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Table of Contents

PREFACE

More interesting to the philosophy of mind is logical behaviourism. This claims that *what* we are talking about when we are talking about the mind and mental states is behaviour. It is a claim about what *the mind* is, not merely how we can know about it, arguing that our psychological concepts and words are actually about behaviour – what people do and how they react.

Thinking is something that happens at a time and takes time. It *occurs*, it is a mental occurrence. Good thinking can be hard work, and you have to practice it. But it can also be great fun, and spare you lots of pain and confusion from bad choices.

The fact is that throughout history, nearly all the people who have ever lived have been wrong about many things. Wrong about magic. Wrong about spirits. Wrong about gods. Wrong about medicine. Wrong about diet. Wrong about astronomy. Wrong about economics. Wrong about political theory. Wrong about chemistry and physics. Wrong about biology. Wrong about the afterlife. Wrong about the opposite sex. Wrong about psychology. Wrong about pretty much everything. Indicating that the pattern of thought is sporadically systemic and less structured, thus resulting to wrong results. Arguments that derive wrong conclusions or denials that result from ignorance and lack of intellectual training. Yet, we all claim to have the capacity to reason, to think and perceive reality in its ideal state.

The mind's ability to reason is considered a core human trait, which has led to the development of art, science, mathematics, language and philosophy. Logic gives form to reason by applying principles and rules that allow the mind to infer the validity of any statement. Practicing logic during our daily living will allow individuals to bypass rhetoric and evaluate arguments based on the validity of their premises, thereby judging any generated conclusions by themselves. If an argument is not valid, the conscious human mind can then decide to believe the argument anyway or not.

Logic creates a system by which a conscious mind can apply a set of principles to any problem or argument to determine its validity. Consequently, most studies that lay the foundation for modern human societies, including computer science and mathematics amongst others, are built on logic.

This is a book for anyone who believes that logic is rare. It is a book for those who think they are logical and wonder why others aren't. It is a book for anyone who is curious about why logical thinking doesn't come *naturally*. It is a book for anyone who wants to be more logical.

There are many fine books on the rules of logic and the history of logic, but here you will discover barriers we face in trying to communicate logically with one another. There is also an excellent chance that your thinking will be made better and your ability to make eloquent ideas be vastly improved. Perhaps most importantly, you will improve your capability to evaluate the thinking and arguments of others - a tool that is invaluable in almost any walk of life.

In as much as this book is about developing a good logical behaviour, it is less concerned with the concept of mind, and shall not delve into discussing how the mind operates. But using the story of *Atieno* and *Kama*u, we will take a cultural twist from the primitive psyche towards civilisation thereby connecting Africa to Greece but mostly so, using the history of *religious spiritualism* as a basis to develop logical conjectures which we will analyse in our last chapter, hermeneutics.

Sex has been with the humankind for lifetimes and it would be absurd to imagine a culture which defiles itself by ignoring the societal importance of sex. Whether primitive, immoral or sacred, sexual relations have served a connecting role and this will climax as we analyse the promiscuity of the Greek god, *Zeus* who defiled other gods and even the mortals whom he created. The logical judgement on such a behaviour remains for you the reader to

decide, whether it is right or wrong, such judgements are beyond the scope of this book.

The simplest form that logical behaviourism can take is to claim that a mental state is an actual behaviour, e.g. to believe something is just to say that you believe it, to be in pain is just to wince, shout, etc. But this is very implausible. First, we can, to some extent, control our behaviour, e.g. I might stop myself from showing that I am in pain. Second, the same mental state could be expressed in different behaviours on different occasions. My belief that there is food in the fridge can be expressed by my stating this, but it could also be expressed by my simply going to the fridge and looking inside when I am hungry. Third, many mental states, such as knowledge, are dispositions, rather than occurrences. They don't occur at a time, like actual behaviour does. A disposition, in its simplest form, is simply how something will or is likely to behave under certain circumstances for example, someone who knows Kiswahili knows Kiswahili even when they are talking or reading in English.

Many mental concepts are also concepts of dispositions, so that when we talk of someone having a certain mental state, like being proud or believing that the earth is round, we are talking of what they would do, could do, or are liable to do, in particular situations or under particular conditions, including conditions that they are not in at the moment. Having said that, it's with sincere gratitude to my cohorts during the royal days of *SONU*, millennials with whom we founded the *University of Nairobi Philosophical Society* to become an internationally recognised body thereby serving at *Federation International de Societies Philosophy* (FISP) and even *Center for Inquiry Transnational*. Notably, am grateful to *Thuita Mwangi, Edwin Mwaniki*, *Evans Manduku*, *Ruth Kenyah* and the passionate catalyst of my many activities back then, Ms. *Veronica Nyakoboke Nyabuto*, the lady who shaped my horizon with substance.

To this end, much gratitude to the late *Prof. Chrispin Mbai*, Ph.D who forever lives in our encultured minds, a mentor he was not

only to me but many who looked admiringly at the displayed decorum of intellect and the grooming of administrative prowess which has impacted how many of us millennials relate. You are enjoying this book as a result of such a result.

As a dedicated Christian, some portions of this book have really been tempting in effort to coordinate and relay the intended meaning. Nevertheless, my faith is strong and to God is all the glory mostly so that am able to share in education of many who would have remained ignorant or rather not tasted a glimpse into logic. Making philosophy accessible to the common man is not only my key intent but to improve massively towards a responsible relation, an aware society guided by good behaviour and not only law remains a vital appetite.

It is my humble expectations that this book will be of much help in promoting a culture of *well-structured* reasoning, a critical approach to life and perhaps an appetite towards innovating better moral values. In hope of developing this title into volumes of editions, I welcome comments and deeper insights on how to engage such a paradigm thereby a structure of a better meaningful understanding of whatever we have started, whether in behaviour or abilities. Kindly contact me through my social pages or instagram *@adhengobeuze* which is my standardized handle or if you wish "**#ASHTAG#**"

CHAPTER ONE

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the process of reasoning

Kamau and Atieno had been dating for two years now, ever since that rendezvous at the *Love Temple* but things were turning towards the uncertain. The spontaneous instant of becoming a man and another questing to become a woman had developed into the taboo love feeling which was forbidden by the temple masters. Sex had its sacred roles only during the season of procreation but the normal duty was building men and women. The temple needed people to offer a sacrifice of their virginity as men cheered away their chastity; this was mostly seen as a rite of passage, an initiation to boys and girls seeking adulthood. The village needed warriors and workmen, its population had to be on a constant increase; this meant more participants at the fertility festivals.

Ever since their first intimacy, Atieno had always bothered Kamau with the need to serve as a maid in the temple, but Kamau's mind was troubled with seeking money and a better life outside the village. He heard about some missionaries who were preaching Christianity and they were teaching people something called *arithmetic*. They also had better medicine than those Chinese pills smuggled by the temple masters. Kamau also felt that the *goddess* of *love* was punishing him by refusing to cure his inconsistent erections which seemed to favour only Atieno. Little did he know that Atieno had been putting herbs in his porridge, and these herbs were the main cause for his logical sorrows but somehow the goddess and the temple masters had to suffer blame. His prayers for a smaller penis remained unanswered and soon he had received requests to be serving as a priest in the temple of love. He hated *Agwara* village and this antique town called *Bondox*. He hated speaking *dholuo* and wished to learn other *nilotic* dialects, somehow, he could get to understand how other gods operated. Kamau felt the need for blessings but he was confused as to what he really wanted. Was it a better future, a better life, work at the *Love Temple* or an adventure to meet the Christian missionaries who were camping along the river Nile.

Kamau feared foreign imaginations of an inexperienced life away from *Agwara* village but the need to understand why the *goddess of love* was punishing him by causing all these uncontrolled

erections remained a pursuit for his mind. All his moral doings were clean and however memorable he meditated, no logical purpose came to his mind.

At this point, we could ask the most immediate question concerning the process of thought. What is this thing called *reason*? Is it only a preserve for a specific culture humans or everyone considered genetically mankind?

The word reason itself is far from being precise in its meaning. In common and popular discourse it denotes that power by which we distinguish truth from falsehood, and right from wrong, and by which we are enabled to combine means for the attainment of particular ends. Reasoning being defined as *the act, process or art of exercising the faculty of reason*; the act or faculty of employing reason in argument; argumentation; disputation or discussion.

By the employment of the reasoning faculties of the mind we compare objects presented to the mind as *percepts* or *concepts*, taking up the raw materials of thought and weaving them into more complex and elaborate mental fabrics which we call abstract and general ideas of truth. An idea being a mental product of which when expressed in words does not give a proposition while thought becomes a mental product which embraces the relation of two or more ideas.

The ideas of the understanding are of two general classes; *abstract ideas and general ideas*. The thoughts are also of two general classes; those pertaining to contingent truth and those pertaining to necessary truth. In *contingent* truth, we have facts, or immediate judgments, and general truths including laws and causes, derived from particular facts; in *necessary* truth we have axioms, or self‑evident truths, and the truths derived from them by reasoning, called theorems. While everyone reasons, the fact is equally true that the majority of persons reason incorrectly.

In order to reason correctly it is not merely necessary to have a good intellect but rather a development in one's intellectual faculties and a person must learn the art of using them to the best advantage. These intellectual faculties well developed are what form the basis for logic which teaches us to reason well, and reasoning gives us knowledge. *Logic is therefore a science of reasoning that enables us to distinguish between the good reasoning which leads to truth, and the bad reasoning which every day betrays people into error and misfortune*.

<div align="center">***</div>

Atieno had become an important element to Kamau, both in tranquillity and progression. Ever since they met at the *Agwara Love Temple*, things turned out to be obscure, non-normal and of much interest. Atieno was especially different compared to most other girls who came to the temple, but lately, the temple committee had started complaining of corruption and favouritism. Some families were not bringing their virgins as sacrifices and some temple boys were not performing their assigned duties.

Atieno recalls the very first day she visited the *Love Temple*. A story that always kept Kamau curious to know whether being a *Temple Boy* was a divine calling and whether the moral laws of Agwara village had any universal meanings to the Bantu people. Was there anything as absolute good? Was there anyone very fertile, be it male or female? The story of Atieno as she narrated to Wambui had a lot to express…

The *temple* was a big building. I knocked at the huge gate of the love palace. A man of about fourty years old met me. I told him my name. He checked if it was on his list, then smiled conspiratorially. I had done the medical examination the week before and they had the results of my tests.

> Come in, lady, – the man said looking at me. – Why was he looking at me this way?

Aren't you too young to come here? – He asked when I turned with my back to him.

I entered one of the doors. It's a bit complicated to describe this building. It's like a maze, of rectangular shape, with six front doors. I was in the hall. A middle-aged woman was sitting at the table and writing something. I approached and said "*Habari*!" She responded with a polite smile. I paid for a day at the *Love Temple* and she gave me a mixture of a pudding in a bowl. I thanked her. A gourd was there with a turbid solution to catalyse the effects of the pudding, I ate and drunk. As the woman told me, eating and drinking this would chase away the spirit of unwanted pregnancy because we were not yet at the season of fertility, the festival was not yet announced.

I looked back and said something like "*No, it's Ok*" and rushed to the building along the dirt path. "*Yes, maybe it's I'm too young. I'm just 18…*" I even hesitated for a moment but then decided it was silly to refuse as I'd made the first step already. I came here with a specific goal – to become a woman.

I went into the corridor. When I was here making inquiries and had looked around a bit, behind the first door was one of the many bathrooms. This was where I was to have a shower; wash and dry my hair. When leaving the bathroom, I left my clothes in a basket specially intended for that.

One could be without clothes in the temple and many people did use that opportunity. But I was nervous and felt shy. So, I put a *nilotic* tunic which was usually worn by servants there or the shyest visitors. The garments were free. Non-villagers had to pay for admission only.

I walked along the corridors for a long time examining the building and other visitors. They were men and women, old people were here too. Some men would come up to me and offer to have sex with them. I refused. I felt so uncomfortable.

I sat at the bench. About 10 minutes later a young man in his early twenties sat beside me. I liked him.

> *Is it your first time here*? – He asked.

I said "*Yes*" and he suggested we go into one of private rooms for a conversation. I didn't expect it from myself but I gave my consent. The private room had two other doors: a tiny room with armchairs and a table and another room with only a bed inside. I sank into the armchair. There was a bowl with *mapera* fruits, a pot of *luo* wine and a bucket with water. Servants brought the new items each time a couple left the private rooms. We talked for long with him, just about life. He didn't tell me anything about himself not even ask for my name. Anonymity of non-villager was allowed at the *Love Temple*.

I sipped the wine through the piped straw and the better warm feeling crept through my knees. A few tin lanterns lit up the room; these *nyangile* lanterns used sunflower oil to burn and the aroma was romantic and cosy from a few crushed petals that were visible all over. He moved to me closer and took my hand. I shuddered. He released my palm. A pause…

> I'm just nervous, – I pronounced.

> *Sorry. Do you really want to do this?*

I hesitated but said:

> *Yes…*

I decided that he would become my first man. I liked him. He was so calm and shy. He didn't make me do anything.

> *You should be sure whether you want it or not,* – he said.

I liked the fact he allowed me to choose and I said more confidently:

I want to…

And it was the truth. I rose and went to the room with the bed. I lit the *nyangile lantern* there as I wanted to see his face. I lay on the bed and he lay beside me.

Are you a virgin? – He asked.

I confessed it was my first time. He took off the tunic off me. I was lying nude and felt fear was rising inside me. His nakedness joined mine in bed. We lay still for a few minutes looking at each other. Then he stretched his arm and touched my cheek. His touch was cold but I didn't shudder. His fingers slid lower to my neck passing my skin tenderly. When he reached for my breast my heart started pounding with a creepy burning feeling. He was squeezing my breasts. My nipples became hard with each of his touch provoking a storm of emotions in my body. He passed his palm over my belly and then lay on me without putting all his weight. My body shrank involuntarily and he whispered into my ear: "*Don't be afraid, it's going to be quick*!" I relaxed. What happened next I remember intensively. I felt something strange in my body. It was painful, I gave a scream. When it was over I lay for some time being afraid to move.

Then we did it again. It was less painful but I still felt uncomfortable. He became bolder squeezing my breasts, kneading my buttocks, kissing my neck and lips. I liked it so much! I was with him, I loved him. We were together all the night, my first night with a man…and he was son to the temple master. It all felt divine in pain for Kamau but also loving the sensation of goodness guaranteed that I was with the anointed. I was now to be counted as a volunteer procreator of *Agwara*, I wouldn't mind this. I could live in the village if I chose to.

***

Whatever questions were developing inside Kamau's head, was a process of reason. The most fundamental principle of reasoning, therefore, consists in the comparing of two objects of thought through and by means of their relation to a third object. The natural form of expression of this process of *reasoning* is called a *syllogism*. I will explain this in detail when we adventure to chapter two.

In considering the process of thinking, we must classify the several steps or stages of thought that we may examine each in detail for the purpose of understanding them combined as a whole. In actual thinking these several steps or stages are not clearly separated in consciousness, so that each stands out clear and distinct from the preceding and succeeding steps or stages, but, on the contrary, they blend and shade into each other so that it is often difficult to draw a clear dividing line. The first step or stage in the process of thinking is that which is called a *concept*, a mental representation of anything. Thus the function by which we mark off, discriminate, draw a line around, and identify a numerically distinct subject of discourse is called *conception*; a distinct act of the *consciousness*.

As we progress with object representations in our mind, the language of understanding begins to develop and hence, the term *perception*. But what becomes the difference between a *percept* and a *concept*? The distinction is simple when properly considered. A percept is the object of an act of perception; that which is perceived. A concept is a mental representation. A percept is the mental product of a real thing; a concept is a mere idea or notion of the common attributes of things. A percept represents some particular object; a concept is not particular, but general. A percept can be described by particulars; a concept can be described only by generals. The former can usually be represented by an image, the latter cannot be imagined, it can only be thought. For example, *Adhengo* is a man; in this sentence, the general assumption is man but the particular is *Adhengo* as a man. Meaning, there is a specific *Adhengo* and he is a man. Thus one is able to image the percept of a particular man which has been

perceived; but he is unable to image correctly the concept of man as a class or generic term.

In connection with this distinction between perception and conception, we may as well consider the subject of *apperception*, a term favoured by many modern psychologists, although others steadfastly decline to recognize its necessity or meaning and refuse to employ it. Apperception may be defined as *perception accompanied by comprehension*; *perception accompanied by recognition*. The thing perceived is held to be comprehended or recognized - that is, perceived in a new sense, by reason of certain previously acquired ideas in the mind; the perception of things in relation to the ideas which we already possess. It follows that all individuals possessing equal active organs of perception, and with equal active attention, will perceive the same thing in the same way and in the same degree. But the apperception of each individual will differ and vary according to his previous experience and training, temperament and taste, habit and custom.

And so, we see that in a measure our concepts are determined not only by our simple perceptions, but also materially by our apperceptions. We conceive things not only as they are apparent to our senses, but also as influenced by our previous impressions and ideas. For this reason we find widely varying concepts of the same things among different individuals. Only an absolute mind could form an absolute concept.

The first step in the process of reasoning is that of *conception* or the forming of concepts. The second step is that of *judgmen*t, or the process of perceiving the agreement or disagreement of two conceptions. Judgment in Logic is defined as the comparing together in the mind of two notions, concepts or ideas, which are the objects of apprehension, whether complex or *incomplex*, and pronouncing that they agree or disagree with each other, or that one of them belongs or does not belong to the other. Judgment is therefore an affirmative or negation.

In every act of judgment there must be at least two concepts to be examined and compared. This comparison must lead to a judgment regarding their agreement or disagreement. For instance, we have the two concepts, horse and animal. We examine and compare the two concepts, and find that there is an agreement between them. We find that the concept donkey is included in the higher concept of animal and therefore, we assert that: "t*he donkey is an animal*." This is a statement of agreement and is, therefore, a *Positive Judgment*. We then compare the concepts donkey and cow and find a disagreement between them, which we express in the statement of the judgment that: "t*he donkey is not a cow*." This judgment, stating a disagreement is what is called a *Negative Judgment*.

When a *judgment* is expressed in words it is called a *proposition*; a sentence, or part of a sentence, affirming or denying a connection between the terms; limited to express assertions rather than extended to questions and commands.

CHAPTER TWO

predicates

The Bondox, a terrain of deep valleys covered in thickets, vines and jungle brush which services the meanderings of the indigenous wild life. Great forest trees and miles of jungle greenery are home to a myriad of wild life, some benign, some treacherous.

On this late African evening the sparkling waters of river *Nyando* reflect orange and yellow as the sun heads toward the horizon on its nightly trip to the other side of the world. Long blue and purple clouds stretch horizontally across the distant panorama where the untamed land meets the vast ever expansive sky. Long, black shadows begin to grow along the crests of the mountains and from the base of the towering trees. On the plain, a lone gazelle beings to gallop towards a slowly moving silhouette. In the village of *Ukambani*, Mutiso, a lone servant, awaits patiently as the heat blurs and obscures his vision of the giant amber sun which seems to melt as it settles into the distant landscape. In the distance, a far off mournful cry of a jungle bird can be heard cawing. Its call seems panicked and alarmed as it signals the end of a day. For *Jakapiyo*, it would soon be time for his arrival in *Ukambani*. But he has to wait for dusk to meet *Mutiso*, he doesn't want to be see arriving in this foreign land. *Agwara* has been a long trek.

Once the cover of darkness falls and the village torches have been lit, burning brightly with their darting and flitting orange flames, *Jakapiyo* makes his way into the nearby village of huts made of sturdy amber bamboo and tree fawns, there he will find *Mutiso*. He wears his leopard skin shawl and has a small spear strapped to his side with a leather handle. In his hands he holds a small wooden box which holds a precious piece of cargo he has brought from *Agwara* village. The villagers mill about in the cooling night air. They work to prepare the day's final meal now that the heat has abated with the setting of the sun.

"*Jakapiyo*!"A tall Bantu warrior calls out as Jakapiyo makes his way to the master's huge, central hut within the village compound. "*Come and help us to skin the bushmeat for tonight*!" He calls out in his native *kambaa* tongue.

***

Our lives are a long parade of choices. When we try to answer such questions, in order to make the best choices, we often have only one tool, an argument. We listen to the reasons for and against various options, and must choose between them. And so, the ability to evaluate arguments is an ability that is very useful in everything that you will do in your work, your personal life and your deepest reflections.

Evaluating arguments is the most fundamental skill common to math, physics, psychology, literary studies, and any other intellectual endeavour. Logic alone tells you how to evaluate the arguments of any discipline. The alternative to developing these logical skills is to always be at the mercy of bad reasoning and, as a result, you will make bad choices. Worse of, you will always be manipulated by deceivers. And what logic teaches you is how to demand and recognize good reasoning thereby avoiding deceit. You are only as free as your powers of reasoning.

Logic is a skill. The only way to get good at understanding logic and at using logic is to practice. It is easy to watch someone explain a principle of logic, and easier yet to watch someone do a proof. But you must understand a principle well enough to be able to apply it to new cases, and you must be able to do new proofs on your own. Practice alone enables this.

We begin the study of logic by building a precise logical language. This will allow us to do at least two things: first, to say some things more precisely than we otherwise would be able to do; second, to study reasoning. We will use a natural language - English - as our guide, but our logical language will be simple, far weaker, but more rigorous than English.

We must decide where to start. We could pick just about any part of English to try to emulate names, adjectives, prepositions, general nouns, and so on. But it is traditional, and as we will see in later chapters, to begin with whole sentences. For this reason,

the first language we will develop is called *the propositional logic*. It is also sometimes called *the sentential logic* or even the *sentential calculus*. These all mean the same thing: the logic of sentences. In this propositional logic, the smallest independent parts of the language are sentences.

Principle of Bivalence maintains that each sentence of our language must either be true or false, not both. Some scholars call this the *principle of non-contradiction*.

Our language will be concerned with declarative sentences, sentences that are true or false, never both. Here are some example sentences.

> 2+2=4.

> Wairimu Little is tall.

> If Raila wins the election, then Raila will be President.

> The Earth is not the centre of the universe.

These are all declarative sentences. These all appear to satisfy our *principle of bivalence*. But they differ in important ways. The first two sentences do not have sentences as parts. For example, try to break up the first sentence. "**2+2**" is a function. "**4**" is a name. "**=4**" is a meaningless fragment, as is "**2+**". Only the whole expression, "**2+2=4**", is a sentence with a truth value. The second sentence is similar in this regard. "*Wairimu Little*" is a name. "*is tall*" is an adjective phrase (we will discover later that logicians call this a *predicate*). "*Wairimu Little is*" or "*is tall*" are fragments, they have no truth value. Only "*Wairimu Little is tall*" is a complete sentence.

A sentence like these first two we call an *atomic sentence*. The word **atom** comes from the ancient Greek word *atomoi*, meaning cannot be cut. When the ancient Greeks reasoned about matter, for example, some of them believed that if you took some substance,

say a rock, and cut it into pieces, then cut the pieces into pieces, and so on, eventually you would get to something that could not be cut. This would be the smallest possible indivisible thing. (The fact that science can now talk of having *split the atom* just goes to show that we changed the meaning of the word *atom*. We came to use it as a name for a particular kind of thing, which then turned out to have parts, such as electrons, protons, and neutrons.) In logic, the idea of an atomic sentence is of a sentence that can have no parts that are sentences.

In reasoning about these atomic sentences, we could continue to use English. But for reasons that become clear as we proceed into later chapters of the book, there are many advantages to coming up with our own way of writing our sentences. It is traditional in logic to use upper case letters from **P** onwards (**P, Q, R, S**….) to stand for atomic sentences. Thus, instead of writing

> *Wairimu Little is tall*.

We could write
> **P**

If we want to know how to translate **P** to English, we can provide a translation key. Similarly, instead of writing

> *Wairimu Little is a great dancer*

We could write

> **Q**

And so on. Of course, written in this way, all we can see about such a sentence is that it is a sentence, and that perhaps **P** and **Q** are different sentences. But for now, these will be sufficient.

Note that not all sentences are *atomic*. The third sentence in our four examples above contains parts that are sentences. It contains the atomic sentence "*Raila wins the election*" and also the atomic

sentence, "*Raila will be President*". We could represent this whole sentence with a single letter. That is, we could let

> *If Raila wins the elections, then Raila will be President*

be represented in our logical language by

> **S**

However, this would have the disadvantage that it would hide some of the sentences that are inside this sentence, and also their relationship. Our language would tell us more if we could capture the relationship between the two parts of this sentence, instead of hiding them. We will do this in chapter three.

An important and useful principle for understanding any language is the difference between **syntax** and **semantics**. "*Syntax*" refers to the shape of an expression in our language. It does not concern itself with what the elements of the language mean, but just specifies how they can be written out. The morphology.

We can make a similar distinction (*though not exactly the same*) in a natural language. This expression in English has an uncertain meaning, but it has the right *shape* to be a sentence:

> *Aeroplane tractor grinds rapidly.*

In other words, in English, this sentence is syntactically correct, although it may express some kind of error in meaning.

We contrast syntax with semantics. "*Semantics*" refers to the meaning of an expression of our language. Semantics depends upon the relation of that element of the language to something else. For example, the truth value of the sentence, "*The Earth has one moon*" depends not upon the English language, but upon something exterior to the language. Since the self-standing elements of our propositional logic are sentences, and the most important property of these is their truth value, the only semantic

feature of sentences that will concern us in our propositional logic is their truth value.

If semantics in the propositional logic concern only truth value, then we know that there are only two possible semantic values for **P**; it can be either true or false. We have a way of writing this and will later prove helpful. It is called a "**truth table**". For an atomic sentence, the truth table is trivial, but when we look at other kinds of sentences their truth tables will be more complex.

The "**truth table method**" was introduced in 1920 in the Ph.D. dissertation of *Emil Leon Post*, a young Polish, Jewish emigrant student at the College of the City of New York. Used extensively to this day in the study of logic, *a truth table is a table of all possible combinations of true/false for the propositions involved in an argument*. The idea of a truth table is to describe the conditions in which a sentence is true or false. We do this by identifying all the atomic sentences that compose that sentence. Then, on the left side, we stipulate all the possible truth values of these atomic sentences by writing them down. On the right side, we identify under what conditions the sentence (*that is composed of the other atomic sentences*) is true or false.

Atomic sentence(s) that compose the dependent sentence on the right	Dependent sentence composed of the atomic sentences on the left
All possible combinations of truth values of the composing atomic sentences	Resulting truth values for each possible combination of truth values of the composing atomic sentences

We stipulate all the possible truth values on the bottom left because the propositional logic alone will not determine whether an atomic sentence is true or false; thus, we will simply have to consider both possibilities. Note that there are many ways that an atomic sentence can be true, and there are many ways that it can be false. For example, the sentence "*Jakapiyo is Kenyan*" might be true if *Jakapiyo* was born in *Nairobi, Kisumu, Nyeri, Marsabit*

and so on. The sentence might be false because *Jakapiyo* was born to Ugandan parents in Uganda, to Tanzanian parents in Zanzibar, and so on. So, we group all these cases together into two kinds of cases.

These are two rows of the truth table for an atomic sentence. Each row of the truth table represents a kind of way that the world could be. So here is the left side of a truth table with only a single atomic sentence, **P**. We will write "**T**" for true and "**F**" for false.

P	
T	
F	

There are only two relevant kinds of ways that the world can be, when we are considering the semantics of an atomic sentence. The world can be one of the many conditions such that **P** is true, or it can be one of the many conditions such that **P** is false.

To complete the truth table, we place the dependent sentence on the top right side, and describe its truth value in relation to the truth value of its parts. We want to identify the semantics of **P**, which has only one part, **P**. The truth table thus has the final form:

P	P
T	*T*
F	*T*

This truth table tells us the meaning of **P**, as far as our propositional logic can tell us about it. Thus, it gives us the complete semantics for **P**. (*As we will see later, truth tables have three uses: to provide the semantics for a kind of sentence; to determine under what conditions a complex sentence is true or false; and to determine if an argument is good. Here we are describing only this first use*.)

**** ** **

Jakapiyo holds up the small wooden box and replies. "*I cannot help you with dee bushemeat! The master waits for dis here! It is dee box from Aa-ga-wa-r-a.*"

"*AHHHHH!"* The native replies with raised eyebrows, intimating his understanding and also his surprise. "*Den do not keep de master wait-ing!*" He continued to prepare the meat while waving Jakapiyo on toward the main hut of the *Kamba* chief.

The main hut is huge and multi-roomed. Even from the exterior it brings an impressive promise of the power and prestige within. Large, stone statues guard the entrance to the hut, their faces as large as a man's upper torso and their mouths chiselled in an open scream. *Jakapiyo* pauses a moment at the main door which stands closed and silent, and is festooned with skulls and small images of items used in the dark arts of *voodoo*. He takes a breath and then enters into the darkened hut. It is not his first time there, but it makes little difference, as the magic that reverberate from the very walls have a palpable sensation. When any man, friend or foe, enters into the hut of the *Kamba Chief*, he is instantly aware that the world around him has changed in a darkly, metaphysical way.

The interior is pitch black in its darkness despite the small fire torches that decorate the corners of the hut walls. As *Jakapiyo* makes his way through the maze of corridors that lead to the master's chamber, it seems to him that he enters into a deep chasm of darkness only meant for those who are not quite human, not quite god. He bows his head as he passes through the colourless beads that hang from the masters door which lead into the great chamber. Few have been there save *Jakapiyo* and others whom the *Chief* favours. *Jakapiyo's* eyes struggle to look into the deep darkness before him as he waits for the master to address him. There is flat silence, even surrounded by the awakening nightlife of the jungle, for no sound from the exterior world may encroach upon this protected sphere.

Before him, there is a small perception of light, first one and then another, which in reality are not light, but the master's

materializing eyes. Slowly, evanescent eyes take shape as solid white triangles lying on their sides. *Jakapiyo* has been closer to the master than this and knows that in fact the eyes belong to the great *mask* of the *Chief*. The mask is black and oblong shaped with rounded ends at the top and bottom of the face. Surrounding the mask is a *lion's* mane of wild grasses and special tree barks that fan out from the edge like long, irregular shaped sun beams. Somewhere in the darkness before him, the master sits, and waits.

"*My Lord*." Jakapiyo begins. "I bring dis package from dee nah-lo-tec mountains, the village of *Aa-ga-wa-r-a* "

After a long moment the deep, booming voice of the master replies in slowly spoken syllables. "*Excellent..... I 'ave been awaiting dee arrival of dee mes-sen-ger. Open dee box now, Mutiso my servant, and inform me of its much needed contents*."

"*Yes, my Lord*." Mutiso responded and then began to work the lid of the wooden box. In a moment the box was opened and *Jakapiyo* reached within to retrieve its contents. Within the small rectangular box was a doll figure of a *nilotic* woman. It was about eight inches tall and was dressed in a black and blue costume. The doll also had long kinky hair upon its head. *Jakapiyo* lifted the doll into the darkness for the master to see.

"*My Lord..... it ees dee doll of dee wo-man*." Jakapiyo informed the figure in the darkness.

"*So I see.... so I see....*" Came the deep, resonant tones of the master's voice in response.

"*Dee bushmeat.... dee bushmeat...... is ready*."

"*Your orders, my Lord?*" Mutiso queried.

"*Notify dee men in dee Kts-ah-vo.. Tell dem dat dee who-m-an is not to be harmed. If any-ting happens to dee who-m-an..... dere blood will boil mek voodoo stew. I have so spo-ken eet*."

"*It shall be done, me Lord*."

"*Leave dee doll and go*." Came the order of the dark voice.

Jakapiyo nodded and placed the doll upon the ground before him and then turned without looking up and exited into the labyrinth of hallways and alleyways of the master hut. In the master's chamber there was silence for a few moments and then the plodding of slow heavy steps. The small doll of a woman stirred and then seemed to float upwards into the darkness. It then stopped about eight feet from the chamber floor. Large, glowing white eyes appeared just above the doll's position.

There then was an echo of deep laughter. "*HA ha HA ha HA*!" And then the voice continued. "*Always do the weak..... fall before the strong.... I ...... the strong........ I ..... the Voodoo Chief!*"

In the darkness, the eyes seemed to move and glide without a solid form and then there was a sudden flash of flame, as though special seasoning had been thrown upon a grill covered in the hottest of cooking oil. *PUh-tasssshhh*! came the sudden rush of noise and popping sounds. Then a torch was lit and buried into what seemed to be a large pot which had always been sitting there in the corner of the room.

Smoke rose and the liquid boiled and bubbled. There was low level moaning and chanting and then a small skull materialized above the glowing orange and red water. "*Jakapiyo's service has provided me with many strong sons.....I now speak to his continued blessing of progeny...*" Voodoo Chief half sang and half spoke as the room filled with dark smoke and ethereal magic.

"*I now call forward my own progeny.... the progeny that awaits to be born to Kamba Chief, the voodoo master.......and the fertile adhiambosi! HahaHahaHahahahahahh!!!!!*"

There was again a chorus of echoing laughter as both glowing eyes and voodoo doll faded into blackness. In but a moment, the chamber was once again a tomb of silence and darkness.

<p style="text-align:center">***</p>

Kamau still insisted on his plan to explore other lands, this rumours about a *Christian God* who was all powerful troubled his mind. A God who had no other gods beside his reign, not even the goddesses. If only he could see that temple palace they called *Mission Church*, he would be satisfied. Someone once hinted that the place was along the river of *Nile*, somewhere in Ethiopia, a wide trek towards the north, many miles past the lands of *Tsavo* and through the ocean. The Ethiopian plains would be visible once past the *Tsavo*.

The problem was meeting these other tribes, and being a *nilotic* man, it meant invasion. Atieno might even be endangered because of the preference for *nilotic* girls who were smuggled as items of fertility sacrifices amongst the Kamba Bantus, they were made possessions of the ranking chiefs because of their busting behind. Somehow, they could produce divine babies who were stronger compared to the offspring's by local Cushitic neighbours and the sexual sensation was close to divine. The *Kamba* tribesmen held a myth about *luo* women whom they called *adhiambosi*. Nilotic women were believed to be the custodians of the temple secrets in *Agwara*, and were divinely prepared for fertility festivals.

Kamau and Atieno set out to seek the *Christian Church*, the temple of the mighty God who unlike other gods did not have any need for goddesses. By this time, Atieno had been adopted into *Agwara* village and held a senior position at the *Love Temple*, she was to be referred to as prophetess and reported only to queen of the temple. Kamau had been made a temple boy, performing the duties of transforming girls into womanhood and collecting the virgin blood sacrifices during dedication month, where the temple only allowed prayers from families that had barely eighteen year old girls who bust a good amount of blood when their virginity was offered to the temple boys or temple masters. But like

Kamau, Atieno had an interest to meet a different queen and perhaps serve in a better capacity than a prophetess who went about looking for virgins in *Agwara* and creating fertility calendar for the village. She wanted a more challenging responsibility. Little did she know that *Jakapiyo* had made a doll of herself and sold it to the Kamba chief, lately she felt a strong urge to travel towards *Tsavo* and this made her to encourage Kamau so that they travel into an adventure. A change would be better than a rest; besides, the fertility festival was still many days away.

Meeting strangers along the way was now normal and it was easy to trust them because they kept asking for directions not until they reached *Tsavo* and there was this need for rest. This was where they separated to look for a friendly village that could host them for a few days as they prepared for the rest of the journey. Atieno met a girl who gave her some water for the thirst. This must be the reason she fell into a deep sleep.

With a grunt Atieno struggled to force herself awake. She cleared her throat and suddenly noticed the acrid lingering smell of some type of gas hanging in the air. She had been put inside a stuffy crate that was uncomfortably hot. Her face was covered in sweat which ran down her neck onto her back and she could feel the gamy moistness of her clothing. Especially the soaked stockings within her boots which she hated having to deal with at any time because of the after smell. Opening her eyes, she noticed her vision was blurred and her current location was pitch dark. Her shoulders were pinned in and her head was only inches from a plank of wood which kept her from looking downward toward the rest of her body. Her entire body seemed roped and tied as she tried to move her wrists and ankles which refused to budge.

Something metal was poking her just under her chin and seemed stuck in between her breasts. Its hard metal cover seemed firmly ensconced in her mammillar crevasse. "*OOohhh... Atieno*..." She moaned to herself with a choke and a dry cough. "*What have you gotten yourself into this time, girl?*"

The crate she was contained within suddenly rocked back and forth and there was a cracking noise as the cover of the wooden crate seemed to be operated upon by some unseen outside force. It was obvious to her that whatever long journey she had recently travelled with Kamau was now coming to a final end just as she begun to awaken.

Time to find out... she thought to herself as the lid was removed and bright sunlight flooded her face and blinded her unadjusted eyes. There was a noise of movement by many persons whom she could not see above her prostrate form. There was a foreign tongue being spoken between agents and she struggled to get a look at her captors as they moved above her in silhouette shards and half shapes. She felt mostly aware of the sudden vulnerability of her entire form. Roped and tied from head to toe, whoever the dark figures above her represented, they could view her whole body and if they wanted, could take full advantage of their superior position.....even if it was driving knife though her unprotected chest.

As the hot, yet cooling breeze of the *Ukambani* landscape rushed into the sweltering crate and cooled the sheen of sweat which covered her body, a dark hand reached in and pulled the metal tube from her breasts. He spoke in his Kamba dialect and gave orders to several others whom Atieno could barely make out through one thinly closed eyelid. They grabbed her shoulders with powerful hands and lifted her from the crate. She grunted and moaned as her body suddenly found freedom to move and stretch after such a cramped confinement. The two men held her aloft as her booted feet dangled just above the sandy grassland beneath them.

A large African dressed in ceremonial grasses and reeds with many beads and strips of animal fur around his torso and arms appeared before her as her chin still rested on her chest. He grabbed hold of Atieno's chin and raised her eyes to meet his own. With tightly squeezed eyes and chapped, dry lips, she faced him silently.

Looking down into her eyes he said in surprising English, "*You are de wo-man know as dee gwara-prophetes.... no?*"

Still hurting and uncomfortable, she struggled to find her voice, and only garbled some gibberish to him in response. She did this mostly to allow her inquisitor the opportunity to see how parched she was and perhaps, in order to get the answers he desired, he would bring her some much needed water. Impatient, he spat orders to another she could not see behind her as she hung in the grip of the two huge, powerful men who held her above the ground. In an instant there was a clear jar of shining water brought to her captor who then held it high in the sunlight.

"*Do not waste dis, wo-man."* He told Atieno as her eyes adjusted to the brutal midday sun. "*Dee wah-ter comes from far away, and is for MY people, not for da en-ti-tled n-ihi-lot*."

Thankfully, the water was very cool, and as he poured it into the weakened and dried out mouth of the prophetess, she felt a swelling of deep appreciation for which she might have indeed become quite presumptive. Mostly, the presence of clear clean water in a place far from *nam lolwe*, she drank and cleared her throat. Then nodded her appreciation to the big *Kamba* kinsman.

"*Thank you*." She said with an added measure of respect. "*Yes, I am the Agwara Prophetes from Love Temple*."

"*I am .... who I am...."* She said while straightening her spine.

He nodded. "*Dee master will be most pleased*."

She swallowed hard and asked, "*Where am I? Why am I here?*"

The warrior grabbed Atieno's face with his powerful hand and stared down into her eyes. He told her, "*Aban-don all hope, Aa-ga-wara witch. You belong to dee master now*."

Atieno groaned as her body began to overly relax, and her mind began to fog over. Thinking and focusing her eyes was now becoming a major accomplishment and her knees began to give way.

There were strange, yet amazing smells, making their way toward her nose, and in the back ground, somewhere behind her, there was a slow and steady beat of drums. The drums seemed to call to her with their repeated *ukambani* sounding rythms. *Dum-dee-dum dum, dee dum dum deeee.* The drums went and the sound seemed to mix with the cocktail of magically altered fluids that had now been injected into her blood stream.

****

And so *Jakapiyo* had turned to be a traitor, made a doll of the village prophetess and a penis of Kamau the *Temple Boy*. For a few riches promised by the *Kamba Chief*, he had submitted the items for *voodoo*. The two temple servants trekking to Ethiopia in their mission to visit the *Christian Church* where the all-powerful God dwelt didn't know of their fate. They had been betrayed by the greedy gateman, *Jakapiyo* and all along their use of the guide map was amounting to no progress.

Kamau noticed that Atieno hadn't returned from her departure, they had agreed to meet and share opinions of the best village. Maybe she loved the home she had been welcomed into and forget that Kamau and the other temple maids whom had joined their expedition, were all awaiting for her news. In all these, still Kamau couldn't help suspect Atieno to be in some sort of danger, they were strangers in strange lands; anything could happen.

***

Two propositions (*called the premises*) would be taken to be true, and another (*called the conclusion*) would follow from the premises, forming a three-line argument, called a syllogism. "*A syllogism*," according to Aristotle, is discourse in which, certain

things being stated, something other than what is stated [*a conclusion*] follows of necessity from their being so. In other words, a syllogism accepts only those conclusions that are inescapable from the stated premises. Remember our definition in chapter one and the terms judgment, proposition et.cetera.

As we noted previously, there are sentences of a natural language like English that are not atomic sentences. Our examples included

> *If Raila wins the election, then Raila will be President.*

> *The Earth is not the centre of the universe.*

We could treat these like atomic sentences, but then we would lose a great deal of important information. For example, the first sentence tells us something about the relationship between the atomic sentences "*Raila wins the election*" and "*Raila will be President.*" And the second sentence above will supposedly have an interesting relationship to the sentence, "*The Earth is the centre of the universe*". To make these relations explicit, we will have to understand what *"if...then..."* and what *"not"* mean. Thus, it would be useful if our logical language was able to express these kinds of sentences also, in a way that made these elements explicit. Let us start with the first one.

The sentence "*If Raila wins the election, then Raila will be President*" contains two atomic sentences, "*Raila wins the election*" and "*Raila will be President*." We could thus represent this sentence by letting

> ***Raila wins the election***

be represented in our logical language by

> **P**

And by letting

Raila will be President

be represented by

Q

Then the whole expression could be represented by writing

If **P** then **Q**

It will be useful, however, to replace the English phrase "*if...then...*" by a single symbol in our language. The most commonly used such symbol is "→". Thus, we would write

P →Q

One last thing needs to be observed, however. We might want to combine this complex sentence with other sentences. In that case, we need a way to identify that this is a single sentence when it is combined with other sentences. There are several ways to do this, but the most familiar (*although not the most elegant*) is to use *parentheses*. Thus, we will write our expression

(P→Q)

This kind of sentence is called a "*conditional*". It is also sometimes called a "*material conditional*". The first constituent sentence (the one before the arrow, which in this example is "**P**") is called the "*antecedent*". The second sentence (the one after the arrow, which in this example is "**Q**") is called the "*consequent*".

We know how to write the conditional, but what does it mean? As before, we will take the meaning to be given by the truth conditions - that is, a description of when the sentence is either true or false. We do this with a truth table. But now, our sentence has two parts that are atomic sentences, **P** and **Q**. Note that either atomic sentence could be true or false. That means, we have to consider four possible kinds of situations. We must consider when

P is true and when it is false, but then we need to consider those two kinds of situations twice: once for when **Q** is true and once for when **Q** is false. Thus, the left hand side of our truth table will look like this:

P	Q	
T	*T*	
T	*F*	
F	*T*	
F	*F*	

There are four kinds of ways the world could be that we must consider.

Note that, since there are two possible truth values (*true and false*), whenever we consider another atomic sentence, there are twice as many ways the world could be that we should consider. Thus, for *n* atomic sentences, our truth table must have 2^n rows. In the case of a conditional formed out of two atomic sentences, like our example of **(P→Q),** our truth table will have 2^2 rows, which is 4 rows. We see this is the case above.

Now, we must decide upon what the conditional means. To some degree this is up to us. What matters is that once we define the semantics of the conditional, we stick to our definition. But we want to capture as much of the meaning of the English "*if...then...*" as we can, while remaining absolutely precise in our language.

Let us consider each kind of way the world could be. For the first row of the truth table, we have that **P** is true and **Q** is true. Suppose the world is such that *Raila wins the election*, and also *Raila will be President*. Then, would I have spoken truly if I said, "*If Raila wins the election, then Raila will be President*"? Most people will agree that I have. Similarly, suppose *that Raila wins the election, but Raila will not be President*. Would the sentence

"*If Raila wins the election, then Raila will be President*" still be true? Most agree that it would be false now. So the first rows of our truth table are uncontroversial.

P	Q	(P→Q)
T	*T*	*T*
T	*F*	*F*
F	*T*	
F	*F*	

Some students, however, find it hard to determine what truth values should go in the next two rows. Note now that our principle of bivalence requires us to fill in these rows. We cannot leave them blank. If we did, we would be saying that sometimes a conditional can have no truth value; that is, we would be saying that sometimes, some sentences have no truth value. But our principle of bivalence requires that - in all kinds of situations - every sentence is true or false, never both. So, if we are going to respect the principle of bivalence, then we have to put either *T* or *F* in for each of the last two rows.

It is helpful at this point to change our example. Let us consider one different example to illustrate how best to fill out the remainder of the truth table for the conditional.

Assume that *a* is a particular natural number, only you and me don't know of its value (the natural numbers are the whole positive numbers: 1, 2, 3, 4…). Consider now the following sentence.

   If *a* is evenly divisible by 4, then *a* is evenly divisible by 2.

(By "*evenly divisible*," I mean divisible without remainder.) The first thing to ask yourself is: could this sentence be true? I hope we can all agree that it is - even though we do not know the value of *a*.

Let

       a is evenly divisible by 4

be represented by

       M

and let

       a is evenly divisible by 2

be represented by

       N

Our sentence then is

       (M→N)

And its truth table - as far as we understand right now - is:

M	N	(M→N)
T	*T*	*T*
T	*F*	*F*
F	*T*	
F	*F*	

Now consider a case in which *a* is **6**. This is like the third row of the truth table. It is not the case that **6** is evenly divisible by **4**, but it is the case that **6** is evenly divisible by **2**. And consider the case in which *a* is **7**. This is like the fourth row of the truth table; **7** wouldn't be evenly divisible by neither **4** nor **2**. But we agreed that the conditional is true - regardless of the value of **a**! So, the truth table must be:

P	Q	(P→Q)
T	T	T
T	F	F
F	T	T
F	F	F

If you are dissatisfied by this, it might be helpful to think of these last two rows as vacuous cases. A conditional tells us about what happens if the antecedent is true. But when the antecedent is false, we simply default to true.

We are now ready to offer, in a more formal way, the syntax and semantics for the conditional.

The syntax of the conditional is that, if Φ and Ψ are sentences, then

$$(\Phi\rightarrow\Psi)$$

is a sentence.

The semantics of the conditional are given by a truth table. For any sentences Φ and Ψ:

Φ	Ψ	$(\Phi \rightarrow \Psi)$
T	T	T
T	F	F
F	T	T
F	F	F

Remember that this truth table is now a definition. It defines the meaning of "→". We are agreeing to use the symbol "→" to mean this from here on out.

The elements of the propositional logic, like "→", that we add to our language in order to form more complex sentences, are called "*truth functional connectives*". This I will not attempt to explain further for fear of confusing the reader, but my hopes that the explanation is well captured since the beginning of our flow.

Notably, English includes many alternative phrases that appear to be equivalent to the conditional. Furthermore, in English and other natural languages, the order of the conditional will sometimes be reversed. We can capture the general sense of these cases by recognizing that each of the following phrases would be translated as **(P→Q).** (In these examples, we mix English and our propositional logic, in order to illustrate the variations succinctly.)

If **P**, then **Q**.
Q, if **P**.
On the condition that **P**, **Q**.
Q, on the condition that **P**.
Given that **P**, **Q**.
Q, given that **P**.
Provided that **P**, **Q**.
Q, provided that **P**.
When **P**, then **Q**.
Q, when **P**.
P implies **Q**.
Q is implied by **P**.
P is sufficient for **Q**.
Q is necessary for **P**.

An oddity of English is that the word "*only*" changes the meaning of "*if*". You can see this if you consider the following two sentences.

> *Scooby is a dog, if Scooby is a mammal*
> *Scooby is a dog only if Scooby is a mammal*

Suppose we know Scooby is an organism, but don't know of what kind. It could be a dog, a cat, a grey whale, a ladybug, a sponge. It

seems clear that the first sentence is not necessarily true. If Scooby is a grey whale, for example, then it is true that Scooby is a mammal, but false that Scooby is a cat; and so, the first sentence would be false. But the second sentence looks like it must be true (*given what you and I know about cats and mammals*).

We should thefero be careful to recognize that "*only if*" does not mean the same thing as "*if*". (If it did, these two sentences would have the same truth value in all situations.) In fact, it seems that "*only if*" can best be expressed by a conditional where the "*only if*" appears before the consequent (remember, the consequent is the second part of the conditional - the part that the arrows points at). Thus, sentences of this form:

> **P** only if **Q**.
> Only if **Q**, **P**.

are best expressed by the formula

> **(P→Q)**

At this point, we are ready to address better complex styles of syntax and we shall embark on our unused sentence. Consider this: *The Earth is not the centre of the universe*.

At first glance, such a sentence might appear to be fundamentally unlike a conditional. It does not contain two sentences, but only one. There is a "*not*" in the sentence, but it is not connecting two sentences. However, we can still think of this sentence as being constructed with a truth functional connective, if we are willing to accept it to be of equivalence to the following sentence.

> *It is not the case that the Earth is the centre of the universe*.

If this sentence is equivalent to the one above, then we can treat "*It is not the case*" as a truth functional connective. It is traditional to replace this cumbersome English phrase with a single symbol,

"¬". Then, mixing our propositional logic with English, we would have:

> ¬ *The Earth is the centre of the universe.*

And if we let **W** be a sentence in our language that has the meaning "*The Earth is the centre of the universe*", we would write:

$$\neg \mathbf{W}$$

This connective is called "**negation**". Its syntax is: if **Φ** is a sentence, then

$$\neg \mathbf{\Phi}$$

is a sentence. We this type of a sentence a "*negation sentence*".

The semantics of a negation sentence is also obvious. If **Φ** is a sentence, then

Φ	**¬Φ**
T	*F*
F	*T*

To deny a true sentence is to speak a falsehood. To deny a false sentence is to say something true.

Our syntax always is recursive. This means that syntactic rules can be applied repeatedly, to the product of the rule. In other words, our syntax tells us that if **P** is a sentence, then ¬**P** is a sentence. But now note that the same rule applies again: if ¬**P** is a sentence, then ¬ ¬**P** is a sentence. And so on. Similarly, if **P** and **Q** are sentences, the syntax for the conditional tells us that **(P→Q)** is a sentence. But then so is ¬ **(P→Q),** and so is **(¬ (P→Q) → (P→Q)).** And so on. If we have just a single atomic sentence, our

recursive syntax will allow us to form infinitely many different sentences with negation and the conditional.

*****

Somehow, Atieno managed to escape and reconnected with Kamau who apparently was still focused on his quest for Ethiopia. surprised at how Atieno had survived all that she was narrating, Kamau decided to listen…

I was trying to make my brain work but it was impossible, I finally came to the realization that my temple maid *Kachut* was dead, probably killed in his sleep, I knew that the only way to stay alive was to stay calm and not panic, even though I was on the edge of a total breakdown.

"Do you speak *dholuo*," I asked in a wavering voice, not sure if that would be a good sign or not? I repeated the question and got no response, and if they understood me they weren't letting on, but when one of them used the end of his spear to motion me to get up, I didn't hesitate, and scrambled quickly to my feet, it was at that moment I got a first good look at my male servants from the *Love Temple*, Mwangi and Omolo, as the tears welled up in my eyes, I could see their throats had been cut from ear to ear. I wanted to reach down and touch them to make sure, but the sharp point of a spear in my back prodded me to move off into the jungle with my captors.

As they made their way through the dense jungle floor, I had the chance to observe the men as they walked silently down the narrow path in single file, and while none of them were taller that five and a half feet, they were all well-muscled and although I tried not to notice, they were all incredibly well hung, their long black phalluses swung in time with their steps.

****

After several hours we finally reached their remote village, a crowd of young boys scampered all around, staring at my big buttocks and *nilotic* hairstyle, while pointing at my *ciondo* and laughing. Two older women appeared, and after having a short but terse conversation with one of the men, took me by the arm and led me to a mud hut at the far end of the village. Once inside, without so much as a word, both of them undressed me and had me lay down on a straw mat, where upon they proceeded to massage my body with a sweet smelling oil that had a slight tingling sensation on my skin, they then pushed the fingers coated with it deep inside my genitals which also gave me a tingling sensation and made me want to rub it.

I was still frightened out of I mind, but it didn't seem like that for a moment; that I was in any real danger. And as the two women continued the massage, one of them offered me a gourd filled with a fruit flavoured liquid, I thought it better not to argue the point and with a little bit of trepidation I sipped it, after a while I felt myself floating as if in a narcotic induced fog, then once again everything went black.

I didn't know how long I had been unconscious, but the sensation of extreme heat brought me round, it was night and I suddenly realised that my situation had now turned into something really bad, I was naked and tied spread eagle in a large wooden frame unlike the crate. A huge fire only twenty feet away from me burned bright in the pitch black night as naked chanting warriors danced with spears held high around the crackling flames, while the entire spectacle was ringed by the woman of the village who chanted in unison with the brightly painted warriors who were driving themselves into a sexual frenzy. With the oil that the village women had applied to my body glistening in the eerie light, it crossed my mind that I might well be the main course in some sort of a cannibalistic barbecue, and when I began screaming at the top of my lungs, it only tended to drive the *Kamba* warriors into more of a frenzy as they danced and cavorted their hard oiled bodies with their huge black erections bouncing menacingly before them.

As if signalled by some unknown force, five or six naked women, leapt to their feet, and began running their hands all over my straining oil covered body, paying particular attention to my smooth shaved vagina. Slowly but surely, trying as I might, still I couldn't resist the feeling that was coursing through my body, the raw lust in my vagina erupted in a thunderous orgasm that only seemed to intensify with the chanting of the delirious dancers, but just when I was recovering from my climax, I noticed that each warrior in turn was breaking from the circle and dancing his way towards me, as he stepped forward his hips started to thrust forward which made his engorged cock swing between his legs, as it swung forward the massive head was hitting his hard stomach, when they got near to me they then started to ejaculate, long drops of their thick cum spewed out into the night air, a lot falling on my body.

'*This must be it*,' I thought to myself, as tears began forming in my eyes, '*Now they're going to kill me*!

With no one so much as moving a muscle, from the far end of the village I could hear the low rumble of the chanting beginning once again, and into the light, strode a brightly painted warrior who I immediately assumed was the *voodoo chief*. As he made his way towards me the chanting grew in crescendo as he danced around my spread eagled form, driving himself into a frenzy. If manhood and power created the pecking order in this village, I could see right away why this warrior stood head and shoulders above the rest of his fellow tribesmen, as his erection stood, black, long, and thick from his groin, at least ten inches long and as thick as a woman's wrist. All of the women as if in a trance, began masturbating wantonly as the chief danced in a very provocatively way around me and the fire.

The chanting warriors now pounded the butt ends of their spears on the ground in unison, creating deafening cacophony that only inflamed the chief more, his erection, now dripping profusely with *precum* shimmered in the eerie light, and much to my dismay,

caused my vagina to lurch with the unbridled anticipation of getting raped. The chief stopped abruptly in front of me as one of the masturbating women came forward and grabbed the chief's huge throbbing cock and guided it into my open wet vagina. This seemed to be a signal to the rest of the warriors, because from the second the chief's cock slammed into me, the women on the sides ran to their men, and in an unbelievable display of pure lust, they bent over and let the warriors take them from the rear like wild animals. My mind was now in sensory overload as my own vagina was being pounded into submission by this gigantic cock, while I watched as at least fifty native couples engaged in the rawest form of lust filled sexual intercourse you could ever imagine. While orgasm after orgasm engulfed me, I watched wide eyed as the native women allowed their men to take them in the most brutally vicious way possible, their screams and moans echoing into the night.

As the chief pounded his gigantic cock in and out of my dripping vagina I could not help but feel the rising tide of lust and expectation of a huge orgasm, as wave after wave of lust coursed through my jerking body, I screamed out load as I reached the point of orgasm, my whole body going rigid as my cum flowed.

My body went limp from the exhaustion brought on by the incredibly draining sexual encounter I had just experienced, and for a second I thought I might still be in mortal danger when the chief pulled a long knife from his belt, but thankfully he used it to cut my bindings, allowing me slide gratefully to the ground. It wasn't long before several of the women picked me up and led me to the largest hut in the village, which I soon found out belonged to the chief and his four wives. I had just been initiated into bearing children for the village chief, children believed to be divinely created, a prediction of some oracle.

In the centre of the room was a large black cast iron pot. It had been partially filled with a mixture of oils and water, and there was a slow flame beneath it burning on large pieces of dark wood. Warmed, the oil rose to the surface and then rolled back down into

the pot once more, with tiny little air bubbles trapped within its undulating waves. I was guided over to the pot while held high on the mat and then the procession gently lowered one half of the mat and allowed my body slide feet first into the pot of oils.

As my naked body slid into the oils, an intense warming sensation filled my mind and I gasped in rapturous surprise. Up and down my spine there was a thrilling needling on my skin and my muscles relaxed and tensed to the epidermal sensation. I grabbed the sides of the pot lip and hung on.

***

CHAPTER THREE

grammar

Nevertheless, Kamau was happy that Atieno had managed to escape. As for the Kamba sexual ritual, that wasn't a bother; they were both custodians of the *Love Temple* in *Agwara* and had been accustomed to fertility orgies. What mostly surprised Atieno was the size of individual manhood displayed by the *Kamba* kinsmen and how primitively they conducted their rites. Still the escape wouldn't be that difficult for a woman with vast ecological responsibilities like Atieno; she was the village prophetess and Agwara was one of the outstanding *nilotic* habitation in Bondex town. She had seen it all, *nyando* valley was not an easy terrain. But how did she plant her escape? Was she assisted?

All through this adventure, Atieno had noticed that whenever they stopped to confirm directions using their maps by asking traders randomly found in the routes, they ended up deeply lost. She also remembered that their trek from *Bondex* through *Maraland* had been as indicated in the map Kimani was reading. One thing was even clearer that the deeper into the lost, away from *Agwara* they moved, the more tragedy encapsulated them; there was something mysterious pulling them into division and so, in trying to determine the best way to engage these unknown spirits that were defiling them, Atieno developed a number of hypotheses.

One hypothesis was that someone somewhere was attacking them using very strong magic. The idea here was that some dark force was working against them to ensure that they always separated in scattered. But Atieno observed that her two male servants from the *Love Temple* had been attacked brutally regardless of them being together; therefore, just being close to each other wasn't strength enough.

Another hypothesis was that whenever she chanted her fertility prayers to bless the *Agwara* villagers and the strange lands she passed throughout this adventure, somehow she felt in control and much focused. This meant there could be spiritual protection within her enchantments which she led in a song like tune while always repeated word for word.

Atieno therefore concluded that the best way to stay safe within their journey towards Ethiopia was to stay together and constantly chant their traditional prayers. Evoking the *Agwara* spirits would somehow protect them. On the contrary, Kamau in his wishes admitted that if they had developed a relationship with the *Christian God*, then their prayers would have been much effective, considering that the *Ethiopian God* was considered all powerful.

But how can we be sure Atieno's reasoning was good? She was essentially considering a series of arguments. Let us turn to the question: how shall we evaluate these arguments?

First and foremost, our logical language developed thus far allows us to say conditional and negation statements. This may not seem like much of a progress, but tracking from the previous chapters, our language is now complex enough for us to develop the idea of using logic not just to describe things, but also to reason about those things.

We will think of reasoning as providing an argument. Here, we use the word "*argument*" in the sense not of two or more people criticizing each other, but rather in the sense we mean when we say, "*Adhengo's argument*". In such a case, someone is using language to try to convince us that something is true. Our goal is to make this notion very precise, and then identify what makes an argument good. We have seen that Aristotle in his complex expression, defined this as a "*syllogism*", which in our English language means "*argument*".

We need to begin by making the notion of an argument precise. Our logical language so far contains only sentences. An argument will therefore consist of sentences. In a natural language, we use the term *argument* in a strong way, which includes the suggestion that the argument should be good. However, we want to separate the notion of a good argument from the notion of an argument, so that we can identify what makes an argument good, and what makes an argument bad. To do this, we will start with a minimal

notion of what an argument is. Here is the simplest, most minimal notion:

> *Argument is an ordered list of sentences, one of which we call the "conclusion", and the others of which we call "premises".*

The everyday notion of an argument is that it is used to convince us to believe something. This thing that we are being encouraged to believe is the conclusion. Following our definition of "*argument*", the reasons that the person gives will be what we are calling *premises*. But belief is a psychological notion. We instead are interested only in truth. Thus, we can reformulate this intuitive notion of what an argument should do, and think of an argument as being used to show that something is true. The premises of the argument are meant to show us that the conclusion is true.

We define a valid argument as one where, necessarily, if the premises are true, then the conclusion is true. It would seem the best way to understand this is to say, there is no situation in which the premises are true but the conclusion is false. But then, what are these *situations*? Fortunately, we already have a tool that looks like it could help us, the truth table.

> *If Jupiter is more massive than Earth, then Jupiter has a stronger gravitational field than Earth. Jupiter is more massive than Earth. In conclusion, Jupiter has a stronger gravitational field than Earth.*

This looks like it has the form of a valid argument, and probaly an astrophysicist would tell us it is sound. Let's translate it to our logical language using the following translation key. (*We've used up our letters, so I'm going to start over. We'll do that often: assume we're starting a new language each time we translate a new set of problems or each time we consider a new example*.)

> **P**: Jupiter is more massive than Earth
> **Q**: Jupiter has a stronger gravitational field than Earth

This way of writing out sentences of logic and sentences of English we can call a "**translation key**". We can use this format whenever we want to explain what our sentences mean in English.

Using this key, our argument can be formulated

$$\begin{array}{c} \textbf{(P}\rightarrow\textbf{Q)} \\ \underline{\textbf{P} \qquad\qquad} \\ \textbf{Q} \end{array}$$

That short line is not part of our language, but rather is a handy tradition. When quickly writing down arguments, we first write the premises, and then the follow with conclusion, and draw a short line just above the conclusion.

This is an argument: *it is an ordered list of sentences, the first two of which are premises and the last of which is the conclusion.*

To make a truth table, we identify all the atomic sentences that constitute these sentences. These are **P** and **Q**. There are four possible kinds of ways the world could be that matter to us then:

P	Q	
T	*T*	
T	*F*	
F	*T*	
F	*F*	

We'll write out the sentences, in the order of premises and then conclusion.

		premise	premise	conclusion
P	**Q**	**(P→Q)**	**P**	**Q**
T	*T*			
T	*F*			
F	*T*			
F	*F*			

Now we can fill in the columns for each sentence, identifying the truth value of the sentence for that kind of situation.

		premise	premise	conclusion
P	**Q**	**(P→Q)**	**P**	**Q**
T	*T*	*T*	*T*	*T*
T	*F*	*F*	*T*	*F*
F	*T*	*T*	*F*	*T*
F	*F*	*T*	*F*	*F*

We know how to fill in the column for the conditional because we can refer back to the truth table used to define the *conditional*, to determine what its truth value is when the first part and second part are true; and so on. **P** is true in those kinds of situations where **P** is true, and **P** is false in those kinds of situations where **P** is false. And the same is so for **Q**.

Now, consider all those kinds of ways the world could be such that all the premises are true. Only the first row of the truth table is one where all the premises are true. Note that the conclusion is true in that row. That means, in any kind of situation in which all the premises are true, the conclusion will be true. Or, equivalently, necessarily, if all the premises are true, then the conclusion is true.

		premise	premise	conclusion
P	**Q**	**(P→Q)**	**P**	**Q**
T	*T*	*T*	*T*	*T*
T	*F*	*F*	*T*	*F*
F	*T*	*T*	*F*	*T*
F	*F*	*T*	*F*	*F*

Consider in contrast, an argument based on our ongoing story of Atieno and Kamau, which is an invalid argument with all true premises and a true conclusion.

If Kamau is the prophetess for the Love Temple, then Kamau is in Agwara. Kamau is not the prophetess for the Love Temple. Therefore, Kamau is not in Agwara.

We'll use the following translation key. Let,

R: Kamau is the prophetess for the Love Temple
S: Kamau is in Agwara

And our argument is thus:

$$(R{\rightarrow}S)$$
$$\neg R$$
$$\overline{\neg S}$$

Represented in the truth table as:

		premise	premise	conclusion
R	**S**	**(R→S)**	**¬R**	**¬S**
T	*T*	*T*	*F*	*F*
T	*F*	*F*	*F*	*T*
F	*T*	*T*	*T*	*F*
F	*F*	*T*	*T*	*T*

Note that there are two kinds of ways that the world could be in which all of our premises are true. These correspond to the third and fourth row of the truth table. But for the third row of the truth table, the premises are true but the conclusion is false. Yes, there is a kind of way the world could be in which all the premises are true and the conclusion is true; that is shown in the fourth row of the truth table. But we are not interested in identifying arguments that will have true conclusions if we are lucky. We are interested in valid arguments. This argument is invalid. There is a kind of way the world could be such that all the premises are true and the conclusion is false. We can highlight this.

		premise	premise	conclusion
R	**S**	**(R→S)**	**¬R**	**¬S**
T	*T*	*T*	*F*	*F*
T	*F*	*F*	*F*	*T*
F	*T*	*T*	*T*	*F*
F	*F*	*T*	*T*	*T*

Hopefully it becomes clear why we care about validity. Any argument of the form, **(P→Q)** and **P**, therefore **Q**, is valid. We don't have to know what P and Q mean to determine this. Similarly, any argument of the form, **(R→S)** and **¬R**, therefore **¬S**, is invalid. We don't have to know what **R** and **S** mean to determine this. So logic can be of equal use to the astronomer and the financier, the computer scientist or the sociologist.

*****

The village was a rush with hurried and excited bodies. Warriors ran into their huts and retrieved their spears then rushed again out into the city and down the major pathways. The women hurriedly gathered up their frightened children and ran for cover wherever cover could be found. There was shouting and confusion on every path.

A man noticed the sudden panic of the villagers and poked his head out of his hut to investigate. As he did, the lead warrior came running up to him with a wild eyed face.

"*Chief! Chief!*" He shouted. "*We have big problems! Big,big problems!*"

The first man held up his hands and tried to steady his comrade. "*What has happened? Why are you so upset?*"

"*Dee wo-man.... dee wo-man we brought from Aa-ga-wa-ra has escaped!!!!"* He told him with as much breath as he had left in him.

The first man looked upon the warrior with wide, panicked eyes and responded, "*We are all dead men! We are all dead*!"

In the village, several of the women who had attended to Atieno when she had first arrived were being brutally interrogated by large warriors with long swords and thick, baseball bat like sticks. They begged and pleaded for mercy from the men, but the men simply would not listen.

"*You are dee ones*!" The huge warrior shouted at the women who were now down on their knees in the mud. "*You helped dee woman to escape!*"

"*No! No! We only did the job you told us to do..... she escaped all on her own!*" They forcefully protested.

"*Silence!"* The warrior insisted. He then took his large sword and began to slit the women's throats one by one. They each fell into silence on the grassy, dusty ground as they were executed by the warrior's bloody sword.

"*Dee master does not tolerate failure*." The man spat at the fallen women as others now approached from the village with wails and tears, holding the dead bodies of the wives and mothers who had just been slain. Tearful embraces and rocking bodies followed as the shock of loss took hold upon the surrounding gentry. The blood of the dead pooled and darkened the nearby land.

The warrior turned to the assembling men who now had their swords and spears well in hand and were reporting back to their leader. "*Get after dee wo-man!"* He ordered them. "*Dee master will have our troats cut next if she is not recovered!*"

Three dozen warriors had gathered at the spot and received the order to head into the jungle to re-capture the escaped fertility prophetess. They turned enmasse and charged out in to the jungle brush with a mighty, thudding rumble. The rising dust obscured them from view as they left.

Little did they know that Atieno had reunited with her race and were deep into the gone, galloping atop the camels as they stormed through the plains of Marsabit into Ethiopia, but then, the question still remains to puzzle the uncritical mind. How did Atieno escape? Mostly so, having been raped, was she pregnant with the voodoo chiefs offspring?

We will have to revisit the episode of the hut, but not before we do some housekeeping. Now, let's see how other continents outside of Africa developed their thought system, perhaps later on we will reconnect to Atieno.

CHAPTER FOUR

the ache of reason

Often a time, logical misconceptions such as conversion are more pronounced if every day similar examples are used. This is because individuals invariably try to bring their personal knowledge and experiences to the logical task rather than evaluating the validity of the inference as it stands. For example, suppose I declare truthfully, "*All taxicabs are yellow. Your car is not a taxicab*." Does it logically follow that your car is not yellow? When examining questions of logic, you must ignore external facts. Don't think about the actual colour of your particular car. The correct answer is not yes or no, depending on the paint job of your car. Yet some will answer, "*Yes, it follows because my car is green.*" If I give you less knowledge, you might be more logical. Suppose I declare truthfully, "*All taxicabs are yellow. My car is not a taxicab.*" Is it yellow? Now you can't use knowledge about my car because you haven't seen it. It may be easier to come to the correct conclusion, which is, "*Maybe, maybe not.*"

Valid arguments, and the methods that we are developing, are sometimes called *deductive reasoning*. This is the kind of reasoning in which our conclusions are necessarily true if our premises are true, and these arguments can be shown to be good by way of our logical reasoning alone. Two important, and closely related, alternatives to deductive reasoning are scientific reasoning and statistical generalizations (*or probability*).

Scientific method relies upon logic, but science is not reducible to logic because scientists conduct empirical researches. That is, they examine and test phenomena in the world making it a key difference from pure logic.

However, an important feature of scientific reasoning must be kept in mind; that there is some controversy over the details of the scientific methodology, but the most basic view is that scientists formulate hypotheses about the possible causes or features of a phenomenon. They make predictions based on these hypotheses, and then they perform experiments to test those predictions. The reasoning here uses the conditional: *if the hypotheses are true,*

then the particular prediction will be true. If the experiment shows that the prediction is false, then the scientist rejects the hypothesis.

Important to note is that scientific conclusions are about the physical world and are never about logic. This means that scientific claims are not always valid but correctly put, science identifies claims that may be true, or (*after some progress*) are very likely to be true, or (*after very much progress*) are true.

Scientists keep testing their hypotheses, using different predictions and experiments. Very often, they have several competing hypotheses. To decide between these, they can use a range of criteria. In order of their importance, these include: choose the hypothesis with the most predictive power (*the one that correctly predicts more kinds of phenomena*); choose the hypothesis that will be most productive of other scientific theories; choose the hypothesis consistent with your other accepted hypotheses; choose the simplest hypothesis. In summary, the scientific process with its entire methodological paradigm progresses like this:

1. We develop a hypothesis about the causes or nature of a phenomenon.
2. We predict what (hopefully unexpected) effects is a consequence of this hypothesis.
3. We check with experiments to see if these predictions come true:
   ▪ If the predictions prove false, we reject the hypothesis;
   ▪ If the predictions prove true, we conclude that the hypothesis could be true. We continue to test the hypothesis by making other predictions (*that is, we return to step 2*).

This method can result in more than one hypothesis being shown to be possibly true. Then, we chose between competing

hypotheses by using criteria like the following (*here ordered by their relative importance;* **theory** *can be taken to mean a collection of one or more hypotheses*):

1. Predictive power: the more that a hypothesis can successfully predict, the better it is.
2. Productivity: a hypothesis that suggests more new directions for research is to be preferred.
3. Coherence with Existing Theory: if two hypotheses predict the same amount and are equally productive, then the hypothesis that coheres with (does not contradict) other successful theories is preferable to one that does contradict them.
4. Simplicity: if two hypotheses are equally predictive, productive, and coherent with existing theories, then the simpler hypothesis is preferable.

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Atieno might have been naïve during her first acquaintance to the *Love Temple*, maybe unconceptualised in her decision to remain loyal and serve as an intercessor for all those women who felt infertile or lonely. Her main achievement was being closer to Kamau, whom she has loved ever since that first night into womanhood. Kamau had been so tender and guardedly sincere; they both enjoyed their roles to serve *Agwara* village and the denial of whatever the temple queen called a secular world hadn't met its proper truth. The unknown God of Ethiopia where Christians were believed to exist in plenty had proven difficult to find, yet for the love he had and the never ending future with Kamau, her instincts made her press on to persevere. She had read a lot of tales about the Christian community but the most disgusting part was cannibalism. Someone once told her that the Christian leader called Jesus Christ always reincarnated in the form of babies who were sacrificed and eaten in the church. These people also drunk blood. How pathetic. But fear was not one of Atieno's weaknesses, she was not going to ruin Kamau's quest of

visiting Ethiopia by giving him scary tales; however much true, they were destined to be together.

The idea of a mystery religion that offered salvation to its initiates was not alien to the Romans. Several such religions, like the *Cult of Isis* and *Mithraism*, were imported to the Roman world. Most were tolerated, though some were suppressed - like the *Cult of Bacchus*, because it involved sexual rites.

The Christian religion, however, was largely unacceptable to conservative Romans of the time. The Romans were a religious people, but many saw Christianity as a threat to their religious system. Unlike members of other new religions, Christians refused to sacrifice to the gods, proclaiming instead that there was only one God.

Pagan Romans were not only offended by this, but also felt it threatened their society. They believed that society was protected by the *pax deorum*: the peace, or agreement, with the gods. The gods protected cities, towns, and empires in exchange for sacrifice and worship. Since Christians refused to do these things, the pagans believed that the Christians endangered themselves and everyone around them.

In addition, because Christians refused to worship or sacrifice to the emperor, they were suspected of treason. Christians held that the emperor was only a man, and that worship had to be reserved for God and Christ, but to pagans and representatives of the Roman state, this seemed very suspicious. This was not helped by the fact that Christians gathered together for church services and excluded non-Christians from such services. These services seemed like secret meetings held by possible traitors. Many rumours spread about Christians. They were accused, perhaps due to garbled understandings of the Eucharist, of being cannibals. Early Christians celebrated the agape, a "*love feast*." While such feasts celebrated brotherly and sisterly love among all members of the church, rumours spread that the Christians were practicing open sex and incest.

In this early *Imperial Age*, the steadily growing Christian movement was to be viewed with suspicion by both the authorities and the people of Rome; in the second century, the Roman rejection of Christian teachings, customs, and practices resulted in a most intriguing countermovement. During this century, two types of negative responses to the Christian faith had become established. The first encompasses the anti-Christian accusations circulating among the Roman population during most of the period, occasionally resulting in Christians being persecuted. At the end of the century, supplementary controversy arose from within the intellectual world. Those who engaged in this polemic were authors who had studied Christian customs, and who consequently targeted the substance of the Christian teachings.

In order to examine this hostile attitude, it is essential to focus on a small number of concrete accusations directed at the Christian communities. Aside from allegations of atheism, two additional, seemingly remarkable, forms of imputation against Christians were voiced within Roman society.

Athenagoras, a Christian author from the second half of the second century, notes: '*Three things are alleged against us: atheism, Thyestean feasts, OEdipodean intercourse*'. The latter two accusations are explicitly mentioned in the writings of Christian apologists alone, writings that served to counter allegations voiced against the Christian teachings and that generally follow the same pattern: a description of the accusations, followed by a defence. As a result of these texts, the nature of the original allegations has fortunately been preserved.

By the term *OEdipodean* intercourse, *Athenagoras* referred to certain tenacious rumours circulating within the Roman Empire, relating to the alleged sexual excesses in which Christians were said to indulge during secret gatherings. In the Greek myth, the hero Oedipus marries his mother, *Locaste*, after having murdered his father *Laïos*. The acts committed at these meetings would therefore be sexually immoral because of the multiple sexual and incestuous contacts that the Christians were allegedly maintaining.

The fact that the rumours of sexual misconduct were being spread among the population as a whole, and not just in intellectual circles, is underlined by a tragedy that took place the year 177, in the French towns of *Lyon* and *Vienne*. That year saw riots between pagan and Christian inhabitants of the two neighbouring townships. Before being put on trial, the local Christians had suffered various hardships, such as exclusion from public baths and meetings. When they were eventually forced to appear before the governor, the allegations made by the population were announced: *sexual immorality and cannibalism*. As a result of these accusations, the defendants died martyrs.

The nature of the charges brought against the Christians of Lyon and Vienne suggests that, in addition to the allegations of sexual and incestuous orgies, Christians faced another remarkable form of negative publicity. They were said to be guilty of killing people and consuming human flesh in the *Thyestean* feasts.

In Greek mythology, *Thyestes* had an affair with the wife of his brother *Atreus*. When *Atreus* discovered this act of infidelity, he invited his brother to a banquet. During the feast, the unsuspecting *Thyestes* was served his three sons, whom *Atreus* had assassinated and processed into the meal. The fact that pagan authors named the Christians' festive gatherings after *Thyestes*' myth is consequently a highly significant implication.

Regarding the origin of the rumours, the fact that, up until the late second century, the Roman population lacked understanding of Christian culture is a significant starting point. The Romans had gained scant knowledge of this *superstitio*, as a result of which they were only aware of a few basic facts about Christianity. In their eyes, Christians were followers of the Jew Jesus, who refused to worship other gods. The accusation of liberal sexual relations and incest may have been founded on the erroneous interpretation of '*brotherly love'*. The Christian community was characterized, among other things, by the perceived equality of all its members. At their assemblies, Christians referred to one another as brothers and sisters, bestowing the '*kiss of peace'* upon

each other. Pagan citizens could have exaggerated this ritual to produce the aforementioned allegations of incestuous activities. Similarly, the cannibalism charge can potentially be linked to another principal Christian ritual, the celebration of the *Eucharist*. During this part of the service, the *'body of Christ'* is consumed and his *'blood'* drunk. According to some academics, distinguishing a clear link between the cannibalism rumours and this Christian ritual does not require an overly imaginative mind. Consequently, accusations of cannibalism and sexual promiscuity became a definitive factor into equating Christianity to the pagan religions, for which they named the congregation to be an assembly of vampires, the evil creatures who made the Roman gods pass disfavoured judgments against their citizens. The god of the vampires could not be worshiped and as Christians met secretly to drink blood and enjoy sexual orgies; they were no different than vipers. They were to be avoided at all cost, possibly, banished from Rome.

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Atieno being in endless committed love to Kamau didn't limit her appetite for adventure. She knew that whenever the Christians existed, the pagans were visible and there was a powerful goddess of fertility who controlled even the *Love Temple* in *Agwara*, her name was *Artemis*. She wanted to see if neighbours of Ethiopia, whom people called *Coptic Romans*, had that temple. She wanted also to visit Rome, her curiosity increased with much anxiety as they made their way towards Ethiopia.

The truth to be told is that the attacks on Christians were sporadic persecutions. The first took place very early on in Rome, in 64 AD, when Emperor Nero cracked down on the Christians of the city. He had some Christians thrown to the beasts, and he had others burned alive - some, supposedly, in his garden, to act as torches at night. But Nero seems to have been using the Christians as scapegoats for the Great Fire of Rome, which consumed much of the city, and which the populace suspected Nero of having started.

When *Pliny the Younger*, a Roman author and magistrate, toured the eastern provinces for Emperor Trajan and asked how to deal with Christians, the emperor advised him not to seek out Christians, but only to punish those who stand accused by their neighbours based on hard evidence. Some Christians were executed, but rooting out Christianity was not a major concern of the state. Some persecution also probably happened on the local level in times of hardship or disaster, when the Christians refusal to sacrifice to the Roman gods made them blame takers.

In the third century, as the Roman Empire entered a period of crisis, persecution of Christians intensified. Barbarians broke through the borders of the empire, plague ravaged the cities, and the Roman economy went into a sharp decline. This period also saw a rapid turnover of emperors, as political instability, civil war, and bloody battles resulted in the death of many emperors before they had a chance to rule for very long. Some of the short-lived emperors in this period were friendly toward Christianity. Philip the Arab, for example, seems to have been interested in the religion and corresponded with Christian intellectuals. His successor, Decius, however, was far less tolerant. Blaming the catastrophes afflicting the empire on Christianity, Decius instituted the first empire-wide persecution of Christians. In 250 AD, Decius required all citizens of the empire to sacrifice to the emperor, and receive a certificate to prove that they had done this. Those without a certificate could be executed. Decius' persecution was short lived, however, and failed to stamp out Christianity.

The Crisis of the Third Century came to an end with the reign of Emperor Diocletian, who reorganized and strengthened the empire by creating the tetrarchy, a system of four ruling emperors. Diocletian and one of his tetrarchs, Galerius, agreed to persecute Christians, because part of their project of reunifying the empire involved uniting all Romans behind a shared belief in the old gods. This persecution - *often called The Great Persecution* - began in 303 AD. Several thousand Christians were killed, including many Christian leaders. This was one of the most trying

times for Christianity, but the religion was able to survive and eventually triumph.

But let's turn our minds to the confusion of Atieno; she thought Christians were cannibals but loved the idea that they did sexual orgies. Most terrifying, there was that grimace about Christians acting as blood thirsty maniacs, constantly devouring on non-Christians whom they gave chance to convert because they didn't just killed anybody. Those who cooperated were kept alive but at the cost of their blood being drained, not until they joined to become Christians. Christians had this disturbing myth about an eternal life, meaning they were immortals. Really? Are vampire stories even true to begin with?

These Roman accusers defined vampires to be a revenant, reanimated corpse, or phantom of the recently deceased, which maintains its former, living appearance when it comes out of the grave at night to drink the blood of humans. That they lack of decomposition or rigor mortis, have a pallid face and sharp protruding canine teeth. These creatures must suck blood from humans or mammals for sustenance and victims are turned into vampires themselves when they are killed or forced to drink the creature's blood. At daybreak the vampire must return to its grave or coffin.

This wasn't true. The Christians went into hiding for fear of being persecuted, especially when such attacks became sporadic; Christians were highly discriminated against and most were considered as good as dead, they were the lowest of low in society and the pagan citizens trod against them with much hate and blame for the misfortunes that the Roman Empire was experiencing at the time. Christians invited others to join into their faith through persuasion and salvation through the blood of Jesus Christ; this didn't have to mean that they contaminated others with their blood. Hence, the folklore myth of vampire creatures as an attack against Christianity had no logical basis when truth is to be collected from historical conjectures documented and justified as real experiences.

It is from such shameful naming that the Christian apologetics rose to defend and protect what was morally right; and this meant giving counter definitions to what the pagans of the fifth century had advanced. Thus, in 1679, Paul Ricaut from England redefined the term vampire to its origins; that of the pagan Romans who were cultured in offering human sacrifices through demonic acts of kidnapping persons. Most of those killed were the unknowing Christians who often found themselves slaughtered at the pagan alters; however much they believed in life after death.

Ricaut defines it as a pretended demon, said to delight in sucking human blood, and to animate the bodies of dead persons; thus, the vampire was to be those alters, those unseen spirits who were ravaging on Christian lives.

But was it only an act of Christians to believe in afterlife or eternal life? Were the Egyptians not custom to these, yet Egypt formed the southern part of the Roman Empire.

For the Egyptians, the soul was made up of several parts. The "*ba*" was the individual soul that made each person an individual and the "*ka*" was the body double of a person's spirit that left the body upon death. In order to achieve immortality, the *ka* and *ba* had to be united. In order for this to occur, the *ka* required an uncorrupted or mummified body called the "*khat*." The *ka* also required sustenance such as flowers, herbs, food, and drink. If the *ka* was not given provisions, then it was believed it would leave the tomb clad in its burial clothes and drain the living of energy or blood. It would seem apparent that the *ka* staggering around in its body wrap would be the origin of the myth of the wandering mummy; however, there is no written evidence to support this claim. We will discuss this in detail when analysing the historical connection of the Roman gods to world civilisations. As at now, let us understand the advent of Christianity, its progress before **Bartholomew** the disciple brought it to Ethiopia where it is claimed they escaped into hiding away from persecutions that were unfair to many followers of Christ.

It is said that when Christianity finally reigned, it turned the nature deities into devils, spells into magic, and spa wives into witches - but could not banish the ideas from the imagination of men. Thus, adopted stones and wells turned spells into exorcism and benedictions and charms into prayers. The willingness of the early Church to compromise was a great asset to the promotion of Christianity. One of these compromises was to superimpose Christian celebrations over the non-Christian festivities. A specific example of compromise is Christmas, the celebration of Christ's birthday; during the first three hundred years, the Church in Rome discouraged such a celebration, concerned that it would appear to be more like a pagan ritual than a Christian holiday. As Church officials attempted to convert Romans to Christianity, many of the people continued to celebrate "*Saturnalia*" which commemorated the birth of the unconquerable sun. This celebration lasted a week and culminated on December 25th, the time of the winter solstice. The theme for this celebration was the welcoming of the sun and the rebirth of the world. Since Christians believed that Jesus Christ was born to save the world, Pope Julius I chose December 25th as the birth of Christ. These two traditions fit nicely together since one is celebrating the return of the light to the world, and the other is celebrating the birth of the "*Light of the World*."

The prehistoric man of Africa knew that life was uncertain and sometimes short and that death was inevitable, sometimes abrupt. Every time he set out for the hunt he was aware that someday the end would come with a slash and an outpouring of blood. It is not difficult to understand why he should have come to the conclusion not merely that blood was essential to life, but that it was the essence of life itself. Blood is the soul and had to be accorded religious respect, this was no different when the Christians adopted this as a method in their *Eucharistsm*; it was an activity already in practice even by those whom the civilised Greeks considered primitive. That is, the African sages.

The miracles that the apostles performed in the name of Jesus Christ and those that were witnessed of Christ himself, left many

romans insecure about their medical systems. During those days, it was only believed that leprosy could be cured by the blood of the innocent, mainly children and virgins which were considered royal medicine due to the difficulty in obtaining them; yet someone in the name "*King of the Jews*" was offering cure to masses who were poor and undeserving while the royal emperors suffered in deep struggle to gain such cures.

Evidently, the logical processes of the Romans had been clouded by an advanced state of the mystic myths borrowed extensively from the *greconian* culture. Trying to draw logical conclusions about Christianity by using a non-Christian religion as a tool for exegesis was first and foremost an invalid argumentation. This we shall explain in chapter six when we look deeply into the worship systems of the Greeks. But first, let's develop better skills on how to analyse arguments, the skills that the mighty Romans failed to develop amongst themselves, thereby erroneously accusing Jesus and sentencing him to be crucified disgracefully, a shameful death that was offered only to thieves and those who committed treason against the emperor.

CHAPTER FIVE

proofs

There are certain principles of ordinary conversation that we expect ourselves and others to follow. These principles underlie all reasoning that occurs in the normal course of the day and we expect that if a person is honest and reasonable, these principles will be followed. The guiding principle of rational behaviour is consistency. If you are consistently consistent, I trust that you will not try to deceive me. If yesterday you told me that you loved *Chapati* and today you claim to hate it, because I know you to be rational and honest I will probably conclude that something has changed. If nothing has changed then you are holding inconsistent, contradictory positions. If you claim that you always look both ways before crossing the street and I see you one day carelessly ignoring the traffic as you cross, your behaviour is contradicting your claim and you are being inconsistent.

These principles of consistency and *non-contradiction* were recognized very early on to be at the core of mathematical proof. In *The Topics*, one of his treatises on logical argument, Aristotle expresses his desire to set forth methods whereby we shall be able to reason from generally accepted opinions about any problem set before us and shall ourselves, when sustaining an argument, avoid saying anything *self-contradictory*. To that end, let's consider both the law of the excluded middle and the law of *non-contradiction* (*principle of bivalence discussed in chapter two*) - logical truisms and the most fundamental of axioms. Aristotle seems to accept them as general principles.

The law of the excluded middle requires that a thing must either possess a given attribute or must not possess it. A thing must be one way or the other; there is no middle. In other words, the middle ground is excluded. A shape either is a circle or is not a circle. A figure either is a square or is not a square. Two lines in a plane either intersect or do not intersect. A statement is either true or not true. However, we frequently see this principle misused. For example, the sentence either you're with me or you're against me is not an instance of not the excluded middle; in a proper statement of the excluded middle, there is no *in-between*.

Politicians frequently word their arguments as if the middle is excluded; forcing their opponents into positions they do not hold.

Interestingly enough, this black-and-white error was common even among the politicians of ancient Greece. The Sophists, whom Plato and Aristotle dismissed with barely concealed contempt are said to have attempted to use verbal manoeuvring that sounded like the law of the excluded middle. For example, in Plato's *Euthydemus*, the Sophists convinced a young man to agree that he was either "*wise or ignorant*," offering no middle ground when indeed there should be.

Closely related to the law of the excluded middle is the law of non-contradiction. The law of non-contradiction requires that a thing cannot both be and not be at the same time. A shape cannot be both a circle and not a circle. A figure cannot be both a square and not a square. Two lines in a plane cannot both intersect and not intersect. A statement cannot be both true and not true. When he developed his rules for logic, Aristotle repeatedly justified a statement by saying that it is impossible that "*the same thing both is and is not at the same time*."

Should you believe that a statement is both true and not true at the same time, then you find yourself mired in self-contradiction. A system of rules for proof would seek to prevent this. The Stoics, who developed further rules of logic in the third century B.C., acknowledged the law of the excluded middle and the law of non-contradiction in a single rule, "*either the first or not the first*" – meaning always one or the other but never both.

The basic steps in any deductive proof, either mathematical or metaphysical, are the same. We begin with true (*or agreed upon*) statements, called premises, and concede at each step that the next statement or construction follows legitimately from the previous statements. When we arrive at the final statement, called our conclusion, we know it must necessarily be true due to our logical chain of reasoning. Either a good argument or invalid it is.

Given that we can test an argument for validity, it might seem that we have a fully developed system to study arguments. However, there is a significant practical difficulty with our semantic method of checking arguments using truth tables (you may have already noted this practical difficulty in chapter 3). Consider the following argument:

> Alison will go to the party.
> If Alison will go to the party, then Beatrice will.
> If Beatrice will go to the party, then Cathy will.
> If Cathy will go to the party, then Diane will.
> If Diane will go to the party, then Elizabeth will.
> If Elizabeth will go to the party, then Fran will.
> If Fran will go to the party, then Giada will.
> If Giada will go to the party, then Hilary will.
> If Hilary will go to the party, then Io will.
> If Io will go to the party, then Julie will.
> _____
>
> Julie will go to the party

Most of us will agree that this argument is valid. It has a rather simple form, in which one sentence is related to the previous sentence, so that we can see the conclusion follows from the premises. Without bothering to make a translation key, we can see the argument has the following form

$$\textbf{P}$$
$$\textbf{(P}\rightarrow\textbf{Q)}$$
$$\textbf{(Q}\rightarrow\textbf{R)}$$
$$\textbf{(R}\rightarrow\textbf{S)}$$
$$\textbf{(S}\rightarrow\textbf{T)}$$
$$\textbf{(T}\rightarrow\textbf{U)}$$
$$\textbf{(U}\rightarrow\textbf{V)}$$
$$\textbf{(V}\rightarrow\textbf{W)}$$
$$\textbf{(W}\rightarrow\textbf{X)}$$
$$\underline{\textbf{(X}\rightarrow\textbf{Y)}}$$
$$\textbf{Y}$$

However, if we are going to check this argument, then the truth table will require **1024** rows! This follows directly from our observation that for arguments or sentences composed of **n** atomic sentences, the truth table will require 2^n rows. This argument contains **10** atomic sentences. A truth table checking its validity must have 2^{10} rows, and 2^{10} =**1024**. Furthermore, it would be trivial to extend the argument for another, say, ten steps, but then the truth table that we make would require more than a million rows!

For this reason, and for several others (*which become evident later, when we consider more advanced logic*), it is very valuable to develop a syntactic proof method. That is, a way to check proofs not using a truth table, but rather using rules of syntax.

Here is the idea that we will pursue. A valid argument is an argument such that, necessarily, if the premises are true, then the conclusion is true. We will first start with our premises. We will set aside the conclusion, only to remember it as a goal. Then, we will aim to find a reliable way to introduce another sentence into the argument, with the special property that, if the premises are true, then this single additional sentence to the argument must also be true. If we could find a method to do that, and if after repeated applications of this method we were able to write down our conclusion, then we would know that, *necessarily*, if our premises are true then the conclusion is true.

The idea is much clear when we demonstrate it. The method for introducing new sentences will be called "*rules of inferencing*". We introduce our first inference rules for the conditional. Remember the truth table for the conditional:

Φ	Ψ	(Φ→Ψ)
T	T	T
T	F	F
F	T	T
F	F	T

Look at this for a moment. If we have a conditional like **(P→Q)** [looking at the truth table above, remember that this would mean that we let **Φ** be **P** and **Ψ** be **Q**], do we know whether any other sentence is true? From looking at **(P→Q)** alone we do not. Whether **(P→Q)** is true, **P** could be false or **Q** could be false. But what if we have some additional information? Suppose we have as premises both **(P→Q)** and **P**. Then, we would know that if those premises were true, **Q** must be true. We have already checked this with a truth table.

P	Q	premise **(P→Q)**	premise **P**	**Q**
T	*T*	*T*	*T*	*T*
T	*F*	*F*	*T*	*F*
F	*T*	*T*	*F*	*T*
F	*F*	*T*	*F*	*F*

The first row of the truth table is the only row where all of the premises are true; and for it, we find that **Q** is true. This of course generalizes to any conditional. That is, we have that:

Φ	Ψ	premise (Φ→Ψ)	premise Φ	Ψ
T	*T*	*T*	*T*	*T*
T	*F*	*F*	*T*	*F*
F	*T*	*T*	*F*	*T*
F	*F*	*T*	*F*	*F*

We now capture this insight not using a truth table, but by introducing a rule. The rule we will write out like this:

(Φ→Ψ)
Φ
———————
Ψ

This is a syntactic rule. It is saying that, whenever we have written down a formula in our language that has the shape of the first row (*that is, whenever we have a conditional*), and whenever we also have written down a formula that has the shape in the second row (*that is, whenever we also have written down the antecedent of the conditional*), then it's okay to write down a formula as it is in the third row (*the consequent of the conditional*). The rule talks about the shape of the formulas, not their meaning. But of course we justified the rule by looking at the meanings.

We describe this by saying that the third line is "*derived*" from the earlier two lines using the inference rule.

This inference rule is old. We are therefore embalmed with its well-established, but not very enlightening, name: "*modus ponens*". Thus we say, for the above example, that the third line is derived from the earlier two lines using modus ponens.

Now let's get into the depth of our chapter title, the detailed concept of proof; specifically, the direct proof. The idea of a direct proof is that we write down as numbered lines the premises of our argument. Thereafter, we can write down any line that is justified by an application of an inference rule to earlier lines in the proof. When we write down our conclusion, we are done.

Let us make a proof of the simple argument above, which has premises **(P→Q)** and **P,** and conclusion **Q**. We start by writing down the premises and numbering them. There is a useful bit of notation that we can introduce at this point. It is known as a "*Fitch bar*", named after a logician *Frederic Fitch*, who developed this technique. We will write a vertical bar to the left, with a horizontal line indicating that the premises are above the line.

```
1.  (P→Q)
2.  P
```

It is also helpful to identify where these steps came from. We can do that with a little explanation written out to the right.

```
1.  (P→Q)        premise
2.  P            premise
```

Now, we are allowed to write down any line that follows from an earlier line using an inference rule.

```
1.  (P→Q)        premise
2.  P            premise
3.  Q
```

And finally we want a reader to understand what rule we used, so we add that into our explanation, identifying the rule and the lines used.

```
1.  (P→Q)        premise
2.  P            premise
3.  Q            Modus ponens, 1,2
```

This is a complete direct proof.

Notice a few things. The numbering each line, and the explanations to the right, are bookkeeping; they are not part of our argument, but rather are used to explain our argument. Always do them, however, since it is hard to understand a proof without them. Also, note that our idea is that the inference rule can be applied to any earlier line, including those lines derived using inference rules. It is not just premises to which we can apply an inference rule. Finally, note that we have established that this

argument must be valid. From the premises, and an inference rule that preserves validity, we have arrived at the conclusion. Necessarily, the conclusion is true, if the premises are true.

The long argument that we started with at the beginning of the chapter with can now be analysed with a direct proof.

1.	**P**	premise
2.	**(P→Q)**	premise
3.	**(Q→R)**	premise
4.	**(R→S)**	premise
5.	**(S→T)**	premise
6.	**(T→U)**	premise
7.	**(U→V)**	premise
8.	**(V→W)**	premise
9.	**(W→X)**	premise
10.	**(X→Y)**	premise
11.	**Q**	modus ponens, 2,1
12.	**R**	modus ponens, 3, 11
13.	**S**	modus ponens, 4, 12
14.	**T**	modus ponens, 5,13
15.	**U**	modus ponens, 6, 14
16.	**V**	modus ponens, 7, 15
17.	**W**	modus ponens, 8, 16
18.	**X**	modus ponens, 9,17
19..	**Y**	modus ponens, 10,18

From repeated applications of modus ponens, we arrived at the conclusion. If lines **1** through **10** are true, line **19** must be true. The argument is valid. And we completed it with **19** steps, as opposed to writing out **1024** rows of a truth table.

We can see now one of the very important features of understanding the difference between syntax and semantics. Our goal is to make the syntax of our language perfectly mirror its

semantics. By manipulating symbols, we manage to say something about the world. This is a strange fact, one that underlies one of the deeper possibilities of language, and also ultimately of computers.

<p style="text-align:center">****</p>

In many instances of ordinary thought and expression the complete syllogistic form is omitted, or not stated at full length. It is common usage to omit one premise of a syllogism, in ordinary expression, the missing premise being inferred by the speaker and hearer. A syllogism with one premise unexpressed is sometimes called an *enthymene*, the term meaning "*in the mind*." For instance, the following: "*We are a free people, therefore we are happy*," the major premise "*All free people are happy*" being omitted or unexpressed. Also in "*Poets are imaginative*, therefore Byron was imaginative," the minor premise "*Byron was a poet*" is omitted or unexpressed.

Thus in the *Sermon on the Mount*, the verses known as the *Beatitudes* consist each of one premise and a conclusion, and the conclusion is put first. '*Blessed are the merciful: for they shall obtain mercy*.' The subject and the predicate of the conclusion are here inverted, so that the proposition is really '*The merciful are blessed*.' It is evidently understood that '*All who shall obtain mercy are blessed*,' so that the syllogism, when stated at full length, becomes: '*All who shall obtain mercy are blessed; All who are merciful shall obtain mercy; Therefore, all who are merciful are blessed*.' This is a perfectly good syllogism.

Importantly, remember that whenever we find any of the words: "*because, for, therefore, since*," or similar terms, we may know that there is an argument.

We have seen that there are three special kinds of propositions, namely,

1. *Categorical Propositions*, or propositions in which the affirmation or denial is made without reservation or qualification;
2. *Hypothetical Propositions*, in which the affirmation or denial is made to depend upon certain conditions, circumstances, or suppositions; and
3. *Disjunctive Propositions*, in which is implied or asserted an alternative.

Categorical Syllogisms, which are far more common than the other two kinds, have been considered in the previous chapters, and the majority of the examples of syllogisms given in this book are of this kind. In a *Categorical Syllogism* the statement or denial is made positively, and without reservation or qualification; the reasoning thereupon partakes of the same positive character. In propositions or syllogisms of this kind it is asserted or assumed that the premise is true and correct, and, if the reasoning be logically correct it must follow that the conclusion is correct, and the new proposition springing therefrom must likewise be categorical in its nature.

Hypothetical Syllogisms, on the contrary, have as one or more of their premises a hypothetical proposition which affirms or asserts something provided, or "*if*," something else be true. Often we wish first to bring out, if only conditionally, the truth upon which a proposition rests, so as to see if the connection between this conclusion and the major premise be admitted. The whole question will then depend upon the matter of treating the minor premise. This has the advantage of getting the major premise admitted without the formal procedure of proof, and the minor premise is usually more easily proved than the major. Consequently, one is made to see more clearly the force of the argument or reasoning by removing the question of the material truth of the major premise and concentrating attention upon the relation between the conclusion and its conditions, so that we know clearly what we have first to deny if we do not wish to accept it. The *Hypothetical Syllogism* may be either affirmative or negative; that is, its hypothetical proposition may either

hypothetically affirm or hypothetically deny. The part of the premise of a hypothetical syllogism which conditions or questions (*and which usually contains the little word "if")* is called the *antecedent*. The major premise is the one usually thus conditioned. The other part of the conditioned proposition, and which part states what will happen or is true under the conditional circumstances, is called the *consequent*. Thus, in one of our earlier examples: "*If Raila wins elections*" is the Antecedent; and the remainder of the proposition: "*Raila will be President*" is the Consequent. The Antecedent is indicated by the presence of some conditional term as: if, supposing, granted that, provided that, although, had, were, etc., the general sense and meaning of such terms being that of the little word "*if.*" The *consequent* has no special indicating term.

The *Disjunctive Syllogism* is one having a disjunctive proposition in its major premise. The disjunctive proposition also appears in the conclusion when the disjunction in the major premise happens to contain more than two terms. A disjunctive proposition, we have seen, is one which possesses alternative predicates for the subject in which the conjunction "or" (*sometimes accompanied by "either"*) appears. In example, consider the following: instance: "*The meal is either lunch or dinner;"* or, "*Arches are either round or pointed*;" or, "*Angles are either obtuse, or right angled, or acute.*" The different things joined together by "or" are called alternatives, the term indicating that we may choose between the things, and that if one will not answer purpose we may take the other, or one of the others if there be more than one other.

the anxiety from greece

Before entering upon many strange beliefs of the ancient Greeks and the extraordinary number of gods they worshiped, we must first consider what kind of beings these divinities were.

In appearance, the gods were supposed to resemble mortals whom, however, the surpassed in beauty, grandeur and strength; they were also more commanding in stature, height being considered by the Greeks an attribute of beauty in man and woman. They resembled human beings in their feelings and habits; intermarrying and having children, and requiring daily nourishment to recruit their strength and refreshing sleep to store their energies. Their blood, a bright ethereal fluid called *Ichor*, never engendered any disease, and when shed, had the power of producing new life.

The Greeks believed that the mental qualifications of their gods were of much higher order than those of men, but nevertheless, they were not considered to be exempt from human passions and frequently behold them actuated by revenge, deceit and jealousy. They however always punish the *evil-doer*, and visit with dire calamities any impious mortal who dares to neglect their worship or despise their rites. We often here them visiting mankind and partaking of their hospitality; and not unfrequently, gods and goddesses become attached to mortals with whom they unite themselves, the offspring of these unions being called heroes or demi-gods, who were usually known for their great strength and courage. But although there were many points of resemblance between gods and men, there remained one characteristic distinction; the gods were immortal. Still, they were not invulnerable and often hear of them being wounded and suffering in consequence such exquisite torture that they have earnestly prayed to be deprived of their privilege of immortality.

The gods knew no limitation of time and space, being able to transport themselves to incredible distances with the speed of thought. They possessed the power of rendering themselves invisible at will, and could assume the forms of other men or animals as it suited their convenience. They could also transform

human beings into trees, stones, animal's *et.cetera* either as punishment for their misdeeds or as a means of protecting the individual, thus transformed from impending danger.

Their robes were like those worn by the mortals but perfect in form and of much fine texture. Their weapons also resembled those used by mankind; we hear of spears, helmets, shields, bows and arrows *et.cetera* being employed by the gods. Each deity possessed a beautiful chariot, which, drawn by horses or other animals of celestial breed, conveyed them rapidly over land and sea according to their pleasure. Most of these divinities lived on the summit of *Mount Olympus*, each possessing his or her individual habitation and all meeting together on festive occasions in the council chamber of the gods, where their banquets were enlivened by the sweet strains of *Apollo's* lyre, while the beautiful voices of the *Muses* poured forth their rich melodies to their harmonious accompaniment.

Magnificent temples were erected to their honour, where they were worshiped with the greatest solemnity; rich gifts were presented to them and animals and sometimes human beings were sacrificed on their altars.

When the Greeks first settled in Italy, they found in the country they colonized a mythology belonging to the *Celtic* inhabitants, which according to the Greek custom of paying reverence to all gods, known or unknown, they rapidly adopted, selecting and appropriating those divinities which had the greatest affinity to their own, and thus they formed a religious belief which naturally bore the impress of its ancient Greek source. As the primitive *Celts*, however, were a less civilised people than the Greeks, their mythology was of a more barbarious character and this circumstance, combined with the fact that the Romans were captivated with the vivid imagination of their Greek neighbours, leaves its mark on the Roman mythology which is far less fertile in fanciful conceits and deficient in all those fairy-like stories and wonderfully poetic ideas which strongly characterize that of the Greeks.

Religion was a bargaining process: if a man did his duty, he had a right to expect the god to do his. ***Do ut des*** – I give so that you may give – was the usual sacrificial prayer. Romans were always in spirit an agricultural people, thinking in terms of cause and effect, of reaping what one sows. The rhythms of their worship followed the rhythms of the seasons.

The ancient Greeks had several different theories about the origin of the world but, the generally accepted syllogisms were that before this world came into existence, there was only the infinite space known as *Chaos*. Inside this void were two creatures *Erebus and Nyx*, two big birds with black wings. *Nyx* laid a golden egg and for ages sat upon it. When it finally hatched, out came *Eros*, the god of love. One half of the shell rose up to become the sky or firmament and constituted itself into a vast overarching vault. The other half of the shell transformed into a solid mass beneath. This was the beginning of the two great primeval deities of the Greeks, *Uranus* and *Gaia*.

Uranus, the more refined deity, represented the light and air of heaven, possessing the distinguished qualities of light, heat, purity and omnipresence, while *Gaia*, the firm flat, life-sustaining earth, was worshiped as the great all-nourishing mother. Her many titles refer to her more or less in this character and she appears to have been universally revered among the Greeks, there being scarcely a city in Greece which did not erect a temple in her honour.

Uranus the heaven was believed to have united himself in marriage with *Gaia*, the earth; and their first-born child was *Oceanus*, the ocean stream, the vast expanse of ever flowing water which encircled the earth. The ocean is formed from the rains which descend from heaven and the streams which flow from the earth. They had many other children; among them were three *giants* and seven *titans*.

It is presumed that two siblings *Erebus* (darkness) and *Nyx* (night) copulated resulting into that big egg because they were the very first creatures to exist within *Chaos*; but when *Uranus* was born, it

made it difficult for *Erebus* to habituate freely because of too much light and thus was forced to flee and reign in that mysterious world where no ray of sunshine, no gleam of daylight, nor vestige of health-giving-terrestial life ever appeared. *Nyx*, the sister of *Erebus*, represented *night* and was worshiped by ancients with greatest solemnity.

Uranus was also united with *Nyx* and their children were *Eos* (Aurora) the Dawn and *Hemera*, the Daylight. *Nyx* again, on her side was also doubly united, having been married for some indefinite period to *Erebus*.

As we have noted in the beginning, *Uranus* fathered the *Titans* upon *Gaia* after he had thrown his rebellious sons, the *Cyclopes* (or three giants), into Tartarus, a gloomy place in the *underworld*, which lies as far distant from the earth as the earth does from the sky; it would take a falling anvil nine days to reach its bottom. In revenge, *Gaia* persuaded the *Titans* to attack their father; and they did so, led by *Cronus*, the youngest of the seven, whom she armed with a flint sickle. They surprised Uranus as he slept, and it was with the flint sickle that the merciless *Cronus* castrated *Uranus*, grasping his genitals with the left hand (*which has ever since been the hand of ill - omen*) and afterwards throwing them, and the sickle too, into the sea by *Cape Drepanum*. But drops of blood flowing from the wound fell upon *Gaia*, and she bore the *Three Erinnyes*, furies who avenge crimes of parricide and perjury - by name *Alecto, Tisiphone*, and *Megaera*. The n*ymphs* of the *ash - tree*, called the *Meliae*, also sprang from that blood.

Cronus married his sister *Rhea*, to whom the oak is sacred. But it was prophesied by *Gaia*, and by his dying father *Uranus*, that one of his own sons would dethrone him. Thus, every year he swallowed the children whom *Rhea* bore him: first *Hestia*, then *Demeter* and *Hera*, then *Hades*, then *Poseidon*.

Rhea was enraged. She bore *Zeus*, her third son, at dead of night on *Mount Lycaeum* in Arcadia, where no creature casts a shadow and, having bathed him in the *River Neda*, gave him to *Gaia*; by

whom he was carried to *Lyctos* in *Crete*, and hidden in the cave of *Dicte* on the *Aegean Hill*. *Gaia* left him there to be nursed by the *Ash - nymph Adrasteia* and her sister *Io*, both daughters of *Melisseus*, and by the *nymph Amaltheia*. His food was honey, and he drank *Amaltheia's* milk, with *nymph* Pan, his foster brother. *Zeus* was grateful to these three nymphs for their kindness and, when he became *Lord of the Universe*, set *Amaltheia's* image among the stars, as *Capricorn*. He also borrowed one of her horns, which resembled a cow's, and gave it to the daughters of *Melisseus*; it became the famous *Cornucopia*, or horn of plenty, which is always filled with whatever food or drink its owner may desire. But some say that *Zeus* was suckled by a sow, and rode on her back, and that he lost his navel - string at *Omphalion* near Cnossus.

Around the infant *Zeus's* golden cradle, which was hung upon a tree to hide him from *Cronus*, stood the armed *Curetes* who were also sons to *Rhea's*. They clashed their spears against their shields, and shouted to drown the noise of his wailing, lest *Cronus* might hear it from far off. For *Rhea* had wrapped a stone in swaddling clothes, which she gave to *Cronus* on *Mount Thaumasium* in *Arcadia*; he swallowed it, believing that he was swallowing the infant *Zeus*. Nevertheless, *Cronus* got wind of what had happened and pursued *Zeus*, who transformed himself into a serpent and his nurses into bears: hence the constellations of the Serpent and the Bears.

Zeus grew to manhood among the shepherds of *Ida*, occupying another cave; then sought out *Metis* the *Titaness*, who lived beside the Ocean stream. On her advice he visited his mother *Rhea*, and asked to be made *Cronus's* cup - bearer. *Rhea* readily assisted him in his task of vengeance; she provided the emetic potion, which *Metis* had told him to mix with *Cronus's* honeyed drink. *Cronus*, having drunk deep, vomited up first the stone, and then *Zeus's* elder brothers and sisters. They sprang out unhurt and, in gratitude, asked him to lead them in a war against the *Titans*, who chose the gigantic Atlas as their leader; for *Cronus* was now past his prime.

The war lasted ten years but, at last, *Gaia* prophesied victory to her grandson *Zeus*, if he took as allies those whom *Cronus* had confined in *Tartarus*; so he came secretly to *Campe*, the old jailer of *Tartarus*, killed her, took her keys and, having released the *Cyclopes* (giants), strengthened them with divine food and drink. The *Cyclopes* thereupon gave *Zeus* the thunderbolt as a weapon of offence; and *Hades*, a helmet of darkness; and *Poseidon*, a trident.

After the three brothers had held a counsel of war, *Hades* entered unseen into *Cronus's* presence, to steal his weapons; and, while *Poseidon* threatened him with the trident and thus diverted his attention, *Zeus* struck him down with the thunderbolt. The three *Giants* now took up rocks and pelted the remaining *Titans* and a sudden shout from *nymph Pan* put them to flight. The gods rushed in pursuit. *Cronus*, and all the defeated *Titans*, except *Atlas*, were banished to Africa in the farthest west (*or, some say, confined in Tartarus*). Atlas, as their war - leader, was awarded an exemplary punishment, being ordered to carry the sky on his shoulders; but the *Titanesses* were spared, for the sake of *Metis* and *Rhea*.

Hera, daughter of *Cronus* and *Rhea*, having been born on the island of *Samos* or, some say, at *Argos*, was brought up in Arcadia by *Temenus,* son of *Pelasgus*. The *Seasons* were her nurses. After banishing their father *Cronus*, *Hera's* twin - brother *Zeus* sought her out at Cnossus in Crete or, some say, on *Mount Thornax* (now called Cuckoo Mountain) in Argolis, where he courted her, at first unsuccessfully. She took pity on him only when he adopted the disguise of a bedraggled cuckoo, and tenderly warmed him in her bosom. There he at once resumed his true shape and ravished her, so that she was shamed into marrying him.

All the gods brought gifts to the wedding; notably *Gaia* gave *Hera* a tree with golden apples, which was later guarded by the *Hesperides* in *Hera's* orchard on *Mount Atlas*. She and *Zeus* spent their wedding night on Samos, and it lasted three hundred years. *Hera* bathes regularly in the spring of *Canathus*, near Argos, and thus renews her virginity.

Only *Zeus*, the *Father of Heaven*, might wield the thunderbolt; and it was with the threat of its fatal flash that he controlled his quarrelsome and rebellious family of *Mount Olympus*. He also ordered the heavenly bodies, made laws, enforced oaths, and pronounced oracles. When his mother *Rhea*, foreseeing what trouble his lust would cause, forbade him to marry, he angrily threatened to violate her. Though she at once turned into a serpent, this did not daunt *Zeus*, who became a male serpent and, twining about her in an indissoluble knot, made good his threat. It was then that he began his long series of adventures in love. He fathered the *Seasons* and the *Three Fates* on *Themis*; the *Charites* on *Eurynome*; the *Three Muses* on *Mnemosyne*, with whom he lay for nine nights; and, some say, *Persephone*, the Queen of the *underworld*, whom his brother *Hades* forcibly married, on the nymph Styx. Thus he lacked no power either above or below earth; and his wife *Hera* was equal to him in one thing alone: that she could still bestow the gift of prophecy on any man or beast she pleased.

Amorous *Zeus* lay with numerous *nymphs* descended from the *Titans* or the gods and, after the creation of man, with mortal women too; no less than four great Olympian deities were born to him out of wedlock. First, he begat *Hermes* on *Maia*, daughter of *Atlas*, who bore him in a cave on *Mount Cyllene* in *Arcadia*. Next, he begat *Apollo* and *Artemis* on *Leto*, daughter of the Titans *Coeus* and *Phoebe*, transforming himself and her into quails when they coupled; but jealous *Hera* sent the serpent Python to pursue *Leto* all over the world, and decreed that she should not be delivered in any place where the sun shone. Carried on the wings of the South Wind, *Leto* at last came to *Ortygia*, close to Delos, where she bore *Artemis*, who was no sooner born than she helped her mother across the narrow straits, and there, between an olive - tree and a date - palm growing on the north side of Delian *Mount Cynthus*, delivered her of *Apollo* on the ninth day of labour.

It will be later seen that *Zeus* love for sexual affairs even resulted in him having relations with many mortals whom he had created

with the help of *Prometheus*. This would be the beginning of godmen.

Prometheus, the creator of mankind, whom some include among the seven Titans, was the son either of the Titan *Eurymedon*, or of *Iapetus* by the *nymph Clymene*; and his brothers were *Epimetheus*, *Atlas*, and *Menoetius*. Gigantic Atlas, eldest of the brothers, knew all the depths of the sea; he ruled over a kingdom with a precipitous coastline, larger than Africa and Asia put together. This land of Atlantis lay beyond the *Pillars of Heracles*, and a chain of fruit-bearing islands separated it from a farther continent, unconnected with Africa. Atlas's people canalized and cultivated an enormous central plain, fed by water from the hills which ringed it completely, except for a seaward gap. They also built palaces, baths, race-courses, great harbour works, had temples; and carried war not only westwards as far as the other continent, but eastward as far as Egypt and Italy.

Zeus was suspicious of other gods who lived away from Olympus and wanted to create humans whom would serve him at unconditionally, he had a lengthy discussion with *Prometheus* who agreed to help, both in advice and managing whatever was created. The first race was perfect and cast out of gold. They never grew old, and happily lived off of the trees fruit. However, they lived in such peacefulness that did not wake up after going to sleep. *Zeus* then melted down their bodies and left their souls to watch over the people he would create next. They were created out of silver, extraordinarily vain and beautiful; they would stare at themselves endlessly and from their pride assumed that they themselves were the gods who ruled the earth. This was unacceptable, so *Zeus* buried the race of silver and created the Bronze race instead. They immediately began to create tools and build industries. This satisfied *Zeus*, but then the race used their tools, arrows, swords, and clubs, to turn on each other and slaughtered themselves in war. *Zeus* had to begin again, and this last race was created from iron, the only metal left to him. This race grew old and rusted. They worked, loved, and died. Because of this, they also prayed to the gods and fearfully revered them.

When he was creating the earliest of this race, *Zeus* requested aid from one of the *Titans* name *Prometheus*, who soon became intrigued with these humans. He trusted them as *Zeus* did not, for *Zeus* feared that they may one day overpower him as he had his father, and as his father had before as well. Thus, on the command of *Zeus*, fire was hidden from mankind, and there was no chance for this newest race to rise higher than those before him. Without fire, they must eat raw meat, eat no bread, or make tools or weapons of metal. They would not be able to make pots or bowls of clay, as they did not have fire to harden them by.

Prometheus pitied mankind, and decided to steal fire from Mount Olympus and give it to them so that they could rise above the beasts. He knew how terrible and long his punishment would be, but he did it anyway.

One night he carried the flame from *Olympus* to earth. As soon as it was on earth and the first blaze was kindled, mankind had it forever. *Prometheus* made haste and taught man how to use fire, and by the time *Zeus* saw what was happening, man was already quite civilized. He instantly who had given this gift of fire, and decided on a most horrible punishment. A giant vulture was sent to eat *Prometheus's* liver as he was chained to a stone. This was not only a one-time thing, as every day the vulture would come, and every night a new liver would grow. He was to be punished forever in this way.

Zeus also decided to give his own terrible gift to mankind. He said, I myself will offer them a gift. It is a beautiful one, and they will love it dearly. However, it shall bring them suffering, and many ills now and for eternity.

First he summoned his son *Hephaestus*, god of craftsmen and all who labour at the workshop or kiln, to make a lovely image out of clay. It was in the shape of a maiden, likened in the shape of the goddesses themselves. Then *Athena*, goddess of wisdom and weaving and needlework, taught her all that she knew. Then the

quick-witted messenger, *Hermes*, taught her to speak and to tell clever lies in order to deceive men. *Aphrodite*, goddess of love and beauty, made her beautiful so that men should fall in love and break themselves because of her. *Zeus* was finally pleased and blew life into the image. He gave her a beautiful box, and told her that she must never open it. Your name is *Pandora* said *Zeus*. It means all-gifted for we have all given you gifts. He was speaking of the gifts that formed her being, but he said this purposefully, for he knew that *Pandora* would think he was speaking of the treasures in the box.

Hermes then took her and the precious box down to Earth and gave her to *Epimetheus*, who was the brother to *Prometheus*. *Prometheus*, who had the gift of foresight, warned *Epimetheus* never to accept a gift from Zeus, as it could cause terrible consequences among humankind. Epimetheus, however, could not refuse such a beautiful gift. *Epimetheus*, said *Hermes*, you have been chosen to be the luckiest of men. This is *Pandora*, the first woman, and she has chosen you to be her husband. Take her and she will tend to you and care for you. Take this box as well, but guard it carefully and never let anyone open it, for it could bring destruction to mankind. Above all, do not let *Pandora* open it!

He then flew back to Olympus, leaving *Epimetheus* extremely happy, for he had fallen in love with her immediately. Life was so dull and lonely without a woman he said. I have been given this beautiful creature, the first of her kind! They were very happy at first. *Pandora* cooked and cleaned, and looked after *Epimetheus*, and was perfect for him. But she was curious to see what was in the box that was given to her, and constantly questioned him about it. This was the only thing he could not do for her; numerous times he told her not to touch the box, but each time her desire to know grew stronger.

They are mine, and the immortals gave them to me. My name means all-gifted, they are for me to open! She often imagined the treasures inside that lay waiting for her, the garments that longed to be worn, all in colours more brilliant than the sun.

At last her curiosity could no longer wait, and she snuck away to the magic box one night, broke the seal, and raised the lid. There was a great whirlwind, and out like a thousand bats flew the plagues that *Zeus* had prepared for humankind. Want, and suffering, Hunger, thirst, Jealousy and mistrust of fellow man, lies and envy, and all diseases which plague men, immune to all medicines. The terrified *Pandora* slammed the box shut, but it was too late. All the evils had already been let out and were around the globe causing troubles to all of mankind.

Only one of these gifts was good, and this alone allowed mankind to continue. This gift was hope. For without this gift, man would die of despair. But hope is always the last resort for all troubles; it seems that it is brought out only when situations cannot get any worse. That after misfortune, things will turn around. This is the gift of hope that we now have, urging us to look forward to all of our futures.

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And so this gives a glimpse into the generation of gods, their intermarriages was expected to produce more gods and this became a justification for pluralistic worship amongst the Greeks. From two sibling deities, an endless number of gods was produced who transformed how the infinite space called *Chaos* was to purpose itself; and with the belief that *Zeus* and his aide, *Prometheus* created mankind before sending the woman *Pandora* to be defiled, there had to be a need for worship. These being myths, they still explain to a greater extent the scope of civilisation as we experience it today.

However, it is quite remarkable that all these myths could latterly have been considered as relatively late creations of speculation or *exegesis*. With full regard to the caution that is here called for it may still be positively asserted that of all possible interpretations this is the least probable. Whatever the original meaning of these stories may have been, their astonishing, romantic, and gigantic

qualities are proof of their validity as creations of genuine and original mythic thought, or rather, viewpoint. They are quite analogous to the first rank growth of myths among primitive civilizations and strike us with the same sense of strangeness

In this context of traditional Greek story, *myths* are traditional credence narratives whose principal characters are gods and other supernatural beings, whose events are set in the remote past during the formative era of the cosmos, and whose central topics, taken as a whole, are the origins of the physical world (*cosmogony*), of the gods (*theogony*), and of human beings (*anthropogony*), as well as the establishment of cosmic order. Other notable topics of Greek myth are important events in the lives of the gods (birth, loves and conflicts, acquisition of prerogatives, founding of cult sites), the establishment of the conditions of human life such as the advent of toil and death, and cosmic catastrophes such as the *Great Deluge*. The lives of the gods are only partial biographies, for once divinities are born they quickly mature and thereafter remain indefinitely at a particular developmental stage, usually mature adulthood.

Toward the end of the mythic period, the physical cosmos possesses its present structure and nature in its essentials, the Olympian gods are in firm charge, the relationship of gods and humans has been defined, and the basic qualities of human existence have been determined. In short, the big matters have been taken care of.

The mythic era as described above is a feature of the Greeks more than it should be of the Roman tradition; at least initially, since Roman sources preserved of little native traditional myth. Such myths as the Romans once had either ceased to be told or were historicized by being converted into episodes of early Roman history. Subsequently the Romans reacquired myths by borrowing, primarily from the Greeks.

A study of Greek mythology should begin with a consideration of what political and religious systems existed in Europe before the

arrival of Aryan invaders from the distant North and East. The whole of *Neolithic Europe*, to judge from surviving artefacts and myths, had a remarkably homogeneous system of religious ideas, based on worship of the many-*titled-mother-goddess*, who was also known in Syria and Libya.

Although it is usual in anthropological and folkloristic scholarship to characterize myth as sacred narrative, this feature is not part of the present definition because sacredness does not make a good fit in the Greek and Roman case, and classicists rarely speak of myths and sacredness in the same breath. Myths do not appear to have been regarded as sacred stories in the classical lands, unless one means by *sacred* a narrative in which deities play a role, in which case the category of sacred story is too large to be of any practical use. The Greeks did acknowledge a genre of traditional story to which they expressly attributed the quality of sacredness, namely, "**sacred story**" (*hieros logos*).

In very remote times, the Greeks had no shrines or sanctuaries devoted to public worship, but performed their devotions beneath the vast and boundless canopy of heaven, in the great temple of nature itself. Believing that their divinities *throned* above the clouds, pious worshippers always sought the highest available points, in order to place themselves in the closest communion possible with their gods; hence the summits of high mountains were selected for their devotional purposes, and the more exalted the rank and importance of the divinity invoked, the more elevated was the site for his or her worship. But the inconvenience of attending this mode of worship gradually suggested the idea of erecting edifices which would afford means of shelter from the inclemency of the weather. These structures, were, in the first instance, the most simplest of form and without any decorations; but with the progress of civilisation, the Greeks became a wealthy and a powerful people. Temples were built and adorned with the greatest splendour and magnificence, talent, labour and wealth being lavished unsparingly on their erection and decoration; indeed, so massively were they constructed and today, some have withstood the ravages of time. The city of Athens especially

contains numerous remains of these building of antiquity. On the Acropolis we may still hold other monuments of ancient art, the temple of *Athene-Polius* and that of *Theseus*, the latter which is the most entire ancient edifice in the world. In the island of Delos, also, are to be seen the temples of *Apollo* and *Artemis*, both of which are in a wonderful state of preservation. These ruins are most valuable, being sufficiently complete to enable us to study, by their aid, the plan and character of their original structure.

A temple was usually dedicated to two or more gods, and was always built after the manner considered most acceptable to the particular divinities to whom it was consecrated; for just as trees, birds and animals of every description were held to be sacred to certain deities, so almost every god had a form of building peculiar to himself, which was deemed more acceptable to him than any other. Thus, the **Doric** style of architecture was sacred to *Zeus, Ares* and *Heracles*; the **Ionic** to *Apollo, Artemis* and *Dionysus*; and the **Corinthian** to *Hestia*.

In the porch of the temple stood a vessel of stone or brass, containing the holy water (*which had been consecrated by putting into it a burning torch, taken from the altar*), with which all those admitted to take part in the sacrifices were besprinkled. In the inmost recess of the sanctuary was the most holy place, into which none but the priests were suffered to enter.

Temples in the country were usually surrounded with grooves of trees. The solitude of these shady retreats naturally tended to inspire the worshipper with awe and reverence, added to which the delightful shade and coolness afforded by tall leafy trees is peculiarly grateful in hot countries. That this practice must be of very remote antiquity is proved by the ***Biblical*** injunction, having its objects for separation of the Jews from all idolatrous practices: "***Thou shalt not plant thee a grove of trees near unto the altar of the Lord thy God***".

In the new age, which conceives the essence of the world and of human life in lofty figures, myth no longer enjoys the sovereign

independence and capacity for the fabulous which it had possessed in the prehistoric period. The distinction between the two will become clear in the sequel.

Along with ancient myth, magic also perished, and though both may have survived here and there in Greece in one form or another, the main line of the Greek spirit proves that it had once and for all decided against them. The *god's* no longer practiced enchantment, even though at times they bring things to pass in a manner reminiscent of ancient magic. Their might, like their essence, is based not on magical power, but on the being of nature. "**Nature**" is the great new word which the matured Greek spirit opposed to ancient magic. From here the path leads directly to the arts and to the sciences of the Greeks.

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Greek mythology has inspired almost every person who has come into contact with its countless delights and bewitching magic. Because these ancient stories are so exciting and present interpretations of some natural phenomena, they are constantly cropping up in various forms today. We see them in modern plays, novels, television programs, movies and even in advertisements.

The mediaeval emissaries of the *Catholic Church* brought to *Great Britain*, in addition to the whole corpus of sacred history, a continental university system based on the Greek and Latin Classics. Such native legends as those *of King Arthur, Guy of Warwick, Robin Hood, the Blue Hag of Leicester*, and *King Lear* were considered suitable enough for the masses, yet by early Tudor times the clergy and the educated classes were referring far more frequently to the myths cited in *Ovid, Virgil*, and the grammar school summaries of the *Trojan War*. Though official English literature of the sixteenth to the nineteenth centuries cannot, therefore, be properly understood except in the light of Greek mythology, the Classics have lately lost so much ground in schools and universities that an educated person is now no longer expected to know (for instance) who *Deucalion, Pelops, Daedalus, Oenone, Laocoön,* or *Antigone* may have been. Current

knowledge of these myths is mostly derived from such fairy-story versions as *Kingsley's Heroes* and *Hawthorne's Tanglewood Tales*; and at first sight this does not seem to matter much, because for the last two thousand years it has been the fashion to dismiss the myths as bizarre and chimerical fancies, a charming legacy from the childhood of the Greek intelligence, which the Church naturally depreciates in order to emphasize the greater spiritual importance of the Bible. Yet it is difficult to overestimate their value in the study of early European history, religion, and sociology.

Mythology and *mythological* ideas permeate all languages, cultures and lives. Myths affect us in many ways, from the language we use to how we tell time; mythology is an integral presence. The influence mythology has in our most basic traditions can be observed in the language, customs, rituals, values and morals of every culture, yet the limited extent of our knowledge of mythology is apparent. In general we have today a poor understanding of the significance of myths in our lives. One way of studying a culture is to study the underlying mythological beliefs of that culture, the time period of the origins of the culture's myths, the role of myth in society, the symbols used to represent myths, the commonalties and differences regarding mythology, and the understanding a culture has of its myths. Such an exploration leads to a greater understanding of the essence of a culture.

Mostly so, the words which came from Greek before the *Renaissance* were generally popular borrowings that they were adopted by the common people, who knew no Greek, rather than by scholars. Furthermore, such words often entered English indirectly, not only by way of Latin, but sometimes by way of *Old French*, or even, in some cases, through *Arabic*. They therefore usually show considerable divergence in form from the Greek original. But conclusively, the world languages as we know them today have much been influenced by the mythologies of the Greek, for example, phobia means a fear of. The word phobia comes from the name *Phobos*, the son of the Greek god *Ares*.

Phobos literally meant fear or terror. Example of use: *Mary Ellen had a phobia about speaking English to her boss until she gained some confidence by taking an English class*. Atlas is a book of maps from Atlas, a Titan who held the world on his shoulders. Example of use: *I looked in the atlas to learn more about the European countries*. Cereal is wheat, oat and corn from *Ceres*, goddess of agriculture. Example of use: *The restaurant served a range of healthy cereals for breakfast*. Cloth is fabric formed by weaving from *Clotho*, the Fate that spun the thread of life.

Among scholarly interpreters of the West, it has been widely understood that Western civilization was formed from three distinct traditions: (1) the classical culture of Greece and Rome; (2) the Christian religion, particularly Western Christianity; and (3) the Enlightenment of the modern era. Although many interpreters have seen Western civilization as a synthesis of all three traditions, others have emphasized the conflict among these threads.

Consequently, myths relate the creation of the world and sometimes its future destruction as well. They tell how gods created men. They depict the relationships between various gods and men. They provide a moral code by which to live. In short, myths largely deal with the significant aspects of human and superhuman existence.

Myths, whether in written or visual form, serve a vital role of asking unanswerable questions and providing unquestionable answers. Most of us, most of the time, have a low tolerance for ambiguity and uncertainty. We want to reduce the cognitive dissonance of not knowing by filling the gaps with answers. Traditionally, religious myths have served that role, but today - *the age of science* - science fiction is our mythology.

The Greek mythology is most likely rooted to the old religions of *Creti* (*Kríti*), an area (island) in the Aegean Sea, where about 3000 B.C the earliest civilization in this area emerged. Those individuals were convinced that the totality of natural things

acquired spirits, and some things or fetishes acquired exceptional supernatural capacities. Throughout times, changes occurred within those convictions and became a group of legends including natural things, animals and gods acquiring humankind shape. Then, among those legends, there were certain legends remaining within the classical Greek mythology.

As Greeks life and way of thinking changed, social circumstances were not the same. Art became better, poetry and philosophy became complex, so utterance of the mythical stories and their meanings were no more the same and were transformed. Mythology was not a fixed and unchanging system; rather it witnessed development and change. Greek mythology has to be considered as a collection of legends passed down through individuals and persons who used poesy during generations; constantly depicting the growing life and soul of a significant race.

It is widely argued that the intellectual collection of the *greconian* myths including but not limited to their plagiarised culture, has had a great influence to western civilisation, a time that Europe has defined global trend to be *the middle ages*. Thus, European middle ages form a complex and varied as well as a very considerable period of human history. Within their thousand years of time they include a large variety of peoples, institutions, and types of culture, illustrating many processes of historical development and containing the origins of many phases of modern civilization. Contrasts of East and West, of the North and the Mediterranean, of old and new, sacred and profane, ideal and actual, give life and colour and movement to this period, while its close relations alike to antiquity and to modern world assure it a place in the continuous history of human development. Both continuity and change are characteristic of middle ages, as indeed of all great epochs of history.

But in late antiquity and the middle ages, the otherwise fairly steady progress of Western civilization in accumulating knowledge was interrupted several times. As school curricula

became more restricted and fewer people received any education at all, people wrote and read less, and some of the literary works in these earlier times were permanently lost. Eventually, each of these periods of relative ignorance ended with a new expansion of knowledge. The cultural setbacks, of varying severity, maybe called *dark ages*; the cultural revivals, of varying vigour, may be called *renaissance*. The background for this renaissance is extensive. Many of the ancient Greek writings had survived in the *Byzantine Empire*. Their translation into Arabic began with alchemical, astrological, and medical texts in the time of the *Umayyads*. It was accelerated under the *Abbasids* and included both scientific and philosophical works. Partly on the basis of Plato, Aristotle, and Plotinus there developed a tradition of Islamic philosophy that included *Al-Kindi, Al-Razi, Al-Farabi, Ibn Sina, Al-Ghazali, Ibn Rushd*, and others.

In the twelfth century, many of these works in Greek, Hebrew, and Arabic were translated into Latin - the literary and philosophical language of *Catholic Europe*. There were a number of places that functioned as conduits for this literature. Sicily was one. Spain was another. Within Spain, translation was done at many cities, but one of the great centres was Toledo. The twelfth century in Europe was in many respects an age of fresh and vigorous life. The epoch of the Crusades, of the rise of towns, and of the earliest bureaucratic states of the West, it saw the culmination of *Romanesque* art and the beginnings of *Gothic*; the emergence of the vernacular literatures, the revival of the Latin Classics and of Latin poetry and Roman Law; the recovery of Greek science, with its Arabic additions, and of much of Greek philosophy; and the origin of the first European universities. The twelfth century left its signature on higher education, on the scholastic philosophy, on European systems of law, on architecture and sculpture, on the liturgical drama, on Latin and vernacular poetry.

CHAPTER SEVEN

hermeneutics

When you read, your mind sees shapes on the page. We call them letters. By years of being taught and associating you have learned (*with your mind*) that these shapes stand for sounds (*vowels and consonants*). You have also learned that, when grouped in certain ways (*tens of thousands of ways*), these letters make words that signify objects and persons and actions and descriptions and ideas and feelings.

You have learned (*by the use of your mind*) that thousands of these words correspond to realities (milk, darkness, joy, love, and mother). And you have learned that, since other people also know what these words correspond to, you can communicate. Ideas that are inside another person's mind can be transferred through words into your mind.

This is one of the main goals of reading. I text you a message: "*Meet you at the shop in five.*" The aim of reading this message is not a mystical experience or a creative reconstruction. The aim is for my idea - *my intention* - to move from my mind to your mind. This takes thinking. We have done it so often that there is virtually no effort in this act of thinking. Your brain is really working as you read and construe the meaning of this message. But you are so good at it that there's no effort. Your mind is superbly trained for this. You could not have done this when you were a two year old. The training of your mind has come a long way.

So reading involves thinking - the astonishing act of recognizing symbols and making connections that enable you to construe meaning. We only recognize what a challenge this is when we start to read more complex texts - texts that have unfamiliar words, or involved sentence structure, or logical connections that are not immediately clear. When that's the case, either we give up quickly or we think harder. This is what we have in mind by thinking - working hard with our minds to figure out meaning from texts. Then, of course, we go on from there to think how that meaning relates to other meanings from other texts and from experiences in life. On and on the mind goes, until we build a

coherent view of the world so that we can live a life that is rooted in a true understanding of meaning.

We have already seen in chapter two that by logic - *or you could use the word reason -* that way of thinking that enables you to see how the **words** works and that keeps you from using them wrongly. For example, when logic or reason is working well, you don't say things like: "*All dogs have four legs. This horse has four legs. Therefore, this horse is a dog.*" If you heard this you would say it's not true. And the reason it's not true is that the conclusion does not follow from the premises. "*All dogs have four legs*" doesn't mean only dogs have four legs. And therefore the premise doesn't lead you to believe that a horse is a dog. Other animals have four legs besides dogs.

Human understanding has become the universal door, process, filter, through which all thought of whatever kind must pass. The being of the world, the being of truth, the being of one's own existence are all to be understood. We are always already in comprehension of things before they are linguistically articulated or interpreted. There is a prior having, a prior grasp, and then a seeing of something as something - the "*hermeneutical as*" is the universal element found in every act of understanding in every discipline in every mundane act whatsoever. Understanding is not a transparent medium; it is complexly structured but nevertheless, cannot be ignored.

In the mental universe, or better, in the structure of being, understanding is the process present everywhere, the process by which everything is apprehended, placed, understood as something. **Hermeneutics** seeks to define this process.

The term "*hermeneutics*" seems to be related etymologically to the Greek god *Hermes*. *Hermes*, you will recall from the *Iliad* and the *Odyssey*, was the messenger of the gods. He carried messages from *Zeus* to everybody else, especially from the divine realm and level down to the humans. In doing so, he had to bridge an ontological gap, that gap between thinking of the *gods* and that of

humans. According to legend, he had (1) a mysterious helmet which could make him invisible and then suddenly reappear, (2) magical wings on his sandals to carry him swiftly over long distances, and (3) a magical wand that could put you to sleep or wake you up. So he not only bridged physical distances and the ontological gap between divine and human being, he bridged the difference between the visible and the invisible, and between dreams and waking, between the unconscious and the conscious. He is the mercury god of sudden insights, ideas, and inspirations. He is also the trickster god of thefts, highway robbery, and of sudden windfalls of good luck.

An important notion in the discussion of any spirituality is the idea of *mystery*. Mystery involves that which transcends human understanding. Although it pertains to the inexplicable, mystery captures and engages the human imagination permeating the relational understanding of spirituality in terms of connectedness to self, others, the world or universe, and to the transcendent as outlined in much of the contemporary literature. While spirituality can be described using human language and concepts, it cannot be confined to these. Nonetheless, an encounter with it may prompt the recognition that one is dealing with mystery. That is to say, it is possible to recognise '*the mystery of the sacred in what is'*.

While the natural sciences seek the attainment of knowledge and truth through method and through adherence to a set of rules pertaining to a particular method, the philosophy underpinning hermeneutic phenomenology is that knowledge is realised in the interpretation and understanding of the expressions of human life. It is a tradition that attempts to be attentive to the way in which things (*phenomena*) appear to be, and to be interpretive, since all phenomena are encountered meaningfully through lived experience and can be described in human language.

Hermeneutics has been described as the interpretation of texts, the purpose of which is to obtain a common understanding of the meaning of a particular text. It has been in common usage among Biblical scholars for the interpretation of Scripture.

Phenomenology seeks to provide a true description of an object (*phenomena*), based on what the object is in itself. It is concerned with allowing that which shows itself to be seen from itself in the very way in which it shows itself from itself. In order to do this, a phenomenological text has to contain thickened language; that is, richly descriptive and evocative language that invites the reader to encounter the phenomenon in a new and fresh way. Such language has the effect of dispelling the everyday and *taken-for-granted* meanings about the particular phenomena that is the object of the researcher's interest.

If the description is phenomenologically powerful, then it acquires a certain transparency, so to speak; it permits us to see the deeper significance, or meaning structures, of the lived experience it describes.

Hermeneutics as the exegesis of texts relates in antiquity to *rhetoric*, which had a much broader scope in ancient times than it generally does today, but also it applied to explicating dreams, oracles, and other difficult texts, plus legal texts and precedents, and literary and religious texts. Traditions of interpretation of rules for how to interpret literary, legal, and religious texts have come down from antiquity, and these furnish the subject matter of hermeneutics broadly defined as related to the interpretation of texts.

The quest for general principles of interpretation has a great meaning in epistemology and hermeneutical methods, which can be easily demonstrated to be an epistemological character. Their epistemological aspects possibly determine universality of hermeneutical approach in contrast to the ontology of understanding a concentration of issues around being and experience. There is need to explore hermeneutical approaches with the intent of adequately understanding the logical texts.

It is evident in the academia of logic in view of the numerous ambiguities found in the texts of the so called pioneers of modern

logic which often generate different interpretations and theories based on diverse (*sometimes contradictory*) analysis of the same.

Initially, hermeneutics was developed to interpret the **Bible**, which, while considered to be a work of divine inspiration, needed to be interpreted so that the significance of the divine revelation could be applied to one's life in general. It was the *Reformation* which produced an enormous expansion in the use of hermeneutics as both Catholic and Protestant theologians argued over the "*correct*" principles to be employed in interpreting the Bible. Hermeneutical scholars have viewed this period as the genesis of modern hermeneutics and the application of hermeneutics was not limited to interpretation of the Bible only. Even earlier, during the late middle ages, hermeneutics had also been applied to the interpretation of legal judgments and then later, during the *Renaissance* period, it was also applied to philology in an effort to revive classical learning.

The interpretation of past meanings through the study of linguistics allowed for the bringing of appropriate messages to contemporary audiences.

We recapitulate below some more ancient of these biblical "*pre-hermeneutical*" rules. Their classification is done by means of the principle of ascension ; beginning from the simplest modes and methods of interpretation to the most complex of them and in accordance with the simplicity or complexity (*possible inconsistency of understanding*) of interpreting parts and theses of the Old Testament. Thus, we have the following list:

1. *An interpretation by analogy*. It is the simplest way of conveying the sense of interpreting fragment. To this rule corresponds

2. *A request for literal understanding of most rigorously keeping commandments*. A literal understanding of everything rigorously keeping (for instance, the "law") would be accomplished just under condition that an

interpreter avoids ambiguity in interpretation (of the same "law"). Hence, it follows that it is necessary that interpretation would be based on

3. *A disambiguity of interpretation*. But if there is in the text some fragment, which could be understood in two ways, then one need to find another fragment, close by sense to the former, and accept his disambiguity as true.

4. *There would not be any contradictions in interpretation*, but if two fragments contradict one another, then the third fragment must be found which reconciles them both.

5. Complex and obscure fragments would be interpreted proceeding from the global sense of the whole context.

Comparing means placing one thing in relation to another by way of analogy and juxtaposition. Grammatically comparisons function on two planes: (1) on the plane of analogy $(\mathbf{x} = \mathbf{y})$ they establish similarity suggesting equivalence; (2) as middle part in a three-element series the comparative, by yielding its position to the superlative, operates on an axiological plane. Finally, propositional analytics, utilizing two juxtaposed comparisons of the first kind (*syllogism*) commonly serve as logical proof. By maintaining only first level comparisons of equivalence while seeking, in a gradual process of understanding (*the hermeneutical circle*) to accommodate alterity, comparative hermeneutics aims at making sense by way of tentatively phrasing and rephrasing the vocabulary that enables genuine dialogue. Only in dialogical openness are new understandings able to emerge, understandings that are not simply a yielding of one position to another, but a genuine preservation of the insight contained in either.

Understanding and comparing, as mental activities that we engage without necessarily being aware of them as cognitive behaviour, are linguistic acts. Language being a medium in which and through which human beings relate to the world and to each other.

It is through language that the world is opened up for us. We learn to know the world by learning to master a language. Language thus is both the vessel in which experience articulates itself and is the vehicle for its communication, as sign receiving and producing human beings or as speaking and spoken subjects.

We are enmeshed in communication with others in particular localities and situations, and across the temporal trajectory of past, present, and future. Moreover, language, understood in a broad sense as ensemble of varying *signs, games or discursive formations* is the primary medium for communicating and sharing meanings. Neither can we make sense of phenomena in the world nor can we really understand ourselves unless we understand ourselves as situated in a linguistically mediated, historical culture.

Discursivity characterises our life-world as one that is always already semantically organized and charged by experience. We are not Adam and Eve naming creation but we live in a man-made world determined by earlier human activity and its manifold traces that, broadly speaking, as texts we are potentially capable of reading. By reading, we mean making sense in so far as "*reading*" that is synonymous with interpretation is predicated on understanding.

Understanding is not only about symbolic communication that enables us to share objective reality through common signs. For contemporary philosophy, understanding has become the touchstone of human life and existence as such. As an interrogation into the deepest conditions for symbolic interaction and culture in general, the art of understanding: *hermeneutics* is providing the critical horizon also for rethinking transnational and transcultural forms of knowing.

Hermeneutics is the ancient, historically modified, art of understanding and interpretation of texts. All cultural products are "*texts*" (understood here as any phenomena that is subject to interpretation) and must be interpreted as such because language

is not a transparent medium in which the world is given unequivocally. For the sign, consisting of signifier (*a word*) and signified (*what the word denotes*), depends for its meaning on the usage to which it is put by speakers and writers over time.

More so, semantic and semiotic meaning are never identical in creative representation that, unlike numerical renditions in unambiguous formal language where **1+1=2**, depend on the dual intervention of producer (maker, speaker, writer, artist, author) and receiver (*interpreter, reader*). A glance into a dictionary confirms what every translator knows: the instability of the meaning and significance of signs. Moreover, producer and recipient of natural language and creative representation do not necessarily share the same context. This is of particular concern when it comes to making sense of texts from cultural contexts that are different to our own, and especially of making sense of texts handed over to us from the past. It is here that *hermeneutics* as the development and study of theories of the interpretation and understanding of texts provides a method for reading and equitable communication.

The etymology of the term encompasses the Greek verb *hermeneuo*, the nouns hermeneia (*understanding, exegesis*) and *hermeneutice* (the agent who practices understanding). The Latin verb *interpretari* comes closest to the Greek *hermeneuo*.

Etymologists do not agree as to the origin of the word hermeneutice. Related to the name of the Greek god *Hermes* in his role as the interpreter of the messages of the gods, the word thus bears the connotation of one who transmits meaning and makes it clear. Plato, for example, called the poets the *hermeneutice* of the gods. It is certain, though, that *hermeneuo* refers to the verbs meaning "*to express*", "*to explain*" and "*to translate*".

Despite its decidedly modern (*Renaissance*) coinage the link between understanding and interpretation dates back to the history of hermeneutics beginning with ancient Greek philosophy. Thus, addressing the understanding of religious intuitions, Plato used

this term in a number of dialogues, contrasting hermeneutic knowledge to that of *sophia*. Religious knowledge is knowledge of what has been revealed or said and, in contrast to *sophia*, does not involve knowledge of the truth-value of the utterance. Aristotle carried this use of the term a step further, naming his work on logic and semantics *Peri Hermeneias*, which was later rendered as *De interpretatione*, thus somewhat blurring the distinction between understanding and interpretation that was to become important for 20th century *Continental Philosophy*. For Aristotle words spoken are symbols or signs (*symbola*) of affections or impressions (*pathemata*) of the soul (*psyche*); written words are the signs of words spoken. As writing, so also is speech not the same for all races of men. But the mental affections themselves, of which these words are primarily signs (*semeia*), are the same for the whole of mankind, as are also the objects (*pragmata*) of which those affections are representations or likenesses, images, copies (*homoiomata*).

More concerned with a typology of knowledge and language, Platonic and Aristotelian hermeneutics arguably lack a methodological awareness of the problems of textual understanding. It is only with the Stoics, and their reflections on the interpretation of myth that we encounter a hermeneutic method of reading texts. This suggests that temporal, spatial and cultural distance occurring through written transmission, rather than proximity of interlocutors in direct verbal contact call for a hermeneutics that are outlined as reconstruction, construction, and deconstruction of meaning.

The reproductive nature of hermeneutical understanding is accurate only in the very limited sense that understanding cannot step out of its historical situation as a whole. Therefore, while we can consciously examine particular dimensions of tradition through dialogical processes of understanding, some other aspects of tradition remain effective without our knowledge of them. All linguistic expressions – *including ideological ones* – are in principle open to hermeneutical understanding because such an understanding ultimately encompasses everything that enters the

medium of language. The concept of dialogical rationality is based on similar post-metaphysical and post-foundational premises of communicative rationality thus the core of the hermeneutical dialogue is the ideal of the truth of the subject matter (*die Sache selbst*) that transcends the given context of interpretation and thus creates a similar distinction between factual and valid. In this context, the truth of the subject matter refers to the regulative ideal orienting understanding – that is, the shared goal of truth and agreement that allows the dialogue partners to reach beyond their particular horizons towards an enriched, deepened and a more justified understanding of the subject matter.

If we bring to mind the idea that understanding is a dialogical process that occurs in the dialogical interplay between the interpreter and the text, it becomes evident that the nature and the meaning of *die Sache* is not something fixed or predetermined but rather being worked out and negotiated in the course of the dialogue. The truth of the subject matter is thus an ideal goal of dialogue that points beyond the interpreter's pre-given horizon and motivates the interpreter to enter into a dialogue with the text, to put his or her own preconceptions at risk and to justify him or herself in the light of the truth claims that the text presents. The focus on *die Sache* distinguishes genuine dialogues from other forms of conversation as it secures the fundamental openness of understanding and prevents it from becoming arbitrary or idiosyncratic. Hence, this dimension of truth is absolutely essential in order to distinguish philosophical hermeneutics from a historicist form of relativism.

Philosophical hermeneutics is not concerned with methods of interpretation and understanding but rather with the question of what enables understanding to occur. It is not the procedures of coming to an understanding that are important, instead it is what happens to us over and above our wanting and doing. Thus hermeneutics is not about the recovery of existing meanings, but instead, the creation of meaning itself and understanding is composed of both previous and new meanings.

A unique characteristic of hermeneutical inquiry is that it accords priority to questioning, which results in a persistent search for questioning about meaning. These questions resist easy answers or solutions. There is a search for finding the genuine question, but in finding the genuine question it must be recognized that there may be genuine questions but never final or closed ones. A distinctive feature of hermeneutics is that this form of inquiry remains *open-ended* and ambiguous.

However, it has become clear that in constructing the desirable ideals, aims and ends of logic, it is impossible to bypass the impact of not only postmodern philosophies, but also the postmodern conditions within our society's culture that have been influential in rationality and knowledge. Many of the '*grand narratives*' of modernity are undeniably in crisis. They have been challenged by a new multiplicity of different identities, worldviews and value commitments, which place into question, for instance, the idea of a unified process of rationalization and the conception of a universal or uniform mode of rationality.

Processes of learning must be regarded as fundamentally *open-ended* and *unfinishable*, as no interpretation of any subject matter is ever an exhaustive or a final one, but there is always more to learn and experience.

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