of depression where the pain or any emotion is not a result of physical effect on the body, will be discussed in a chapter on feelings as mental depression.

Chain of persist emotions – (*Happiness-surprise*)

Chain of escape emotions – (*Fear-disgust-sadness*)

Depression is a chain of recurring experience of similar emotions. The third level self's tendency to accumulate experience of only one emotion or one kind of primary emotions over a period of time is the state of depression. It has been proposed that depression is not only an experience of negatively valent emotions such as sadness but also positively valent emotions such as happiness. As the above analysis concerns the phenomenological account of

[9] William H. Frey, *Crying: The Mystery of Tears* (Minneapolis: Winston Press, 1985).

depression, as an effect obtained from the environment by the *essence of being-ness* of the third level self such as the body, such a state is called ‘bodily depression’.

6.8 Awareness of third level Self

Awareness of the third level self emerges from awareness of the second and first level self.

The third level self is aware that the effects it endures are external to itself, and that external stimuli are collections of effects responding to body movements of the third level self. That is, the self moves its senses to persist or escape collectively, as witnessed during emotional experiences with regard to a single stimulus.

In the experience of emotion, more than one or all five muscles of the five senses act collectively in order to enable or suppress the senses from being stimulated by a single stimulus.

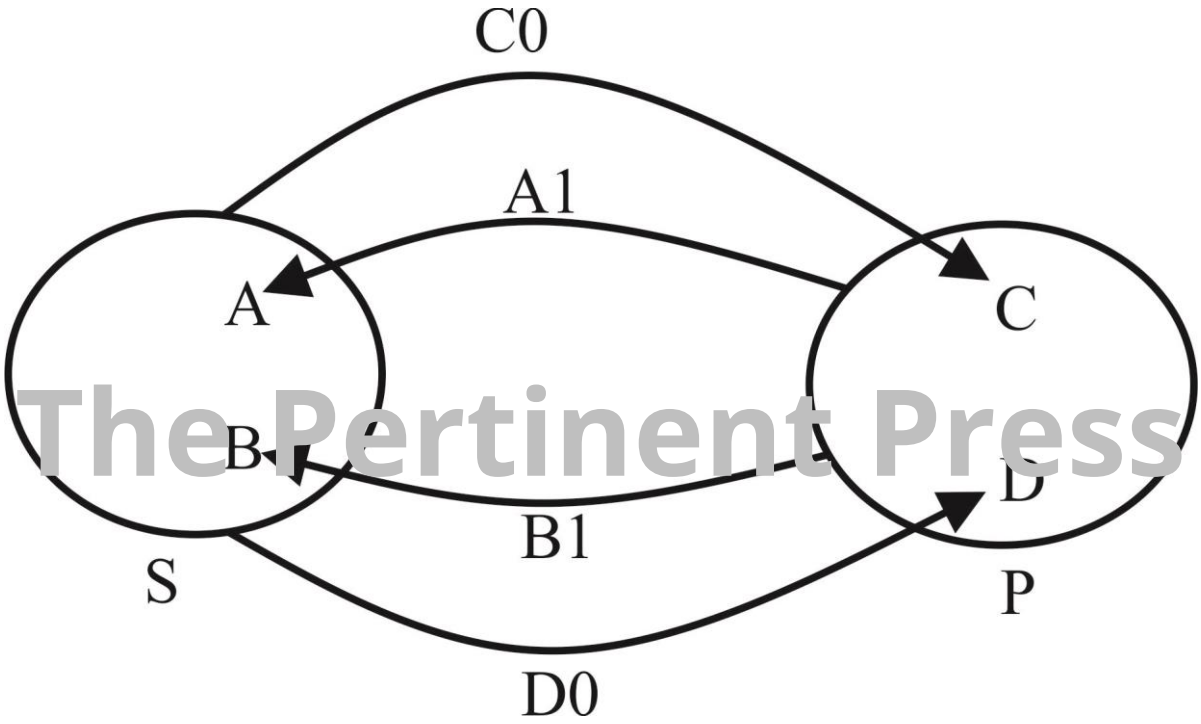

Figure 6.1: Awareness of Self

In Figure 6.1, *S* is the self and *P* is the stimulus. *P* exerts the effect *A*1 on the self, *A* being a part of the self’s body. If the self is level one it is not aware of the effect *A*1 as coming from an external entity P but as itself which is *A*.

If *A*1 is an effect that enhances the *essence of being-ness* of the self and *B*1 is an effect capable of destroying the *essence of being-ness* of the self. Therefore, the first level self is not aware of the effects *B*1 and *A*1 and is only aware of *A* and *B* points on its body, that is, change on its body. As self-reference is possible only when there is persist-interaction, the level one self responds by accommodating change upon itself from the effect *A*1 that allows self-reference. The response to the persisting effect by the self is *C*0 where *C* is a part of the body of the stimulus.

In the event of death, the first level self interacts with the harmful effect *B*1 by moving to escape from the stimulus. This effort to escape can be called effect *D*0.

*C*0 and *D*0 are appearances of movement of the self to persist or escape respectively from effects A1 and B1 from the stimulus.

The first level self is only aware of the interaction with the surrounding as two different points *A* and *B* on its body. Therefore, the awareness of the first level self can be given as:

(*A*, *C*).

At level two of self, the awareness of the self emerges from the awareness of the first level self.

The self is not only aware of two points on its body (*A*, *C*), but also that *A*1 and *C*1 are two different effects from something external to itself. It is aware of the interaction as comprising of itself and effects external to itself. It is aware of bearing an external effect. Note that the second level self is aware of the external effect as being either desirable (towards which it moves by way of experience of reflex to persist) or undesirable (away from which it moves to escape), as it exerts effects on the stimulus in response to the effect it bears from the stimulus. Consequently, the second level self actually exerts effects *C*0 and *D*0 in response to the stimulus. However, the second level self is only aware of one effect of the stimulus at a given instance of interaction. It is either aware of *C*0 in response to *A*1 or *D*0 in response to *B*1. Awareness of the second level self is given as:

(*C*, *A*)(*C*1, *A*1)(*C*0, *A*1) or (*C*, *A*)(*C*1, *A*1)(*D*0, *B*1)

As the second level self being composed of single reflex experience accumulates a group of persist-escape interactions, there is emergence of third level self which is composed of emotion experiences. At level three, the self is aware of its response to the stimulus as well as the effect of its response upon the stimulus which is evident in the stimulus moving to persist or escape from interaction.

For example, when angry, the third self must be aware of how harmful the effect on the stimulus is in order to make the stimulus escape or terminate the interaction. Therefore, the third level self is aware of a stimulus as capable of obtaining a certain effect from the self. As the third level self emerges when the second level self accumulates enough persist and escape interactions in the form of reflexes, the self is aware of the stimulus as a *collection* of persist or escape effects which is also capable of obtaining a group of effects from the self. Therefore, such awareness makes the third level self exhibit the experience of emotion.

In Figure 6.1, if *A*1 represents a group of effects a stimulus impinges on the body of the self and *C*0 a collection of effects that the self impinges on the stimulus in persist interaction, then the third level self is aware of the stimulus as a collection of external effects capable of acquiring effects from it.

Then at level three, the self is aware of the stimulus as a collection of effects either of persisting (desirable) or escaping (undesirable) nature, thus aware of the external agency or stimulus as a collection of desirable effects or undesirable effects. The third level self therefore interacts with the stimulus by moving more than one body part.

For simplicity, *A*1 will be assumed to be a collection of desired effects obtained from the stimulus, *C*0 as a group of movements to persist, *B*1 as a group of undesirable effects and *D*0 as a group of movements of third level self to escape from the stimulus in Figure 6.1.

The third level self is not aware of the stimulus as a separate entity because to be an entity or self, the stimulus must be a collection of both persist and escape interactions, but third level self is only aware of the stimulus as being either a collection of desirable or undesirable effects – not both at the same time. An important point to note here is that an experience of emotion can be elicited in an entity by a single effect from a stimulus, such as a needle prick causing a baby to cry. So though in reality, the stimulus eliciting an emotion is a single effect, the nature of emergence in the awareness of third level self causes it to assume that the stimulus as it affects all of the senses must be a group of effects which impinge change on each sense organ separately. This assumption about the nature of the external stimulus will be shown to give rise to the concept of mind in the latter part of this chapter.

As it is clear that a stimulus is only a single effect from a body's surroundings, in the experience of emotion, a foetus responds to a ray of very bright light on its eye by crying or a baby reacts to a single taste from food appearing happy, it is seen that the self is being aware of the stimulus as a collection of bright lights or a group of tastes when there is *only one* single taste or unpleasantly bright light ray at an instance of experience of single emotion. So as opposed to only moving a part of the body or single sense organ to respond to stimulation, the third level self, upon *assumption* about the nature of the stimulus as being a group of desirable effects on all the senses, moves all of the senses *in vain* when there is only one kind of movement required to respond to only one effect from the stimulus at a given occasion of interaction. Let us analyse in detail the emergence of emotion from reflex actions.

In Figure 6.2, at one instance of interaction, *S* is the second level self and *P* is the stimulus, *A*1 is the unpleasantly bright light from the stimulus and *B*0 be the self's response to it by movement of the eye as in blinking of the blinking reflex which is the escape action with the stimulus.

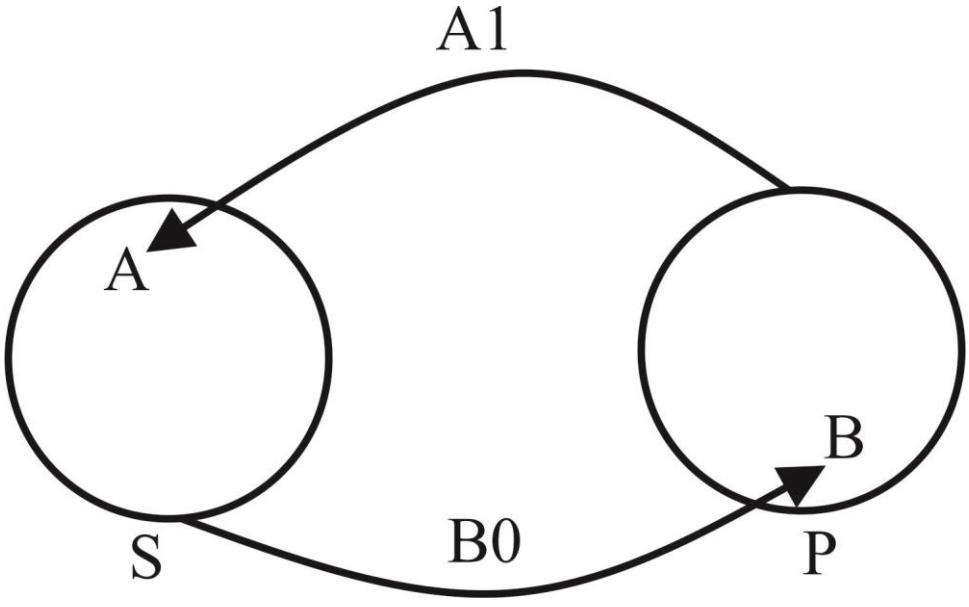

Figure 6.2

In another instance of interaction, let *A*1 be an unpleasant or painful prick on the skin. The self responds to it by experience of startle reflex which is *B*0. Therefore, the second level self's interaction with the single effect from the stimulus is restricted to single bodily movements.

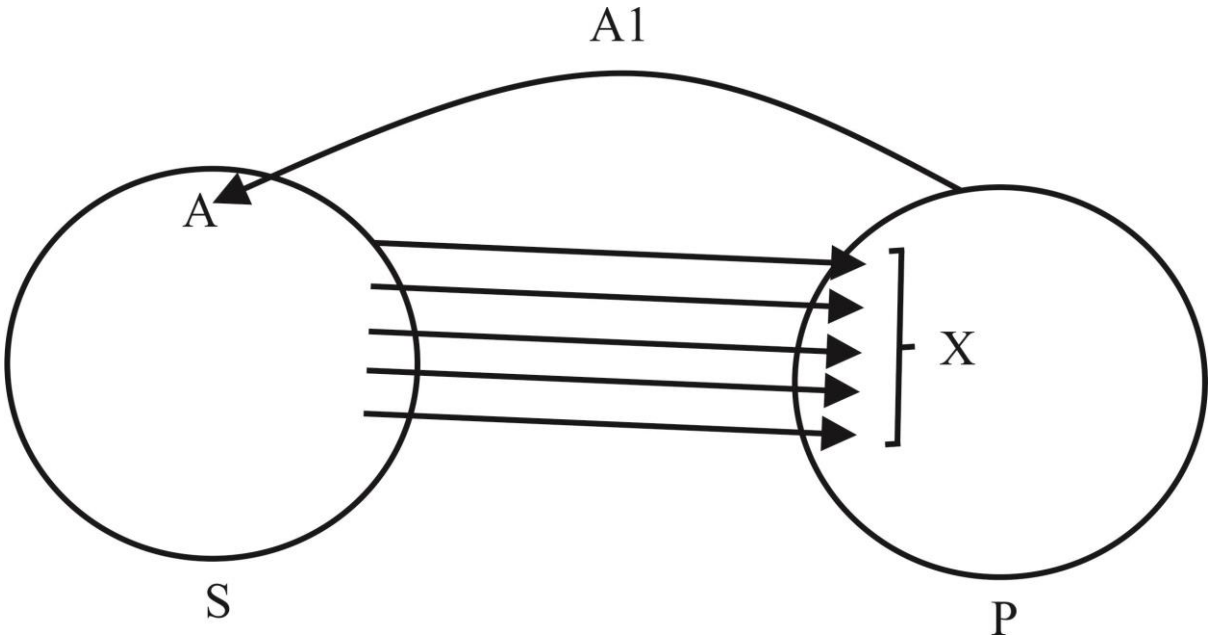

Figure 6.3: Escape Interaction of Third Level Self

Let us now analyse the escape interaction of the third level self with the single stimulus. In Figure 6.3, let *S* be the self and *P* be the stimulus. Let *A*1 be the same effect as seen above, which is an unpleasantly bright light upon *S*. Let *A*1 cause the self of entity to experience the emotion of cry. *X* is a collection of effects or movements in the self denoted by *B*0, *C*0, *D*0, *E*0 and *F*0. The self responds to the stimulus by experiencing cry. In addition to the eye escaping by way of tears (*B*0) to escape the unpleasantly bright light, there is movement of other four sense organs as well, which respond to the same single effect which is unpleasantly bright light. The movement of muscles seen in the experience of cry formulate different responses to the single effect as follows:

*Muscular tremor making the skin to escape – C*0
*Vocalisation to block the auditory canal to escape from external sound – D*0
*Erratic breathing or exhaling to avoid intake of odour from stimulus – E*0
*Protrusion of tongue to escape from stimulus of taste – F*0

Here *C*0, *D*0, *E*0 and *F*0 are movements of the self in the absence of any effect from the stimulus *P*. Here the movements shown above are in response to a collection of *non-extent* effects from the stimulus other than *A*1, which the self *assumes* to be obtained from the stimulus. Therefore, even in the absence of effects from the stimulus, the self responds to the stimulus by assuming the presence of effects from a single stimulus. The self here assumes that there is harm to the skin, ear, nose and tongue in addition to harm to the eye, where the only real effect the stimulus impinges on the self is upon the eye and not on the other four senses. In Figure 6.3, X is a new entity in the awareness of the self and thus represents the

mind of the self or individual in whose awareness the new entity exists and which is non-existent in the physical world.

Therefore, the third level self is aware of the stimulus as being a collection of *non-existent physical effects* on its body. Here the third level self as the body assumes the presence of physical effects on itself when such effects really do not exist in reality. Where the second level self exhibits single movement of the eye in the form of a blink reflex to respond to the unpleasantly bright light, the third level self exhibits movement of not only the eye but all of the sense organs to respond to the same stimulus as part of the experience of cry.

In the third level self, the experience of emotion involves many kinds of movements directed at a single effect bared from the environment such as an unpleasantly bright light, where each of the five senses tries to escape when there is no need for the movement of all senses but only of one.

The self reacts or responds to the single external effect *as if* the single effect is a collection of effects on its body. In addition to trying to escape from unpleasantly bright light, by producing tears the self tries to escape from it by four other ways. It vocalises by producing crying sound *as if* the stimulus is also an unpleasantly loud sound. It exhales *as if* the stimulus is a foul odour producing agent. It undergoes protrusion of tongue *as if* the stimulus was foul food or taste and there is muscular tremor or sweating *as if* the stimulus is a prick on skin. The non-existent but *assumed effects* with which the self interacts as a result of the emergence of the ability to interact with a single effect with many senses from reacting with single sense organ is seen in third level self.

What could we call the tendency of a self to *assume* the presence of physical effects on itself in the absence of such effects?

In other words what could we call the tendency of the self to assume the existence of non-physical effects?

It is fitting to call it the *mind*. The mind is the excess ways in which the self interacts with the single effect from the stimulus in the experience of emotion. The mind is the group of effects that the body assumes to have obtained from the stimulus with which it interacts.

The third level self is aware of the single effect of the stimulus as ‘an effect coming from an external collection of effects of either persisting or escaping kind’ but not of the both kinds at the same time. The third level self not only persists or escapes from one effect of the stimulus, but with four other effects which it does not bear on its body but those effects form part of the awareness of the self which emerges from the second level self.

To the self, the stimulus is a collection of only one kind of effects either desirable or undesirable. Emotion of happiness for example is a collection of movements of two muscles, (AU-6) and (AU-12) and vocalisation to interact persistently with a single effect from the stimulus. Emotion of fear is a collection of seven muscles and vocalisation which enables escape from a single external effect of the stimulus. Emotion of cry is a collection of effects from all of the senses including vocalisation as an attempt to escape from single effect of the stimulus.

A collection of existent single effect and non-existent effects that a third level self assumes to be present is considered to be the first external entity forming the awareness of the third level self. That is, at this point in the development, the infant is aware of existence of someone or something new and signifies the origin of first noun in the mind of the infant. In an escape emotion, an assumption that there is a threat to not only the eye (if the stimulus is an unpleasantly bright light) but also to nose, tongue, skin and ears leads to the assumption of the existence of an external entity which is composed of the existing single physical effect and non-existing non-physical effects that do not exist. As an effect from a self is the act of referencing or projection of its *essence of being-ness* upon the effect from the stimulus, in the absence of effect from the stimulus itself, there is no reference, thus the response to the non-existent effects is neither capable of protecting or destroying the *essence of being-ness*.

In his famous 1974 article 'What Is It Like to Be a Bat?' the philosopher Thomas Nagel talks about possessing an ability to imagine what it would be like to be an external entity such as a bat.[10] But in order to have an ability to imagine what it is to be a bat, one must have the ability to understand *where* the boundary of one's own body ends and from where a new entity different from oneself such as a bat actually can exist or appear to exist. This ability to know that there is something outside oneself is a basic criteria to have or be a mind. Here the third level self assumes that there exists a collection of non-existent non-physical effects and such ability or tendency is called the mind.

The concept of *you* with regard to the external stimulus, that is, the *is-ness* between the self and the surrounding arises when the self is aware of the boundary that separates itself from the rest of the surrounding. Such awareness is seen in third level self who is aware of the stimulus as being external to itself, thus it is aware of the boundary or separation between itself and the stimulus. 'Theory of mind' refers to the ability to understand that other humans also have a mind and thus possess mental states like one.

In order to possess the ability to understand that an entity has the abilities like oneself one must have the ability to be aware of the presence of an externally existing entity in the first place.

The problem of finding an objective way by which to recognise the presence of a mind or consciousness is known as the other-minds problem.11

Many attempts to solve the mind-body problem such as dualism and materialism try to *locate* the mind in the physical body, instead of finding where or how the *awareness* of one entity arises in another entity. I propose a solution to the mind-body problem, that the relationship between the mind and body can be inferred in how the mind emerges from one's own body. The mind emerges from the body when the body assumes the presence of non-physical, non-existent effects upon itself, which gives rise to the awareness or existence of first external self. Thus, mind is the creation of a non-existent nature or presence of the external entity.

How in the experience of one entity does another entity appears?

---

[10] Thomas Nagel, 'What Is It Like to Be a Bat?', *Philosophical Review*, 4.83 (1974), 435-50.
[11] Paul M. Churchland, *Matter and Consciousness*, (Cambridge: The MIT Press, 1988).

In order to infer that another entity might possess the same qualities as oneself, one must be aware of the presence of an entity external to oneself.

The mind-body problem asks: What is the relationship between the mind and the body?

As mentioned before in chapter 2, the self has a tendency to be present in that part of the environment where there are many selves like itself, thus it possesses the capacity to grow.

As a foetus reaches the age of being able to express emotions, the self is a collection of movements of muscles of the skin, tongue, eyes, nose and vocalisation with regard to the ear carried out singly or collectively in interaction with single stimulus. When a foetus experiences its first emotion it becomes a third level self.

As shown above for every single effect specific to one sense organ, there are excess four effects from the self which is directed towards a group of *non-existent effects* from the stimulus. The non-existent effects from the stimulus form part of the assumed nature of the stimulus.

The assumption about the nature of the external stimulus as a collection of external effects or the ability to assume such a thing is the mind.

The mind is the assumption of one self about the nature of effects obtained from another entity or self.

The four non-existent assumed effects in addition to the single effect from the stimulus form the mind because such assumption causes movement of the senses or body parts even in the absence of such effects. Therefore, the mind is the assumed effect on the body. The mind is the reaction towards or relation to the non-existing effect where the effect is unlike the physical effect felt by the body. The mind does not exist in the physical domain or in the same domain as the actual single physical effect from the stimulus, for example, an unpleasantly bright light.

Thus, the mind can be defined as an assumed external effect which makes the body move or exhibit change even in its absence or in the absence of physical contact with the body. Thus mind is that which makes the body move in the absence of a physical effect impinged on it by the physical environment.

The origin of a noun is seen in the third level self because a group of assumed and existing physical effects has a name, this being the first noun. The third level self is aware of the presence of an external entity as a collection of persisting or escaping effects it exerts in response to the stimulus and such collection of effects is named as a noun in vocalisation seen in different emotions. Thus, vocalisation in emotion gives rise to verbal language. The movement of hands and head leads to origin of sign language or gestures.

6.9 Origin of language and usage: Theory of language development

Nativist theorist Noam Chomsky states that language is innate to humans from birth to eight-years-old, and that all languages may have the same underlying structure.[12]

[12] Noam Chomsky, *Aspects of the Theory of Syntax*, 50th edition, (Cambridge: The MIT Press, 2014).

The *I* originates in the first level self, and it is the *is* relation of an entity with itself. In the second level self, the *is* relation of an entity with others originates, as well as the ability to form metaphors or adjectives. The *is* is the ability to find similarity between two states or qualities or between two entities.

In the first level self, the *is-ness* concerning the same entity is an attempt to find the *body-ness* between states of an entity acquiring change on itself. The body-ness is the *essence of being-ness* of the first level self. In the second level self, the is-ness concerns two different entities, such as one entity being found to be similar or dissimilar to another entity. Therefore, the focus is on the quality or nature of effect from the stimulus and not the nature of the stimulus itself.

In the third level self, the comparison between two entities leads to focus on the external entity which is *like any self* or which is *not like any self* in terms of obtaining effects from the external self, which is assigned a name or gesture in the form of verbal language or sign language as part of vocalisation in emotion. Thus, a noun originates in third level self which represents or *names* the first external entity in the awareness of the entity. It will be shown in the later chapters how other parts of speech emerge as levels of self emerge.

This kind of emergence of parts of speech can be likened to the idea that syntax is a structure intrinsic to experience or qualia such as reflex, emotion, locomotion, thinking, etc. because each of these experiences are considered here to accompany emergence of each part of speech.

But in order to answer the question of what purpose or use language serves, brings us to the interactionist language theory which states that children utter sounds or words in *response* to their relationship with the surrounding.[13] So the first noun or word is said to be formed by combination of different vocalisations in emotions which in turn represents a single external entity.

According to nativists language is biologically determined. The idea that the innate structure of language emerges in stages (with each stage leading to emergence of a part of speech) as a result of the entity's interaction with the surrounding, will be explored throughout.

Why does a baby acquire words?

Do they do a little communicative theory and decide that speech must contain words? The words or sounds used to communicate in language are considered here to originate in vocalisation in emotions. In vocalisation infants produce sounds in order to escape from or to interact with a source of stimulation where the produced sound is directed towards a specific sound or specific part of the environment.

In third level self, verbal and sign language is seen to originate as part of emotion. A baby or self utters phoneme sounds such as *aaa*, *uuu*, *ooo*, etc. to communicate or express emotionally with the mother or source of food, warm clothes, good lighting, etc. so as to signal the need for persist interaction with these and also signal a need to move away from

[13] H. Mori, 'Input and Interaction in Language Acquisition edited by Clare Gallaway and Brian J. Richards. Cambridge: Cambridge University Press, 1994. Pp. xv+319', *Issues in Applied Linguistics*, 7.2 (1996), 325-26.

unpleasant parts of the environment especially unpleasant sounds. The purpose of language was initially to deal with pleasant and unpleasant sounds which may or may not harm the ear or hearing ability. That is, the very purpose of communication in language is an attempt to suppress stimulation or allow stimulation by a stimulus which is a sound (in verbal language) or otherwise (in gesturing or sign language).

For instance, in the emotion of cry or fear, the baby utters *aaa*, *uuu*, etc. to cause the ear to escape from the unpleasantly sharp sound or any unpleasant stimulus in general.

In the emotion of happiness or laughter, a baby utters or vocalises with sounds, *haa*, *hee*, *huu*, etc. to persist in the presence of a specific entity or part of the surrounding. At level three the self produces sounds directed towards a single entity in order to persist to acquire change from the entity or to escape from the entity.

The sound produced in emotion is said to be the name given or assigned to the specific entity which is capable of impinging desirable or undesirable effects on the body of the infant. Therefore the sound produced is the noun as it refers to specific entity in the surrounding.

The origin of nouns is in accordance with the interactionist theory of language because only in interaction with the surrounding of the moving body (*essence of being-ness* of the third level self is moving body but not a body that exhibits locomotion) that the sounds produced in emotions become verbal sounds in verbal language and gestures in sign language.

A baby acquires sounds in the form of phoneme to block the stimulation of ear by an unpleasant external sound as seen in escape emotions and it acquires words in the form of phonemes in order to acquire stimulation of the ear by a pleasant external sound in persist emotions.

Thus, the purpose or use of verbal language is an attempt to suppress or allow stimulation by the environment.

At level three there are no words, but only phonemes which when combine in level four lead to formation of words assigned to entities which move or appear to perform a specific task. Thus, there is origin of verbs in the next level of self.

At level three, the phonemes unite to refer to single entity when a group of emotional experiences are increasingly experienced. In any emotion there is movement of eyes, hands, legs, head and parts of the body covered with skin as an attempt to persist or escape from stimulation. Such movements can be likened to gestures made in sign language. Therefore, sign language also finds origin in emotional expression. At level three, the baby learns vowels as seen in the experience of cry and other emotions. Noam Chomsky posits that language is not learning but it is analogous to growth.14. The structure of language must be studied as structure of a supposed body organ he says. As alternative occurrences of experience of persist-escape interactions or emotions is shown to be a necessary condition for growth of an entity as a self and since in third level self it is seen that traces of verbal language and sign language form an integral part of the experiences such as of emotion, it can

[14] O. C. Irwin and T. Cury, 'Vowel elements in the crying vocalization of infants under ten days of age', *Child Development*, 12 (1941), 99-109; Noam Chomsky, 'A Review of B.F. Skinner's Verbal Behaviour', *Language*, 35.1 (1959), 26-58.

be said that the underlying structure of language (which is part of experiences or qualia) is analogous to an organ of the body because in our analysis of experiences, movement or action of the body decides the nature of experience in each level of self. The more complex movements or actions, the higher will be shown the level of self which has the experience. Thus, the nativist and interactionist theories of language can be united in this regard. This unification can be called Part nativist-part interactionist theory of language development.

A baby produces sound or utters words in order to persist in the presence of another entity or to escape from it, where the other entity or stimulus need not necessarily be a sound as seen in the case of emotions above. It is shown that a source of stimulation specific to a single sense organ obtains responses from all of the senses and not only that specific sense organ which obtains the effect from the stimulus, due to the existence of the ability of the self to be or have a mind.

The use of language is an attempt to interact and its structure underlies the process of acquisition of cognitive abilities, with each part of speech underlying such ability or experience or qualia in general.

A baby starts to babble at age seven months and is sensitive to phonemes for the first twelve months.

A baby starts using words around twelve months of age, which will be shown to be self of higher level. Developmental milestones of sign language are the same as the developmental milestones of spoken language. So the easiness to learn both do not differ as both are part of the same experience, that is growth of body is synonymous with growth of the self, or increase in variety of experiences this increase in capacity to use language. At twelve month baby starts using words such as nouns. At around eighteen months it starts using nouns and verbs. These developmental milestones will be described as different levels of self in later chapters.

Language is not a report of experience in the initial stages of acquisition. The very expression of words or sounds is part of the experience of the world or surrounding. The syntax underlies the very foundation of different kinds of experiences starting from reflex, emotions, locomotion, to thoughts about ultimate reality or God.

There is chereme specific to different movements of the parts of the body in the form of gestures in emotional experiences. A phoneme is a distinct speech sound, regardless of whether the exact sound is critical to the meanings of words. There is expression of phoneme specific to a specific emotion, in order to either persist or escape from stimulus in the experience of emotion. Haptic communication is also seen to originate in emotion as there is tactile expression to persist or escape from stimulus.

The phonemes uttered by the baby are directed towards an external stimulus in order to persist or escape from it. Phoneme refers to or names a single stimulus at a specific occasion of interaction with the stimulus. The phonemes in third level self combine to form a word when enough experiences accumulate to lead to fourth level self. Phonemes specific to single kind of stimulus combine when there is experience of a group of emotions specific to that single stimulus. For instance, a baby experiences hunger and sadness in the absence of food

or in the presence of foul food. The vocalisations in both emotions when combined give rise to a word which refers to a single kind of stimulus such is food as a noun and then give rise to a moving noun or verb.

In the third level self, a baby utters a phoneme such as '*aaa*' to escape which refers to a single stimulus such as an object or entity in general.

In fourth level self, the combination of two or more phonemes is used to signal or point at an object to be interacted with or avoided. Therefore, the use of language is an attempt of an entity to either persist or escape from a stimulus or to signal such desire.

6.10 Proof of correlation between Language and Motor control areas

To support the idea that speech or language originates in emotion, a link between language and movement or motor control has to be established.

Motor development refers to changes in children's ability to control their body movements, from an infant's first spontaneous waving or kicking (seen in reflexes) to the adaptive control of reaching locomotion and complex movements of all body parts as seen in emotions. As shown previously, each kind of movement pertains to a specific level of self and specific quale or experience.

In order to show that movement itself is specific to language acquisition or use, a correlation between language and motor development must be established. One study suggests that speech, phonological and non-linguistic motor processes share a common and neutral substrate. It suggests that speech is not special and different from other processes because speech function is found to be hindered when non-linguistic actions are hindered.[15]

Therefore, the idea that speech does not function independent of action is established, and that speech process is linked to non-lingual action areas. As language is part of motor control system, it supports our idea that parts of speech originate in actions or movements underlying experiences or qualia.

Language or verbalisation and sign language originates as a result of emotions, but initially, it is not meant for communicative purposes. Language becomes communicative in nature only at higher levels of self and higher levels of cognitive complexity which possess self-awareness.

Noam Chomsky proposed that there is an intrinsic structure that underlies all languages.[16] This idea of intrinsic language structure can be linked to the discovery of the sound envelope by proposing that the sound envelope is the underlying structure common to all languages, and the starting point of action along with producing language.[17]

In Broca's area, the sound is represented even before sound is produced:

---

[15] Friedemann Pulvermuller, Martina Huss, Yury Shtyrov, et al., 'Motor Cortex maps articulatory features of speech sounds', *PNAS*, 103.20 (2006), 7865-70.

[16] Chomsky, *Aspects of the Theory of Syntax* (2014).

[17] L. Magrassi, G. Aromataris, A Cabrini, et al, 'Sound representation in higher language areas during language generation', *PNAS*, 112.6 (2015), 1868-73.

> The maximum correlation between ECOG in Broca's area of sound waves takes place 170ml before any sound is emitted.[18]

This excess sound is still relevant to sound and syntax even if Broca's region is a non-acoustic area. This finding raises the question of why there are phonetic representations present in an non-acoustic area. This presence of sound representation in the Broca's region itself might be the architecture of grammar.

This sound representation is present before or at the time when new thoughts are formed. The idea that phonology feeds syntax is readily supported by the above findings. It can be demonstrated that thinking and speaking can serve the purpose of enabling experiences such as locomotion and that there is an established correlation between speech and action.

Throughout this book, the idea of syntax serving the purpose of not only locomotion but also movements or actions involving all body parts and an entity's focusing ability and other cognitive capacities will be explored. The examples of third level self, awareness of an entity about the environment and the nature of its experiences is given in tables in Appendix.

References

Burgoon, Judee K. and Stephen B. Jones, 'Toward a Theory of Personal Space Expectations and their Violations', *Human Communication Research*, 2.2 (1976), 131-146

Chomsky, Noam, 'A Review of B.F. Skinner's Verbal Behaviour', *Language*, 35.1 (1959), 26-58

Chomsky, Noam, *Aspects of the Theory of Syntax*, 50th edition (Cambridge: The MIT Press, 2014)

Churchland, Paul M., *Matter and Consciousness* (Cambridge: The MIT Press, 1988)

Del Giudice, Marco and Livia Colle, 'Difference Between Children and Adults in the Recognition of Enjoyment Smiles', *Developmental Psychology*, 43.3 (2007), 796-803

Eaton, R. C., *Neural Mechanisms of Startle Behaviour* (Boston: Springer, 1984)

Frey, William H., *Crying: The Mystery of Tears* (Minneapolis: Winston Press, 1985)

Hamm, J., C. G. Kohler, R. C. Gur and R. Verma, 'Automated Facial Action Coding System for dynamic analysis of facial expressions in neuropsychiatric disorders', *Journal of Neuroscience Methods*, 2.200 (2011), 237-256

Hanoch Kumar, K. and P. Elavarasi, 'Definition of pain and classification of pain disorders', *Journal of Advanced Clinical and Research Insights*, 3(2016), 87-90

Irwin, O. C. and T. Cury, 'Vowel elements in the crying vocalization of infants under ten days of age', *Child Development*, 12 (1941), 99-109

Magrassi, L., G. Aromataris, A Cabrini, et. al., 'Sound representation in higher language areas during language generation', *PNAS*, 112.6 (2015), 1868-73

[18] Ibid.

Mori, H., ‘Input and Interaction in Language Acquisition edited by Clare Gallaway and Brian J. Richards. Cambridge: Cambridge University Press, 1994. Pp. xv+319’, *Issues in Applied Linguistics*, 7.2 (1996), 325-26

Nagel, Thomas, ‘What Is It Like to Be a Bat?’, *Philosophical Review*, 4.83 (1974), 435-450

Pulvermuller, Friedemann, Martina Huss, Yury Shtyrov, et. al., ‘Motor Cortex maps articulatory features of speech sounds’, *PNAS*, 103.20 (2006), 7865-7870

Susskind, Joshua M., Daniel H. Lee, Andrie Cusi and Roman Feiman, ‘Expressing fear enhances sensory acquisition’, *Nature Neuroscience*, 7.11 (2008), 843-50

TenHouten, Warren D., *A General Theory of Emotions and Social Life* (New York: Routledge, 2007)

Chapter 7
Extended Self, Verb and Locomotion

7.1 Stimulus controlled movement of the body

A new born can experience primary emotions such as sadness, happiness, disgust, surprise and fear with a single external stimulus such as food. In the absence of food, the baby experiences hunger or sadness. When food is present, it feels happiness. When the food is unappealing or not considered pleasant or edible, it feels disgust or fear. Escape emotions (sadness, disgust, fear) are experienced when the food is absent, unavailable or undesirable, in additional to the experience of cry and anger (when a baby moves away from something inedible).

Another example of a stimulus is the mother. In the absence of a mother's care, the baby cries as it experiences discomfort such as pain. For instance, if the surrounding is filled with unpleasant sound, bad food, uncomfortable touch of clothes on skin, unpleasantly bright light on the eyes or unpleasant smell, the baby cries as a signal to its mother as it is unable to escape from its surrounding by itself.

When the mother is present to comfort the baby and prevent it from harm, it experiences happiness and surprise. In the absence of a mother's comforting, the baby also experiences fear. As shown in the previous chapter, the stimulus is perceived as a set of *non-existent* effects, that is, the self is aware of the stimulus as a collection of effects which it believes exist.

Whether the effects exist or what kind of effect the stimulus impinges in the self is not a matter of concern. What is important is to acknowledge that the self reacts with four process senses to persist or escape from an imagined collection of effects. It is this collection of effects that is the expression of a particular part of the surrounding which is both desirable (when the self persist-interacts by experiencing persist emotion) and undesirable in nature (when the self interacts in escaping manner by experiencing escape emotions). How the self interacts with the stimulus depends on the single and real effect it impinges upon the self.

In the first level self, there is no stimulus as the self is not aware of the existence of the stimulus. To the self, the effect of the stimulus is change in itself and is not considered external. In the second level self, awareness emerges from first level self.

In the second level self, there is stimulus in the form of a single external effect, as it is aware of the stimulus as either a desirable or undesirable single effect. It is aware of the stimulus being a single effect because it responds to the stimulus by moving a single part of the body or exhibits movement of a single sense organ.

In the third level self, the awareness emerges from second level self. With a collection of interactions with the desirable and undesirable stimuli, in the second level self, the third level is aware of the stimulus as being a collection of either desirable or undesirable effects, as it interacts with the stimulus by moving more than one part or all parts of the body collectively acting on the single effect in order to escape from it or to be stimulated by it.

In the fourth level self, the awareness emerges from the third level self. As the third level self accumulates more and more experiences, there is collection of movements of all parts of the body to either persist or escape. This collection of movements in the form of persist emotions

and escape emotions combine to give the stimulus the *appearance* of being a self. The collection of persist-escape emotions gives the stimulus the appearance of a self because fundamentally the *I* or a self-referential quality leads to the duality of *is* and *is not*. That is, any entity is a self if it can be in at least two different states or possess two opposite qualities. So, any entity is a self if it can act in a persisting manner in the process that leads to self-reference and also act to escape from a process that does not. Therefore, a self is primarily a collection of persist-escape interactions. The fact that we have found that an external stimulus can cause both kinds of emotions suggests that it represents both persist and escape actions which is the basic quality of any entity that is a self.

The common domain in the external environment or surrounding that becomes a collection of persist-escape interactions as a result of interactions with the self of level three becomes the fourth level self. Figure 7.1 shows how the stimulus as part of the external environment becomes a self.

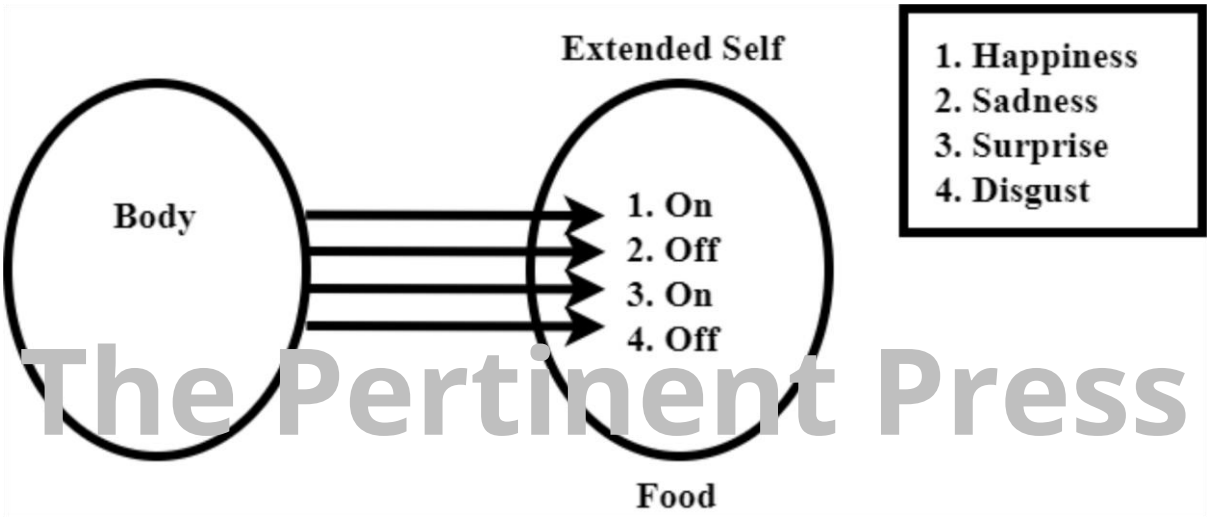

Figure 7.1: Appearance of Locomotion in Self and Extended Self

The *essence of being-ness* in the fourth level self is in the part of the surrounding that is responsible for a group of persist and escape emotions, rather than the body of the entity. In the third level self, the body is capable of exhibiting both persist and escape interactions in the form of emotions, meaning that the body is the *essence of being-ness*, as the body is strived to be protected from potential damage in level three of self. The body is the essence of being because it is the domain of persist-escape emotions of third level self.

Movement of all body parts to collectively respond to the stimulus in order to persist or escape from it is seen in the expression of emotion in third level of self. A collection of persisting emotions is a collection of movements of all body parts, specifically the stimulated senses. Likewise, the collection of escape emotions is a collection of movements of the senses to escape stimulation.

The ability to exhibit locomotion emerges as fourth level self from a collection of persist-escape emotional experiences in level three. Moving towards a stimulus emerges from the experience of all persist emotions, whereas moving away from a stimulus results from the collective experience of all escape emotions. This is because each kind of movement specific to an emotion has a purpose of continuing to be exposed to the stimulus or escaping from it.

If a stimulus causes either persist or escape emotions, then it is not a fourth level self because the fourth level self emerges from a collection of persist-escape emotions acquired in level three.

At level three, the self is aware of or knows that a stimulus such as food exists in the surrounding only when experiencing happiness (the *on* state). It is only aware of absence of food when experiencing sadness or disgust (off state), as shown in Figure 7.1. As the third level self accumulates more persist emotions such as happiness, surprise, etc. the fourth level self and its increased awareness about the stimulus emerges. The self of level four is aware of the presence of food not only in the instance of experience of happiness or surprise but is also aware of its presence in the surrounding in the experience of two consecutive instances of persist emotions. Likewise, it is aware of the absence of food in the experience of escape emotion between two consecutive instances of persist emotions. The entity in level four is aware of food in the 'on' and 'off' stage represented by persist and escape emotional experiences. In level three the entity is only aware of food at one of the stages and not both.

The moment of awareness of food in experience of persist emotion is considered as 'on' stage while lack of awareness of presence of food is considered as 'off' stage as shown in Figure 7.2. The entity in level four is aware of food at instance x, y and z collectively.

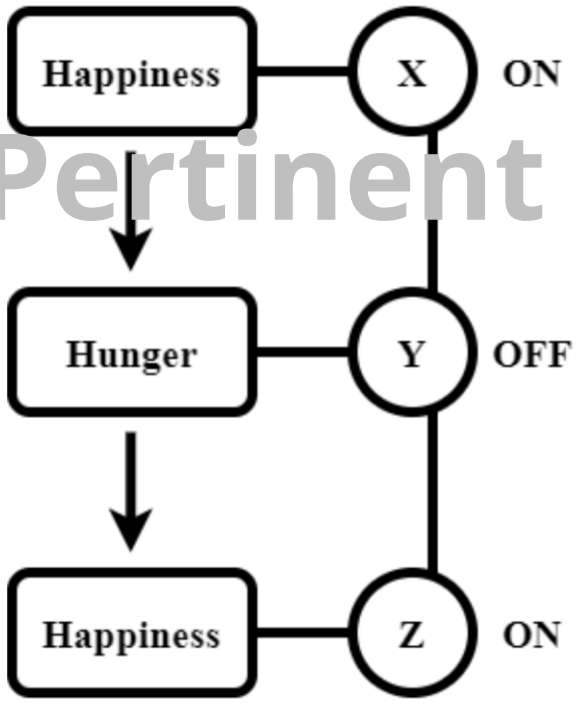

Figure 7.2: Awareness of Food in Level 4

At level 3, the self is only aware of food when experiencing happiness at the moment of experience x. It is aware of the absence of food when experiencing hunger at instance y. It loses awareness of food when it experiences escape emotion. Therefore, there is no continuity of awareness of food between two instances of happiness which is x and z, and awareness is

specific to the specific moment of experience of persist emotion. The food exists or does not exist specific to single occasion of on and off states.

At level four, the self is aware of the presence of food around itself in happiness and its absence in hunger. The awareness continues from x to z even when there is loss of awareness in y.

The self is aware of food as appearing and disappearing at different occasions where the awareness is not lost. The existence of food is not specific to single occasion of experience.

The awareness of food at both on and off stages gives the stimulus the *appearance* of movement because in *on* stage it *appears* to move towards and in *off* stage it *appears* to move away from the self. In the experience of happiness the food moves towards the self and in hunger it moves away from the self. Therefore, in the awareness of the self, the stimulus *appears* to move. In level 3 and 4, the appearance and disappearance, which is also the existence and non-existence of food is dependent upon its physical presence around the self.

In the presence of food, the experience of happiness results from the stimulation of the tongue along with the other senses.

In the absence of food, the experience of hunger results from the absence of stimulation of the tongue. The quality of movement of the entity is attributed to the external stimulus as a result of consecutive instances of presence and absence in consecutive persist-escape emotions. Therefore, the stimulus or object of awareness of the fourth level self is any object which appears to move in the surrounding. The infant learns to identify objects by their movement at level 4.

An example of fourth level self is a baby which moves to follow the mother who appears to move away or towards it in consecutive persist-escape emotions. In persist-interaction, the baby moves towards the mother who from the baby's perspective *appears* to move towards it. The baby engages in persist interaction when it follows the mother and engages in escape interaction with the mother when the mother stops moving and does not appear to move towards or moves away from it. Therefore, when the stimulus does not move, it has terminated interaction with the self.

The persist-interaction is the projection of the question: *Moving or not moving*? upon a certain part of the surrounding. When answered with *yes*, the self moves to follow the stimulus, whereas when answered with *no*, the self does not move to follow it. The self also moves in relation to the stimulus because the experience of persist-escape emotions gives the body the ability to move from place to place.

In level 4, the moving capacity of the external stimulus is preserved in persist interaction and not preserved in escape interaction. The *essence of being-ness* in level 4 is the *appearance* of movement of the external entity which is common in both persist and escape interactions as shown in Tables 11.1 and 11.2.

However, the *appearance* of movement of the stimulus is independent of the actual physical movement of the stimulus, because any entity which causes the self to experience consecutive persist-escape emotions appears to move because movement in the form of on-off states underlies the experience of persist-escape emotions. Therefore, external objects which appear

to move also cause the baby to move towards them or with them and thus become part of memory.

Only those objects in the surrounding which cause not only one kind of emotions but both in third level are recognised as moving.

As food can cause either happiness or disgust, depending if the baby wants to eat food or if it is full, the food *appears* to move to the baby and the baby moves in space towards and away from food.

Let us use another example. If a baby has never seen a cat before and the cat moves in front of the baby, the baby is unaware of the cat's existence because the cat is a new entity which is yet to cause either happiness, pain or both. Only when the cat causes both kinds of emotions, then the baby can be aware of it. The baby is blind to new objects.

The baby moves towards or in relation to the mother because the mother provides the baby comfort which makes the baby happy. In the absence of the mother or in the presence of too much comfort the baby escapes from the mother by experiencing escape emotions such as sadness. Therefore, the mother is the common domain of both persist and escape emotions.

A mother is a stimulus which is a self, as it is the domain of both persist and escape interactions. As the self is outside the body of the entity, the stimulus in level four is the first external self. By *external*, it is meant that the self is outside the body of the experiencer. It is only the movement of the stimulus that decides when the entity stops engaging in persist interaction because only when the stimulus stops moving in the surrounding that the entity such as the baby stops following the stimulus. The entity or the baby learns to imitate in level four. A baby in level four learns to move from one place to another animating 7 to 10 months is a fourth level self because it starts to crawl.

Let there be a situation where the infant is surrounded by multiple stimuli:

1. Being fed by its mother
2. Unpleasantly bright light
3. Unpleasant sound from a toy
4. Warm clothes and cosy bed

In level 3, the experience of hunger is caused due to the absence of 1, but it experiences happiness in the presence of 1 when the mother feeds it. The baby blinks to escape and experiences pain in the eye in response to 2, thus there is experience of emotion of sadness. In the presence of 3, the baby experiences sadness due to the unpleasant impact on the ear. In the presence of 4, the baby would experience pain on the skin if the baby does not want to sleep or if the external temperature in the surrounding is too warm. Therefore, the bed causes both escape and persist emotions. As seen above, food and cosy bed can cause both persist and escape emotions whereas unpleasantly bright light and sound cause only sadness.

In level 4, as the self only moves in relation to level 3 *nouns*, which accumulated both persist and escape emotions, the baby only moves and it is only aware of the movement of the mother and the bed. That is, it will move to be exposed to the mother and the bed rather than other stimuli in the surrounding which cause only one kind of emotion such as the source of unpleasantly bright light and sound. Though the bed does not move in reality, it nevertheless

appears to move because only the *appearance* of movement of an external entity *makes* the baby move in relation to it. By moving in relation to the mother and bed, the baby exhibits persist interaction with both. When the mother stops moving and when the baby is tired or there is no space left to cover while moving towards the bed, the baby stops moving in relation to the mother and the bed and engages in escape interaction with the mother and bed.

Irrespective of the movement of a number of objects in the surrounding, the awareness of movement is dependent upon how the baby has experienced or interacted emotionally with the objects. The baby is not aware of movement of any new object because no new object forms the domain of both persist and escape emotions.

The ability of the entity to move its whole body in level 4 emerges from the experience of emotions where all body parts move collectively to allow or escape from stimulation. As seen above, the stimulus and the appearance of its movement decides whether the entity engages in persist or escape interaction with the stimulus.

As described in previous chapters, the self-hood is not confined to materiality. Anything that is a collection of both persist and escape interactions is a self. In the fourth level self, it is the stimulus that accumulates persist-escape emotions and makes the entity's body move in relation to it. The stimulus that appears to move causes the entity to move because in level 4 the entity finds itself or something like itself in an entity outside the body. The body of the entity is only a tool for initiated movement and controlled by the external self. In other words, the body is just a puppet or tool for interaction. In the previous levels of self, movement exhibited by each part of the body was shown to result from an ability to preserve the ability to be a body because the *essence of being-ness* in previous level of self is shown to be the physical body.

In the fourth level self, as the movement of the body is *controlled* by an external entity, it is clear that the *essence of being-ness* or that which is preserved or common in interactions is not the body of the entity in interaction with the surrounding. Therefore, the body is not the *essence of being-ness* in level 4. For example, a human baby's ability to crawl only emerges when the baby experiences both persist and escape emotions with at least one stimulus.

Irrespective of the actual movement of objects around it, the baby is only aware and is attentive to the movement of a few objects or entities. When the mother feeds the baby excessive food when the baby is not hungry, the baby spits the food out in disgust and disgust is a negative emotion. When the mother feeds the baby when hungry or in pain, the baby experiences happiness. As explained earlier, the experience of happiness signifies the movement of food towards the baby and experience of disgust signifies the movement of food away from it. In the experience of happiness, the food appears to be present and in disgust the food appears to be absent. Therefore, the instances of appearance and disappearance give the food the *appearance* of movement. As the mother is the source of food, the mother appears to move. The body of the entity is just a tool for movement caused by the external self. The food, or the mother, controls the body of the baby to move towards itself. When the baby is in motion in relation to the mother, it engages in persist interaction. When the mother stops moving, the mother has initiated escape interaction with the baby and thus the baby engages in escape interaction with the mother. By initiating escape interaction,

the external self of fourth level self controls the movement of the fourth level self such as a baby.

All non-human animals that possess the ability to move in space in relation to external stimulus or objects are examples of fourth level self. Hunting and phagocytosis are examples of persist interactions of fourth level self where the entity moves in relation to an external stimulus such as food or prey. However, for the prey, as the predator is only a sign of danger, the movement the former exhibits away from the predator results from the escape emotion of fear. The prey is a third level self in the interaction because it experiences emotion of fear. On the other hand, since the prey is food and food has been shown to cause or represent both persist and escape emotions, the prey becomes the external self, therefore making the predator be aware of it as a moving entity, and hence making the predator move in relation to it to exhibit persist interaction with it. The movement exhibited by the prey is part of the experience of fear, whereas the movement exhibited by the predator results from the awareness that the prey is something that moves and also something that can potentially be food.

As the entity finds in the stimulus another entity which exhibits locomotion like itself, it can be concluded that to learn any new verb or doing noun, the entity whose action the verb represents should be the source or domain of persist-escape emotions for there to be awareness of an object which is a noun and which does something like movement in the mind of the entity. In this manner the first set of verbs are formed in the mind of the entity which is aware of locomotion exhibited by a stimulus.

7.2 Sensory adaptation, Biological clock, Extended Self and Awareness of fourth level Self

As seen in previous levels of self, the self is confined to the physical body. This is because the *essence of being-ness* or the *substrate of self* of the first three levels of self, as well as the memory of the interactions between the self and the environment, is stored in the physical body. In the fourth level self, the external stimulus which is outside the body of the individual *acquires* or *represents* all persist-escape interactions in the form of emotions. There is emergence of movement of the whole body from the movement of all body parts (in the experience of emotion) collectively acting to allow stimulation of the senses or to avoid stimulation. Movement of the whole body towards an object is dependent upon movement or *appearance* of movement of that external object in the awareness of the entity. The self is not in the body of the entity such as a crawling infant, because in level four the relative movement of the whole body is tied to only objects that should *appear* to move not those that actually move. Here the *appearance* of movement is different from actual physical movement exhibited by the stimulus.

If there is a toy car which the baby has seen for the first time and which has not caused the (third level) self to experience both persist and escape emotions, the baby is not attentive to or is not aware of the toy-car even if it actually moves.

The surrounding plays an important role in the development of the baby. The baby's movement is controlled by external stimulus which it knows to be desirable and undesirable, based on the presence and absence of *appearance* of movement. Only when the baby has

experienced both happiness and sadness or pain with regard to the stimulus, then it moves in space to know more about the stimulus by following it. Objects that do not actually move such as the bed, food, etc. cause the baby to move towards it because *in the awareness of the baby these objects appear to move.* When the baby moves towards an object it engages in persist interaction with the object. When the baby is not hungry for food and it feels disgust it stops moving towards the food. When the baby does not need to sleep the bed *appears* to stop moving. When the baby stops moving, it engages in escape interaction. When an external entity capable of moving stops moving, it initiates escape interaction with the baby and thus controls the movement of the baby.

For example, a ceiling fan cools the environment when the baby feels heat and causes it to feel uncomfortable or sad due to over cooling. When the air becomes too cold the baby feels pain when exposed to the fan and cries to signal to the caregiver to turn off the fan. The role of the caregiver is important because if the caregiver does not turn off the fan, then the fan causes more pain and sadness and makes it only a source of escape interactions. This also means that the fan does not form part of the knowledge of the baby as a verb, since the baby is not aware of the movement of an object which causes only one kind of emotions. However, when the caregiver turns off the fan, the baby stops feeling pain and feels comforted and happy, making the fan the cause of not only pain but also happiness. This makes the fan form part of the knowledge of the baby as a verb and not merely as a noun. Therefore, the caregiver plays an important role in the knowledge acquisition of the baby about the surrounding. It can be concluded that timely exposition of a baby to objects in the environment favours the knowledge acquiring ability over constant exposition to the same set of objects.

Sensory adaptation refers to a reduction in sensitivity to a stimulus after one is constantly exposed to it. While sensory adaptation reduces our awareness of a constant stimulus, it helps free up our attention and resources to attend to other stimuli in the environment around us. In the above example, since the caregiver removes the baby from constant exposure to the stimulus such as the fan, sensory adaptation can be regarded as the natural way of escaping from a stimulus to reduce exposure to its constant presence. Therefore, at level 4 the baby acquires the ability of sensory adaptation.

In level 4, the awareness of the self is specific to an object that moves. Thus, there is knowledge of a *noun that does* or the knowledge of *verb*.

The formation of nouns is the process of interaction of the third level self itself in any entity. As the *nouns* of level 3 appear to move or exhibit physical change in a level 4 self, the objects that signify the nouns only become verbs when these objects have caused both persist and escape emotions. Therefore, verbs are formed out of nouns. It is in level 4 that the doing capacity is added to the nouns to form verbs because a verb is what a noun does to be a specific noun.

In level 3, vocalisation of emotions give rise to verbal language and the phonemes uttered are the first nouns. Over a period of time, the accumulation of various kinds of phonemes gives rise to the utterance of a word to signify the object that is the noun. In level 3, the sound produced is the ear's attempt to accept stimulation or to suppress the ability of a new sound to stimulate the ear. It can be concluded that the origin of language or the initial stages of

language acquisition are not meant for communication. This is because the entity or the self is not aware of the stimulus as being like itself in initial stages of language development in order to communicate with it.

What does it means for the self to be transferred from the body of the entity to the environment? The presence of self outside the body in level four raises this question. Until the fourth level self, each kind of movement of the body either protects the body from danger or enhances the ability of the body to resist loss of form. In the previous levels of self, it is the body-ness projected on each kind of interaction with stimuli to check whether the stimuli are harmful or harmless to the body.

It is the body that is shown to persist or escape to protect itself or its *physical* form by exhibiting *physical* interaction with the *physical* stimulus. That is, until the level 4, the interaction between the physical stimulus and physical entity was shown to be entirely physical in nature. In level 3, in addition to the presence of the single effects from the stimulus, a mental non-physical group of four effects enters the awareness of the entity. For a single effect from the environment, the self of level three reacts with four more effects *assuming* that there are five effects in total received from the stimulus.

Such assumed set of effects form the first nouns that the human baby as an example of third level self learns. The noun does not exist in the body of the entity because the noun is the set of effects from the stimulus. The noun doesn't exist in the physical stimulus because the set of effects are assumed to exist but do not really exist or originate from the stimulus. It is in level 4 when a particular stimulus becomes either harmful or harmless at particular occasions, that the stimulus becomes a self. It becomes a self because as described in chapter 1, any entity which is a collection of persistence phenomenon or is a memory of such interactions is capable of self-referring and is capable of establishing the *is* relation with entities in interaction. As described earlier, the self-hood is not confined to material or physical substrates but is present in everything that has the capacity of self-reference so as to protect its form or *essence of being-ness*. But how there is transfer of self-hood from the body of the entity to a specific part of the surrounding has to be analysed.

How does the self moves from the domain of matter to non-matter?

How does an effect exist even when there is no felt effect on the body?

These questions can be answered solely on the basis that though the effects were absent in level 3, the self or the body brings the non-existing effects into reality by responding in four excess ways that make them a part of the awareness in level 4. The creation or assumption of external effects reveals some hint to the transfer of self from the entity to the surrounding.

The physical body is the *substrate of self* in first three levels because movement of the body or parts of the body is to preserve the ability to exhibit greater kinds of movements or ways to persist as a physical form in future interactions and thus to be able to grow.

The idea that the *essence of being-ness* is the quality that the self must possess to preserve the capacity to interact with the surrounding is important because the nature of interaction depends on the preservation of *essence of being-ness* in each interaction.

It is important to explain the transfer of self-hood from inside the body to outside because in the fourth level self it is the stimulus that moves the body. The impetus to move in level 4

exists outside the body as opposed to first three levels where the impetus to move exists inside the body of the entity. Since the self or the entity of level 4 is not aware of the movement of objects which do not cause both persist and escape emotions, it is blind and unaware of some objects which actually move. The *essence of being-ness* of self is that which preserves the ability of the self to exhibit self-reference in the form of movement away or towards an entity in interaction. In level 4, it is the stimulus that *controls* the body to preserve the capacity of the entity to move as opposed to the body itself which controls it's movements in lower levels of self. In level 3, the stimulus is the assumed set of effects called the noun and in level 4, these set of effects appear to move and are called *doing nouns* or *verb*.

The stimulus in level 3 is a greater self than the bodily self because for each single effect from the stimulus on the body, there are four excess effects impinged on the stimulus by the body. The number of interactions is greater on the stimulus's side of interaction compared to the entity's side of interaction as seen in Figure 6.3. S is the self and P is the stimulus. For a single effect A1 from the stimulus, the self reacts with X group of effects. The movement of the body of the entity is controlled by the external stimulus which becomes the common domain for both persist and escape interactions because the stimulus is the dominant self due to increased number of effects impinged upon the stimulus from the entity's side of interaction. The external stimulus being outside the body becomes the first external self or the mind.

The biological clock plays an important role in the formation of the fourth level self because it is because of the biological clock that a stimulus such as food becomes both desirable and undesirable at different occasions in a day's time. There is movement in stimulus *causing* movement of the entity such that the movement of the entity depends upon the movement of the stimulus.

In level 4, as there is movement of the entity only when the stimulus appears to move, it is the movement of the stimulus that is the *essence of being-ness* which is preserved in level four.

The awareness of the entity about the surrounding is formed of verbs or doing nouns because the stimulus in the form of an object controls the movement of the entity where the control signifies the fact that the verb-ness of the object is strived to be preserved in each interaction between the stimulus and the entity.

In previous levels, the stimulus is always present and the self or the entity strives to be present in the vicinity of the stimulus or tries to escape from it. The self also causes the stimulus to persist or move away from itself. In the fourth level self, the stimulus itself appears to appear and disappear on occasions so it appears to make a choice between when to be exposed to the entity and when to escape. Since the control over the movement is on the environment's side of interaction, the *essence of being-ness* is present in the stimulus outside the body of the entity and not inside or within the body of the entity.

From the above, the mind can be defined as 'an assumption an entity as a body makes about the presence of non-physical effects from the surroundings.'

The mind is the ability of assumption of the presence of non-physical effects. The first external self is the collection of assumed set of effects upon the body in relation to which the whole body moves to either persist or escape from objects that appear to move. The objects

that appear to move form the first level external self. There is transfer of self from body's side of interaction to the environment's side of interaction because self is fundamentally the domain of maximum collection of persist-escape experiences and in level 4 the stimulus is such domain. The body of the entity in level four is also capable of experiencing both persist and escape emotions, the movement of the body being controlled by the stimulus means that the stimulus is dominant self. As the movement of an external object controls the movement of the body, movement of the body depends on the appearance of movement or locomotion of external object, which is primarily a *doing noun* or verb. Whether the body of the entity exhibits persist or escape interaction with the first external self depends upon the initiation and termination of locomotion of the stimulus.

There is persist-interaction between the body of the entity and the stimulus, when in the awareness of the former the latter appears to move irrespective of actual movement exhibited by the latter. A baby exhibits persist interaction with the surrounding stimulus when the stimulus as a noun appears to move.

A baby engages in escape interaction when the stimulus appears to not move or stops moving.

In persist interaction as the movement of the stimulus is preserved and in escape interaction as the movement of stimulus is not preserved the ability of the stimulus to exhibit movement from one place to another or the ability to exhibit locomotion of the stimulus is the *essence of being-ness* in level 4. Since movement exhibited by a noun is its verb-ness, the verb-ness of the stimulus or external entity is the *essence of being-ness* of level 4. The body of the entity is just a tool of interaction on the entity's side of interaction. The entity's side of the surrounding is no longer the domain of self but of *essence of being-ness*. The domain of self or *substrate of self* is the locomotion exhibited by the objects in the environment. The fourth level self is primarily a moving object, and since the act of movement from one place to another is a verb, in the fourth level of self the baby can comprehend the concept of verbs and learns to use verbs in language. The level 4 is the stage of acquisition of verbs in the language capacity of the baby.

Though the stimulus initiates the movement of the body of the entity from one place to another, the body learns to move as a whole as an emergent capacity from the experience of emotions in level 3. The ability to exhibit locomotion emerges from the ability to move all parts of the body collectively to respond to the stimulus in the form of an emotion as shown in level 3. The stimulus appears to move because the awareness of the stimulus in fourth level self emerges from awareness of the stimulus in level 3, where the self is only aware of either the presence or absence of stimulus in persist and escape emotional experiences respectively. In level 4, the self is aware of not only the presence but also the absence of the stimulus as it is aware of at least two instances of presence and absence of the stimulus. The stimulus moves away from the entity when it experiences escape emotion, while the awareness of the stimulus still continues from persist to escape emotional experience.

In Figure 7.1 the *on* stage signified by persist kind of emotion such as happiness, is when the stimulus appears to move towards the entity and *off* stage signified by escape kind of emotion such as sadness is when it moves away in space, but nonetheless is present in awareness of the entity. As in level 4, the stimulus appears to move in addition to the entity's ability to move, the entity is aware of the stimulus as *being like itself* or as being a self like itself. This

kind of similar behaviour of the entity and the stimulus can be considered as the *event of transfer of self-hood* from the entity's side of the interaction which is the body to the surrounding's side of the interaction in a particular stimulus. The body and the stimulus have the same property, the common property of locomotion. By the act of locomotion the entity has found itself in the stimulus. Note that here the ability to exhibit locomotion in the entity emerges from persist and escape emotional experiences in level 3.

Any object in the surrounding which appears in the awareness of the entity to exhibit locomotion is the fourth level self.

Hunting is an example of persist interaction for a level 4 self such as a predator, in whose awareness the prey moves, which in turn causes the predator to move. Here the prey appears to move if the prey causes hunger and happiness to the predator. The awareness of the entity about the stimulus as being like itself signifies unification of the entity with the stimulus, thusproducing a unity with the surrounding. The locomotion exhibited by the entity in level 4, is unidirectional. Locomotion in relation to spatial awareness will be shown in level 5.

Biological clock affects sleep and hunger among other activities in controlling when we need to eat and sleep. At different occasions of the day, we feel that food and sleep are desirable or undesirable. The biological clock is responsible for the different perception of food and bed at specific occasions. If we would sleep and eat all day, food and warm bed would always cause persist or positive emotions. The warm cosy bed becomes a stimulus to escape from when the baby is made to sleep even when it does not want to sleep. When the baby needs to sleep as per biological clock the same bed makes the baby happy. Therefore, the bed causes both sadness and happiness experiences. The bed is the external self of level 4. In hunger experience which is pain in the absence of food, the food is considered undesirable because of its absence or if it is not appealing. Due to occasionally experiencing hunger due to the biological clock, there is happiness in the presence of food in the absence of hunger. Therefore, the biological clock makes food the domain of both hunger and happiness and an external self in level 4. If hunger is experienced continuously, then food would always cause escape emotions. The stimuli such as food and bed which are nouns of level 3 which appear to move by virtue of accumulating both persist and escape emotions lead to the formation of verbs. That is, the words signifying the food and bed represent the *doing* capacity of both entities. It is due to the biological clock that external objects are both desirable and undesirable depending on the occasions of exposure to such objects. Due to the biological clock, external objects appear to move in the awareness of the entity such as an infant which can crawl or move from place to place.

As shown previously, a noun as a word is formed by accumulation of vocalisations of various persist or escape emotions in level 3. The merger of vocalisations leads to the utterance of a word as a noun. As persist emotions have different vocalisations compared to escape emotions, the word which forms by merger of vocalisations in persist emotions will sound pleasant compared to the word formed by the merger of vocalisations in escape emotions. A word as a verb in level 4, is formed by the merger of vocalisations of both persist and escape emotions.

Therefore, verbs will sound neutral.

The utterance of a noun in level 3 is a reaction to undesirable stimulus when the stimulus causes escape emotions. However, the utterance of a noun is a response in favour of a stimulus which causes persist emotions.

The origin of language is a way of responding to external stimulus. The different vocalisations of persist emotions which form nouns for desirable stimuli combine with vocalisations of escape emotions which form nouns for undesirable stimuli to lead to the emergence of sounds for verbs.

A group of stimulating leg and hand movements in level 3 that persist in the presence of the stimulus, combine with escape action movements from stimulation to lead to the emergence of the movement, such as human babies crawling.

Until level 3, the entity's side of interaction alone was the domain of both persist and escape experiences. In level 4, the domain *extends* to the surrounding, because the biological clock affects experience of a stimulus so as to make it both desirable and undesirable at different occasions. The extension of the domain of experiences signifies the extension of the capacity of experience which is the self.

'The Extended Mind' by David Chalmers and Andy Clark is a significant work in the area of extended cognition.[1] It is the idea that parts of the external environment function as a part of the mind of the entity in interaction with the surrounding. The idea is that the role of the external object in interaction with the entity must be of the nature of accomplishing the same purpose or function as the entity's inner cognitive system. For instance, a smart phone storing contacts accomplishes the same purpose of saving a contact for future reference as the person's memory. The mind is not considered confined to the boundaries of the skull or the body in general. In 'The Extended Mind' a thought experiment explains the role of the environment in connection to the cognitive capacities of an individual. Two people, Otto and Inga, are said to be travelling to a museum. Otto, an Alzheimer's patient, uses his notebook to store the directions to the museum whereas Inga uses her memory. As Otto's notebook and Inga's memory serve the same purpose of assisting in reaching the museum, one's internal processes such as memory can serve the same function as an external object in interaction. Therefore, the notebook is an extension of cognitive function of memory which an entity possesses.

As described earlier, memory is a collection of persist-escape experiences between the self which is a body and the environment until level 3. The memory is the domain and cause of movements exhibited by the body of the entity, where the body is just a tool which obeys the orders of that domain. Thus, in all three levels of self, the body is said to cause movement of the body parts in order to preserve its form in interaction with the surrounding. In level 4, the stimulus controls the movement of the entity's body. Thus, the object outside of the body in level 4 serves the same function as that which the body serves in first three levels.

As seen in the first three levels, the domain of specific sets of persist-escape interactions resides in the body because the movement is initiated to protect the body. As seen in level 4, the movement of the body *appears* to be caused and initiated by an external entity, which is also the domain of specific set of persist-escape interactions exhibited with the body. In the first three levels, what moves parts of the body moves the whole body in level 4 to

[1] Andy Clark, David Chalmers, David Chalmers, 'The Extended Mind', *Analysis,* 58.1 (1998), 7-19.

accomplish the same purpose - to protect the *essence of being-ness* and to exhibit persist and escape interactions, the self. The force that causes movement exists inside the body in first three levels and exists outside the body of the entity in level 4. In level 4, the self which is the domain of persist-escape interactions as memory is shifted from inside the body of the entity to outside the body in an external stimulus such as food as shown above in Figure 7.1. As explained in previous chapters, the greater the number of persist-escape interactions a self accumulates, the closer such self is to God and is freer as it possesses greater freewill. In level 4, as the stimulus has four greater effects on its side compared to a single effect on the entity's side in a single emotional interaction, the stimulus is a greater or dominant self compared to the bodily self. Thus in level 4, the mental self is dominant in comparison to bodily self. There is transfer of self outside the body because the *essence of being-ness* is shifted from inside the body to outside the body in level 4. As what is common in both persist and escape interactions is the *appearance* of movement of the stimulus in level 4, the *essence of being-ness* in level 4, is the ability of locomotion which is also the verb-ness of a noun or external entity.

If the role of the external stimulus (such as food causing the body of the baby to move) accomplishes the same purpose as movement of the body caused by the impetus within the body, then the external entity may signify the transfer of the causal agent from inside the body to outside the body. That causal agent being the self itself protects the *essence of being-ness* specific to specific levels of self. Thus, the idea of extended mind can be rephrased as *Extended Self* to include the causal role of objects outside the body in movement driven experiences such as locomotion. The idea of *extended self* is that an external object existing outside the body has the same set of qualities to be *like* the self of the body. The extended self not only appears to move by itself but also causes the entity to move and is not confined to the boundary of the body of the entity. It is said to have transferred from inside the body to outside it. This concept can be called the *Modified Extended Mind* or Extended Self.

Perception of time can be explained as a succession of emotions such as hunger (absence of food) and happiness (presence of food), where an article such as food is understood as existing in two different *occasions*. Time is therefore a relation between two consecutive instances of appearance and disappearance of the same object at two different occasions. At level 4, the baby possesses a sense of time because by being aware of an entity in two consecutive persist-escape emotions, it is aware of the continuity as time itself. That is, what causes the continuity in awareness of food in two different kinds of emotional experiences, is time itself. Thus, at level 4 there is creation of *appearance* of time in addition to the creation of *appearance* of movement of an external object. In Table 11.1 and 11.2 the awareness of the entity about the stimulus, the kind of interactions it has with the stimulus and the essence of being-ness are described.

7.3 Attention in Locomotion

As described in level 3, the mind is a set of non-existent and non-material effects on the body. From level 3 onwards, there is no actual exchange of physical effects between the entity's body and the surrounding stimulus but still there is physical presence and absence of it by virtue of awareness of the surroundings.

In level four, there is no physical effect impinged by the external object upon the body, but yet the external object influences the ability of locomotion of the entity. The nature of

interactions from level 4 will be non-physical because the causal impetus which initiates movement no longer exists inside the body and a stimulus no longer impinges physical effects on the body of the entity. Until level 4, persist-escape interactions include physical exchange of effects between the body and the physical stimulus.

In level 4 and above there is movement of the body of the entity in response to a non-physical causal agency – the mind. Thus, the body does not move in level 4 to protect itself from physical harm and does not move to enhance its physical form in the presence of desirable physical effects. As the *essence of being-ness* is not confined to the body of the entity, the cause of movement is non-physical in nature.

The *essence of being-ness* in level 4 is the *appearance* of movement of an external entity in the awareness of the entity. The body of the entity moves only in relation to appearance of movement of the external object where the initiation and termination of the movement of the body of the entity is solely dependent upon such appearance. The initiation of movement of the entity is caused by the appearance of movement of the external entity and such movement exhibited by the entity is called persist interaction. When the external entity ceases to appear to move, it is said to have terminated movement of the entity and such termination marks the initiation of escape interaction of the entity with the external self or object. In level 4, a baby which learns to crawl is just a body or tool of movement controlled by the self that exists outside the body of the baby and such process of existence of self outside the body is called 'The Extended Self'.

The ability of the entity to move to concentrate (where movement is a physical event), in response to a non-physical effect from a stimulus is said to be the ability of attention. Attention is concentration on a specific aspect of a stimulus and ignorance of others. As movement of level 4 of self depends upon its awareness, awareness of the presence of non-physical effects from specific stimuli arises from the ability of attention, because the entity is selectively aware of specific stimuli and their movement, compared to all other entities which actually move in the physical sense.

A discrete aspect of information about an external object is its ability to move, which forms part of the awareness of the entity. As seen above, the level 4 self only moves in relation to objects that *appear* to it to move irrespective of whether the entity has the capacity to move. That the entity is caused to move by an external object is the ability of the entity to attend to only that specific external object which appears to move compared to all other objects that can move. The movement of the entity in relation to specific qualities of external objects is the act or process of attention exhibited by the fourth level self, such as a human baby which starts to learn to crawl in relation to specific external objects. From level 4 onwards, the causal force affecting movement of the body of the entity exists outside the body and appears only in the attention or awareness of the entity. Awareness and attention are used synonymously here. When the external object ceases to move in awareness of the entity, the entity stops being attentive to such object and engages in escape interaction with it. Therefore, loss of attention on a specific object is the process of escape interaction exhibited by the entity with the external object. As the entity in level 4 is aware of the *doing* ability of an external object (a noun), the level four is said to be the level of self in which the entity learns verbs. Presence of attention towards a certain part of the environment or a certain

quality of the stimulus such as movement is seen in the first external self or the first mental self.

In level 5, the entity concentrates on the spatial position or location aspect of the external object which emerges from concentrating on the moving aspect of it. Selective attention of physically moving objects is combined with objects which appear to move in the awareness of the entity in level 4. Note that in level 4, the self is aware of the movement of the stimulus even if the stimulus does not move in the physical environment, due to the fact that time dependent instances of awareness of presence and absence of the stimulus gives the self the awareness of movement of the stimulus irrespective of its actual physical movement. As the working of the fourth level self is highly dependent upon the working of the biological clock, the entity is said to acquire the ability to understand the passage of time, due to regular sleep patterns under the influence of the biological clock. It can be concluded that irregular sleep patterns diminish a person's sense of time, making the person less emotional and adopting a more sedentary lifestyle.

7.4 Psychic blindness and the characteristics of Fourth level Self

In a level 4 self, a group of persist-escape emotions with a single stimulus gives the impression of movement exhibited by that stimulus as shown in Figure 7.1. In happiness, the third level self is aware of food but in sadness the self is not aware of good food even when it is present. In surprise the self is aware of food and in disgust it is unaware of food. Therefore, these instances of appearances and disappearances (also called the on-off stages) give the stimulus the appearance of movement, even if it does not move in the physical world on its own. The appearance of movement is attributed to the ability of the external self to accumulate persist-escape emotions. The fourth level self is selectively aware of some objects out of many objects that move in its surrounding. In persist interaction, the entity is aware of the presence of the external object, whereas in escape interaction it assumes that the external object has moved or disappeared even if it is still present in the same location in space. Therefore, it is aware of specific objects in specific occasion of experience and unaware in other occasions of experience. The baby in level four possesses the ability to not recognise objects in some instances and therefore possesses the ability to not recognise known objects in certain occasions. The external object exists in awareness or appears only when the baby is experiencing movement in relation to it. For instance, food stops appearing when the food stops appearing to move. The food in experience of escape interaction exhibited by lack of movement of body in relation to it does not appear to exist even when it is always existing visually.

For a predator in hunting, the prey only appears to exist only when the predator exhibits movement initiated by the prey. When the predator is not moving in relation to the prey, the prey is said to be absent in the awareness of the predator even if the prey is physically present in the surrounding in the vicinity of the predator. The inability to recognise known objects and understand spatial relationships is called psychic blindness or visual agnosia and caused due to lesions in cerebral hemisphere.. Although the eyes are working and the signal is getting to the brain, it cannot be properly processed. It is impairment in recognition of visually presented objects. Temporal lobectomy performed in humans and other mammals such as Rhesus monkeys is found to cause psychic blindness.

An entity's brain state upon performing a temporal lobectomy is considered to be equivalent to the brain state (or state of cognitive development) of an infant which begins to learn to crawl or exhibit locomotion, or any level 4 self entity. Upon performance of a lobectomy, the entity composed of self of higher level is considered to descend down to level 4 due to psychic blindness. An entity with psychic blindness is not aware of continuous existence of a physically existing object but is only aware of it when it moves in relation to such object provided that object has caused both persist and escape emotional experiences.

As well as sight, temporal lobectomy also impairs expressing fear and anger and the ability to move in space in general. A study on rhesus monkeys states that:

> There is slowing down of movements: quick, jerky, movements characteristic of normal Rhesus monkey have almost entirely disappeared. Various tests do not show any impairment in visual acuity or in the ability to localise visually the position of objects in space. However the monkey seems to be unable to recognise objects by the sense of sight…..These symptoms of what appears to be 'psychic blindness.[2]

As shown earlier, the entity only learns to follow the external object with no awareness of special relationships between itself and the object in level 4. There is no sense of direction which prevents the entity from moving freely to exhibit quick, jerky movements. Impairment affects the moving capacity, quick decision-making in recognising objects diminishes and the monkey uses its mouth to taste objects rather than examine them with its hands. Examination of the object by putting it inside the mouth seems like what a fourth level self does to feel the presence of an object such as food when it experiences happiness in its presence or hunger or pain in the absence of food.

As described earlier, the kind of locomotion exhibited by the entity in level 4 is movement in one direction with no sense of direction because when an entity follows the external object which appears to move, it has no sense of direction and is blindly following the object. There is no sense of navigation from one path to another. The entity such as a baby does not take a turn to its initial position when it stops moving and when the mother appears to stop moving. The kind of locomotion seen in level 4 is that the entity follows a single path, where it cannot navigate between two paths and it only moves in one path towards or away from a specific stimulus. It only changes path or returns to the same position when there is a new object to follow in the direction of the initial position.

If we are to consider that a human who has undergone temporal lobectomy is a level 4 self, the entity must find it difficult to traverse a single point in space twice and does not possess the capacity to return to the starting point. Let us call this prediction prediction1. Also in level 4, the entity only learns to use clauses comprising of a noun and verb. As a result of this, the patient should find it difficult to utter complete sentences especially with prepositions because it is not until level 5 that the entity learns prepositions.. Let prediction2 be the prediction that the entity will find it difficult to utter complete sentences, especially excluding prepositions and will utter only phrases or clauses.

Evidence to support prediction1, shows that a human faces path disintegration upon performance of temporal lobectomy. It states as follows:

---

[2] H. Kluver, P.C Bucy, '"Psychic blindness" and other symptoms following bilateral temporal lobectomy in Rhesus monkeys', *American Journal of Physiology*, 119 (1937), 352-353.

> Thirty three neurosurgical patients (17 left temporal lobectomy LTL; 16 right temporal lobectomy RTL) and 16 controls were tested on a number of blind folded tasks designed to investigate path integration and on a number of additional control tasks (assessing mental rotation and right orientation). In a test of the ability to compute a homing vector, the subjects had to return to the start after being led along a route consisting of two distances and one turn. Patients with RTL only were impaired at estimating the turn required to return to the start….The results indicate that path integration is impaired in RTL patients[3]

Thus, our prediction about the nature of these patients being fourth level self is proved to be true regarding path disintegration and lack of awareness of location in space of the external stimulus. The kind of locomotion found in these patients is characteristic of fourth level self.

Evidence which supports prediction2 shows that there is a decline in the verbal expression in patients. This implies that there is also measurable verbal memory decline in patients with temporal lobectomy. The study states as follows:

> Conclusions: An individual patient's risk for post-operative verbal memory decline following dominant or non-dominant Anterior Temporal Lobectomy can be predicted using clinical data.[4]

Upon performing a temporal lobectomy, a person becomes a level 4 self as his inability to utter complete sentences and lack of path integration is characteristic of a level 4 self. Therefore, our prediction about the similarities between patients with temporal lobectomy and a normal human baby which has just started to exhibit locomotion is true.

7.5 Extended Self as Niche

In level 4, the entity is aware of the moving ability of the external object as a result of the nouns of level 3 acquiring the ability of *doing*, leading to the formation of verbs in level 4. The entity in level 4 is capable of uttering nouns in combination with verbs which form part of a clause.

As seen above, a specific stimulus or a part of the environment becomes a source or centre of attention by causing persisting and escaping experiences. By making the entity move in a particular direction, the external object controls the moving ability of the entity and also contributes to its ability to learn verbs. As the single point within the environment is responsible for all activities or experiences at a certain stage in an entity's development, the single stimulus is a comfortable or suitable object for the entity to interact with, compared to other parts of the environment. The external object here has a specialised appeal which controls or affects what the entity in level 4 eats (in the case of food being an external self) where it sleeps (in the case of cosy bed) and all kinds of movements it exhibits in relation to the environment. As explained earlier, the role of the presence of the mother in the development of the infant is crucial because the mother - as an external entity in the environment - appears to move and causes both pleasant and unpleasant experiences. It is the mother who exposes the infant to food, clothing, sound, smell and visuals in the environment. The infant is exposed to stimuli by virtue of the presence of the mother and the mother also

[3] C. L. Worsley, M. Recce, H. J. Spiers, J. Marley, C. E. Polkey and R. G. Morris, 'Path Integration Following Temporal Lobectomy in Humans', *Neuropsychologia*, 39.5 (2001), 452-64.

[4] E Stroup, J Langfitt, M Berg, M McDermott, W Pilcher, P Como, 'Predicting Verbal memory decline following anterior temporal lobectomy (ATL)', *Neurology*, 8, 60 (22 April 2003), pp 1266-73

plays the role in sensory adaptation in the process of cognitive development by avoiding awareness of a constant stimulus for too long, thereby enabling multiple novel experiences to the entity. Therefore, the mother becomes the centre of all experiences experienced by the infant.

The mother is the domain of maximum possible experiences who controls or decides the nature of experiences of the infant. The food appears to be present and absent in happiness and disgust respectively only when the mother feeds the baby and takes away the food when the baby feels disgust or is not hungry. The mother plays the role of making the objects in the environment that cannot move on their own to move such that even immobile external objects such as bed become an external self. An external self is that which accumulates emotions of both kinds. A niche is the domain of external selves or the domain of probable external selves in the surrounding. It is by virtue of the niche that the objects can be exposed to the entity in order to become external self. A niche is at least one external self.

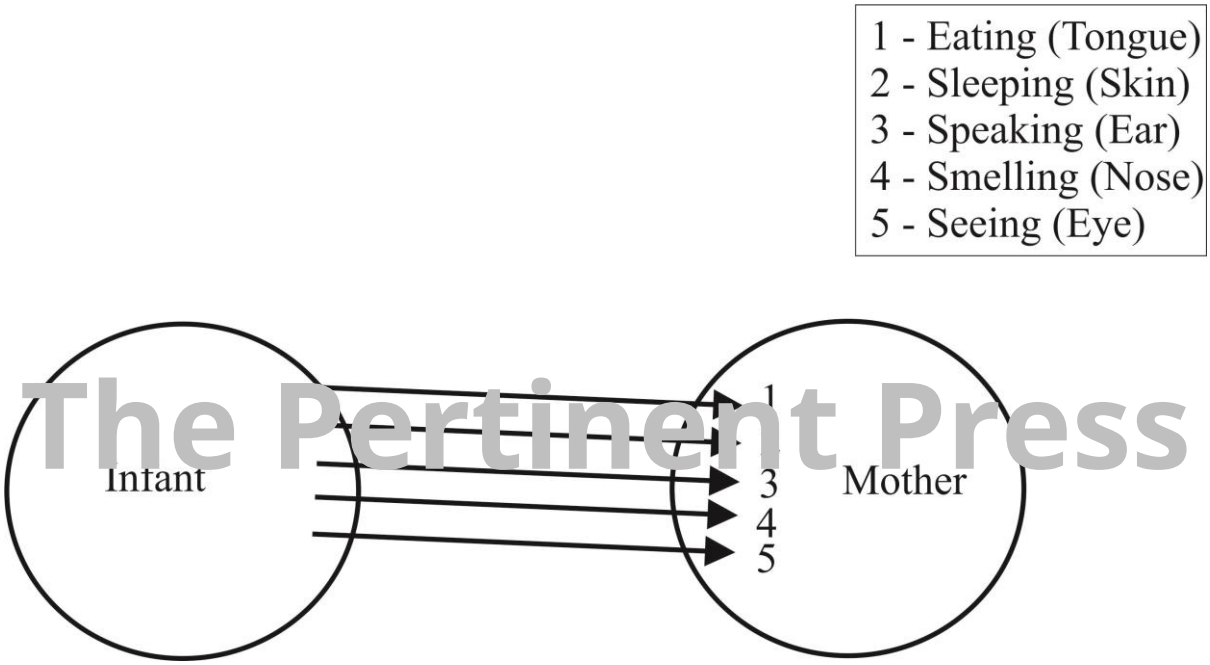

Figure 7.3: External Self as Niche

Thus, the external self or the stimulus is a niche to the entity because it is the centre of all activities or experiences in level 4 as shown in Figure 7.3 where the mother being an external self is a niche because the mother facilitates the senses of the infant to be stimulated by the environment at appropriate times of the day in activities such as eating, sleeping, speaking, seeing and smelling.

Adaptation to a particular part of the environment by an entity makes it a niche. One example of a niche for a human infant is its mother, because the presence and absence of the mother plays an important role in the presence and absence of stimuli in the surrounding. A niche is part of the surrounding that entity feels comfortable with.

A niche is part of the surrounding which is neutral and in level 4 can be any entity or a group of entities. Any external object or entity in the surrounding which is responsible for both pleasant and unpleasant experiences and which acquires the most number of experiences with the entity in interaction is called an experiential niche.

An external self in level 4 appears to an entity, in response to which it moves, a niche is anything which moves or makes the entity move from one place to another in the environment.

7.6 Utterance of words as an act of Imitation

As the entity moves in relation to the movement exhibited by the stimulus in level 4, it tries to find itself in the stimulus by imitating its moving capacity by following *it* in space. As shown in level 3, emotions give rise to vocalisations and in level 4 as there is imitation of movement, the entity learns to use gestures and vocalisation in communication as well. The entity learns to utter a word to denote the *doing* of the noun formed in previous level in the act of imitation. As the mother is shown to be an external self, the entity such as an infant tries to imitate the actions performed by the mother, for instance repeating the words uttered by the mother.

As the *essence of being-ness* or *substrate of self* is that which is common in both persist and escape interactions and that which is preserved in persist interaction, the actions or moving capacity of the external entity is said to be the *essence of being-ness* of level 4.

It is by moving capacity of the external entity that it is identified as being *like itself* by the entity.

A distinction between language competence and performance is made by Noam Chomsky in his theory of generative grammar. According to Chomsky, competence for language is an innate capacity while performance means how well it is used in communication by different people of different communities. Thus, language competence exists in the period of language development in an infant where different parts of speech formed at each level combine and cause emergence of new parts of speech. In level 4, the utterance following imitation of sounds uttered by mother and also movement exhibited by her forms part of language competence and not performance. Language performance will be discussed as a capacity acquired in higher levels of self.

7.7 Money as External Self

In capitalist economies, money decides our movement from place to place. It fuels our new experiences by making the environment convenient enough to exercise our freedom to acquire new experiences by moving around in space. Experiments have suggested that self-sufficiency caused by money makes an individual experience more positive emotions such as happiness and in the absence of it; they experience negative emotions such as sadness.[5] Therefore, money (like food) qualifies as an external self because it causes both persist and escape experiences. One experiences discomfort in the form of escape emotions in the absence of money and in the presence of money one experiences comfort in the form of persist emotions.

7.8 Self and Addiction

Lang's model results from studying the experience of emotions regarding substance use. When substance users were exposed to pleasant and unpleasant images to invoke activation in emotion related brain regions, it was found that images related to substance use caused

[5] Kathleen D. Vohs, Nichole L Mead, Miranda R. Goode, 'The Psychological consequences of Money', *Science*, 5802, 314 (17 Nov 2006), 1154-56

higher activation than the general pleasant and unpleasant images. It is shown that the substance use alters a person's emotional experiences so that they experience all kinds of emotions only in relation to the substance and not in relation to the usual stimuli in the environment which cause these emotions. This finding plays an important role in drug abuse treatment course and results. The substance to which a person is addicted to becomes the sole source of emotional experiences or becomes the niche, substituting the different stimuli in the surrounding which would normally evoke the emotional experiences in a non-addict.

The psychophysiological effects in substance users affects the pull and avoidance behaviour in substance abuse. Negative emotions caused in the period of detoxification makes the substance not only a source of positive emotional experiences but of sadness and other escape emotions, while use of the substance causes happiness and other persist emotions.[6] Thus, the substance becomes an external self capable of controlling the actions of the addict, explaining relapse post detoxification. Therefore, in the presence of addictive substance the user exhibits persist emotions and at the time of withdrawing or restraining there is experience of escape emotions.

The same substance being a certain part of the environment is responsible for both kinds of emotions. It can be considered that the substance literally makes the person move to follow the addictive substance as it is shown to be like any other external self of level 4 such as food or mother as shown above because when an object causes both persist and escape emotions, it has the capacity of moving the entity in relation to it and is said to influence the choices the entity makes. Addiction is the excess engagement in a stimulus that causes rewarding positive experiences, even when it becomes harmful by eventually causing negative experiences or emotions. A person is addicted when the physical or physiological need to do, take or use something gets to the point where it becomes harmful for the person to the extent that they experience escape emotions, especially pain induced sadness. This is because only when the addictive substance becomes harmful, the substance becomes an external self and starts to control the movement of the person, thus controlling their decisions. It can be concluded that when a person experiences excessive negative emotions during detoxification that the substance has truly become addictive in nature. We will suggest here that in order to treat the person the substance must either reward or cause pain and not both because when it causes pain along with positive emotions it becomes more and more addictive in nature. All addictive substances are intrinsically rewarding when used and cause escape emotions when restrained from use. The tendency to be repeatedly exposed to the addictive stimuli in addiction is because it is reinforcing to be exposed to the substance which becomes an external self over time. This is because once the substance becomes an external self by accumulating both persist and escape emotions, it starts controlling the person by being a niche. The core pathology that develops addiction is repeated exposure to the substance at regular intervals of time with in between times of lack of exposure which turns out as per our analysis to escalate the tendency of use as opposed to decreasing it because the period of break completes the set of positive and negative experiences in the form of emotional experiences. Therefore, in order to prevent substance abuse, the substance must be prevented from controlling the movement of the person from place to place by avoiding it to be the centre of all kinds of emotions as the ability to exhibit locomotion is characteristic of fourth

[6] Katerina Flora and Anastassios Stalikas, 'Positive Emotions and Addiction', *The International Journal of Psychosocial Rehabilitation*, 19.1 (2015), 57-85.

level self. The addiction could be treated if the period of withdrawal is not too intense or harmful or depressing for the patient.

7.9 An online post as a Fourth level Self and social media addiction

A Facebook post acquires *emotions* such as happiness, sadness, anger, in the form of emoticons. Each person who reacts with an emoticon forms part of a group of persons who react to the content of the post, which can be considered to be an entity which receives both kinds of emotions. An emotion invoked in a person's mind is represented by the expression of the emoticons on the post. A post is like any external self such as food, which obtains various emotions separately from different people or commenters. The group of viewers or commenters who react can be considered to make the post their niche if we assume that all commenters or viewers form a single entity, to which the post is the source of both kinds of emotions. If a single commenter is allowed to experience only one emotion, how can the single commenter unite with others to make the post to accumulate both kinds of emotions?

This can be explained by how an absent-minded commenter comments. An absent-minded commenter is one who reads or sees the reactions of other viewers or commenters and is biased towards commenting or reacting in a way contrary to these. The absent minded commenter frames his comment or expression based on others comments or reactions and does not possess an unbiased comment or reaction towards the content of the post. In a way, the mysterious *unit causes* the absent-minded commenter to complete the list of at least single persist-escape emotions. Thus, though the post does not become the external self to individual commenters, therefore not influencing their actions, but the collective idea of commenting creates an impression that everyone online is part of a single entity that is controlled by the content of the post or any post in general. As for the *unit*, the post is a collection of persist-escape emotions, and then the post becomes the external self to it. Thus, to a single commenter who does not frame his reaction to the post by reading other comments, the post is not an external self. However, to an absent-minded commenter, the post becomes an external self and influences him to check the post from time to time because the external self or the post *appears* to move. By being aware of both kinds of reactions or comments to the post, the absent-minded commenter is persuaded to look out for new comments and reactions to the post. It is as if to say that the unit comprising of all commenters influences the absent-minded commenter to check his phone or be online more often than a commenter who reacts in only one way and is aware of his own reaction to the content and not that of all others. Thus, the former kinds of commenters are considered to be more likely to be internet addicts than the latter.

To the absent-minded commenter, as the post acquires both persist and escape emotional responses, the post appears to move, thus causing them to move by way of checking their phone from time to time, by way of being online and offline at regular intervals, which itself suggests that they have moved in and out of post or have exhibited movement. The author of the post can become the post itself because the post's existence depends on the person who writes it. Thus, the person's identity is defined online by their Facebook posts, and it has extended to personify an online post. As there are different persist or escape emotions expressed by viewers, the post engages in persist or escape interactions with each viewer. All

the viewers and their reactions combine to make the post a niche which causes the absent-minded commenter to view the post at regular intervals of time, such an act can be likened to movement possessed by the viewer online. As an online post can accommodate at a greater speed the emotions compared to the time taken by a person to receive emotional replies by people around him, in a social arena, this signifies the fact that a person feels more spontaneously a sense of identity online than in real life situation. Therefore, a person feels more social and confident online quickly than in social arenas in real life situations. If a person frames their reactions and comments on social media in a manner to contradict the previous reactions and comments, they are more likely to follow a post compared to a person who does not pay attention to other comments and reactions. This tendency to pay attention to contradictory comments on a post increases the tendency of a person to be more addicted to his social media account and thus to his phone or any other gadgets.

7.10 Interstitium: A probable medium of Communication between the Senses and Internal organs

In a third and fourth level self, the senses collaborate to collectively respond to the stimulus to continue to persist in the presence of the stimulus or to escape from it in emotional experiences and locomotion respectively. In level 3, an emotional experience is a result of collaboration among the sense organs to collectively act to be stimulated or to suppress stimulation. In level 4, the ability to navigate in space in relation to a particular stimulus in the form of locomotion results from the collective effect of the senses and other organs of the body to achieve the ability to move from place to place.

The interstitium is a recently discovered largest organ connecting the internal organs to unify the body internally. I predict that the interstitium should also be the seat of connection connecting the muscles of the face comprising each sense organ (which plays an active role in emotional experience as shown in previous chapters) to internal organs. This prediction arises because what has been called the unification of the sense organs in the experience of emotion or locomotion is not possible independent of the unity of the internal organs which allow the body to move collectively in emotions or in locomotion. If interstitium is found to connect the muscles of the face to the internal organs, it can be said that the collaborative action of the sense organs by the principles of emergence actively influence the capacity of the entire body to move which emerges from the experience of emotion. This is one of the central ideas which underlies the very foundation of my theory of consciousness or of my quest to understand the nature of experience in general. The interstitium could be found to be the seat of collaboration or unity between the different sense organs and internal organs. It could be a medium of communication between the facial muscles and the internal organs to bring about movement of the body in different experiences especially locomotion.

References

Benias, Petros C., Rebecca G. Walls, Neil D. Theise, ‘Structure and Distribution of an Unrecognised Interstitium in Human Tissues’, *Scientific Reports*, 4947.8 (2018), 1-8

Clark, Andy and David Chalmers, ‘The Extended Mind’, *Analysis*, 58.1 (1998), 7-19

Flora, Katerina and Anastassios Stalikas, ‘Positive Emotions and Addiction’, *The International Journal of Psychosocial Rehabilitation*, 19.1 (2015), 57-85

Kluver, H. and P. C. Bucy, ‘“Psychic blindness” and other symptoms following bilateral temporal lobectomy in Rhesus monkeys’, *American Journal of Physiology*, 119 (1937), 352-353

Stroup, E., J. Langfitt, M. Berg, M. McDermott, W. Pilcher and P. Como, ‘Predicting Verbal Memory Decline Following Anterior Temporal Lobectomy (ATL)’, *Neurology*, 60.8 (2003), 1266-73

Vohs, Kathleen D., Nichole L. Mead, Miranda R. Goode, ‘The Psychological consequences of Money’, *Science*, 5802.314 (2006), 1154-56

Worsley, C. L., M. Recce, H. J. Spiers, J. Marley, C. E. Polkey and R. G. Morris, ‘Path Integration Following Temporal Lobectomy in Humans’, *Neuropsychologia*, 39.5 (2001), 452-64

Chapter 8
Focus Driven Collapse of Wave-Function, Prepositions and Abstract Thinking

8.1 Space perception, Pointing and Abstract thought

A level 4 self is only aware of stimulus as *being like itself*, manifesting in the *appearance* of movement towards and away from the entity in instances of presence or absence (in a set of persist and escape emotional experiences respectively). A level 5 self becomes aware of the perennial existence of the stimulus, as opposed to the entity only being aware of the position in space where the stimulus is most often found in level 4. When a level 4 entity follows an external object or self, it increases the likelihood of finding it in a special location in space in level 5. In level 4, an external self moves to appear or disappear from the entity. In level 5, the self moves from one location to another irrespective of the movement of external stimulus. The appearance and disappearance of the stimulus in level 4 becomes the starting and ending point of the trajectory of motion exhibited by it in the awareness of level 5 self. The awareness of movement of the stimulus from one place to another emerges from instances of appearance and disappearance of it in level 4.

It will be demonstrated that a baby at level 5 exhibits a perception and understanding of space. At level 4, the self and stimulus are alike because both possess movement in space, but in level 5, the stimulus does not share the same qualities as the entity and so therefore the stimulus in level 5 is not the same kind of self as seen in level 4. This chapter will describe the nature of a level 5 entity to collapse the wave function. The awareness of the presence of a stimulus is not confined to consecutive persist-escape emotions as seen in level 3, nor does it depend upon the *appearance* of movement of the stimulus as seen in level 4. In level 5, the stimulus is perceived as present when it moves in spatial relationship with the self – irrespective of the stimulus' capacity to move, because it is aware of the stimulus by its relative location in space. In level 4, the stimulus appears and disappears, giving the *appearance* of movement even if it does not actually move. The instances of appearance and disappearance combine to lead to the emergence of awareness of perennial existence of the stimulus in a particular location in space relative to the position of the entity or its past location.

In level 3 and 4, the awareness of the stimulus is highly dependent upon emotions. As seen in level 3, it is in emotional experience that the first nouns are formed as a result of four excess non-existent effects from the stimulus in the environment.

In level 4, the emotions of persist and escape nature give rise to the *appearance* of movement or signify change in the position of the external stimulus. In level 5, the awareness of the stimulus is independent of emotions and the appearance of movement because the entity is aware of *where* the stimulus *is* before and after movement. The awareness of the location of an object in space creates an impression that the object is always present in that location. It can be said that all entities until level 5 are aware of the stimulus based on the experience of emotions.

In level 4, if the stimulus moves away so that it cannot be followed, the entity engages in escape interaction because the awareness of the stimulus depends on relative motion of both. When the stimulus stops moving or disappears from sight, the entity in level 4 engages in

escape interaction and loses awareness of it. In persist-interaction where the stimulus or external self makes the entity move, by *appearing* to move, it is the only occasion when the stimulus is known to exist in the awareness of the entity in level 4. If the stimulus does not appear to move, the entity stops moving and therefore exhibits escape interaction. In level 4, the entity escapes from entities that do not appear to move, so all the sessile objects in the environment are non-existent. In level 5, the emergence of awareness accommodates both moving (as a result of persist interaction) and non-moving objects (as a result of escape interaction) on the same plane which is their location in space relative to the location of the entity. Until the fourth level self, the physical body is the domain or realm of persist-escape interactions. In level 4, the realm of interaction is transferred to outside of the body. In level 5, the entity is aware of the external object even when it is not physically moving but by its location in space.

If the object starts to move from position one to position two (at which it disappears from view), the entity of level 5 is aware of the object as being present always in position one relative to its own position.

The entity is aware of the location of a visually occurring object (as having moved from here… to there) as well as by other perceptual qualities of an object such as smell, sound or taste coming from a particular point in space separated by a distance. It is also aware of perceptually absent objects which it knows are always found in a particular location in space. As the space or location is common or constant in both persist and escape interactions at level 4 given the fact that the entity merely follows the external self or stimulus in space, space or location emerges in the awareness of level 5 self. In level 4, there is escape interaction when the stimulus moves to be out of sight or when it stops moving. In level 5, the self is aware of the stimulus as it moves away because it is aware of the relative spatial relations ip between itself and the stimulus which is not seen in level 4 as the self is only aware of instances of *appearance* and *disappearance* of the objects in particular occasions.

In level 4 the self is not aware of actual movement of the stimulus but is of the occasions of absence and presence which gives the impression of movement. The awareness of movement of the stimulus in level 4 is time dependent, while in level 5 it is dependent upon space because in level 4 the child learns the concept of time and in level 5 there is perception of spatial relationships with objects. Emotional dependence of awareness of the stimulus is seen in level 4 because the stimulus only exists in persist interaction and absent in escape interaction but nonetheless the awareness of the object persists in both interactions. For instance, in hunting the fourth level self is aware of the stimulus or prey as moving, but when it is not hungry the self is not aware of the position in space of the potential prey around itself.

At level 5, this awareness leads to perennial awareness of the stimulus, as the self is aware of the stimulus irrespective of emotions and of movement. In addition, the self is aware of the permanent existence of the stimulus due to sensory stimulation. A third level self such as a human infant before it can crawl and all non-human animals are only aware that food is important or present when they experience. It is not aware of food if it feels disgusted or has just eaten, even if food exists around it. A third level self is only aware of food when it needs it or when it is engaged in persist interaction with food, because once it is fed it experiences happiness. As shown in Figure 7.2, a fourth level self is aware that food is present in persist interaction and absent in escape emotions by virtue of its movement.

The level 4 self is aware of food as moving towards it in persist interaction and moving away from it in escape interaction. In level 5, the self is aware of the spatial relationship between its position and that of the stimulus. If the stimulus appears to be close, the fifth level self engages in persist interaction by moving nearer and is aware of the distance it has to move to reach the stimulus. The self or the entity can choose to move in any direction as it is aware of the location of the object or stimulus. There is movement of a body part or entire body regarding a group of stimuli which form part of the awareness in terms of spatial position relative to the entity and objects in the environment. The awareness of the properties of a stimulus seen in level 5 emerges from those seen in level 4. What is common between two objects separated by equal distance from the entity where one appears to move and the other does not is that both occupy a certain position in space relative to each other and the entity. The awareness of spatial relationships emerges in fifth level self upon a combination of awareness of moving and non-moving objects at level 4. The baby learns to imitate the stimulus which it knows is like itself once it learns to follow the stimulus by moving wherever it moves.

In level 5 the baby is aware of the spatial position of other objects and learns to point at objects in the presence of entities which appear to move. It learns to point in the presence of the external self. In learning imitation, the baby also learns to point at things like the mother. In level 4, the self can move in relation to external self in an act of imitation while in level 5 it learns to imitate how to point at particular locations in space occupied by specific objects. The baby engages in persist interaction with objects whose location in space it can ascertain by being exposed to the object. The fifth level self engages in escape interaction with entities whose position in space it cannot determine. In level 5, the object alone is not the centre of attention, but also the spatial arrangement of object and the entity. The entity is aware of how *far* or how *near* an object is from it. In levels 3 and 4, the awareness of the entity about the object is based on emotions, but in level 5 the awareness is independent of emotional experience.

The object in level 5 is understood to be in a particular position (for instance, far away) only in relation to another object or the same object in an opposite position (near). Therefore, perception of space is relative in nature. In order to understand that an object is near, the entity has to imagine another object whose position is further away from it. The nearer object is more desirable compared to that which is far away. As the visual field is filled with shapes, the awareness of the shape of one object depends on other shapes or objects because the boundary of one object includes the boundary or shape of other objects. Awareness of shape and position of an object occurs at level 5. An object is said to be *here* only when there is comparison with spatial presence of another object or of the same object in a position which is *there* or is far away. As the baby learns to point, at level 5 awareness of direction in space or directionality is seen in visual space. An object is said to be *inside* only when there is something alike it that is *outside*. For an entity to be aware of an object in one direction, there must also be awareness of what it is like for the same object to be in another or all possible directions. Therefore, to be aware of the spatial position of one object, the simultaneous awareness of position of another object must be possessed.

Nearness is always understood in relation to *far-ness*. When an entity is aware of an object's location, it is aware of the object's position as well as its own. Therefore, in order for the entity to be aware of an object's position, it needs an abstract or imagined position of another or the same object. The awareness is the integration of an imagined point in space and a visually verifiable point in space, which creates awareness of the presence of visually appearing object or the object in sight. Though the object is only present in one position in the physical world, the fifth level self must imagine the presence of another object or imagine observing itself in a particular position in space in order to observe it, such that the position of the physical object can be understood in relation to the position of the imagined object or its own position as being comparatively far or near. Space perception or understanding of prepositions is therefore possible via abstract thinking. It is like saying when you look at an object; you have to be aware of another object so as to ascertain the relative distance between the objects, in order to understand spatial position. The eye only sees one object at once, but for there to be awareness of the spatial position of such object, it must reference the position in space of another object.

Idiothetic memory, as it codes how one moves around to cover a traced path, is formed in level 5. The entities or objects which are not external selves from level 4 are the unknown objects. The unknown objects are 'known' in comparison with the location of known objects which form part of level 4 awareness by virtue of their movement capacity. That is, the sessile objects which do not form part of the awareness of level four self are learned in level 5 when the location of motile objects are compared with the visual location of sessile non-moving objects.

As spatial location of an object leads to the understanding of prepositions, there is utterance of simple sentences at level 5. The baby says a sentence to get an agreement or disagreement from the listener which it knows is like itself (as shown in level 4) and which it understands has similar perception of the world. In level 5, the baby is capable of pointing or signalling where a person or object has moved to that is, from a position close to it to a faraway location in space. In level 5, the spatial position and the shape of new objects is known using their relative position with known objects. By being aware of the relative position of an object, awareness of shape (which is also understood in relation to other objects) is also seen in level 5. In visual field, space is synonymous with shape. Identification of a noun or a *doing-noun* or verb in level 5 is not only based on its movement exhibiting ability but also depends upon its shape relative to the shape of nearby objects. The movement is not perceived as the continuity of awareness from one emotional experience to another, but as change in position of the object. A baby can understand the shape of an object when the mother points at the object. It can also point at a certain object by imitating and show the *is-ness* or similarity between shapes of two or more objects. That is, if the mother points at an apple, the baby learns to point at an object which has a similar shape such as a ball. As the location in space of an object is synonymous with its shape, the essence of being-ness in level 5 is shape of an object or stimulus or space in general.

In addition to the spatial boundary, the entity in level 5 is aware of the boundary or difference between different types of senses in terms of their similarity. The idea of *this* and *that* object,

this and *that* taste, *this* and *that* sound, etc. is formed in level 5. The verbs, nouns and adjectives from previous levels combine with prepositions to form complete sentences in level 5.

8.2 Autism and Utterance of Sentences

An autistic child is non-verbal, so the child finds it difficult to utter a whole sentence. An autistic person possesses all parts of speech but is unable to understand prepositions or spatial relationship between two or more objects. As shown earlier, the lack of awareness of spatial relationship means lack of awareness of shape of an external object. An autistic person lacks a sense of meaningful arrangement of words or grammar in being able to form a coherent linguistic sentence. An autistic person is only aware of objects based on an emotional link as shown in previous levels of self. An autistic person possesses the ability to do math, so they are at least a second level self as mathematics is a skill learnt by knowing adjectives or metaphors. The autistic child has a tendency to cause harm or pain to itself and is therefore extremely emotional and a level 3 self. An autistic person possesses problems in idiothetic memory.

Cognitive trade off hypothesis suggests that chimpanzees live in the *here* and *now* and are aware of time due to sensory exposure to stimuli as they experience emotional experiences.[1] This hypothesis suggests that chimps deploy their photographic memory to choose between enemies and friends, likening chimps to autistic humans who display weak central coherence. In other words, chimpanzees are believed to be aware of details but not the bigger picture, or that chimps and autistic people lack the abstract thinking ability which helps humans communicate in complete sentences. As suggested earlier, perception of space is dependent on possessing abstract thinking which is considered absent in chimps and autistic people. Lack of perception of space means an entity is unable to recognise the location in space of an object independent of emotional link or act of imitation as shown in level 3 and 4. As described earlier, for there to be perception of spatial position or location of an object its relation to another visually absent object's position has to be known. Abstract thinking leads to perception of space because the imagination of the physical absence of an object aids the perception of spatial position.

Object permanence relates abstract thinking to identification of location of visually absent objects. Awareness or understanding that an object exists in time and place even when it is invisible is called object permanence. This understanding is achieved across states IV-VI of Piaget's sensorimotor period. Research show that:

> Challenges with regulation make it difficult for children with autism to demonstrate object permanence knowledge in stage VI tasks.[2]

Simultaneous awareness of the positions in space of an object in persist interaction and escape interaction of the fifth level self requires the ability of object permanence and relativity with another shape or position in the surroundings.

---

[1] Tetsuro Matsuzawa, 'Cognitive Development in Chimpanzees: A trade-off between memory and abstraction?', in Denis Mareschal, *The Making of Human Concepts* (New York: Oxford University Press, 2010), pp. 227-244.

[2] Susan Bruce and Zayyad Muhammad, 'The Development of Object Permanence in Children with Intellectual Disability, Physical Disability, Autism and Blindness', *International Journal of Disability, Development and Education*, 56.4 (2009), 229-246.

Research shows that students with autism and other developmental disabilities possess language and communication difficulties, which in turn results in inability to use prepositions.[3] This therefore suggests that autists are fourth level selves. As use of prepositions is based on the ability to have abstract thoughts, which involves the use of imagination, it can be said that language use in the form of sentences is a series of abstract thought making process. A person at level 5 can utter complete sentences as well as point at things.

8.3 Object permanence and Abstract thinking

Spatial prepositions arise from comparing the start and end point of a moving object and recognising the presence of a moving object as seen in level 4. This ability enables focus on an object which moves in all directions as well as the point at which it moves. Therefore, the fifth level self is aware of the object's location which emerges from awareness of the object solely based on movement. In level 4, if the stimulus is hidden and not moving, it is perceived as being absent. Absence of appearance of movement signifies the absence of the object in the sight of the individual.

Note that even if an object does not move in the physical world, it appears to move in level 4 by virtue of the perception of time, where an external self's movement capacity is dependent upon how often the object appears again after disappearing in the course of experience of persist and escape emotions. For example, if there is food around the baby who is not hungry, the food does not appear to move and so the baby does not move to pick up the food. When the baby is hungry, the food appears to move and so the baby also moves. The awareness of the object as moving following the instances of *appearance* and *disappearance* in emotional experience is seen in level 4. This moving capacity of the object leads to the formation of verbs.

The apparent loss of awareness of the object when the baby is not hungry and the lack of awareness of objects which do not cause both persist and escape emotions in level 4 is psychic blindness. It is the inability to recognise the presence of objects even when they are physically present. As the fourth level self is blind to objects which do not appear to move, it possesses psychic blindness. In level 5, as the self is aware of spatial relation of an object at one instance compared to another, the object is perceived in terms of its presence in space and there is comprehension or learning of spatial prepositions such as 'above', 'below', 'beside', 'across', etc. Here the word used to describe the position of an object in one occasion is compared to another, such that where in space the object appears to move towards can be one occasion of naming and its relation to where in space it appears to move away becomes the second instance of naming its position in space. Therefore, spatial preposition captures the relationship between where the object appears to move towards and when it stops moving in space. Awareness of location of an object gives the fifth level self the impression that the object always exists in that location, such that the particular point in space identifies the presence of the object and not only its movement.

If the moving object is hidden in front of the eye of the baby, the object will still exist for the baby because it knows where in space the object has travelled before being hidden from sight.

---

[3] Kenny R. Coventry & Simon C. Garrod, *Saying, Seeing and Acting: The Psychological Semantics of Spatial Prepositions* (Hove: Psychology Press, 2004); S. Jay Kuder, *Teaching Students with Language and Communication Disabilities*, 4th edition (Upper Saddle River: Pearson, 2012).

In level 4, the object stops appearing when it stops moving or when it appears to move out of sight. As the fifth level self is aware of the last seen location of an object as its permanent location, the child will look for the object in its last seen location if it is hidden from it or becomes invisible. The act of hiding an object exists in an experiment called the object permanence, where a person's awareness of a hidden object's location or position in relation to a person's own location in space is tested.

Once presented, a child's favourite object or toy is hidden behind a blanket or removed from sight and the child is asked where the object is. Object permanence also helps in assessing the function of a person's working memory. Note that any favourite object or toy is most probable to cause multiple emotions, thereby its used to the catch the attention of the infant who would otherwise be disinterested in the experiment if it involved a random or new object. The infant is only aware of or is interested in only specific objects as shown in level 4. An infant that has started to develop object permanence might reach for the toy or try to grab the blanket off the toy. Infants that have not yet developed this might appear confused.

Piaget interpreted these behavioural signs as evidence that the infant supposes that the object ceases to exist when hidden. If the infant searched for the object when hidden, it is assumed that they believe it continues to exist. The importance of the infant exhibiting object permanence with the favourite toy has to be attributed to the fact that the object causes or is part of at least one pair of persist-escape emotions. Those objects that are either pleasant or unpleasant do not cause the infant to move towards them, thus at level 5 the infant is not aware of the object's continued existence even when it is hidden or out-of-sight. The experiments by Piaget for object permanence can be tested to support my prediction that the infant passes the test with only those objects towards or in relation to which it moves and those that cause at least some instance of experience of pain, happiness and surprise. This new improvisation can be called the known *object specific object permanence* test because the result of the experiment will vary if they used a known object as opposed to an object the infant has never seen before. Also it can be determined that the infant tries to grab the blanket off the favourite toy solely because of its awareness of permanent existence of the object at last seen location of the object. So when hidden, the object is out of sight but not out of mind or awareness. As suggested earlier, acquiring awareness of spatial location or understanding spatial prepositions is a product of abstract thought process, so it can be verified that those entities which do not possess the ability to form abstract thought fail this test. Thus I would predict that autistic persons will pass the object permanence test if the object whose position has to be determined is a familiar object, but will fail the test if the object is new and unknown.

In the experience of cry, the baby in need of the mother wants to escape from the surrounding that shows the absence of the mother. But an infant who possesses object permanence does not cry in the absence of the mother because it knows that mother can be found in the last seen location in space. The child can reason where the entity may be present when invisible displacement occurs because it knows the entity always exists in the last seen location. The ability to comprehend object permanence involves attending to multiple stimuli to appreciate concepts such as *here*, *gone* and *hidden* in terms of space perception as well as concepts such as *now*, *later*, etc. which result from time perception. An autistic person possesses a poor sense of Theory of Mind (ToM) which will be explored in later chapters. A correlation

between poor object permanence and poor ToM has been established by a study which states as follows:

> Op needs to be established in order to support the individual through instances of change which of course are related to the ToM and the ability to shift from one's own belief to that of others.[4]

Another study for object permanence was conducted to test whether a child could comprehend the disappearance from sight of an object which would always appear in front of it.[5] Here two carrots of different sizes are hidden behind a wall which can only hide the shorter carrot. The test was tried to ascertain whether the child would imagine that even the bigger carrot could disappear behind the wall just like the smaller one, and therefore whether it could contemplate an impossible event.

The problem with this experiment is that it tests the ability of the infant when it is a fourth level self and not a fifth level self. At level 4, though the self is unaware of spatial location of an object, it is aware of the presence of the favourite group of objects. Therefore, the improvised object permanence test may prove to show that autistic people do not possess object permanence when the test does not involve objects which does not involve movement of the hidden object while moving but of an object hidden in a certain location in space. In Piaget's theory of cognitive development, infants develop this understanding of an external object being something that either appears or disappears just before they turn three years old.[6]

Autistic people find it difficult to maintain eye contact with others in communication and understanding spatial arrangements of entities in the surrounding in relation to oneself. An autistic person is aware of movement possessed by those around him, thereby possessing a certain kind of awareness about the nature of the stimulus or external object. A level 5 self passes the object permanence test because unlike the autistic child, the child is aware of the presence of the object or its location and also aware of the shape of the object.

A fourth level self is not aware of spatial arrangement or location of entities. For instance, for level 4 self the external object such as food does not appear to exist when it stops moving even when it really exists in space around the self.

Movement of a body part such as the hand picking up an object in level 5 is like an improvisation from moving your whole body towards the object as seen in level 4.

Therefore, the movement specific to spatial relation with specific objects in level 5 emerges from movement of the whole body towards or away from it as seen in level 4.

The fifth level self is aware that one object can hide another object because of its shape. So the infant knows that the person who hid the object is actually a shape which includes the shape of the hidden object.

---

[4] Wenn B. Lawson, Brynn A. Dombroski, 'Problems with Object Permanence: Rethinking Traditional Beliefs Associated with Poor Theory of Mind in Autism', *Journal of Intellectual Disability – Diagnosis and Treatment*, 5.1 (2017), 1-6.

[5] R. Baillargeon and J. Devos, 'Object permanence in young infants: Further evidence', *Child Development*, 62.6 (1991), 1227-46.

[6] John Santrock, *A Topical Approach to Lifespan Development*, 4th edition. (New York: McGraw-Hill Education, 2008).

The awareness that it is easier to reach the object with hands and not legs gives the fifth level self the awareness of relative spatial relation between the object and the self and the surface of the object in space.

Abstract reasoning is the conclusion at which one arrives about the nature of a stimulus in its physical absence or about an event in general. The capacity for abstract reasoning about non-physical entities or events is derived from reasoning concerning physical entities or events encountered in the past. Schema or cognitive structures are formed based on generalization of properties of physical entities as applicable to non-physical entities.

A baby begins to understand object permanence – an object continues to exist although it cannot be seen, touched or heard when it combines immediate sensations with mental images or conscious memories to understand how the world works. The foundation for abstract thinking is being laid in level 5. Abstract thought is involved in acquisition of spatial prepositions because for instance to understand *in* as a location of an object, its opposite *out* must be considered as the location in space of the same object in another instance because the *in* is understood as a boundary that separates the *out*. Another example is the understanding of *above* in relation to the idea or boundary that separates it from *below*. Therefore, abstract thinking is an ability that underlies the ability to comprehend object permanence and spatial prepositions in level 5. Spatial preposition is shown to be same process as the localisation of material objects in next section.

8.4 Nature of attention in humans that collapses the wave-function with increased precision

The role of consciousness or experience (independent of the experiencer) in the dynamics of physical systems is studied in the field of quantum mechanics, and the effects or role of intention or attention in quantum theory has become evident in recent times. Henry P. Stapp has suggested that intention collapses the wave-function in quantum mechanics:

> The quantum Zeno effect can, in principle, hold an intention and its template in place in the face of string mechanical forces that would tend to disturb it. This means that agents whose mental efforts can sufficiently increase the rapidity of process 1 actions would enjoy a survival advantage over competitors that lack such features. They could sustain beneficial templates for action in place longer than competitors who lack this capacity. Thus the dynamical rules of quantum mechanics allow conscious effort to be endowed with the causal efficacy needed to permit its deployment and evolution via natural selection.[7]

This suggests that an intent-full person has the capacity to collapse the wave function. The idea that a system cannot change while a human is looking at it is an interpretation of quantum Zeno effect.

> In Copenhagen's interpretation a mental concept internal to the body becomes physical with no explanation as to how the two could interact. In dualism, the spirit stuff and the material stuff are supposed to act on one another, but it is not clear how, without one taking some of the characteristics of the other, at which point the system

[7] Henry P. Stapp, *Mindful Universe: Quantum Mechanics and the Participating Observer*, 2nd edition (Berlin: Springer, 2011).

> is no longer dualistic. The Copenhagen system has the additional problem of what was happening before human minds emerged to perform measurement.[8]

The role of human attention or intention or conscious effort is important here. The idea that an observer is needed to collapse the wave-function and that the physicist's attention is required for something to happen in the universe paves way for an anthropomorphic framework of quantum theory. Some philosophers and scientists support the idea of panpsychism, which suggests that the conscious state of an individual human affects matter and that matter has its own level or degree of conscious state. That something outside the physical realm that influences a quantum system becomes one or single from a range of possible states in the presence of a human eye-ball is the important idea here. A paper published in Physics Essays explains as follows:

> The ratio of the inference pattern's double slit spectral power to its single-slit spectral power was predicted to decrease when attention was focused toward the double slit as compared to away from it. Factors associated with consciousness such as meditation experience, electro-cortical markers of focused attention and psychological factors including openness and absorption, significantly correlated in predicted ways with perturbations in the double-slit interference pattern. The results appear to be consistent with a consciousness-related interpretation of quantum measurement problem.[9]

Human intention through meditators was able to actually collapse the quantum wave-function. The meditators were the *observer* in this case. In this study they received a 5-sigma result when testing meditators against non-meditators in collapsing the quantum wave function. Therefore, the human intent via meditators is shown to be more potent to compel the electron to *assume a definite position* than compared to non-meditators.

What sets apart the intention in meditators from non-meditators or some human minds from others?

As shown in previous sections, the ability to think abstractly gives humans an edge over chimpanzees. Humans can comprehend the relative position in space of objects and object permanence. A new idea I propose is that the quality of perception of spatial position of objects of a human mind has the causal power to collapse the wave-function, because humans at level 5 understand an object as being physically present in space giving rise to the awareness of space in general and possesses the ability of abstract thinking. They have the capacity to compel an electron to assume a definite position in space. Humans who do not possess the ability to understand the location of an object in terms of spatial prepositions do not possess the ability to form abstract thoughts, and do not collapse the wave-function. The *eye* that can comprehend spatial prepositions and the location of an object in space is more efficient in collapsing the wave-function compared to that in other entities of lower levels of self.

Autistic humans, babies under 2 years of age, chimpanzees and all non-human animals are not capable of collapsing the wave function with the same efficiency as a human capable of

---

[8] Henry P. Stapp, 'Attention, Intention and Will in Quantum Physics', *Journal of Consciousness Studies*, 81.6 (1999), 143-164.

[9] Dean Radin, Leena Michel, Karla Galdamez and et. al., 'Consciousness and the double-slit interference pattern: Six experiments', *Physics Essays*, 25.2 (2012), 157-71.

abstract thinking. An experiment can be conducted to establish the fact that human intent is the ability of the human to form abstract thoughts to comprehend spatial prepositions.

One objection to the Copenhagen interpretation is the question of how a human mind becomes capable of performing measurements or how the ability to *affect* matter might have originated in humans in the first place if we view reality from a panpsychist perspective. This question can be answered by describing that only when the entity becomes a fifth level self, he is able to perform measurements in quantum mechanics. It is only when a human mind possesses the capacity to have the abilities attributed to a fifth level self that a human can cause collapse. Before being a level 5 self, the human mind does not collapse or is inefficient in collapsing the wave-function. A direct correlation between perception of spatial location of objects in humans and collapse of the wave-function is proposed here.

The event or occasion of comprehension of spatial prepositions is the same occasion of acquisition of ability to collapse the wave-function in humans. The analysed difference between meditators and non-meditators can be extended to analyse autistic and non-autistic, that is between fourth and fifth level selves

8.5 Origin of Schema

As it exhibits persist-interaction with nearby objects to know more about nearby objects, a level 5 self can point at an object and describe its name and properties in terms of how pleasant or unpleasant it is. There exists an understanding of the closest surrounding in terms of what is good for the entity and what is bad or undesirable. In this stage, the child acquires the concepts from the surroundings such as family, home, friends, siblings, etc. which take the form of schema. With a particular nature of understanding of one entity, there is understanding in general of similar objects. The sentence a toddler would utter at fifth level self because the self can utter complete sentences. Note that while uttering the sentences, the baby also points at the object about which it utters the sentence.

This fire is bad… unknown sensation on skin is good
This toy is good… unknown toy is bad
This water is good… unknown tasting liquid is bad
My friends/family are good… unknown person is bad
This smell of food is good… smell of unknown thing is bad

The ‘this’ signifies the familiarity of a nearby object with which it interacts in persisting manner by moving towards it in space and the ‘unknown’ signifies the novelty of an object with which it interacts in escaping manner by moving away from it in space.
In psychology and cognitive science, a schema is defined as a pattern of thought or behaviour that organises information categories and the relationships among them. It can be described as a mental structure of preconceived ideas, a framework representing some aspects of the world, or a system that organises and helps perception of new objects or entities.

This mental structure is believed to be arranged as per syntax when each part of language is added to each level of self. In level 5, the inclusion of prepositions completes the group of adjectives, nouns and verbs and forms complete sentences.

Schema can be defined as the stored information or memory from interaction of the entity with the surrounding in various levels of self. It is the knowledge in terms of adjectives, nouns, verbs and prepositions acquired about the immediate environment. The knowledge is

primarily about objects in the surroundings which are known through experiences to be good for the body's sustenance and those that are closest in terms of distance to the body of the self or entity because only in the persist interaction the entity persists in the *presence* of the stimuli that protects the self's *essence of being-ness*. It also includes information about objects that are harmful and areaway from the entity.

As attention in level 5 is based on spatial location, schema is a mental framework of information about spatial relationships between objects in the environment. In Piaget's theory of child development, children develop the ability to form schemas to understand the unknown parts of the environment by ways of making predictions about the nature of the unknown.10 The schema is the knowledge about the good or pleasant and unpleasant parts of the environment, where the pleasantness depends upon how good the part of the environment is in allowing experience of reflex, emotion, locomotion and gesturing or pointing seen in experience of level 1 through level 4, so as to enhance the ability of the entity to experience more, by preservation of the *essence of being-ness* in each level of self.

How schemata influences attention and absorption of new knowledge will be shown in the next level of self. Schema is the memory made up of the self's interaction with a stimulus causing persist or escape interactions in the way of experience of reflex, emotion, locomotion and pointing. Schema is the collection of declarative sentences about the surroundings uttered by the fifth level self in the process of language acquisition. It is the collection of objects which are either good, or bad for the body or both.

The baby is constantly aware of the smell of food even if it is not hungry. It is aware of the presence of the mother even when it does not need comforting. The baby in level 5 can signal by pointing where the person or object has gone from *here* to *there*. The baby understands the shape and name of the object and knows the name of the movements of objects or entities, that is, it knows what an entity does when it appears to perform an action in space. The shapes, names and actions of known objects can be used to know the same about other objects which is what the sixth level self will be explained to do. The *data* in schemata is filled in the levels until the level 6, where the knowledge is tested to be true or false.

8.6 Why utterance of a sentence is impossible without abstract thinking: Indescribable nature of a single quale

Language is the imposing of *is-ness* on indescribable qualia such as the similarity between red and blue in the sentence, 'red and blue are colours', although language cannot establish similarity between the very natures of two or more colours in how they appear visually.

The fifth level self makes the entity aware of spatial relations of objects which in terms of syntax form part of prepositions. The pronouns (I) in level 1, adjectives in level 2, nouns in level 3 and verbs in level 4 combine with prepositions in level 5 to form complete sentences. The utterance of a sentence by the speaker about an entity which it assumes to be like itself (an outcome from level 4), is the fifth level self's attempt to agree on the nature of an entity described in the context of its spoken sentence. As utterance or language in the form of a complete sentence involves the *is* (or adjective – comparison between two entities on either side of it), the agreement would establish the relation between the two entities or the *is-ness*.

[10] Oliver L. Georgeon, Frank E. Ritter, 'An intrinsically-motivated schema mechanism to model and simulate emergent cognition', *Cognitive Systems Research*, 15 (2012), 73-92.

For instance, in the sentence ‘this is red’, the speaker/entity strives to understand that the ‘this’ is understood to be like the *red* by the listener. If the listener agrees with the content of the statement, the speaker engages in persist interaction with the listener. As the ability to imitate to point at things results from the ability to imitate movement in level 4, the fifth level self knows that the stimulus is not only like itself, but is capable of understanding the world like itself. So when the self points at an object, the listener is assumed to have the same knowledge about the object as it does. When the self in level 5 utters a statement about an object, it assumes the listener or the stimulus possesses the same kind of knowledge about the object.

By learning to point at an object by imitating the external self (such as the mother), a child learns that the object at which the mother points has a specific notation which the mother utters or signifies in sign language or by pointing.

Only when the child can assume that the object invokes the same meaning for the mother, can it understand that the notation pertains to the same object and not something else.

In level 4, an incomplete sentence with a noun and a verb is uttered to check the truth behind the verbal/*doing* nature of the noun/object. In level 5, the utterance of complete sentence is an attempt of the self to verify if the listener experiences the object in the same way as itself. If the listener or external self agrees, the belief of the level 5 self about the nature of the object is justified and the sentence persists in the memory of the entity.

If the listener disagrees, the predicate of the sentence is not linked in the framework of memory (which will be explained later to be a framework filled with slots for different parts of speech) to the subject or object of the sentence as the sentence is not justified in communication. Therefore, engaging in utterance of sentences between two entities is initially an attempt to seek justification about the content of the sentences. However, it cannot be proved that the listener and the speaker are dealing with the same object in the sentence when it comes to the description of single quale such as the colour red because redness cannot be proved to be *like* or as having similar properties with another colour's *colour-ness.* For instance, *redness* is not like *blue-ness*. That is, there is nothing common between red and blue colours for them to be considered to exist in the same category of ‘colours’. That is, the colour-ness of red and blue cannot be inferred or demonstrated.

The inverted spectrum argument suggests that the same object cannot be perceived in the same manner by a group of people. Neither the ideas nor the names can be known to be the same for two persons when it comes to perception of irreducible single quale such as colour. That is, if two persons look at the colour red, it cannot be guaranteed that both experience red in the same way, as one person may be colour blind. Therefore, the sought agreement or proof of similarity between experiences of colour for two persons cannot be established. There is no red-ness in blue and there is no blue-ness in red. A statement such as ‘red is like blue’ or ‘blue is like red’ cannot be established to be true.

However, such statements can be made for reducible qualia such as a box which may have one or more qualities in common with another object such as in the sentence – ‘the box is blue’. In this sentence the *is* exists between the two because blue-ness exists on both sides of is. That is, it is easier to get an agreement from a listener about phenomenally reducible entities in the environment, than irreducible entities such as single quale. If two persons seeing red cannot agree that they see the same thing, the quale of red does not exist in the

physical world. Thus, the single quale only exists in thoughts and abstract thinking is needed to process thoughts about single quales. A baby understands that the name red pertains to the colour red, only when it assumes or takes for granted that the mother and it are both seeing a red object in the same manner. Since statements about single quales are mere assumptions based labelling, language in communication can be assumed to be based on abstract thinking ability.

A single quale is indescribable in language because there is nothing *like* that quale. For instance, there is nothing or no colour which is like colour red but colour red. Thus the *is-ness* or similarity does not exist when describing single quales. In the sentence, 'this is red', the *this* towards which one points while uttering the statement cannot be shown to be *red* because the word *red* only is a representation for that which is pointed at. But in the sentence such as, 'ball is round', the round shape (which is made up of at least two colours is a reducible experience) can be inferred to be present in that which is a ball. Something can be said about an entity or object only if it shares common qualities with another object in the sentence separated by the "is". Thus what a single quale "is" cannot be demonstrated, but is only described as a result of abstract thinking. Language in the form of utterance exchange is a context to verify the relative truth behind the content of the statements uttered. To test in a better manner the content of the statements, the quality of questioning will be explained in level 6.

8.7 Bore and Obtained effect in interaction

There are two kinds of effects exchanged between the entity and the stimulus when interaction is initiated – bore and obtained. This difference is an outcome of the ability to move in relation to the stimulus in the environment.

Bore effect is when the entity or body chooses to escape or persist in the presence of a stimulus. This kind of interaction is seen in bodily-selves that are level 1 to level 3, in which the entity is not able to move. The mutual presence of the stimulus and the entity is not chosen and is purely by chance. In the example of a rock, the rock cannot move, and therefore the stimulus such as rain or a hammer effects change on the rock. Such an event is mutual presence, which is coincidental because the rock does not *choose* which stimulus to be subjected to in the first place.

In level 4, the self extends from the entity to a part of the environment, and the entity can choose to move depending on whether the surrounding is suitable for interaction or not. However, the fourth level self interacts to persist or escape only with objects that *appear* to move, and therefore the mode of interaction or substrate of self of level 4 is movement. The entity's choice of whether to move and to choose the kind of effect it experiences is called Obtained effect, because the entity obtains desirable or undesirable effects from specific stimuli by way of choice.

In level 5, the mode of interaction chosen for interaction is to focus one's attention on nearness to spatial objects. That is, the level 5 self interacts to persist or escape with objects based on their spatial arrangements, and the ability to move or focus on specific aspects of experience gives the entity a choice of subjecting itself to particular kinds of stimuli to interact with. The entity at fifth level self engages in persist interaction with objects near in space and exhibits escape interaction with objects which are far from it. Therefore, the

essence of being-ness of level 5 self is space itself. It is so because in both kinds of interactions the spatial aspect of the entity and the stimulus is preserved. The nature of the level 5 self is given in the tables in the Appendix.

References

Baillargeon, R. and J. Devos, ‘Object permanence in young infants: Further evidence’, *Child Development*, 62.6 (1991), 1227-46

Bruce, Susan and Zayyad Muhammad, ‘The Development of Object Permanence in Children with Intellectual Disability, Physical Disability, Autism and Blindness’, *International Journal of Disability, Development and Education*, 56.4 (2009), 229-246

Coventry, Kenny R. and Simon C. Garrod, *Saying, Seeing and Acting: The Psychological Semantics of Spatial Prepositions* (Hove: Psychology Press, 2004)

Georgeon, Oliver L., Frank E. Ritter, ‘An intrinsically-motivated schema mechanism to model and simulate emergent cognition’, *Cognitive Systems Research*, 15 (2012), 73-92

Kuder, S. Jay, *Teaching Students with Language and Communication Disabilities*, 4th edition, (Upper Saddle River: Pearson, 2012)

Lawson, Wenn B. and Brynn A. Dombroski, ‘Problems with Object Permanence: Rethinking Traditional Beliefs Associated with Poor Theory of Mind in Autism’, *Journal of Intellectual Disability – Diagnosis and Treatment*, 5.1 (2017), 1-6

Mareschal, Denis, *The Making of Human Concepts* (New York: Oxford University Press, 2010)

Radin, Dean, Leena Michel, Karla Galdamez and et al., ‘Consciousness and the double-slit interference pattern: Six experiments’, *Physics Essays*, 25.2 (2012), 157-71

Santrock, John, *A Topical Approach to Lifespan Development*, 4th edition. (New York: McGraw-Hill Education, 2008)

Stapp, Henry P., ‘Attention, Intention and Will in Quantum Physics’, *Journal of Consciousness Studies*, 81.6 (1999), 143-164

Stapp, Henry P., *Mindful Universe: Quantum Mechanics and the Participating Observer*, 2nd edition (Berlin: Springer, 2011)

Chapter 9
Repressed memories, What and Feeling

9.1 Feeling and Interrogative Sentence

In chapter 8, it was shown that the self exhibits persist interaction with objects close to it and escape interaction with unknown objects and objects far away from it.

The fifth level self is only aware of the shape of nearby objects. It forms prepositions describing the surrounding environment in terms of objects or entities that are found in specific locations. Whether nearby *shaped* objects are good or bad is formed in fifth level self.

Therefore, a fifth level self is the accumulation of a group of shapes in memory. As the awareness of fifth level self is specific to nearby objects, the unknown shapes become known using known shapes in level 6.

The event in the environment in level 5 takes the form of a sentence, whereas in level 6 the desirable and undesirable effects of the event upon the body are described in the form of sentences. In level 6, the desirable and undesirable aspects combine to form a coherent view of the event independent of the schema formed in level 5. The sixth level self has the ability to understand the unknown alongside the known, be it in terms of shape or spatial arrangement of an object (seen in level 5), moving ability (seen in level 4), identity or name of an object (seen in level 3) or similarity between the entity's body and the object (seen in level 2).

In order to understand how exactly experiences of the past influence decision-making to pursue understanding of new aspects of the environment, we must look at the Somatic Marker Hypothesis. Formulated by Antonio Damasio, the hypothesis proposes that emotions influence decision-making and behaviour. *Somatic markers* are feelings associated with specific emotions, such as nausea being associated with disgust. Rational decision-making is influenced by emotional experiences, and correlation between past experiences and future decisions is part of the experience of feeling. Feelings are changes in the body such as facial expressions, postures, muscle tone, etc. which when relayed to brain, become the corresponding emotional experiences. Emotions can occur solely due to bodily changes elicited by physical contact with stimuli called somatic markers or feelings, which is part of the process of *body loop* in level 3 self. Experience of emotions due to bodily changes or somatic markers which are not caused by physical interaction with the stimulus affect decision making in level 6. This process is termed the *as-if-body* loop.

Damasio also theorised that somatic markers become associated with particular situations and their past outcomes. What is meant by this, is that the stimulus or external object which caused the emotion becomes identified by a particular feeling, which in turn influences future experiences involving decisions when one is exposed to the same object:

> When making subsequent decisions, these somatic markers and their evoked emotions are consciously or unconsciously associated with their past outcomes and influence decision-making in favour of some behaviours instead of others.[1]

[1] Antonio Damasio, *Descartes' Error: Emotion, Reason and the Human Brain* (London: Vintage Books, 2008).

The association between the objects experienced and the emotional experience they invoked in the past are analysed before future exposure to these objects is decided. That is, when the somatic marker associated with a positive outcome is perceived, the person may feel happy and motivated to know more about the particular object in the physical world. As shown before, emotional experience is linked with focus of attention on particular objects which are learned as nouns. Somatic marker hypothesis can be extended to include language acquisition and cognition where not only emotional experiences of the past influence decision-making in the form of feelings but reflex actions, locomotion and pointing experiences as seen in previous levels of self. .

This chapter will show that emotions can occur solely due to elicitation of somatic markers by physical stimuli at a lower level of self (third level) and be followed by feelings not elicited by physical stimuli at a higher level self (sixth level). Feelings are emotional experiences which are not elicited by physical effects from the stimulus.

In previous levels of self, the experience of reflex, locomotion, pointing and emotions are dependent upon physical contact or mutual presence between the stimulus and the entity. As feelings – as described by Damasio – are bodily changes not elicited due to physical contact between the stimulus and the entity leading to the experience of emotions, the same kinds of bodily changes are involved in other experiences such as reflex, locomotion and pointing.[2] So there are somatic markers not just for the experience of emotion, but also for reflex, locomotion and pointing or abstract thinking experiences as well. The idea of feeling proposed by Damasio can be extended to include other bodily experiences such as reflex actions, locomotion and pointing experiences. Feeling is any experience of emotion, reflex, locomotion and pointing (or abstract thinking) in the absence of physical presence or perceptual presence of an object. Therefore, when an external entity which is supposedly associated with reflex, locomotion, pointing and emotion is *thought of*, the person undergoes these actions in anticipation of being physically exposed to such stimulus. Therefore, decision-making is not only associated with the experience of emotions, but also with reflex action, locomotion and abstract thinking or pointing abilities.

Let there be an event where an entity performs a task in relation to other objects. The supposition that the object in the current event is familiar because it is reminiscent of an entity or object encountered in the past, causes the level 6 self to undergo bodily changes associated with such object in the form of experience of feelings which in turn leads to the experience of emotion associated with the object which seems similar to the object encountered in the current event. Therefore, emotions and their corresponding somatic markers associated with a collection of known objects and the supposed role in the present event forms part of Schema. In our theory, feelings are not only decisions influenced by bodily changes pertaining to emotions, but also pertaining to experience of reflex, locomotion and pointing. The process of working of feelings is treated analogous to predictive processing here.

The sixth level self has the ability to check if the known entity of a specific nature encountered in the past has a specific role in a current event. The sixth level self engages in persist interaction with the event if an entity of a known nature is found to be part of that event. That is, if the physical world conforms to the schema's guess, the sixth level self

[2] Ibid.

engages in persist interaction with that event. As it is known that an entity can be either desirable or undesirable and elicit either persist or escape interactions, the checking process may show results that do not conform with the stored knowledge in schema where each entity is associated with only one outcome – either desirable or undesirable or both.. If the supposition is found to be true, it is decided that the current event should be further explored. The incentive value of the choices available to the individual in making a decision (where the decision can be to choose to know more about an event or to avoid such knowledge), is hypothesized to be guided by emotions in SMH. We will expand this idea to include reflex, locomotion and pointing experiences. When a somatic marker associated with the negative outcome (which signifies the fact that the supposition is found to be false) is perceived in an event, the person may feel sad, which acts as an internal alarm to warn the individual to avoid that specific object or event as per SMH.

According to this hypothesis, two distinct pathways activate somatic marker responses. In the first pathway, emotion can be evoked by changes in the body acquired directly from the physical environment or stimuli projected to the brain called the *body loop*. Emotion as defined in level 3 is bodily exchange of effects between the body and the stimulus. The *body-loop* kind of experience of emotions forms part of level 3 self. For instance, encountering a feared object like a snake may initiate the fight-or-flight response and cause the emotion of fear.

In the second pathway, cognitive representations of emotions can be activated in the brain without being directly elicited by a sensory stimulus, by imagining a situation *as-if* you were in that particular situation called the as-if-body loop. Therefore, there is anticipation of bodily changes associated with a non-existent stimulus, which manifests in the form of an emotion involving just those bodily changes acquired in the past instant interaction with the same stimulus or a similar one.

It is hypothesized that a person will feel fear when he imagines a snake's presence in an event which motivates the person not to learn more about that particular event. Feelings can be considered as posing of choices of whether to experience emotion, locomotion, reflex, pointing, etc. regarding a particular stimulus or not, with an initial guess about the nature of the stimulus. The somatic marker hypothesis represents a model of how feedback from the body may contribute to both advantageous and disadvantageous decision-making in situations of complexity and uncertainty.

The hypothesis establishes the notion that emotion has the potential to be beneficial and a hindrance when experiencing an object in the process of decision-making. As explained earlier, physiological changes such as muscle tone, heart rate, endocrine activity, posture, facial expressions, etc. are part of emotional experiences. As per Damasio, feeling is not complete emotional experience. But I differ here by proposing that feelings are emotional experiences in the absence of physical stimulus. Damasio posits that the physiological changes when relayed to the Brain, then they become emotion and that brain regions are responsible for emotional experience. This idea contradicts with our idea of the brain, because it is proposed that brain facilitates actions or movements shown to underlie every experience from reflex to pointing.

What Damasio describes as feelings are physiological changes, though what I call feeling is simply the experience of emotion in the absence of physical effect from the stimulus. This is

part of the process of posing questions involving words such as ‘what’ or ‘where’ in a level 6 self. Damasio has posited that the ability of humans to perform abstract thinking quickly and efficiently coincides with the use of somatic markers to guide human behaviour during evolution.[3] This abstract thinking ability includes the ability of a child to ask questions about the nature of events, in addition to the experience of emotions, reflex, locomotion and pointing capacity.

The emotion of happiness is an interaction of the body with a pleasant physical stimulus and where the body attempts to persist interact with the stimulus in terms of allowing the stimulus to stimulate the senses. On the other hand, the feeling of happiness is when the absence of the physical effect from the stimulus leads to questioning (i.e. using a sentence with the word ‘what’) to attain cognitive closure. Such questioning is part of the process of what self or sixth level self. From the somatic marker hypothesis, the tendency of the emotional experience motivating decision-making in favour of more advantageous choices as opposed to less advantageous can be expanded to include movements in other levels of self.

Reflex, emotion, locomotion, pointing or gesturing motivate decision-making in favour of more advantageous choices as opposed to others. Therefore, when the somatic marker or feeling is defined to include reflex, locomotion and pointing, the hypothesis can be expanded to describe why we ask questions with the ability to attain cognitive closure. For example, people buy products in hope that the product will make them feel either happy, excited or beautiful when they ask questions such as *What is this product*?

During anticipation, the question is uttered by the entity to determine whether the object is pleasant or similar to any known pleasant object.

A feeling is an experience of reflex, emotion, locomotion and pointing as part of the process of ‘what’ (which may accompany the question being asked verbally) where there is no direct physical effect elicited on the body of the entity exposed to the stimulus and the process of ‘what’ includes verification of the truth of a guess made about the nature of the event which features the stimulus about which something has been guessed based on the nature of a familiar object encountered in the past. Feelings are generally considered to result from emotions, but here we expand the idea of feelings to other experiences as well.

As seen in level 5, schema is formed in fifth level self. Schemata influence attention and absorption of new knowledge: people are more likely to notice things that comply with their schema or idea of the world, while re-interpreting contradictions or distorting them so that they fit their perspective. Schema is used in order to understand a rapidly changing environment and thus pay attention to new stimuli or information about the surrounding. Schemata can be defined as the organisation of current knowledge and a formation of a framework for future understanding. Schema is the collection of motivations (from persist interactions) and disappointments (from escape interactions), associated with objects encountered in previous levels of self which are imagined to be present in events encountered in the present. The act of encountering an object in an event which seems similar in meaning to the meaning associated with a supposed object encountered in the past, leads to the experience of a feeling. Such feeling corresponds to reflex, emotion, locomotion or gesturing experiences experienced in association with the supposed object in the past. When such

[3] Antoine Bechara, Antonio R. Damasio, ‘The Somatic Marker hypothesis: A neural theory of economic decision’, *Games and Economic Behaviour*, (August 2005), 336-372.

object is found to be a part of the present event, it results in schemata driven predictive processing in acquiring knowledge.

For instance, when a child is exposed to an event which consists of objects or entities (represented by nouns in schema) which perform actions (verbs), appear similar or dissimilar to known objects (adjectives) and are separated by spatial distance (prepositions), then the child utilizes schema or the internal memory formed from experiences of the past to understand the components of the event or to understand the event itself. We can analyse how the organisation of current schematic knowledge takes place to form a framework that places a particular event into this framework. That is, the known parts of the current event are a part of the schema which is utilized to understand the unknown parts. This process of using known parts of an event in the surrounding to pay attention to unknown parts is how the interrogative *what-process* functions in the mind of the level 6 self or person. By the *what level* it is meant that the sixth level self is that stage of development of a child where it utters what questions.

In the *What-level* the pleasant-ness and unpleasant-ness of entities specific to persist-escape interactions of previous levels of self is used to explore the pleasant-ness and unpleasant-ness of novel objects. In the seventh level or *when self,* the idea that an object can be pleasant as well as unpleasant depending on the context will be explored in detail.

The *as-if* body loop can be considered an experience of emotion in the absence of physical stimulation from the surrounding. How the schematic processing works is correlated to the process of working of the interrogative sentences in the mind of the person has to be determined.

The collection of information required in the form of adjectives, nouns, verbs and prepositions play a part in schema formation. The schema of an infant or fifth level self is primarily concerned with what is good or bad for the body and what things appear to move in which locations in space.

Schema allows for the most common or known explanation or definition to be chosen for understanding the new objects that are encountered. Those new pieces of information, which do not form part of schema, are not part of the sixth level self, and the self is said to engage in escape interaction with such contradictory pieces of information.

Schema – in its usual sense – is filtering of experiences to fit the meaning of pre-existing meanings of known objects to make sense of unknown objects. The process of *what* uses the schema for expecting the new object or stimulus or environment to appear or behave in a certain expected manner. If the expectation is found to be the true nature of the object, then the sixth level self is said to engage in persist interaction with the current event, meaning, it will continue to focus on the unfolding of the event. If the expected nature fails to be similar to the true and verifiable nature of the object, then the sixth level self is said to engage in escape interaction with the event. The *when* emerges from a group of whats, as a result of combination of both the persist and escape interactions of level 6. The when process takes the form of: If… then…

The 'If' is when the schemata is found to be the true description of the event obtained in levels till level 5. The 'then' is the observation in level 6, that the expectation is false. When the true and false natures of the same event combine, the combination will be shown to lead to the quality of self-awareness. Since there is no such thing as true nature of an object, the

context in which the schema is true and when it is false leads to the formation of the seventh level self. As truth is relative in nature, the questions about the ultimate context that decides the truth and falsity of the nature of substances will be shown in level 8, which is the level of 'why', where the concepts of God, religion and science will be discussed.

The escape interactions in level 6 consist of repressed information or memory from the schemata which are found to be untrue in the 'what' process. Frederic Charles Bartlett, who worked on the concept of schemata in relation to memory, demonstrated that long term memory is neither rigid nor unchangeable but is constantly changing with new experiences. Most of his work supports the idea that people's past and present experiences are constructed in a continuous process of adjustments. That is, in order to understand a present event, the truth of an assumption from the past about the nature of the event is checked or adjusted to reflect the true nature of the event. Thus, the assumptions about the world from the past are constantly checked for correctness and suitable changes in the form of adjustments in long term memory are made.[4] In order to understand a present event, the memory acquired about a similar event is used and if the assumption is found to be true there are no changes to the memory. We can understand such a frame described above as information accumulated in the first five levels as per different parts of speech such as pronouns, nouns, verbs and prepositions as the information found accumulated in different *slots*, in the mind of the sixth level self or a person in general. As shown in level 5, a child can utter complete sentences which describe events involving actions performed by objects or nouns.

Let there be an environment in which there is a child (I, pronoun) surrounded by a toy-plane (noun), which *is* (adjective) *moving* (verb) and is kept *upon* (preposition) a *table* (noun) The child is aware of the event as a whole only when each part of the event is part of experience of part of speech in each level of self. That is, the child is aware of the noun toy-plane only if it has experienced a persisting or escaping emotion relative to the noun, because nouns form part of experience or memory only by virtue of experience of emotion as shown in level 3. Next is the verb, which is the moving ability of the toy-plane in the event. The child will only know the verb *move* in relation to the noun 'toy-plane' only if the toy-plane has acquired both persist and escape emotions as part of level 4 of self. As shown in level 4, the object only appears to move when the same object causes at least one pair of persist-escape emotions such that there is awareness of appearance of movement.

From level 3 and 4, the phrase 'Toy-plane moves', is formed. As the moving external object in relation to fourth level self also moves, the adjective *is* relates the I and the moving toy-plane. Emergent from level four is awareness of the child about the spatial position of the toy-plane which is *upwards* in relation to something such as a table which is *downwards*. The knowledge of the *upward* position of the toy-plane is understood only in relation to the *downward* position of another known object such as the table in the example for reasons explained in level 5. Therefore from all the levels of self, the sentence: 'The toy-plane moves up (on the table)' is formed in level 5. The child points upwards while saying this as level five is the stage where the child also learns gesturing.

The moment the child enters the room, the noun, verb, adjective and preposition that would make up a description of the event find themselves in the slots that make up speech and only

[4] Frederic Charles Bartlett, *Remembering: A Study in Experimental and Social Psychology* (Cambridge: Cambridge University Press, 1932).

then in level 5 a complete sentence to describe the event is formed. Each part of speech specific to each level of self occupies a slot. In level 5 all the slots are filled so as to make a complete sentence. A sentence is formed if the current event is a familiar or known event.

However, there are events in the surrounding in which the appropriate noun, adjective, verb or preposition is unclear or unknown. In level 6, the child encounters events in the environment where at least one part of speech is missing or unknown and such an empty slot is filled by a default noun, adjective, verb or preposition, from previous experiences.

If the slot for verb is missing, the default verb 'move' will fill the spot signifying the guess the child makes about the nature of the act that the toy-plane appear to perform. If the toy-plane is found to perform the act of moving, then the feeling of locomotion is performed in relation to the toy-plane and thus the child follows the toy-plane and exhibits locomotion in relation to it.

If there is no relativity between the noun (toy-plane) and the *noun that does* which is the verb *move* in the current event to the child as per the child's schema, the slot for adjective will be filled by a default or guessed adjective. The child here is said to not know that the object in the event such as the toy-plane exhibits motion. The sentence uttered by the child in describing the event would be, 'toy-plane move (Is/is-not) up', which is accompanied by the experience of reflex relative to the guessed adjective associated with the toy-plane in the past experience. In the absence of a verifiable link between the noun and verb, this experience is the feeling of reflex.

If there is no toy-plane in the slot for noun as shown in Figure 9.2, the child will assume a name which temporarily fills the slot in level 6, the child moves in search for cues of the event to verify whether the guessed object is indeed part of the current event. The sentence uttered by the child in describing the event when it has no knowledge about the noun would be '(Guessed noun) moves up', which is accompanied by experience of feeling and emotion associated with the guessed noun in the past. In the physical absence of the object this experience is feeling of emotion.

If the verb slot in the memory of the child does not have the word *move* as shown in Figure 9.2 then the child will have a default verb for the action the toy-plane is supposed to perform. The sentence that the child would utter in describing the event would be 'Toy-plane (Guessed verb) up', which is accompanied by movement of the body of the child from one place to another relative to the supposed action. In the absence of appearance of or knowledge of actual movement of the object, this experience is the feeling of locomotion. When we perceive a motion, the perception is often accompanied by slight bodily movements called Ideomotor Action. Here there is movement or action in the absence of physical stimulation of movement. Therefore, ideomotor action is the movement of a body part which represents an act an object in the event is guessed to be performing in a current event. Such guess when found to be true represents in memory the action performed by the object and does not represent the object in the event if the guess is found to be false. Therefore, ideomotor movement is an act of projection of supposed action or an idea of action upon a perceived action to check the truth of the supposition in representing such action. Ideomotor action exists because the known verbs or actions are used to make sense of novel kinds of

movements accompanied by movement of the body which represents such known verbs and such movement is called the feeling of movement or locomotion.

If the preposition slot in the memory of the child does not have the word *up*, the preposition slot will be filled by a default word signifying the spatial position, which is where the toy-plane is usually found. The sentence the child would utter in describing the event would be 'Toy-plane moves (guessed preposition)', which is accompanied by gesturing or pointing in a certain assumed direction. This experience of pointing or bodily movement in the absence of focus on a particular position in space of a physical object is the feeling of pointing.

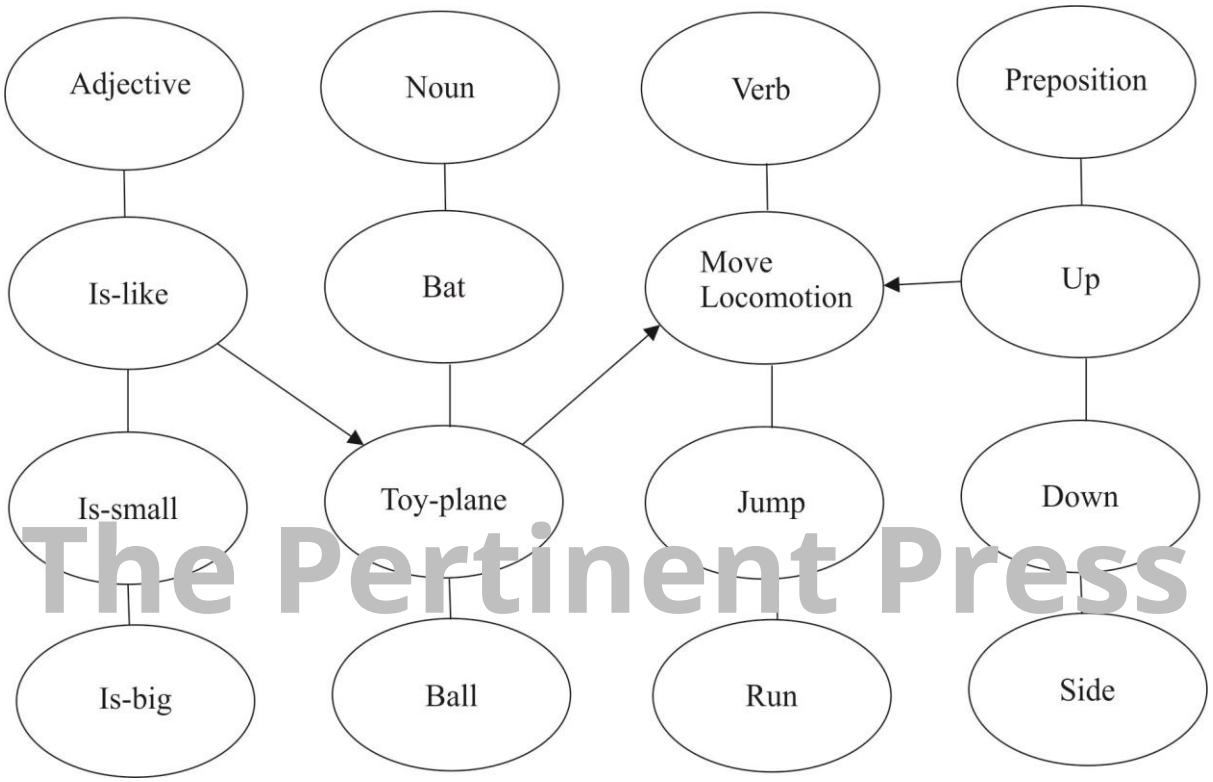

Figure 9.1: Feeling of locomotion

As shown in the Figure 9.1 each word forms part of a single level of self. When the adjective initiates the *is-ness* between oneself and the noun in level 2, it accumulates the noun 'toy-plane' in level 3, which in turn accumulates the verb 'move' as default verb in level 4, which in turn accumulates the preposition 'up' in level 5. Thus, out of many nouns, verbs, adjectives and prepositions, the appropriate ones are roped in a chain process in level 5 as an attempt to describe the current event. The process of *what* here unfolds as a feeling of locomotion or ideomotor movement because the unknown or empty slot is slot for verb in the current example. The child moves from one place to another or moves a part of its body into focus and be subjected to the vicinity of the event to check if the expected verb *move* is the correct action undertaken by the toy-plane or not while guessing using schemata that the probable verb is move.

The awareness of the event in the surrounding environment in level 5 is the process of filling up the slots of all parts of speech. The memory of information or data that forms the schema is the collection of experiences from level 1 to level 5. The schematic processing involves knowing new pieces of information on the basis of previous pieces of information. That is, it

involves imposing or projection of expected behaviours of objects encountered in the past on objects encountered in the present event. It is the process of understanding the present nature of an event based on past events. However, how correctly or wrongly the schema depicts the meaning or nature of the event has to be verified. The process of checking whether one's schema correctly depicts the event arises when particular slots are occupied by guessed parts of speech as per schema in level 6. In level 6, the relational chain between parts of speech is checked by way of asking the 'what' or where question as follows:

1. 'What is moving up?' – Asking for the name of the correct noun, where the noun slot is filled by default or expected noun.
2. 'Toy-plane moving up?' – Asking for the correct adjective to correlate the noun and verb, where the default adjective fills the slot for adjective.
3. 'What is toy-plane doing up?' – Asking for the correct verb in the event, where the slot for verb is filled by default verb.
4. 'Where is toy-plane moving?' – Asking for the appropriate preposition while also checking if the expected preposition is right.

In communication, the child asks questions depending on the unknown part of a sentence. Where there is no one to communicate, the *what* process unfolds merely by way of experience of feeling of reflex, emotion, locomotion and gesturing when the unknown part of speech in the sentence is adjective, noun, verb and preposition respectively. That is, in order to fill the adjective slot, the child experiences the feeling of reflex associated with the guessed adjective in the past. In order to fill the slot for noun, the child experience the feeling of emotion associated with the guessed noun in the past. In order to fill the slot for verb, the child experiences the feeling of locomotion or movement associated with the guessed verb in the past as ideomotor movement. To fill the slot for preposition the child experiences the feeling of pointing associated with the guessed preposition in the past.

The guessed part of speech evokes the appropriate experience in level 6 in the form of feeling.

The verbal expression of the 'what' question is not necessarily part of the working of the 'what' process, which can be described as a process of checking the correctness in schematic processing. The verbal expression of what questions in communication is an attempt to validate one's knowledge about an event.

It must be added that the 'is' or adjective is not only the relation between noun and the verb 'move' but also the relation between the child and the noun because initially the likeness between the child and the toy-plane leads to the understanding of the noun. The adjective 'is' also applies to the similarity between the noun and the doing or moving noun. That is, what is common between the appearance of the action of toy-plane and the action of objects that appear to move *up* is the action of moving. Therefore, the *is-ness* or similarity between the toy-plane and verb 'move', is the act of moving up. The slots pertaining to the process of what questions 1 to 4 in the above example can be drawn as follows in Figure 9.2.

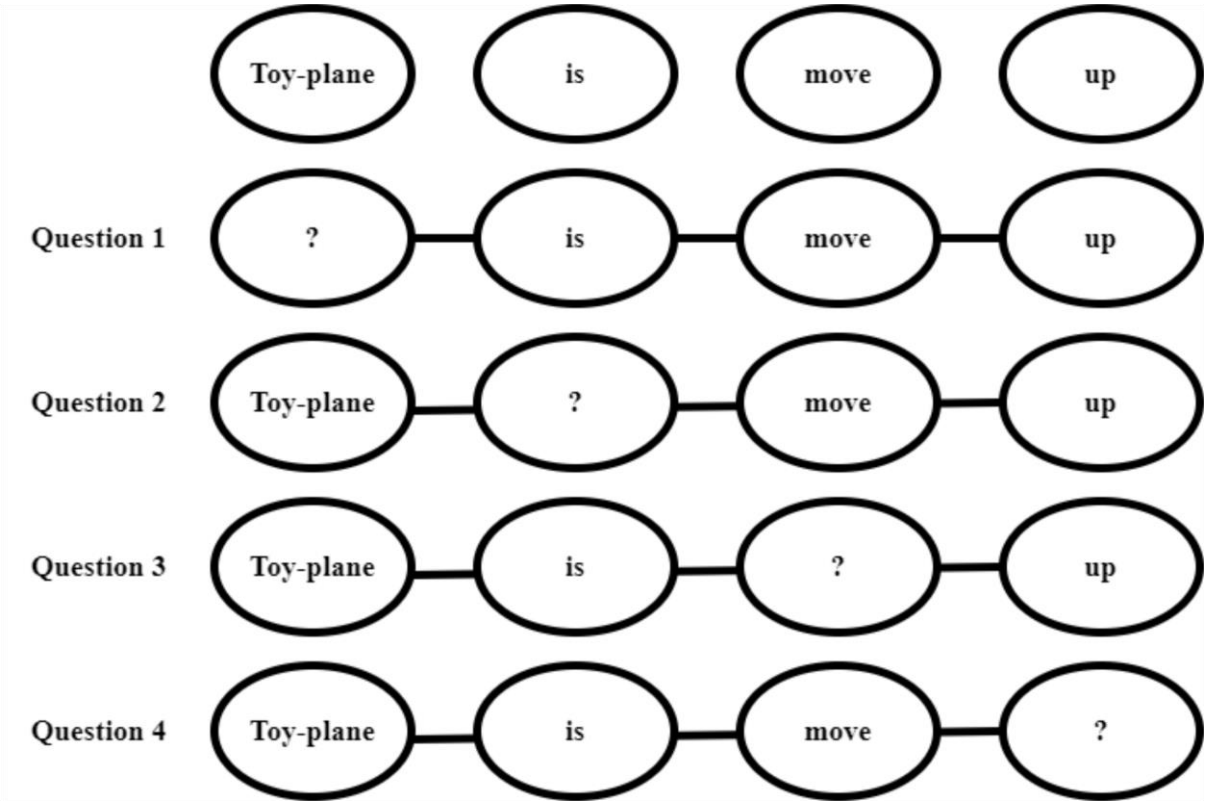

Figure 9.2: Slots in 'what' processing

The empty slots are filled by expected or schema driven guesses about the nature of the event. The empty slots are replaced in escape interaction and are not replaced in persist interaction in level 6.

The *what* question arises when previous events and experiences are used to understand new events or surroundings. Suppose the expected verb is 'burn' instead of 'move', then the default verb 'burn' will fill the slot for verb. The child will move in the vicinity of the event to check whether the guessed verb is correct, so it checks whether the noun appears to perform the act of burning or not. Also, as part of the checking process, the child asks 'What is the toy-plane doing up?' then if in the vicinity of the event, the expected verb is not found to be true and if the person in communication utters a verb which is not 'burn' then the child as a sixth level self interacts with the event in escaping manner, by moving away from the vicinity of the event in space and also the person in conversation and treats the new piece of information as a repressed memory. The movement of the body concerning the guessed verb is called the feeling of locomotion because such movement is to infer the non-existent or false burning action.

As a result of escape interaction, the correct verb 'move' replaces the default verb 'burn', since the expected nature is not found to be true, the statement that describes the event forms part of 'repressed memories'. The entity – or the child – breaks away from the schemata, prejudices or expectations when the answer to the expectation in the 'what' question is *not* delivered by the person in conversation with the child. Since the expected nature is found to be false, the child escapes from the vicinity of the event to prevent future understanding of the event and ceases to communicate with the person in conversation.

Although contradictory worldviews form part of the memories of level 6 self, schemata driven processing exists at every instance of exposure to new events in the surrounding. The contradictory views do not correct the mistakes in the schema in level 6 and form part of the repressed memories. The act of choosing both contradictory explanations of the world and schemata confirming explanations will be shown in level 7. In level 7, the contradictory views combine to give rise to self-consciousness and self-conscious emotions. In instances when the answer to 'what' questions is *no* and proves the information in schemata wrong, such occasions in memory form part of repressed memories. Schema driven expectation of the presence of an object or nature of the object is sometimes sufficient to trigger its erroneous recollection. Therefore, the natures of the role of objects in an event are sometimes wrongly understood under schemata processing. These incorrect expected natures form part of repressed memories. The contradictory views that do not fit in with schema are disposed as repressed memories.

Interrogative is used to refer to qualities that ask questions. Grammatical arrangement of an interrogative sentence takes the shape of a question. Interrogative sentences are also called *wh-questions*, formed by using words such as who, where, why, etc. In the previous level of self, propositions form part of declarative sentences form part of the data in schema. Interrogative processes such as what, where, how, etc. form non-polar questions. This generally takes place in the syntactical structure of the sentence normally occupied by the information being sought. In level 6, there is acquisition of interrogative sentences. The piece of information being sought can be an adjective, verb, noun, or preposition – as seen in the above example where questions 1, 2, 3 and 4 seek information regarding respective parts of speech. As levels 2, 3, 4 and 5 have been shown to link parts of speech with phenomenal experiences such as reflex, emotion, locomotion and pointing, in the above example, when question 1 is uttered to seek information about a noun, the experience is linked to the expected noun in level 3 which is the experience of appropriate emotion is seen when there is expression of the interrogative sentence in communication and such experience is the feeling of emotion. Likewise, the expression or working of question 2 is accompanied by the experience of reflex. The expression of question 3 is accompanied by the act of movement of the child from one place to another to seek information about an object that moves. Such movement is called the feeling of locomotion or ideomotor movement. The expression of question 4 is accompanied by pointing. The child points at an object to seek information regarding the position in space of the object. Such pointing is called the feeling of pointing. However, the 'what' process or the sixth level self seeking the correct information about the event in the surrounding functions independent of the utterance of the interrogative sentence in conversations. A decision to explore something about the environment is shown to be influenced by past experiences in the form of schemata which takes the form of experience of feelings.

The process of interrogative 'what' in level 6, involves checking whether the schema captures the true nature of something by imposing or projecting the expected nature or expectations in each instance of checking. When the expected nature is found to be true, the sixth level self composed of schema engages in persist interaction with the event, that is, it chooses to know more about the event by physical presence or non-physical presence or by way of focusing. That is, if the answer to the 'what' question is 'yes' then there is persist interaction between the entity and the surrounding. When the answer is 'no' there is escape interaction, meaning the self refuses to be exposed to the event and refuses to know more about the event.

In the above example in question 1, as the entity asks for the specific noun relative to the event, it knows about the adjective, verb and preposition that describe the event. What is meant by saying that the entity knows the adjective *is* is that it has compared the two words on either side of the 'is' in the sentence of question 1 and found similarity between the noun and the verb, though it does not know the name of the object or noun. The appearance of an object in the event moving up and the object in general that moves up has one thing in common which is the act of moving up, which can be known independent of the name of the object. That is among all known objects which can move up, the name of the one specific to the event is strived to be determined.

By saying that the entity knows the verb, it is meant that the object in the event appears to *move* in the entity's awareness. Likewise, by saying that the entity knows the preposition, it is meant that the entity knows the relative location of the toy-plane in relation to the spatial location of another object, or the *up* position of the entity. Therefore, the known adjective, verb and preposition which make up the event are identified by the entity as part of schematic processing.

9.2 Expansion of Somatic marker hypothesis

Perception is an inference process where an entity tries to understand the world. The idea of perception being a projection of guess over the experience of the surrounding to infer the true nature of the surrounding will be explored further.. Predictive processing is similar to the working of process of 'what' as described here. The 'what' process is similar to schematic processing, except that it includes 'checking' whether the meaning given to a particular part of the event as per schema is real. That is, the expected nature of the event formed from the data in schema is verified to be true or false in the process of 'what' by focusing through movement of a certain kind which involves experience of reflex action, emotion, locomotion and pointing experiences. The known part of the event is the information of the schema, which reveals the unknown parts of the event.

In the previous example in question 1, the noun is the unknown part of the event and due to the schema, the expected noun that fills the slot for the noun 'invokes' the corresponding emotional experience as if it were physically present to stimulate the entity. Therefore, feelings or mental emotions forming part of the 'as-if-body' loop are experienced. The somatic marker is the expected noun in the second pathway, which is associated with a particular emotion felt in the past, which causes the feeling of that emotion while the question 1 is uttered in a conversation or processed in the mind of the child.

Similarly, while uttering the question 2, verifying the expected adjective gives the event its correct meaning. As part of the process, the experience of reflex in the absence of physical effect on the body of the entity is experienced. Such reflex is associated with the same kind of event in the past. The body believes that an actual physical effect from the environment is obtained.

In question 3, as the unknown part of speech is a verb, the expected verb from schema elicits the associated bodily movement in the entity in the form of locomotion or ideomotor movement. This is experiencing the feeling of locomotion.

In question 4, the unknown part of speech is a preposition. The expected preposition from schema elicits the associated focusing ability on a particular location in space. This is experiencing the feeling of gesturing. Therefore, in this manner the somatic marker

hypothesis can be extended to include reflexes, locomotion and gesturing ability of the child at level 6.

9.3 Repressed memory, Mental Stress and Depression

As per Damasio, there is emotional experience in the 'body loop' elicited by sensory stimulus. This direct experience of emotion is explained in level 3. In 'as-if-body' loop in level 6, there is experience of emotion such as fear when there is imagination of the stimulus, giving the person the impression of 'as-if', an imagined stimulus such as a snake being physically present. The experience of fear in the physical presence of the snake is bodily fear, whereas fear initiated by imagination in the physical absence of the stimulus will be called here as mental fear. When schematic or predictive processing is considered, a new object in the environment acquires meaning in terms of a known object by way of imposing an expectation about the nature of the new object relative to the known object. In schematic processing, a person expects or imagines a new object to be a known object, giving the impression that the person is actually surrounded by a non-existing object. Experience of feelings is part of schematic processing involved in the process of 'what', which is itself the 'as-if-body' loop. Feeling of reflex, emotion, locomotion or gesturing is synonymous with predictive processing because the experience of feeling is part of the process where an expectation arises from schema which elicits the associated experience of the past in the form of feeling. Therefore, mental fear, anger, happiness, surprise, etc. are feelings. Past events are used to form schemas based on past experiences, such that the expectation is projecting the past script onto the present experiences in an attempt to understand new parts of the surrounding.

Anger, happiness, sadness, joy and excitement can be emotions and feelings. Felt sadness or feeling of sadness can be linked to stress. Stress is the feeling of more demand is placed on a person that exceed their ability to cope. The pain felt psychologically but not caused by physical effects from a stimulus on the body is stress. Stress is also the discomfort felt when there is excess intensity of effect felt in relation to a stimulus which is physically present or absent.

What is meant by the idea of stress being *an excess of something*? As we are dealing with experiences of feelings in level 6, stress can be defined as a feeling of discomfort in the excess experience of a single kind of feeling, because stress concerns the awareness of something that does not impinge a physical effect on the entity but its presence is felt or in this case is imagined. Therefore, stress can be defined as expectation in the form of feeling concerned with causing persistent experience of one kind of feeling. When an environment is filled with events involving the understanding of only one kind of part of speech, then the feelings concerning only one level of self are experienced as stress. There will be excess experience of specific feeling of either reflex, emotion, locomotion or gesturing. As described earlier, same or similar experiences leads to a decrease in freewill, because freewill increases when there is variety in experiences experienced. Only when the 'what' process involves schematic processing in all parts of speech, then the self evolves to be seventh level self.

The excess of both persist and escape interactions such as feeling of emotions, locomotion, reflex, pointing or abstract thinking either causes or is stress itself. There is apparent ambiguity between the pleasant and unpleasant nature of things.

As explained earlier, depression is felt inability to prevent loss of freewill when there is recurring experience of similar or the same emotions. Mental depression can be defined as persistent feeling of not only sadness but also persistent feeling of similar reflex, other emotions, locomotion or gesturing. Depression is the sense of helplessness felt by a person due to persistent sadness or the psychological pain or stress. Stress can be defined as an intermediate experience between one instance of feeling of a certain kind of emotion, reflex, locomotion and pointing and recurring experience of single kind of feeling, which leads to discomfort in the form of stress. When the limit of bearable number of occasions of recurring experiences is exceeding it leads to the onset of mental depression. Mental depression is the experience of helplessness in the absence of physical interaction of the entity's body with the stimulus. The experience of helplessness is tied to recurring experiences which cause a decrease in freewill owing to the lack of variety of experiences in a particular instance of time. Humans experience stress or perceive things as threatening when they do not believe that their resources for coping with obstacles (stimuli such as people, situations, etc.) are enough for what the circumstances demand. When people think the demands being placed on them exceeds their ability to cope, they perceive stress. The point at which the ability to cope diminishes, leads to the said feeling of helplessness. From the above, it can be considered that the direction in which the experiences drive the person towards freewill also drives the person away from helplessness.

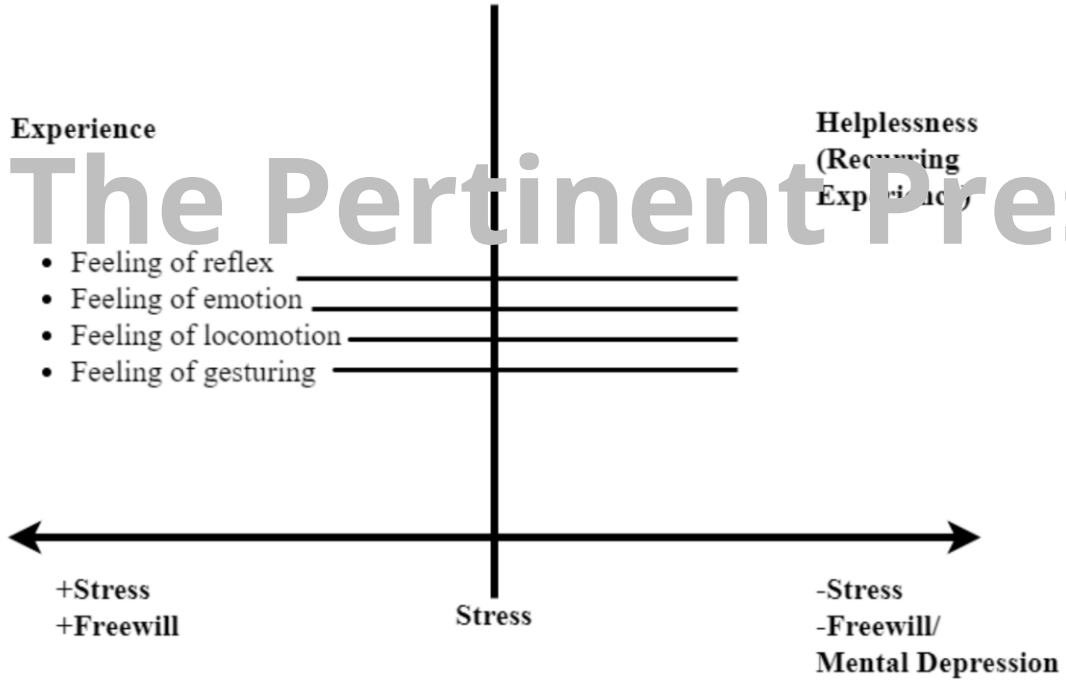

Figure 9.3: Stress and Mental Depression

In Figure 9.3 it is shown that if any feeling is recurrent in experience, then at a certain point the experience causes discomfort in the form of negative stress. Experience of less recurring feelings are said to cause eustress or positive stress. When a feeling exceeds a certain limit of discomfort, it causes helplessness or mental depression.

It has to be noted here that wherever in level 6 there is recurring experience of feeling of reflex, emotion, locomotion or gesturing, there is descent of self from level 6 to levels 2 to 5 respectively which is considered loss of freewill owing to the decrease in the number of

variety of experiences from level 5 to 2. That is, in depression the person experiences less variety of experiences. There is descent because if there is a positive answer to the *what* question, mild experiences of reflex, emotion, locomotion and gesturing in the form of feelings become complete experiences, because the correct expectation creates an impression that the same event of the past is encountered in the present leading to descent to respective lower levels. The loss of freewill can be attributed to the descent of self from higher to lower levels as shown in earlier sections.

Stress or eustress is the state in which the loss of freewill or descent of self can be strived to be avoided. The descent already takes place in the state of depression, accompanying the said experience of helplessness. So fundamentally when there is obsession with a single experience or kind of experience, there is stress and eventually depression.

As shown in Figure 9.3, when the environment becomes conditioned to cater to only say exploration of only nouns in level 6, by way of expectation using schema, there is stress. For example, consider a room full of things and a child being taught the names of everything in the room. As feeling of emotion is experienced in association with a guessed name for a particular object, if there are recurring instances of guesses and therefore feelings of emotions, then the child is said to feel initial discomfort irrespective of how accurate the guessed names for the objects are. So if the child is persistently asking or being asked questions such as:

What is the name of the biggest object?…*e*1

What is the name of the beautiful object?…*e*2

What is the name of the smallest object?…*e*3

What is the name of the object on the left?…*e*4

the child possesses the ability to lose freewill or feels helplessness beyond a certain limit. In question 1, as per schema the emotion associated with the expected name for the biggest object is experienced in the form of a feeling called *e*1. Similarly in questions 2, 3 and 4, the emotion associated with the name for beautiful, small and an object which is on the left, are experienced in the form of feelings, *e*2, *e*3 and *e*4 respectively. In persistent experience of feeling of emotions in level 6 where feelings are mild intensity emotional experiences, the self appears to *undergo* experience of emotions analogous to the self of level 3 when the expected or guessed name is verified to be true. If the child is made to learn only the names of objects, each question accompanied by mild emotional experience, the recurrent emotional experiences gives rise to the *impression* that the nature of experience is similar to the experience of level 3. As shown in Figure 9.3, if the number of questions for names of objects to be learned crosses a certain limit, then the child feels negative stress. There is a feeling of pressure or discomfort due to repeated experience of same kind of 'what' processing. The *appearance* of the fact that a sixth level self accommodates experiences of third level self, decreases or eliminates the varieties of experiences from level 3 to level 6 that the child had experienced in the process of emergence of selves. This decrease in variety of experiences can be related to decrease in freewill because, as described earlier, freewill is said to increase with increasing levels of self and increase in variety of experiences of the surrounding. Loss of freewill is experienced in the form of discomfort as stress and as helplessness or mental depression.

Similarly, when there is recurring feeling of gesturing, as seen in some professions such as traffic policing, where one has to gesture one's commands constantly there can be stress. When there is persistent need for the person to move around, there can be stress. In Figure 9.3, the instances of recurring experiences start to cause discomfort and helplessness when the number of experiences increases to dissolve the difference between mild experience in the form of feeling of reflex, emotion, locomotion and gesturing and the actual experience. In such a scenario, the stress becomes distress.

Selye defined stress as 'the non-specific (common) result of any demand upon the body, be the effect mental or somatic'.[5]

Here the felt demand upon the body in the form of stress is due to physical stimulus, as seen in 'body' loop in levels until level 6, and in the physical absence of the stimulus as seen in level 6 in 'as-if-body' loop. It is interesting to note that the body feels affected by both physical and non-physical stimulus. The same stimulus can cause eustress and cause distress when the limit of recurring feelings crosses a certain limit. The loss of freewill that occurs with recurring experience of single kinds of feeling is perceived as a threat or challenge in stress which can be either physical or psychological in nature. Therefore, stress is how it feels for an entity to be on verge of experiencing loss of freewill. Loss of freewill or descent of self from higher to lower level of self is felt as helplessness or mental depression.

Repressed memories are memories that have been blocked due to level 6 self being associated with schema conforming experiences. Repressed memories hiding stress-related memories from awareness were an important part of Sigmund Freud's early work on psychoanalysis.[6] The repressed memories are pieces of information obtained through non-schema conforming experiences. Memories that conform to schema do not cause stress. While stress is the recurring set of experiences, repressed memories are part of stress experiences caused by events that do not conform to schema in the process of experience of stressful experiences. The memories or experiences in level 6, which do not conform to schema, are disregarded as repressed memories because in level 6, the *essence of being-ness* is information stored in schema and not the information that contradicts the data in schema. The repressed memories do not tend to preserve the information stored in schema, thus these memories or experiences form part of repressed or undesirable experiences in level 6.

Mental Depression is the persistent *what* process concerning a single level of self or part of speech leading to helplessness as there is descent of level of self. In the *what* process, the self turns inside out to verify the truth of the nature of reality through expectation, where the expectation is the stored experiences of the past. As defined earlier in chapter 6, depression is recurring experience of a single kind of emotion. Sadness or pain experienced by the body is the body's way of escaping damage to the form of the self which is the physical body. The perceived helplessness is the inability of the self or entity to break away from experiencing the same kind of experiences such as an emotion over a period of time and such is the state of depression. Therefore, not only sadness or pain but also pleasure or happiness can cause helplessness and depression. There is a sense of helplessness while experiencing the same kind of experiences because every entity strives to be close to God by striving to increase the variety and the number of experiences. Increase in the variety of experiences is a tendency

[5] Hans Selye, 'The Stress Concept: Past, Present and Future', in C. L. Cooper, ed., *Stress Research: Issues for the Eighties* (New York: John Wiley and Sons, 1983), pp. 1-20.
[6] Elizabeth F. Loftus, 'The Reality of Repressed Memories', *American Psychology*, 48 (1993), 518-537.

which arises from freewill. Greater the variety of experiences greater the freewill and greater is the ability of the person to be closer to God. Therefore, experience of a single variety of experiences curbs freewill, thus decreases the chances of the person of being close to God.

In the *what* process, if the surrounding causes experiences pertaining to a single kind of feeling, then the entity climbs down to the level of self of that part of speech. The descent to the lower level of self means that the entity experiences lesser variety of experiences, and is therefore less free. For instance, when the *what* process causes the feeling of an emotion and if the projected expectation is true, the person experiences the emotion fully. When the same kind of feelings cause the experiences of emotions, then the recurring experience of emotions becomes analogous to the experience of the self in level 3, so the self is said to have climbed down to level 3 from level 6.

In the above example, question 1 as part of the process of *what* is uttered when a probable object from schema as a noun takes the place of a slot for noun in the process of describing the nature of a particular event. In such a process, the emotion that the expected object had invoked when it was learned in level 3 is experienced in the form of feeling in level 6.

Suppose the child has learned via schema that a balloon moves up, and then the default noun that describes the present event becomes 'balloon'. When 'balloon' fits the noun slot in the sentence, there is experience of feeling of emotion which had caused the learning of the noun 'balloon' in level 3. Let's say the noun balloon caused the experience of happiness in level 3. In level 6, happiness is experienced 'mildly' as a feeling while asking question 1 in conversation. When in the surrounding the expected noun is found to be false, then only mild happiness is experienced and not completely as an emotion because the expected nature of the event as per schema is not found to be true in describing the event. On the other hand, if the schema predicts that the noun of the event is a 'toy-plane' and if the toy-plane is associated with happiness emotion, the *what* process leads to the experience of emotion of happiness as a feeling. As the noun in the event is indeed the toy-plane, the feeling of happiness experience increases in intensity to the extent that it becomes the emotion of happiness. Therefore, here it can be said that when the expectation is found to be true, experience of feeling of emotion turns into experience of emotion. That is, experience of level 6, becomes transformed to an experience of level 3, thus there is descent of self.

If the environment presents itself to the entity in the manner that only causes the *what* process where say the noun slot alone is unknown, there is repeated emotional experiences. It will be as if the entity is a third level self, not a self of level 6 and which is comparatively less free due to increased variety of experiences in higher level of self.

Repeated exposure to the environment which presents the entity with only one/specific unknown part of speech means that the entity has descended from level 6 to lower level of self.

As described earlier, depression is a state in level 3, where the entity experiences only one kind of emotion. The depression when caused by experience of emotion in the physical presence of the stimulus is called Bodily depression. Feelings in the sixth level self cause descent of self to corresponding experience of reflex, emotion, locomotion or gesturing. As seen above, even in the absence of the physical stimulus, there is experience of mild intensity emotion or emotion in general. Such emotional experiences independent of physical effect on the body of the entity are called mental emotional experiences or feelings of emotions.

Therefore, mental depression can be defined as the excess or repeated predictive processing concerned with single part of speech, which causes descent of the self to lower levels of self. That is, when there is repeated sad-ness feeling for instance, there is mental depression.

Similarly in the case of question 2, the descent of the self from higher to lower level can be observed. When question 2, 'Toy-plane moving up?' is processed or uttered, the relative reflex associated with the interaction with the toy-plane in level 2 is experienced in less intensity as a feeling in the physical absence of the toy-plane. If the object that is the toy-plane in the event signifies the *is-ness* or *is-not-ness* in expected manner, the appropriate reflex is experienced. When the expected 'is-ness' is found to be true, the reflex is experienced in full intensity. If the environment is of the nature that has unknown adjectives to be learned repeatedly, then there is descent of self from level 6 to level 2. The descent is perceived as helplessness or depression or loss of freewill. Stress and mainly distress is the inability to prevent the persistent experience of same kind in level 6.

The functioning (or utterance in conversation) of question 3 is as follows:

What is the toy-plane doing?

The unknown verb-slot is filled momentarily by a verb known to the child which fits the known parts of speech concerning the current event. The verb known to be associated with the toy-plane initiates movement of the whole body in the child as feeling of locomotion or ideomotor movement because the child learns locomotion at level 4. That is, while asking the question or trying to focus on the event, the child moves its body from place to place in an act of following the object, because in level 4 the child learns to follow an object which appears to move. When the appropriate verb is guessed, there is considerable movement exhibited by the child as if it were experiencing the world at level 4 self. If the environment has events which have only unknown verb to be learned the entity of the person may be exhausted physically and feel distress due to excessive physical activity. Persistent movement leads to descent of self, leading to perceived helplessness due to the inability to break away from persistent experience of locomotion.

The functioning (or utterance in conversation) of question 4 is as follows: 'Where (in which direction) does the toy-plane move?'. The utterance is accompanied by the child's pointing in a direction in which the toy-plane is experienced in the past to move in the form of feeling of gesturing. When the expected location is found to be true, then there is increased intensity of gesturing that takes place in the same direction. Before there is a 'yes' answer to the question, the gestures are random or confused. Therefore, if the environment is composed of events where the location of the noun is unknown on a regular basis such that the child is made to learn only prepositions, there is compulsive pointing or gesturing experiences which in turn may lead to perceived helplessness due to the appearance that the feeling of gesturing experience is like the gesturing experienced in level 5. Therefore, mental depression is the experience of descent of the self from level 6 to lower levels of self. It is the perceived helplessness in overcoming loss of freewill in an entity because freewill is associated with increased variety of experiences with increase in the level of self.

When the expectation from schema tied to feelings are checked in the *what* process and if the expected nature is the true nature of the event, then the answer to the *what* question is 'yes'. The *yes* result causes the appropriate experience associated with the expected nature of the event. When the result of the checking process is negative then the false information

extracted from schema in the form of expectation, is disregarded and stored as repressed memories. When the expectation or prediction is found to be false, the intensity of the mild experience does not increase and therefore the self of level 6 does not descend to lower levels. .

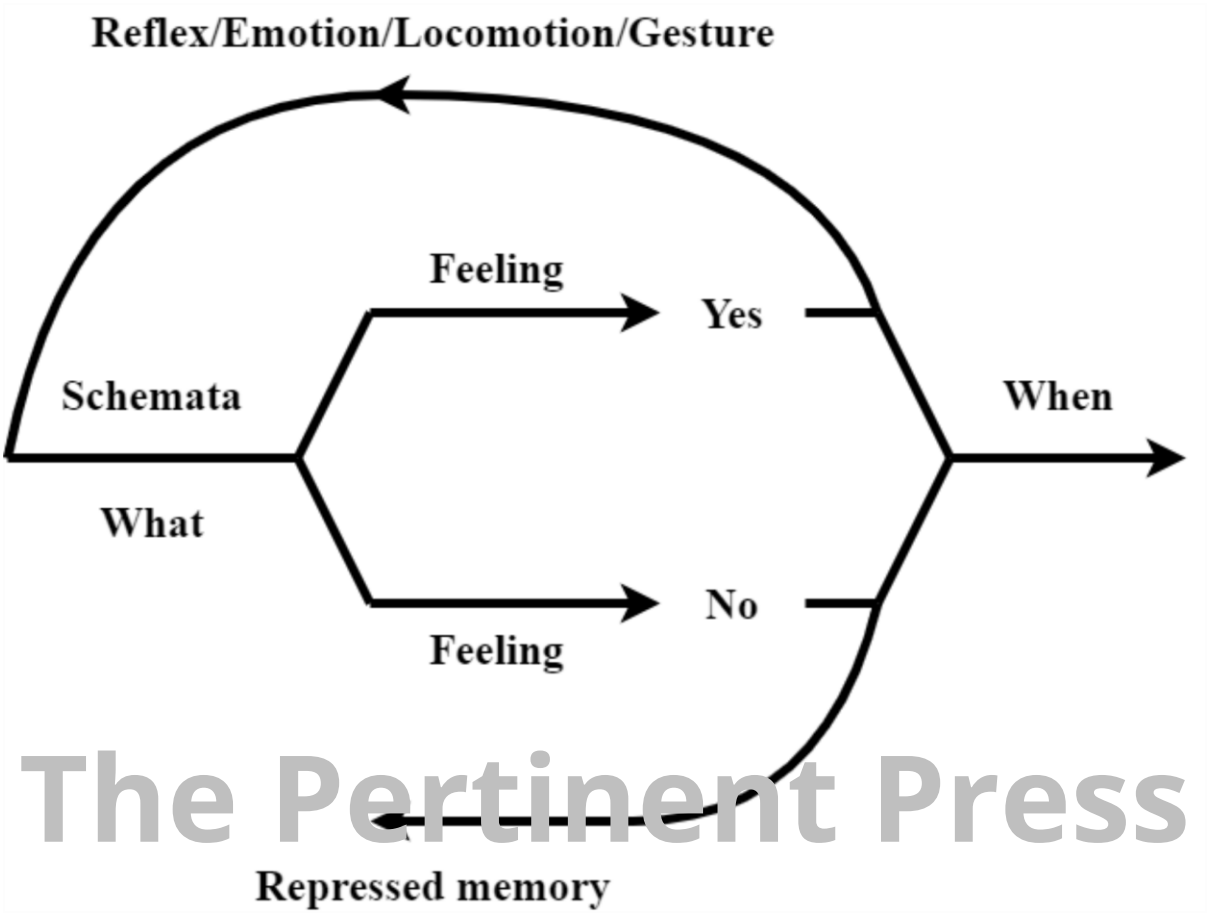

Figure 9.4: What process

As shown in Figure 9.4, in level 6, when the expected nature of event in the form of feeling is found to be the true nature of the event, then there is experience of reflex, emotion, locomotion and pointing experience. And when the expected nature of the event is found to be false, then the information that explains the true nature of the event and which contradicts the information in schemata are disposed as repressed memories. When the expected nature of the stimulus or event is found to be true as shown in Figure 9.4 as a 'yes' result, then the sixth level self exhibits persist interaction with the part of the environment concerned with the specific part of speech. If the answer to the *what* question is 'no', then the feeling such as the feeling of emotion does not result in experience of emotion. If the answer to the *what* question is 'yes', then a feeling such as a feeling of emotion leads to the experience of emotion. Feeling of emotion is the mild experience of emotion which takes place independent of physical effect from the stimulus. When the nature of the event or a part of the event does not turn out to be as expected, the entity stops concentrating or there is shift of focus away from such event. The false expectation is stored as part of repressed memories. Such shift qualifies as an escape interaction of the child with the surrounding.

In the question about the name of the object in the event: 'What is moving up?', if the expected noun is balloon and it is not found to be true, then the nature of the expected noun

does not fit the context of the event. On the other hand, if there is another noun which is the actual noun of the event but which according to the schema does not fit the context of the event, then there exists a contrast between the known qualities of the actual noun as per schema and the new qualities of the noun or object in the present event.

If the real noun is toy-plane, suppose the child has seen a toy-plane similar to the toy-plane in the event but it cannot move or fly up. So as per the child's schema, the only toy-plane it knows does not move or fly. But the current event contradicts the supposition that a toy-plane does not fly. The accumulation of such contrasting pieces of information about a single object such as a toy-plane exists in level 6. The child exhibits escape interaction with such contrasting pieces of information. So in level 6, the pieces of information that contradict the suppositions about the environment stored as schema form part of repressed or unwanted memories.

As in level 6, the information as per schemata is projected over both persist and escape interactions. the *yes* response in persist interaction conforms with or protects the information, while the *no* response causes rejection of new pieces of information that are contradictory in nature with the data in schema and such data in schema is the *essence of being-ness* of level 6.

Therefore, the 'no' responses to the 'what' questions of level 6 form what are called the repressed memories. The nature of the level 6 self is described in tables in the Appendix section.

Examples of schema driven memories and repressed memories are shown in table 9.1

Schema	Repressed Memory
Toy-plane found at home does not move.	Toy-plane in the park moves.
Dog sits near me.	Dog runs away from me.
Mother feeds me.	Mother hurts me.
Brother plays with me.	Brother does not play with me.
Pencil helps to write.	Pencil hurts my hand.
Food is tasty here.	Food is not tasty here.

Table 9.1. Examples of schema driven memories and repressed memories.

References

Bartlett, Frederic Charles, *Remembering: A Study in Experimental and Social Psychology* (Cambridge: Cambridge University Press, 1932)

Bechara, Antoine, Antonio R. Damasio, 'The Somatic Marker Hypothesis: A neural theory of economic decision', *Games and Economic Behaviour*, 52.2 (2005), 336-372

Damasio, Antonio, *Descartes' Error: Emotion, Reason and the Human Brain* (London: Vintage Books, 2008)

Loftus, Elizabeth F., ‘The Reality of Repressed Memories’, *American Psychology*, 48 (1993), 518-537

Selye, Hans, ‘The Stress Concept: Past, Present and Future’, in C. L. Cooper, ed., *Stress Research: Issues for the Eighties* (New York: John Wiley and Sons, 1983), pp 1-20

Chapter 10
Self-awareness, When and Self-conscious Emotion

10.1 *When*, Mirror Test and Self-Awareness

Repressed memories are pieces of information that contrast with suppositions about the nature of surrounding entities acquired until level 6. The emergent level 7 self accommodates two contrasting pieces of information or meanings to form one coherent understanding of an object.

In the example in the previous chapter, let the child understand in the past that a toy-plane cannot fly up, whereas the current event shows that a toy-plane can be flown in the air.

As per schema, the toy-plane has the following definition:

'Toy-plane does not move up' | Toy-plane = 'Does not move'…1

As per the current event, the toy-plane has the following definition:

'Toy-plane moves up' | Toy-plane = 'Moves up'…2

The *when* self differentiates but unites the two definitions of the toy-plane by contextualising the meanings in different situations. This kind of unity will be shown in level 7.

The second definition is rejected in level six.

The definitions above are contextualised as follows in terms of where the toy-plane is found as follows:

Toy-plane at home does not move…

Toy-plane in the park moves up…2

The *when* connects or groups two contrasting ways of understanding an object by showing the relation between the two instances of encountering the same object. The above two sentences can be combined as follows:

'If the toy-plane is not at home but in the park, then it moves' – 'When the toy-plane is in the park it moves up'

The *when* self gives reason as to why an object behaves in two contradictory ways in two different situations.

In level 4, the entity understands the stimulus as being like itself. In level 5, the entity verifies whether the stimulus has the same 'observable' behaviours in terms of pointing at the same objects in a conversation. In level 6, the entity infers if the stimulus behaves in a certain manner always or whether its desirable nature can lead to an undesirable or unexpected behaviour. In level 7, an attempt to combine the desirable and undesirable behaviour of an object is made by contextualisation. Under what circumstances an entity behaves in a certain way is inferred in level 7. This is done by attributing to the stimulus inner experiences such as emotions, feelings, etc. which the entity itself experiences.

As seen in level 6, the events that ascribe properties to objects that do not conform to schema and which cause stress are escaped from by the entity or the sixth level self. *When* is said to be a collection of *what* processes or relation between them. A 'what' describes an event and

the properties of an object specific to the context of an event. A ‘when’ connects two such descriptions by blending two or more contexts or *whats*.

Schematic processing concerns a single *what* process. When schematic processing does not lead to information processing of the expected nature, then these pieces of information form part of repressed memories. The *what* process, by trying to know the unknown part of speech, strives to describe the nature of entities in different occasions.

Expected natures are desirable. Unexpected nature of entities are undesirable and escaped from. A pointing entity at level 5 strives to infer that the stimulus like itself also signifies at things by way of imitation. At level 6, the entity strives to know the truth behind its experiences by asking and inferring if the stimulus like the entity has similar experiences of the things at which it can point at. In level 6, the entity learns that truth is relative and experiences cannot be inferred to be similar between itself and the stimulus due to the limitations of language when describing single quale. In level 7, the entity knows at what point an experience is desirable or undesirable for the other entity or person, which it ascertains to have similar experiences such as emotion, feelings, etc. The realisation or awareness about the nature of experiences experienced by the stimulus such as a person, gives the seventh level self the experience of self-consciousness and therefore emotions such as guilt, empathy, etc.

A simple example to describe the relationship between *whats* and *when* can be demonstrated with the example of filling a glass with water. In this event, the various stages leading up to filling the glass, form a group of *whats*. The specific stage at which the glass is filled to a certain degree is described in or as a single *what*. The description of the relation between two or more stages at which the glass is filled to different extents is done in the process of *when*.

When filling a glass with water, there are various stages or *whats* arranged in the right sequence starting from it being empty to being filled. The *when* describes the particular instance or stage at which the filling happens in relation to being completely filled or completely empty. Let 1, 2, 3, 4 and 5 be particular stages in the event of filling a glass of water.

1 – Glass is empty – *What*1
2 – Glass is quarter full – *What*2
3 – Glass is half full – *What*3
4 – Glass is three quarters full – *What*4
5 – Glass is full – *What*5

There is *when* only when there is right sequencing of *whats*.

For example, for answering a *when* question such as:

When (in time) the glass is half full?

The right sequence of events or moments of filling of the glass must exist. The answer to the *when* question is given referring to either a full or empty glass.

Answer: The glass is half full at instance 3 (compared to all other instances in time)

Here there is no instance 3 if all the instances in time are not correctly arranged, starting from when the glass is empty to when it is full. There must be a right sequence of events, such that

the *when* question can explore information about a single instance compared to four others or in reference to others.

It can be said that time is a collection of *nows* or *whats* and the *when* is the relation between *current moment* or *current what* and all other *whats*.

The answer to 'when is the glass full?' must reference all the moments or instances from 1 to 5 while describing the last instance of filling. For instance, 'the glass is completely filled at instance 5 (compared to instances 1, 2, 3 and 4)', describes the relationship between the instances at which the glass is empty to when it is full.

Now, if we take into account the existence of schematic processing as part of the *what* process, the events from which the entity escapes (which do not conform to schema) can be included or combined with the events which do conform to schema, because the 'is' or declarative schema statements are referenced or linked to the 'is-not' statements of escape interactions seen in level 6, in level 7.

Let us assume that through schema the observer or entity, expects to see an empty glass which answers the question: 'What is that glass?' – 'It is an empty glass' at instance 1.

Let us call this What 1.

But if the expected nature of the glass is not verified to be true (here the expectation is to see an empty glass), then the answer becomes 'it is a glass filled with water' at instance 2.

In the second instance of observation the *what* self is said to engage in escape interaction with the glass by stopping the act of focusing on the article that is the glass if it is not an empty glass. The observer will choose to ignore the entity which isn't found to be an empty glass.

The 'when' of seventh level self accommodates both persist and escape interactions as seen in the *what* level of self.

The question 'When is the glass full?' can be answered as follows:

> 'If the glass is empty at instance 1, then the glass is filled at instance 5'

Thus the persist-what observation of empty glass is linked to escape-what observation of the filled glass in the above answer.

Thus the process of *when* can be described as follows:

> 'If…, then…'
>
> 'If (what1), then (what2)'

Where what1 and what2 are persist and escape interactions in level 6 respectively.

The *when* tries to accommodate in the schema driven information the new and undesirable pieces of information. As each *what* is an event of observation or experience itself, the *when* relates two *whats*, where the *what* that follows the 'if' leads to the 'conclusion drawn' in the 'then' section of the *when*.

The process of *when* is the act of observation by the entity of itself. As the *when* combines two *whats* and draws a conclusion, it is analogous to saying that the entity observes itself when it draws a conclusion about the two contradictory experiences it has had previously.

In a level 7 self, the entity learns to observe itself. Referencing one *what* to another is said to be the act of self-observation.

The most important aspect of turning a pair of persist and escape interactions (as seen in level 6) into one single persist interaction in level 7, is understanding the stage in which one state of the same entity (specific to persist interaction) turns into another state (specific to escape interaction). That is, when one entity changes from one state to another, such knowledge is formed as persist interaction in level 7.

At what stage there is desirable or expected change among many undesirable stages is the awareness of the self of *when*. At level 7, the child is aware of 'at what stage' of change in an object the change becomes undesirable. The child acquires the understanding that when an object undergoes a change it changes its identity or its properties.

The self of *when* can be explained with the following example, a child at level 5 is aware of its mother's perennial existence in a particular location in space. It produces sound of random intensity to call the mother, each time it is hungry or needs comforting. It is mere chance that a mother present in a particular location around the child will hear and respond to the call.

In level 7, the child is aware of which sound reaches the mother and which does not, that is the awareness of 'when' the sound reaches the mother and when it does not is present. At level 5, it is not aware of the relationship between random sounds it produces and calling the mother. In level 7, it is aware that if the mother is separated at a greater distance, a sound of greater intensity is needed to seek response from the mother.

Here…mother can hear me

There…mother cannot hear me

If here mother can hear me, then there mother cannot hear me

At level 5, the child calls the mother with the same intensity of sound irrespective of the different locations in space separating it and the mother. At level 7, the child is aware of the different intensities of sound needed to call the mother from different locations in space and knows to use its sound as per its distance with the mother in space. The ability to choose the appropriate intensity of sound to call the mother results from the awareness of events either successful or not at getting a response. The ability to conclude that there must be an increase or decrease in the intensity of the sound produced to call the mother at two different occasions results from observing oneself while producing the sound. The choice the self makes in using a high intensity sound to call the mother when she is far away or vice versa is a result of self-observation. It is the act of observing oneself or one's own actions because the child is aware that if the mother does not hear their call, the mother would seem to be absent even though it is aware of the perennial existence of mother in a particular location in space.

A baby at level 5 and above explores the shapes of objects with the act of touching. If the baby touches a sharp object like a knife, it experiences pain and escapes from the object at level 5. At level 7, the baby is aware of the nature of the object in terms of which parts of the knife are safe to touch or not. The baby is aware of *when* the knife it touches becomes dangerous. The 'when' self is aware of the limit of exposure in terms of touching or focusing on an object by knowing at what point the object changes to be desirable or undesirable.

Another example is touching a pet or while playing. At level 5, baby touches the pet indefinitely, whereas in level 7, the baby is aware that the pet feels uncomfortable when touched beyond a certain limit. It is aware when a part of the surrounding starts to behave in an unexpected manner instead of escaping from unexpected behaviour as seen in level 5. In level 7, when the baby plays with a pet dog, it knows when to stop playing or touching the dog to avoid the dog exiting its vicinity.

When a baby pulls your hair, the baby will stop if you make a crying sound because it concludes by self-observation that its action has an undesirable effect on you. There is awareness of the nature 'If I do this, then that happens', thus such awareness implies self-observation ability.

However, in most cases the baby does not learn by itself the limits of its actions on the external self. The ability is taught by its parents or caregiver, because they ensure the baby has to be prevented from dangerous actions, for example a pet dog harming the baby due to persistent exposure to the dog. The parent teaches the child when to stop interacting with something which could get potentially dangerous to it.. Therefore, the role of the parent is important in interactions before the baby learns to do the same, when the external self appears to face discomfort. A sixth level self escapes from entities which do not behave as per schema; the baby prefers to remain in the vicinity of known objects. But in level 7, the knowledge base of experience extends beyond schema.

The presence of the quality of self-observation can be inferred using the mirror test (also known as the red spot technique or rouge test), which was first developed by psychologist Gordan Gallup Jr as an attempt to determine whether non-human animals possess the ability of self-recognition.[1] The MSR test is the traditional method for measuring self-awareness – the ability to recognise oneself as an individual separate from the environment and other individuals. I propose that self-awareness only develops when an entity has the ability to recognise other entities as being similar to it and changes that happen to the entity as ones that will also occur to itself in a similar environment. By knowing that an external entity is like itself, the entity acquires the awareness of existence of the external environment of which it is a part and as composed of entities that are different or separate from it. In an MSR test, an anaesthetised animal is marked on a body part which it cannot see. Once it recovers from anaesthetic, it is brought in front of a mirror. The behaviours that indicate that the animal possesses self-awareness include the animal touching or investigating the mark which indicates that the animal recognises the reflected image as being itself. The inspiration behind the mirror test was obtained when in 1838 Charles Darwin observed a captive orangutan named Jenny at the London Zoo. Jenny was seen gazing into a mirror and Darwin became curious whether she had the ability to recognise herself in the reflected image.[2] The inspiration behind the test is important because Gallup Jr initially investigated the possibility of self-recognition in chimpanzees only by placing a mirror in front of the chimps before coming up with the red spot technique.

Thus, the mirror test can be analysed in mainly two stages. The first stage is when the chimp recognises itself in the mirror, by way of being aware of the entity *in* the mirror as being *it*.

[1] Gordon G. Gallup Jr., 'Chimpanzees: Self-Recognition', *Science*, 3914, 167 (2 Jan 1970), 86-87.
[2] Charles Darwin, *The Descent of Man*, ed. by Carl Zimmer (New York: Plume, 2007).

The second stage is when the chimp can recognise change in appearance of something in the external world which is *it* or *like itself*. The various stages of mirror test are as follows.

10.1.1 Mirror Test Stage One – Threatening Gestures

Placing a mirror in front of chimpanzees led to them making threatening gestures at their own image, ostensibly seeing their own reflection as threatening. The reasons for such behaviour can be explained by our description of levels of self as being different levels of awareness, as seen in each stage of the mirror test. The above behaviour is analogous to an entity at level 3, which reacts emotionally in escaping manner by experiencing emotions such as fear, disgust, cry, etc. in response to a new stimulus or what appears to be like a threatening stimulus in the mirror. At this stage, the chimp is aware of the object in the image as a desirable or undesirable set of effects on its body. It is aware of the object in the mirror as being a separate external entity. Thus, all animals that react with threatening gestures in front of the mirror are at least third level selves.

10.1.2 Mirror Test Stage Two – Self-directed Responding Behaviours

The chimps used their own reflections for self-directed responding behaviours such as grooming parts of their body previously not observed without a mirror, picking their nose, making faces and blowing bubbles at their own reflections. A question therefore arises as follows: 'Why there are self-directed responses?'

In all these gestures there is first awareness of the chimp's own reflection or the external object as moving in accordance or in sync with its own movements. Only when the chimp is aware of the reflection as moving like itself is when it tries to move in complex gestural ways. Awareness of the movement of the external object or entity and the awareness of it being like itself by virtue of synchronized movements found in level 4 self. As explained in level 4, the entity recognises a moving external object as being itself, leading to the origin of first external self or extended self. At this stage, the entity is aware of the 'moving entity' in the mirror as being itself. Thus it can be inferred that before exhibiting self-directed responding behaviours such as grooming parts of the body, the chimp exhibits movements in front of the mirror, away and towards it to ascertain the synchronicity in 'appearance' and 'disappearance' with the entity in the mirror in front of the mirror as seen in level 4. The chimp at this stage as fourth level self is aware that when it is in front of the mirror, the reflection is also in front of it and when it moves away, the reflection also appears to move away.

There is continuity in instances of awareness of 'appearance' and 'disappearance' as seen in level 4.

10.1.3 Awareness of Location

Let us now analyse what makes the chimp exercise self-directed responding behaviours in front of the mirror. To answer this question, the chimp must possess the awareness of the 'location' at which there is specific kinds of movements. At this stage, the chimp continues to be present in front of the mirror and moves specific parts of its body to infer that the same kinds of movement in the same 'location' are also observed in the reflection. As is shown in chapter 8, the fifth level self is aware of its own shape and the shape of the reflection in the mirror. In the fifth level prepositional self, the entity is aware of the location in space of any

object, which appears to move. The fifth level selves are those that exhibit self-directed gestures in mirror test because the self-directed gestures depend upon awareness of specific locations in the mirror that mimic the movements exhibited in such gestures.

10.1.4 Lacan's Mirror Stage

To investigate the idea that a chimp recognises the reflection or the object in the mirror as itself only when the image moves 'just like' the chimp moves, Jacques Lacan's psychoanalytic theory of the mirror stage needs to be explored.[3] For instance, when the chimp moves away from the mirror, the reflected object in the mirror also must appear to move back. When the chimp moves forward, the reflection must also appear to it to move towards the mirror both sideways and laterally. The mirror stage is based on the idea that infants recognise themselves in the mirror or other symbolic contraption which induces apperception. Apperception is the ability of turning oneself into an object that can be viewed by the chimp from outside themselves as being like themselves. In humans this quality is seen at age of about six months. Lacan in his paper stressed the importance of movements and recognition of those movements in the reflected image:

> This act, far from exhausting itself, as in the case of the monkey, once the image has been mastered and found empty, immediately rebounds in the case of the child in a series of gestures in which he experiences in play the relation between the movements assumed in the image and the reflected environment, and between this virtual complex and the reality it reduplicates – the child's own body, and the persons and things around him.[4]

At level 4, the chimp is aware of the synchronicity between *appearance* and *disappearance* of the object in the mirror and its own movement away from and towards the mirror.

10.1.5 When does an entity pass the Mirror Stage?

As shown in chapter 8, the fifth level self is not only aware of the movement of external entities but is also aware of the location of movement. Great apes (including humans), Asiatic elephants, dolphins, the Eurasian magpie and ants which passed the test are said to possess the awareness of level 7 self (the awareness of when).

The awareness of at which part of the body there is movement (as seen in fifth level self) leads to self-directed responding behaviours such as grooming. The chimp at level 5 recognises the boundary separating the shape of the object that is of itself found in the mirror and all the other shapes of the objects that appear in the mirror. Those shapes or objects that do not move as per expectation do not form the centre of attention in level 6. The shape of the chimp's body forms part of schema in level 6. At level 5, the chimp gestures in the mirror to exhibit the same kind of movements, involving specific parts of the body in a specific manner.

At level 5, the ape identifies specific parts in the mirror as being its own body. It identifies specific movements in the mirror as movements of its own body. It is aware of the object in the mirror being like itself and possessing the quality of imitation. It is aware of the shape of

---

[3] Jacques Lacan, 'The Mirror Stage as Formative of the Function of the *I* as Revealed in Psychoanalytic Experience' in *Écrits, A Selection*, trans. by Alan Sheridan (London: Routledge, 2001), pp. 1-6.
[4] Ibid, p. 1.

the object in the mirror and it is capable of recognising the change in shape as per gestural movements exhibited by it.

Any unexpected change in the appearance of the body will be escaped from because, as shown in level 6, the entity expects its body or the shape of the object in the mirror to appear in a certain way, but when there is a red spot on its body it tries to erase the red spot on its body or on the mirror. At level 7, the ape is capable of comparing how the body looks with and without the red dot and points at the exact position on its body where the red spot appears. It is aware of when its body looks different in the mirror.

Thus, the mirror test involves self of various levels based on the level of awareness needed to pass the test. The above analysis is summarised in Table 10.1.

Level of self	Level of awareness
3	Aware of the object in the mirror as appearing and disappearing in front of it at different occasions in threatening manner.
4	Aware of the movement of the object in the mirror and aware of the object as being like itself.
5	Aware of the object as moving in sync with its own movement.
6	Aware of the object's behaviour as per expectations.
7	Aware of change in the appearance of the body with a red spot. Aware of the difference in image of the body.

Table 10.1 Different levels of self and awareness in Mirror Test

10.6 When do animals fail the mirror test?

When the mirror is made in a manner such that the image of the body moves in opposite direction or exhibits delayed movements compared to the movement of the body of the chimp, then the chimp will be considered to fail to recognise the image as being itself. That is, when the mirror shows non-uniform movements, the chimp is likely to fail the test. Even a slight delay in appearance and /or disappearance of the object in the mirror may cause it to fail to recognise the object in the mirror as something that moves like itself, thus as being 'like' itself.

Herein I propose a 'delayed movement' mirror test, where the movements of the mirror's reflection are delayed in relation to the movements or gestures exhibited by the entity. This would infer whether an entity is likely to fail the mirror test. If an entity once passes the mirror test and then fails the 'delayed movement' mirror test, then our explanation of how any entity has to pass different levels of self to pass the original mirror test can be considered as a true explanation of the process of acquisition of self-awareness in any entity in general.

Assuming there is synchronicity in appearance and disappearance of the object in the mirror, the chimp recognises the reflection in the mirror as itself. Any deviation from synchronised movements results in the entity failing the mirror test. In conclusion, if the mirror image is manipulated so the entity is unable to recognise the duplication of its movements in the reflection, it will fail to recognise the reflection as its own. Therefore, any entity that fails the 'delayed movement' test fails the mirror test. The ability to recognise the object in the mirror

as being itself is crucial to recognise change in the shape or to recognise changes on the surface of the entity's body.

10.2 Self-awareness at the cost of identity

At level 7, repressed memories or experiences which do not show schema conforming behaviours are linked to schematic memories using the *when* relation between two contradictory statements or behaviours (which regard things as either good or bad). The when-self tries to reconcile the good and bad when describing each object or entity in the environment. That is, what was good or bad for the body of the baby is no longer just good or bad.

For instance, for a baby until level 6, a hot plate is something to avoid because it hurts the skin. However, at level 7, it learns how or when the nature of a plate changes so that it becomes undesirable. Thus, the plate is no longer considered dangerous or something to be avoided. As shown in the previous section, the when-self is the self of self-observation or self-awareness.

At level 7, the baby learns that objects are good or bad for the body depending on the circumstances, which is in contrast with the knowledge acquired in levels 2 and 3. The baby also learns that no object appears to move indefinitely; it is the matter of when an object moves and stops, contrasting with the knowledge at level 4 that some objects always appear to move. Another thing the baby learns is that no object is always present in a particular location but depends when an object found near to it is far away. This contrasts with the knowledge acquired in level 5, that some objects are always seen closer and some are always seen far away. The *when* tries to merge the good-bad, far-near, moving-not moving, and appearing-disappearing sense-sense, etc. boundaries in the knowledge of things acquired in first 6 levels of self.

The is-(is-not) boundary concerning the description of the nature of an object disappears in level 7. Therefore, the identity (in terms of which objects in the surroundings that the entity chooses to be exposed to or escape from) acquired over the course of first six levels of self slowly vanish in level 7.

In level 7, the idea that good and bad are relative effects of a same object is attempted to be imparted to the self, although this is in contrast to biased (good-bad) knowledge acquired until level 6. Therefore, the entity faces an identity crisis in level 7. Self-conscious emotions will be shown to have an underlying feature that is self-observation.

In level 3, the experience of anger, disgust and other negative or escape responses resulted from the understanding that a particular stimulus is harmful and must be escaped from. But at level 7, the knowledge that a harmful stimulus at a certain condition is not always harmful is realised.

Self-awareness or the when-self is the ability to objectively evaluate oneself. Albert Bandura's theory of self-efficacy suggests that there are various degrees of self-awareness upon which self-efficacy is built. The belief in one's ability to be successful forms the foundation to how they feel about challenges in life. Bandura's theory states that a person with a stronger sense of self-efficacy is less discouraged by failures. They are aware of their short comings and utilise their past mistakes to correct them in the present. A person with a weaker self-efficacy escapes challenges and does not try to learn from their past mistakes.

Bandura's social cognitive theory emphasise the importance of observation and the ability to correct oneself in the process of development of one's personality. The environment alone does not influence one's behaviour but one's behaviour determines how one understands the environment and thus one's behaviour influences the nature of the environment itself.[5]

There is a strong sense of personality crisis in level 7, because previous beliefs about the nature of the world are proved to be uncertain inferences in level 7. In level 4, the object which qualifies as an extended self is known in level 7 to not possess perennial moving capacity and is regarded as similar to objects which the entity escapes from and do not qualify as extended self. The understanding of an object as being 'either this or that', acquired from level 1 to level 6 is proven insignificant understanding in level 7, because any object in level 7 is defined as being 'both this and that in different occasions'. Therefore, the personality until level 6 faces a crisis in level 7. This crisis sets the foundation for self-awareness, or the ability to observe oneself and to treat every object as both desirable and undesirable.

10.3 Self-conscious emotions and Repressed memories

As explained earlier, repressed memories are formed of experiences which contradict the knowledge obtained about the environment until level 6. The process of 'when' tries to reconcile the schematic knowledge with the knowledge stored as repressed memories. At this stage, the entity is aware of itself as having various kinds of experiences and from this it infers the nature of the stimulus. The 'when-self' is the entity that has the ability of self-observation.

Self-conscious emotions such as guilt, shame, embarrassment and pride are emotions that relate to one's sense of self and awareness of others' reactions to one's actions. A child at level 7 acts by interacting in contradictory ways with objects. It now escapes from objects that it used to persist in interaction in previous levels and persists in interaction with the objects it used to escape from. It does so upon realising that good and bad are stage or states of an object and that the object itself is not always good or bad.

The child realises that its house, mother, family, pets, etc. are as harmful as other entities in the environment and that the harmful entities can also be harmless. It is aware of when an object or entity becomes harmful or harmless and not only which object is harmless or harmful. The pieces of information that contrast with the schema are not disregarded as seen in level 6, considering the idea of emergence where persist and escape interaction of lower level includes the persist interaction of the higher level. Therefore, there is an attempt to combine the repressed memories with the knowledge of schema. For an entity in level 7, the object that caused it pain is also found to be the object that caused happiness. What a child learns from the mother or caregiver to be the good things in life until level 6 are realised to be neither good nor bad.

A simple example to illustrate the process of *when* is as follows. Let the child of level 6 be exposed to the hot sun, having known that the hot sun is harmful to the skin in level 3; the child learns to escape from the hot sun. The mother is said to have taught the child that the hot sun is harmful for the skin. But in level 7, the child has the understanding that 'if the

[5] Albert Bandura, 'Self-efficacy: Toward a unifying theory of behavioural change', Psychological Review, 84.2 (1977), 191-215.

season is winter or if it is early morning or evening the sun is good' and only in sunny bright afternoons the sun is bad for the skin due to increased intensity of heat. Thus, the child does not escape from the sun in all instances of exposure, which contradicts with the behaviour exhibited in level 3 and with the knowledge it previously acquired from its mother. It is aware of when the sun starts to be too hot to handle. There is change in the behaviour of the child regarding everything in the surrounding in level 7. This change in behaviour can be considered as social errors, in relation to people such as mother, siblings, family, friends, etc. How to avoid such a crisis? The answer lies in another emergent experience called self-conscious emotions, which are intended for reparation of social errors with regard to the impact of contradictory knowledge acquired in level 7. These emotions require self-observation or self-awareness.

Due to the nature of these emotions, they can only begin to form once an individual has the capacity to self-evaluate or self-reflect their actions. Unlike basic kinds of emotion, self-conscious emotions are not encoded in facial muscles. Paul Ekman considered experiences such as amusement, guilt, pride, shame and embarrassment to also be emotions even though they are not encoded in facial expressions (unlike the primary emotions such as happiness, sadness, disgust, etc).[6] Instead, these emotions exhibit micro-expressions which are conflicting responses to the same stimulus. Micro-expressions have two parts; one is the true expression of an emotion; the other involves concealment of the true expression, which results from self-evaluation. Micro-expression is a brief involuntary facial expression followed by concealment of that expression. It is the repression of expression.[7] This happens when the same object is found or understood to cause both positive and negative effects such as pain and happiness – leading to inner conflict or confusion over how to react.

The *when* stage breaks the traits of social norms because social norms are fundamentally categorisations of which objects or entities in the surrounding are good for the person and which are bad. The 'when-self' stage breaks such duality by showing that at different stages or contexts an object becomes good and bad, and that there is no object which is always good or bad for the body or mind. Self-conscious emotions are generally described as experiences in relation to other entities, as Bernard Weiner explains:

> If the individual decides that they have caused a situation to occur, they thus must decide if the situation was a success or a failure based on the social norms they have accrued, then attach the appropriate self-conscious feeling.[8]

As the idea of the 'other person' is treated as the self or child finding himself in another entity's position, the social norms and the knowledge about society can be analogous to knowledge of schema.

As self-conscious emotions relate to our sense of self (that is, our ability to observe ourselves) and our awareness of other's reactions to our actions, self-conscious emotions are ways in which we observe the effect of our actions upon ourselves and others.

---

[6] Paul Ekman, 'Basic emotions', In *Handbook of Cognition and Emotion*, edited by Tim Dalgleish & M.J Powers, (John Wiley and Sons Ltd, 1999), Chapter-3, 43-57

[7] Ekman, 'Facial expressions of emotion: an old controversy and new findings', *Philosophical Transactions of the Royal Society*, 335.1273 (1992), 63-9.

[8] Bernard Weiner, 'An attributional theory of achievement motivation and emotion', *Psychological Review*, 92.4 (1985), 548-73.

The nature of behaviour exhibited by the entity until level 6 results from knowledge stored as per schema, where such behaviours favour reinforcement of social behaviours. Social error is committed when the entity behaves against the social norms or against the knowledge stored as per schema. That is, the experiences of the environment impart ideas which do not conform to the schema or those that do not reinforce social behaviours in level 7. Self-conscious emotions are attempts to reinforce and correct such mistakes and these emotions contribute to good behaviour. The self-conscious emotions are inferences or conclusions obtained in the presence of contradictory worldviews which form behaviours relative to socially accepted behaviours.

Self-conscious emotions are ways of reconciling contradictory world views and are attempts to avoid personality crisis. They are different from primary emotions in the following ways:

1. Require self-awareness or self-representation or the ability to observe oneself in interaction with a stimulus.
2. These emotions are experienced later on in life emerging from primary emotions. One or more primary emotions are included in the experience of a single self-conscious emotion.
3. These emotions help in attaining a social goal. As the idea of society or social norms is treated synonymously with schema driven knowledge, social goals are achieved when the schema or societal knowledge is merged with contradictory new ideas in level 7.
4. Experience of these emotions does not involve distinct facial expressions. As these are not part of bodily (lower level) selves, self-conscious emotions - unlike the basic kinds of emotions – are not based on physical exchange of effects between the body or the entity and the environment, thus these do not exhibit distinct facial expressions.
5. These are cognitively complex because self-conscious emotions are part of mental or thought driven interactions of the entity with the environment and with one's own past experiences.

Due to the nature of self-conscious emotions, they can only begin to form once the entity (e.g. a child) has the capacity to self-evaluate their own actions, and where the evaluation is mere understanding that their current action goes against the expected nature of performance. Therefore, self-conscious emotions are imposition of self-evaluation in self-observation. Thus, the idea of self-evaluation can be shown to be part of the idea of 'when' as shown in this chapter.

'If (*what2*)…., then (*what1*)….'

Where *what1* is a schema conforming experience and *what2* is a repressed memory or schema opposing experience.

Thus, we can take any example of persist-escape interactions from previous levels of self to describe the self-conscious emotions.

Self-conscious emotions develop around the age of 3 years. The ability to have a mental representation of 'I' or 'me' or of itself should be present in order for the child to possess self-awareness.[9]

The ability to not only experience and be a self, but also to observe one's experience must be present. Since the experiencer is the self and experience pertains to movement of the body, self-awareness would be the ability to observer oneself exhibiting such movement or action.

The 'when-self' reconciles schematic information and contradictory information. Piaget proposed that the thinking capacity of an individual must serve the same purpose as the biological processes serve in how species adapt to the environment. There are two qualities of such adaptation. They are assimilation and accommodation. A child's thinking assimilates when it responds to the environment as per expectations and when such expectation from schemata are found to be true in understanding the nature of things.

As shown in 'what-self', the child responds to a new event in a way that is consistent with an existing schema or expectation by forming repressed or undesirable group of experiences.

There is accommodation when a child either modifies an existing schema or forms an entirely new schema to deal with a new object or event.[10]

As shown in 'when-self', the child either modifies an existing schema or forms an entirely new schema to deal with new pieces of information, by accommodating the contradictory pieces of information in the existing schema by using the 'when' relation – 'If (*what1*)…, then (*what2*)'

Modifying the information in schema to meet the purpose of adaptation to new stimuli is called accommodation. The two whats, *what1* and *what2* are often in conflict but they provide the impetus for intellectual development. The contact need to balance or reconcile the two triggers intellectual growth (as shown in 'when-self'). The conflict between repressed memories and schematic memories must be understood in order to explain self-conscious emotions. The need to correct previous assumptions about the world in order to reconstruct ideas formed at the level of schemata is an important aspect of intellectual development.

As shown earlier, the process of 'when' is an act of self-observation because the conflicting pieces of information unite by way of merger of the 'I's or the observation reports or experiences experienced in two different occasions in the form of *what1* and *what2*. Therefore, there is a sense of conflict that underlies the act of self-observation.

The conflict between the two sets of pieces of information incorporating the *what1* and *what2* may relate to the conflict between our sense of self and our awareness of others' reactions to us, where our sense of self comprises the known or schema approving pieces of information and the reactions to our actions are our knowledge that comprises the pieces of information about the environment that do not conform to the schema, where the agent associated with the latter pieces of information gives the child awareness of other people. Such opinions are known to be different from one's own.

---

[9] J. L. Tracy, R. W. Robins, 'The Psychological structure of pride: a tale of two facets', *Journal of Personality and Social Psychology*, 92.3 (2007), 506-25.

[10] Jeanne Ellis Ormrod, *Essentials of Educational Psychology: Big Ideas To Guide Effective Teaching* (New York: Pearson, 2018).

Self-awareness serves the purpose of self-evaluation. As explained earlier, the seventh level self's awareness of the stimulus emerges from awareness at lower levels. The seventh level self is not only aware of the stimulus as being itself (as seen in level 3), as being capable of imitating the stimulus (as seen in level 4) and as possessing the same kinds of experience reports in the form of sentences made of prepositions specific to objects or entities in the surrounding (as seen in level 5), but it is also aware of its role in the experience of the stimulus of its own environment. That is, the seventh level self is aware of its role in changing the way a stimulus usually experiences the world, where the knowledge about the usual way of experiencing forms the knowledge as per schema. It understands that it affects the nature of experience of the stimulus because by observing itself it observes the effect beard by the stimulus such as an unpleasant effect from the self upon the stimulus.

Let us take an example of the fifth level self - a child playing with a puppy and touching it. At level 5 the child knows or learns the shape of objects or entities around itself by way of touching. It also knows that the puppy can be touched and that it is responsible for pleasant experiences.

In the event of reconciliation between schema approved and schema defying pieces of information, the child experiences self-conscious emotions. The underlying conflict between two instances of the same experience involving the child and puppy leads to the experience of self-conscious emotions. The experience of self-conscious emotions is followed by accommodation of conflicting pieces of information in the form of 'when'. The seventh level self will be shown to *feel with others* by way of self-evaluation.

Initially let us suppose the puppy likes to be touched, the first 'what' experience can be taken from level 5:

What1 – As I touch it puppy plays with me.

This experience is part of schema. In level 6, as schema defying experiences are stored as repressed memories, the above statement should be negated to get the second instance of experience which is the what2.

What2 – Puppy runs way as I continue to touch it.

In the seventh level of self, the two whats combine as follows:

When – 'If I touch the puppy constantly, then it runs away'.

Therefore, the *when* process reconciles the two contradictory experiences to make the experiences represent the object common in those experiences. It is a way of avoiding crisis of identity and accommodates new kinds of experience concerning a single object. Such reconciliation leads to the emergence of the quality of self-evaluation.

10.3.1 Shame

Let's now discuss the common self-conscious emotions in detail. It is evident that as per schemata based expectation, the child expects the puppy to play with it, but since in the second occasion the puppy is not seen to behave as per expectation, the child's engaging in self-awareness means it is bound to negatively evaluate its action of touching the puppy constantly because it realises it has caused discomfort to the puppy.

Shame is a social emotion that makes people conceal or deny their negative evaluation of their actions. It is the pain experience in addition to comparing their actions against one's

standards or expectations. Here in the above example the self's expectations as per standard is to make the puppy play with it while touching it, which is compared with its action of causing the puppy to run away from it. Negative evaluation in shame results from an attempt of undoing one's actions or righting one's wrongs.

Here, as the child has performed an action which is against schema driven expectations which also signify others' reaction to the child's action, and thus shame results from self-punishing and acknowledgement of something gone wrong. An important aspect of shame is that it is an act of hiding or denying wrongdoings by way of lack of efforts or intent to correct wrongdoings.

That is, here the child will not learn the fact that in the next instance of encounter with the puppy it should not persistently touch it so that it feels uncomfortable and moves away from it. The child does not bear significant responsibility of the wrong doing. The relation of the self with the social group is implied in the knowledge of schema because the expectation from schema can be treated synonymous to expectations from people or society in general. This is because society is a set of rules we impose on ourselves which we learn from a group of people who are like ourselves. The attempt to correct the wrongdoings means to embrace the formation of the 'when' relation between two whats. And the attempt to deny or hide the wrongdoing means to not embrace the formation of the *when* relation because the very foundation of the formation of *when* process is acceptance of one's wrongdoings. Acceptance of one's wrongdoings can also be correlated to acknowledging some aspects of identity crisis. In shame, since there is no such acceptance, the shame experience is an escape interaction of level 7.

The consequence of shame is that the child is less likely to take corrective action, that is, the child will not use the knowledge of 'when' formed above when it comes to interactions with the puppy in the future. Shame involves a negative evaluation of the conclusion obtained about the act of touching when two conflicting whats form a single when. Thus it can be said that the experience of shame is against the content of when. Thus, shame can be considered as an escape interaction of the seventh level self or entity with a certain part of the environment where there is accommodation process between contradictory pieces of information, which sees the performance of the act of playing with the puppy as seen in the above example because the child does not make use of the content of the 'when' after formation in shame. That is, the child disregards or escapes from the conclusion formed in the *when* relation. Shame is therefore an escape interaction of level 7 self with the surroundings.

10.3.2 Guilt

Guilt is the emotion in which a person acknowledges the fact that they have compromised their own standards and hold oneself responsible for one's wrongdoings. It is an affective state in which one experiences conflict over having done something that one believes one should not have done.

In the above example, the child feels guilt for making the pup uncomfortable by touching it continuously, therefore believing it should not have done it and learning from its mistake. A sense of correcting the wrongdoings is experienced during negative self-evaluation, the child may think, 'I should not hurt the puppy by constantly touching it'.

Consequences of guilt can be addressing the problem or correcting the wrongdoing by gaining responsibility for one's actions. The child learns from the conclusion drawn in the formation of the *when* relation and so guilt determines reparation. Guilt prompts reparatory behaviour, by way of utilisation of conclusion drawn in the when combination. As the experience is in favour of the combination of contradictory pieces of information, guilt can be considered as a persist *when* experience.

As shown above, guilt influences or causes self-regulation. It has been found that empathy and guilt influence a child's social behaviours in important ways and are implicated in broader aspects of behaviour such as self-regulation. A study finds that more empathetic children scored higher on guilt.[11]

Empathy is an emotional-cognitive process that results in understanding and *feeling with others*. It is the understanding that an entity or stimulus is affected by one's actions, such that when one's actions are negatively evaluated (e.g. guilt) it leads to the understanding that the other entity is harmed, such that the pain of the entity is felt *along* with the person. In our example of the child playing with the puppy where the puppy runs away from the child, the feeling that accompanies the negative evaluation linked to the child's action of touching the puppy is that it has caused the puppy to feel pain. This is because the child knows that when the puppy moves away from it, there is pain caused to the pup just like it itself would feel pain. It is the understanding that the pup feels what the child itself feels when it escapes or moves away from the vicinity of something. Thus, the experience of empathy underlies the experience of guilt.

As empathy is the act of experiencing emotion that matches another person's emotions or the ability to share and feel another person's experience, the seventh level self is capable of understanding that the stimulus or the other entity experiences expected nature of emotions especially when the stimulus experiences escape emotions such as sadness, anger, disgust, etc. Thus self-awareness can also be defined as projection of one's emotions on another entity, as seen in the process or case of guilt and shame.

Where guilt and shame are evaluations of one's actions according to internal or bodily standards, pride and embarrassment are evaluations according to the idea of standards.

Guilt and shame concern the usage of the 'when' information while pride and embarrassment concern direct evaluation of one's actions. Unlike guilt and shame, there are no proposed corrective measures to correct the wrongdoings in pride and embarrassment.

10.3.3 Pride

Pride is feeling fulfilled about one's actions. In pride, the person identifies himself with the positive evaluation obtained after conducting any action. Like shame and guilt, pride is a self-conscious emotion that results from the evaluations of the self and one's actions according to certain standards. Pride is the experience of fulfilment resulting from recognition of satisfying standards instead of defiance of negative evaluations as seen in the case of shame. Pride is a pleasant emotional response upon positive self-evaluation.[12] Personal success over

[11] William Roberts, Janet Strayer, Sussane Denham, 'Empathy, anger, guilt: Emotions and prosocial behaviour', *Canadian Journal of Behavioural Science*, 46.4 (2014), 465-74.

[12] Michael Lewis and Kiyoko Takai-Kawakami, 'Cultural Differences in Emotional Responses in Success and Failure', *International Journal of Behavioural Development*, 34.1 (2010), 53-61.

adversity is the experience of pride. The sense of satisfaction resulting from positive self-evaluation is pride.

Thus, pride is persist interaction of the seventh level self where the child positively evaluates its actions concluding that different occasions with different amounts of touching decides whether the puppy persists or runs away upon feeling pain. Pride is therefore experienced in favour of accommodation or the *when* formation.

10.3.4 Embarrassment

Embarrassment is a more expressive version of guilt when one feels discomfort about their decisions and actions. Therefore, embarrassment is associated with the discomfort of the 'when' formation. The child feels discomfort when the two contrasting pieces of information are combined, as opposed to shame where the usefulness of 'when' is disregarded. Therefore, embarrassment is a level 7 escape interaction.

10.4 Conclusion

As demonstrated above, repressed memories are linked to the existing schema as part of accommodation. Evaluating this union gives rise to the persist and escape self-conscious emotions. The *essence of being-ness* or substrate of self is that which is common between the persist and escape self-conscious emotions. As the identity of the entity is strived to be preserved by way of projecting one's standards over one's actions, a sense of social identity is strived to be conserved in level 7. Therefore, the correlation between schema conforming information and repressed pieces of information gives rise to the essence of being-ness in level 7 which is social identity (see Appendix).

References

Bandura, Albert, 'Self-efficacy: Toward a unifying theory of behavioural change', Psychological Review, 84.2 (1977), 191-215

Darwin, Charles, *The Descent of Man*, ed. by Carl Zimmer (Plume, 2007)

Ekam, Paul, 'Facial expressions of emotion: an old controversy and new findings', *Philosophical Transactions of the Royal Society*, 335.1273 (1992), 63-9

Ekman, Paul, 'Basic Emotions' in *Handbook of Cognition and Emotion*, ed. by Tim Dalgleish and M. J. Powers (John Wiley and Sons Ltd, 1999), Chapter-3, 43-57

Gallup Jr., Gordon G., 'Chimpanzees: Self-Recognition', *Science*, 3914.167 (1970), 86-87

Lacan, Jacques, 'The Mirror Stage as Formative of the Function of the I as Revealed in Psychoanalytic Experience'. Delivered at 16th International congress of psychoanalysis, 17 July 1949

Lewis, Michael and Kiyoko Takai-Kawakami, 'Cultural Differences in Emotional Responses in Success and Failure', *International Journal of Behavioural Development*, 34.1 (2010), 53-61

Ormrod, Jeanne Ellis, *Essentials of Educational Psychology: Big Ideas To Guide Effective Teaching* (New York: Pearson, 2018)

Roberts, William, Janet Strayer and Sussane Denham, ‘Empathy, anger, guilt: Emotions and prosocial behaviour’, *Canadian Journal of Behavioural Science*, 46.4 (2014), 465-474

Tracy, J. L., R. W. Robins, ‘The Psychological structure of pride: a tale of two facets’, *Journal of Personality and Social Psychology*, 92.3 (2007), 506-525

Weiner, Bernard, ‘An attributional theory of achievement motivation and emotion’, *Psychological Review*, 92.4 (1985), 548-573

Chapter 11
Metaphysical Speculation, Why and Theory of Mind

11.1 Why

As the seventh level self has the ability to feel another person's emotions, the level 8 self should possess an ability that emerges from this. As the level of mind or thoughts comes after or emerges from the level of emotions (as shown in the emergence of abstract thinking in level 5 from emotional experiences in level 3 and locomotion experience in level 4), the level 8 self must possess the ability to understand another person's thoughts as being similar or different from one's own or those of a group of people. Empathy is related to the concept of theory of mind, where the latter is the recognition and understanding of the state of mind of others, including their beliefs, desires and particularly their thoughts.

Recent studies have shown that rodents exhibit empathetic behaviours. Empathy pertains to knowing the emotional state of a person, for instance their experience of pain. It is the act of obtaining perspective of emotion in others, to metaphorically 'put oneself in another's shoes'. On the other hand, theory of mind is obtaining perspective on the thoughts of others and verifying whether those thoughts are like one's own or not.[1]

Emergent from the series of *whens*, is the process of *why*. *Why* is choosing one *when* relation over another. That is, the process of *why* is the exploration of the idea of chance, answering the question of what makes an event have its current state as opposed to all possible states.

In an example of filling the glass with water, two or more *whats* make a *when*.

If the glass is not filled at instance 1, like it is quarter filled at instance 2 (When1) then it is half filled at instance 3 (When2), then it is quarter and half filled at instance 4 (When3), then it is completely filled at instance 5 (When4).

'Why' is the reason behind the realisation that one of the *whens* completely defines a particular or *current* situation in the process of observation of filling the glass with water, as opposed to another state. For instance, if the questions is, 'Why is the glass half filled?' our obvious answer would be that it is merely a matter of chance that the observer had to observe the event of filling the glass of water at the stage when it is at the point of being half full as opposed to the other three stages.

The idea of chance here is crucial to our understanding the relation between the usage of the 'why-type' questions in language and the emergence of the ability to have a theory of mind of others.

The level 8 self seeks the answer to the question: 'why at a particular situation of observation is the glass empty (or quarter filled or half-filled or completely filled)?'

As it is evident that answering such a question depends on the concept of chance pertaining to the idea that the universe or the surrounding exposed us to the event of filling the glass at a particular state of filling which can only be defined by specific *when* relation over the other

[1] C. A. Hynes, A. A. Baird, S. T. Grafton, 'Differential Role of the Orbital Frontal Lobe in Emotional Versus Cognitive Perspective-Taking', *Neuropsychologia*, 3.44 (2005), 374-83.

possible *whens*. That is, it is merely a matter of chance that an observer is exposed to one among many states of an event taking place in the surrounding.

The idea of chance is closely related to the idea of uncertainty about the future. This has been adopted in various religious writing, especially the idea of fear of death. As the 'why' process is how the level 8 self functions, the ability of theory of mind must form part of the *why* process.

That is, the level 8 self or an entity must exhibit the ability of choosing the right *when* relation among different *whens*, in the test to determine if the it possesses theory of mind.

The question of why the child chooses one train of thought over another will be shown to determine whether the child possesses theory of mind or not.

In the level 8 self, the child not only observes itself, but also chooses (*why*) between various instances of self-observation – which is the act of choosing between various *whens*. The key point to be noted about the 'why' question is that it is the determination of chance when it comes to observation of a certain state of an event or any being behaving in a specific manner or being in one state as opposed to all other possible states.

11.2 Metaphysical Speculations: Religion, Philosophy and Science

As explained, the 'Why' question tries to answer the question about chance or probability of observing an event as described by one specific *when* or explanation compared to others. The concept of chance of observation of an event is analogous to the concept of the unknown or God and that leads us to metaphysical speculations.

Metaphysics is the study of what things exist and why, which includes asking questions that seek answers about nothingness in general. Why there is something rather than nothing? As Martin Heidegger is alleged to have remarked, this is one of the most significant questions in the study of metaphysics.[2]

Proofs or answers are required for the *why* questions about the existence of something when one asserts that something exists. The same applies to stating an idea about the origin of things or of the universe itself.

Asking 'why is there something rather than nothing?' is to help understand the origin of the world. There are creationist answers such as a religious belief that the universe and life originated *from specific acts of divine creation*, as opposed to through natural processes such as evolution. The level 8 self is the why-self and is an entity with religious and non-religious beliefs about the nature of origin of entities. The why question leads us to the question of origin of universe as well because the whole universe can be generally considered as an object or entity. Creationists' ideas of the world or about existence itself are based on the writings of religious texts such as Genesis, the Quran, etc.

Thus, at level eight, the entity instils belief in God. As per religious writings, God is the creator of all things that exist and is omnipotent, omnipresent and omniscient. According to religious writings, God created the universe over a specific period of time.

---

[2] Sean Carroll, 'Why Is There Something Rather than Nothing?', in *The Routledge Companion to the Philosophy of Physics*, ed. by E. Knox and A. Wilson (London: Routledge, Forthcoming). <https://arxiv.org/pdf/1802.02231.pdf> [accessed 04 February 2020].

God is the answer to all 'why' questions. Any entity at level eight of self incorporates faith in God. The scientific idea of Big Bang, which strives to explain the origin and nature of the world, is equivalent to creationist ideas of origin. The Big Bang hypothesis provides a scientist's perspective about the nature and origin of the world.

The why question or self tends towards religious and scientific ideas when the *why* questions tend towards the nature of origin of all the things or when it comes to answering the empirically, unverifiable information which depend on mere chance.

The extreme or ultimate *why* questions about the nature of things leads an entity such as a child to develop an understanding of religion and science. One such question is the question of consciousness, which tries to answer the questions of not only the origin, but the nature of everything that exists and does not exist.

The debate over the similarity between science and religion is on-going. Nevertheless it is sufficient for us to understand that both religious and scientific ideas try to answer the 'why' questions or the idea of chance or of reality in their own ways and it is sufficiently convenient to note that an entity as a level eighth self can instil faith in God but also apply the scientific methods to understand the same 'why' questions of reality. The 'why' questions about reality or the nature of things around us seek to understand existence itself. The conflict between science and religion exists in the disparity between evidence-based ideas and faith.

Cartesian dualism is a significant view on the nature of reality which states that the non-physical aspect of reality is not the same as physically verifiable material reality. John Archibald Wheeler suggested that observers or human consciousness itself might play a role in bringing the universe into existence.[3]

Thus, the level 8 self by way of exploring the *why* questions comes to contemplate about the nature of existence, that is, the question of consciousness in general.

11.3 Consciousness and Meta-Problem of Consciousness

As explained in the *when-self*, the seventh level self is aware of its own awareness of things and entities around itself. In level 8, the entity tries to explore the reason behind the manner in which things and objects appear to it in its awareness in a certain manner and the origin of objects and such awareness itself.

The meta-problem of consciousness as defined by David Chalmers is as follows:

> The meta-problem of consciousness is the problem of explaining why we think that there is a problem of consciousness. […] It is easy to get ordinary people to express puzzlement about how consciousness could be explained in terms of brain processes and there is a significant body of psychological data on the 'intuitive dualist' judgements of both children and adults.[4]

[3] John Archibald Wheeler, *Information, Physics, Quantum: The Search for Links* (Princeton: University of Texas, 1990), pp. 320-22.
[4] David J. Chalmers, 'The Meta-Problem of Consciousness', *Journal of Consciousness Studies*, 9.25 (2018), 6-67 (pp. 6-7).

Chalmers here hints at a possible solution to the meta-problem by asking us to specify *when* in the cognitive development of any entity or at what state a self acquires the ability to question the nature of existence and also the ability to find a correlation between consciousness, the nature of existence, the concept of God, the scientific way of exploring the questions of the origin of the universe, etc.

As explained in level eight, the child develops the ability to question the origin of the nature of an entity, considering the contradictory nature of its behaviour in certain conditions. At level eight, the understanding of God and evidence-based ideas of science are also instilled. Since consciousness studies try to answer the nature of reality itself, it can be said that at level eight an entity develops the idea that consciousness is a problem and it is hard to solve, or nevertheless understands that it is a significant *why* question to be answered. Thus here we provide an answer to the Meta-problem of Consciousness by saying that every entity which has reached level 8 self, starts to contemplate about the questions that concern the consciousness research.

A definition for consciousness that can be derived from our explanation of nature of emergence of selves and the nature of reality is as follows:

> *Consciousness is the hierarchical arrangement of states of body and mind as instances of self-reference, each one emerging from another, where each instance of self-reference reflects the function of a Self.*
>
> *Consciousness is the posing of choices that underlies each emergent experience, where the exercise of choices is itself the ability that is the Self.*

The meta-problem is proposed to be solved by explaining the underlying state of mind of an individual wherein the thoughts about consciousness arise. Therefore, we have shown that such state is the level eight self.

Every level of self is self-referential in nature, which involves the entity choosing a specific (source of) thought (especially in higher levels of self) as part of persist interaction and escaping from it as part of escape interaction. In level eight we have to explain why or how an entity engages in specific *why* thoughts or questions or metaphysical thoughts or thoughts about consciousness in general and why or how it escapes from other questions.

Any area of study which involves exploring the impossible *why* questions, that is, the *why* questions that cannot be answered, can be considered as escape interactions in level eight of self. As the *why* questions also pertain to the existence of God or metaphysical questions or questions about consciousness, the area of interest or field of study or enquiry that tries to not answer questions about God or consciousness is said to be escape interaction of level eight self. Science is one such area of study where the metaphysical ideas and ultimately the ideas of origin or existence itself in general are entertained less as the focus is on experimentation and testing. Therefore, science is said to be an escape interaction of level eight self. On the contrary, as religious and philosophical ideas generally cater to the *why* questions about reality which does not concern materialism, even though God and metaphysical questions do involve experimentation, these areas of study can be considered as persist interactions of level eight self. The idea of consciousness as explained in this book can be summarised in Figure 11.1.

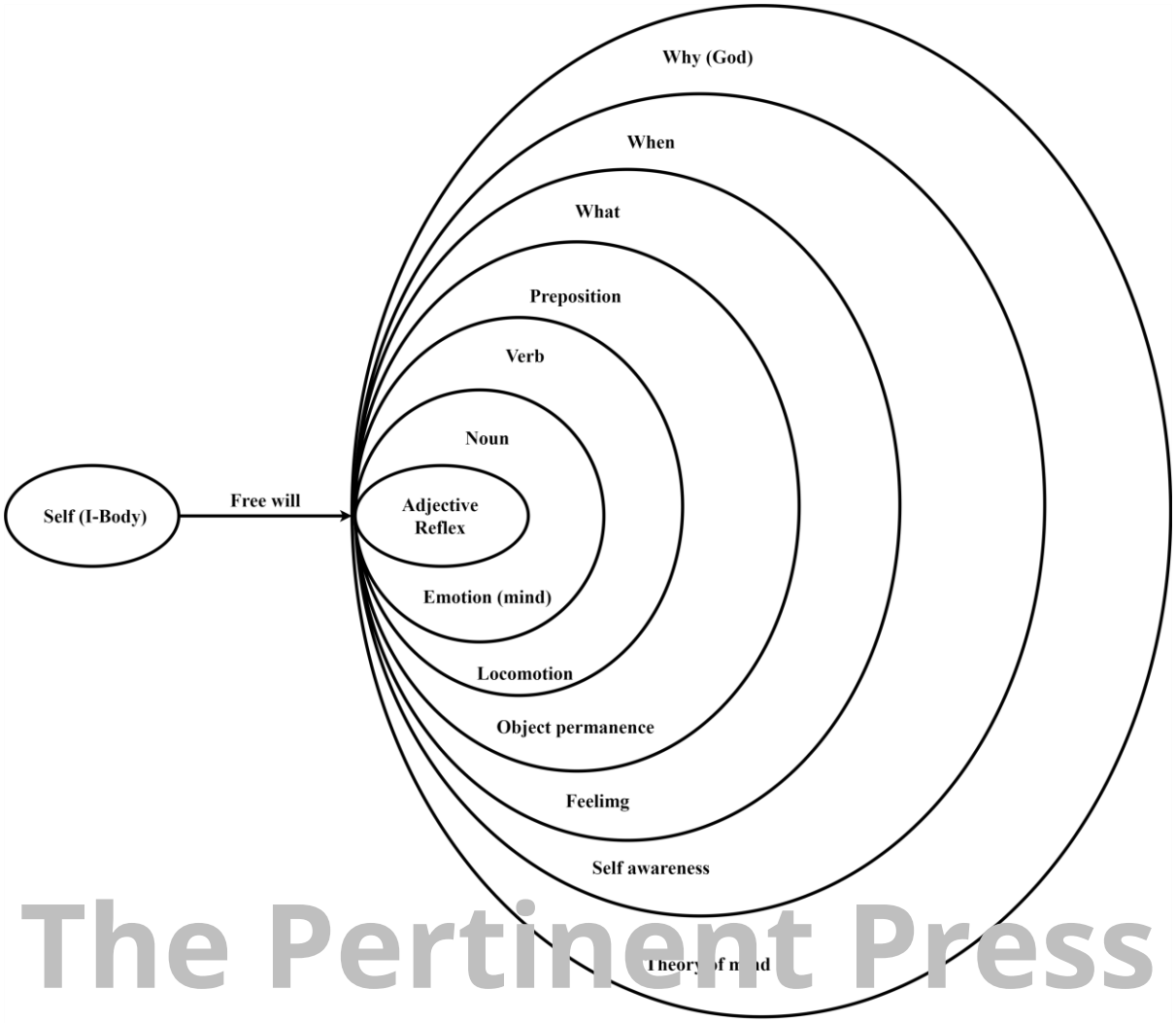

Figure 11.1: Diagram of consciousness

Here different levels of self is depicted in each circle, and each level signifies the cognitive qualities acquired by an individual along with the emergence of the ability to use different parts of language at different stages of development of an individual such as a human. Ultimately the level 8 self is shown to contemplate about the nature of reality, God and consciousness in general.

Consciousness can be defined as the emergence of qualities as series of instances of self-reference or choice-making leading to the ultimate quality of asking the ‘why’ questions about the nature of reality including the question of consciousness.

As explained in previous chapters, the tendency of the first level self (I-body) to maximise the variety of experiences is the ability that is free-will. Any entity which strives to have thoughts about God or strives to be like God possesses freewill.

Let us look at a few existing definitions of consciousness which come close to the definition given here.

Velmans' idea of consciousness can be summarised as follows:

> In everyday life there are two contrasting situations which inform our understanding of the term 'consciousness'. We have knowledge of what it is like to be conscious (when we are awake) as opposed to having no memory of being conscious (when in dreamless sleep). We also understand what it is like to be conscious *of* something (when awake or dreaming) as opposed to not being conscious of that thing. This everyday understanding provides a simple place to start. A person, or other entity, is conscious if they experience *something*; conversely, if a person or entity experiences nothing they are not conscious. Elaborating slightly, we can say that when consciousness is present, *phenomenal content* is present. Conversely, when phenomenal content is absent, consciousness is absent.[5]

This definition explains consciousness as a process comprising of instances of appearances and disappearances of the stimulus and thus instances of appearance and disappearance of phenomenal experiences associated with the individual.

Bernard Baar's definition of consciousness is as follows:

> Consciousness seems to be publicity organ of the Brain. It is a facility for accessing, disseminating and exchanging information and for exercising global coordination and control.[6]

Here he stresses about the ability to focus which resonates with the idea of movement driven attention of the process of self and of memory explained in this book.

Chalmers describes consciousness as follows:

> To explain third-person data, we need to explain objective functioning of a system. For example, to explain perceptual discrimination we need to explain how a cognitive process can perform the objective function of distinguishing various different stimuli and produce appropriate responses. To explain an objective function of this sort, we specify mechanism that performs the function. In the sciences of the mind, this is usually a neural or a computational mechanism.[7]

Here he specifies the importance of the quality of the self of responding or interacting with specific quality of the stimulus. Third-person data is crucial to explaining consciousness. Movement of the body is shown throughout the different levels of self as reflecting the third-person report or expression of subjective experience, based upon which consciousness or information processing of the brain or the entity in general is explained.

11.4 Theory of Mind

Theory of mind means the ability to understand that a group of persons have beliefs, perspectives and emotions different from oneself. The process of *why* can be defined as the ability to choose between two or more *whens* at a particular instance of observation, where

---

[5] Max Velmans, *Understanding Consciousness*, 2nd edition, (London: Routledge, 2009), p. 3.
[6] Bernard J. Baars, 'In the Theatre of Consciousness: Global Workspace Theory', *Journal of Consciousness Studies*, 4.4 (1997), 292-309.
[7] David Chalmers, 'How Can We Construct a Science of Consciousness?', *The Cognitive Neurosciences*, 3rd edition, ed. by Michael S. Gazzaniga (Cambridge, M.A.: The MIT Press, 2004), pp. 1111-1120.

the choice is purely dependent upon chance because there is no certainty as to at which state of the event or existence of an entity we observe them to be in a certain describable state.

> If this…, then that1… when1
> then that2…when2
> conclusion obtained from when1 and when2 about the current state of the event…
> is… why

In order to possess theory of mind, one must be able to understand what it is like for others to experience the world. In order to possess such an ability, one must be able to understand what it is like for oneself to experience the world, thus one must have the ability of self-awareness. As explained in the previous chapter, self-awareness implies that one possesses the ability to understand that others can experience emotions like oneself (as shown in explanation of guilt and empathy in chapter 10). The ability to understand that others not only experience emotions but also have thoughts that emerge from level seven to level eight self, and also due to the fact that emotions lead to the formation of thoughts, is seen in level three and level four of self in previous chapters.

As a nested when which is the why self, an entity must also possess the ability to attribute false belief to others. To attribute false belief to others is to understand that the things that people believe about the world or any situation are very different from the reality of the situation as expected by one.

The classic Sally-Anne test was put forward to test the ability of children to instil false belief in others. In the experiment, a child is given two dolls, one named Sally (who has a basket) and one named Anne (who has a box).

Sally has a marble. She puts it in her basket and leaves the place. In Sally's absence, Anne is said to hide the marble in her box. Finally Sally returns and the children are asked three questions to test whether they have a theory of mind or not.

> 1. In which place will Sally look for the marble if she kept it in the basket? (The 'belief' question)
>
> 2. In reality where is the marble kept? (The reality question)
>
> 3. Initially where was the marble? (The memory question)

If the child answers the belief question by saying that Sally will look for the marble in the basket, then the child is said to have appreciated the fact that Sally can understand the world differently in a way that may not reflect the truth or reality. Thus the child is said to possess theory of mind or an ability to attribute false belief in others. If the child says that Sally will look in the box for the marble it means that the child does not understand that its own view of the real position of the marble is inaccessible to Sally. Thus, the child is said to fail to understand the concept of false belief with regard to others.

As claimed earlier, to exhibit the ability to possess theory of mind, a child must be exposed to a situation where it has to choose between two kinds of conclusions or *whens* and draw a conclusion about the nature of the event when faced by a particular situation of the event which is purely dependent upon chance.

The Sally-Anne test can be broken into simple *when* functions which the child uses in answering the first question as follows:

> If Sally kept the marble in the basket, then she didn't notice the box (When1)
> then she doesn't know what Anne has done (When2)
> … thus she will look for the marble in the basket (Why)

Thus, in answering the first question about belief, the child concludes or draws a conclusion using two *whens* and will conclude that Sally will look for the marble in the basket where she kept it.

In answering the second question about reality, the child concludes in the following way:

> If for Sally the box doesn't exist, then she didn't notice Anne hide the marble (When1)
> then only I have noticed Anne hiding the marble (When2)
> thus only I know that the marble really exists in the box.

Thus, she will answer that the marble is in the box.

In order to answer the third question, the conclusion is derived as follows:

> If Anne has hidden the marble in the box now, then now the marble is in the box(When1)
> then now is not the beginning(When2)
> thus the marble was not in the box in the beginning.

The child will answer that in the beginning the marble was not in the box.

Therefore, a child is said to possess the ability of theory of mind if it can draw conclusions from two or more *whens* as shown above. Thus for a child to pass the Sally Anne test, it must be a level 8 self. We have shown that in order to utter the 'why' questions, one must learn to arrive at conclusions from the 'when' questions and answers.

As in the level 8 self, the idea of chance is desirable and undesirable in persist and escape interactions respectively, the unknown or unknowable or metaphysical aspects of existence or life is the essence of being-ness of the eighth level self. The nature of level 8 self is explained in the Appendix section.

References

Baars, Bernard J., 'In the Theatre of Consciousness: Global Workspace Theory', *Journal of Consciousness Studies*, 4.4 (1997), 292-309

Chalmers, David J., 'How Can We Construct a Science of Consciousness?', *The Cognitive Neurosciences III*, ed. by Michael S. Gazzaniga (Cambridge: MIT Press, 2004)

Chalmers, David J., 'The Meta-Problem of Consciousness', *Journal of Consciousness Studies*, 25.9-10 (2018), 6-61

Hynes, C. A., A. A. Baird, S. T. Grafton, 'Differential Role of the Orbital Frontal Lobe in Emotional Versus Cognitive Perspective-Taking', *Neuropsychologia*, 3.44 (2005), 374-83

Knox, E. and A. Wilson, eds., *The Routledge Companion to the Philosophy of Physics* (London: Routledge, Forthcoming)

Velmans, Max, *Understanding Consciousness*, 2nd edition (London: Routledge, 2009)

Wheeler, John Archibald, *Information, Physics, Quantum: The Search for Links* (Princeton: University of Texas, 1990)

Appendix
Theory of Consciousness

The following tables summarise the theory of consciousness explained in the book, and classifies each self based on the degree of awareness, movement capacity, essence of being-ness and syntax.

Nth Level Self	Degree of Awareness of Movement	Examples and/as qualities	Persist Interaction	Escape Interaction
1	No awareness	All non-moving entities	Physical form or presence	Loss of physical form
2	As externally existing	Phototropic, paraheliotropic plants, movement of foetus	+phototropism, sucking hiccup reflex, encystment	-phototropism, startle and blink reflex, tongue protrusion, seismonastic movement, nyctinasty inlegumes
3	As being like itself	All primates that experience emotion	Happiness, surprise, phones and chereme for persisting	Sadness, fear, disgust, cry, bodily depression, anger, phones and chereme for escape
4	As an ability of locomotion	All locomotion exhibiting entities, biological clock, addiction, money, food, online post, psychic blindness, sense of time	Phagocytosis, hunting, expression of clauses. Stimulus driven locomotion	Stimulus driven halt in locomotion. Expression of clauses facilitating escape
5	As perennially existing in a particular location in space	Assertion-making, abstract thinking, sense of space	Focus on nearby objects, picking up objects, expression of propositions	Lack of focus on far objects, dropping objects, assertion of negative sentences
6	As behaving in an expected manner	Schematic processing	Focus on familiar objects, schematic information, cognitive closure	Withdrawal of focus from new objects, repressed memory
7	As being itself which is aware of itself	Self-evaluation	Accommodation, guilt/empathy, pride	Assimilation, shame, embarrassment
8	Awareness of non-existing stimuli	Theory of mind	Religion, philosophy	Science

Table A.1

Nth Level Self	Movement/Movement Driven Attention	Form/Essence of Being-ness	Syntax
1	Appearance of movement at loss of form	Physical non-moving body	Is (Is-with itself)
2	Single body part movement	Single body part moving body	Is (Adjectives)
3	Collaborative movement of body parts	Body with collaborative movement of body parts	Noun
4	Stimulus driven locomotion and attention	Movement of stimulus (Time)	Verb
5	Pointing, collapse of wave function	Space	Preposition
6	Expectation based movement	Schema	What
7	Movement to infer unknown behaviours	Social Identity	When
8	Movement to focus on unknown, non-existing entity	Unknown metaphysical entity	Why

Table A.2

Index

Co-evolutionary interaction

Cognition

Cognitive development

Cognitive perspective taking

Cognitive structure

Cognitive trade off hypothesis

Collapse of wave-function

Conceptual metaphors

Consciousness

Cry

CTMU

Death Laws of existence

Decision making

Depression

Determinism

Directional movement

Disgust

Distress

Domain

Dominant Self

Embarrassment

Embodied mind

Embodiment

Emergence Levels of Self

Emoticons

Emotion

Encystment

Entity

Environment

Escape

Essence

Eustress

Existence

Expectation

Experience

Extended mind

Extended Self

External Self

Facial Action Coding system (FACS)

Facial expression

Fear

Feeling

Foetal movement

Freewill

Gaia Hypothesis

Ge[illegible]re

Go[illegible]

God

Grammar

Growth

Guilt

Hangry

Happy

Hearing

Heliotropism

Human facial movement

I

Identification

Identity

Ideomotor movement

Idiothetic memory

Imitation

Indeomotor action

Infant

Information

Intention

Interaction

Internal identity

Interrogative sentence

Interstitium

Is

Is-ness

Knowledge

Language competence

Language development

Language performance

Life

Locomotion

Locomotion

Mathematics

Mechanoreceptors

Memory

Mental Stress

Mental Stress

Metaphor

Metaphysical speculation

Metaphysics

Meta-problem of consciousness

Mind

Mirror stage

Mirror test

Money

Motor control

Movement

Niche

Niche

Noun

Nyctynastism

Object permanence

Observer

Omnipotence paradox

Online post

Ontological primitive

Panpsychism

Parts of speech

Pathdisintegration

Perception

Perdurantism

Persistence

Personality

Person-hood

Phenomenology

Philosophy

Photo tropism

Physical world

Physiological changes

Piaget’s theory of language development

Plant nutation

Pointing

Prediction

Prejudices

Preposition

Pride

Primary emotion

Psychic blindness

Quale

Quantum mechanics

Reasoning

Receptive field

Receptor cell

Red queen hypothesis

Reflex action

Religion

Repressed memories

Reproduction

Response to stimuli

Schema

Science

Secondary emotion

Seismonastism

Self

Self-awareness

Self-conscious emotion

Self-directed responding behaviours

Self-discovery

Self-efficacy

Self-evaluation

Self-hood

Self-recognition

Self-reference

Self-reflection

Self-regulation

Self-representation

Sense organ

Sensory acquisition

Sensory adaptation

Sensory rejection

Sensory stimulation

Sensory vigilance

Shame

Sight

Sign language

Smell

Social communication

Social media addiction

Somatic marker hypothesis

Somatic markers

Somatosensory system

Space perception

Spatial boundary

Spatial preposition

Specific movement patterns

Speech

Stimulation

Stimulus

Stone paradox

Substrate of Self

Surprise

Taste

Telos

Temporal lobectomy

Tertiary emotion

Theory of Consciousness

Theory of mind

Thoughts

Touch

Unit

Utterance

Verb

Verbal memory

Vocalisation

What

When

Why