Simple Logical Proposition for Cartesian Dualism

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Abstract

In this essay, we will investigate how the mind works to understand a sentence naturally, and its implication on the philosophy of mind. When a vague sentence is given to us, we ought to understand it in a certain way naturally. The question we put forward here is, why it is so, and how? Given that we able to understand the language (or sentence) without being limited to the sensible elements of the language, this suggests that the intelligible elements of the language is perceived by the mind. However, critics of Cartesian dualism argue that the concept of mind is a language problem. Their conclusion suggests that logic could not able to prove the existence of the mind. However, in this essay, we will see that, the logical mechanism in language is not limited to one proposition at its syntax. Because we able to understand a vague sentence in a certain way naturally, this suggests that the mind performs complex logical computation to reach that 'natural understanding' of the vague sentence – (which is more than one logical proposition). Because of such computation is possible, we argued that the innate knowledge is necessary.

Keywords: Cartesian dualism, mind, language, logic, epistemology, human nature

1. Introduction

In this essay we will try to figure out how to prove that, through the analyse of language, dualism of the mind and the body is possible. It is widely known that, one of the criticism against the Cartesian dualism is that the concept of mind is a language problem. What we are trying to do is to refute such statement and prove the otherwise. But not only that. One of the fundamental aspects in Cartesian thought is 'certainty'. The nature of this essay may not represent Descartes' own thinking, but it is influenced and inspired by Cartesian philosophy. After we shown that there is a complex mechanism occur in our cognitive when we are using language, it wise to see that, what is the most basic and certain mechanism in our cognition as a logic proposition? The answer to that question also we aim to establish.

The idea and method in this work is a working process, and just a sketch in need of a further development and improvement.

2. On Rationalism

A.J. Ayer, in his influential work, *Language, Truth and Logic*, famously argued that the mind is a concept made possible due the limitation of the human language (2001: Location No. 717), an idea that we can find in Wittgenstein's *Tractatus Logico-Philosophicus* (2012: Location No. 1530-1571). The aftermath of such position is to convince us that, there is no such thing as 'metaphysics' and for this reason empiricism seem to be the dominion worldview in philosophy

of science. However, we will challenge this view. Before we begin, it is a wise to review briefly the history of the philosophy of mind that will be the pinpoints that shape our framework.

There is a good reason why modern philosophy begun with Descartes and the reason is the time when the definition of secularism takes hold in the intellectual discourse. By 'secularism' we mean the reality that is limited or contained within 'time-and-space' (temporal-and-spatial). Our argument for what led to this 'revolution' which is a breakout from the Aristotelian tradition into a new one, Cartesian, is when Descartes himself decided to doubt of everything. Hence the concept or the meaning of the 'mind' was to become as it is understood now - a change from the concept of the 'soul' as expounded by scholastic philosophers from the Platonic and Aristotelian traditions.

Before there was the concept of dualism (Cartesian dualism) the idea of the 'mind and the body' is more sort of as a 'unity', in the Platonic sense that the body is the lower grade of existence in relate to the soul. Aristotle provided a less mystical explanation, but his more 'technical' position in comparison to Plato's is very much derived from his own account of categorical logic[1]. For Aristotle, the soul is responsible for our 'movement'; but not only mechanical movements, but also 'qualitative' movement. As an example, for Aristotle, when we are perceiving the intelligible properties of an object, it is our soul, in the form of imagination 'moved' to be the perception of the object. In other words, the soul adopts the 'form' of the perceived object. However, Aristotle's contribution involves a third entity – the Active Intellect.[2] It can be understood in many ways dependable on the worldview of the thinker. For Cartesian followers however, or those influenced by Cartesian dualism, that 'third entity' is removed from their epistemic framework. The reason is, again, to limit their science or investigation within the domains of 'spatial and temporal' (*secularism*). Nonetheless, it is worth point out that Descartes himself did not follow this path, for he does acknowledge the existence of a 'third entity' or 'Active Intellect' as God – a condition to his own personal epistemic framework.[3]

Moving on, the Cartesian school of thought, which became broadly known as the school of rationalism, finds its opponent in the school of empiricism. One of the proponent of empiricism is John Locke who argues that, if *a priori* is necessary in our ability in inquiring knowledge, then why we only conscious of it when we are being conscious of it?[4] In other words, he denies this 'natural human innate ability' as he believes that humans are born as 'plain slate'. A century later or so, Immanuel Kant seem tried to reconcile these different school of thought by combining them, in the sense that there are two ways of judgement, one is 'analytic judgement' and the other is 'synthetic judgement'. Nonetheless, the 'synthetic judgment' could not be independent from the 'analytic judgement' which rests on *a priori* - the cornerstone of rationalism (Linnebo, 2017: Location No. 302).

By the beginning of the 20th century, the analytic school of thought (and it's subsequent the Logical Positivist movement) discovers that the problem of philosophy is the problem of

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[1] While Plato argues the form is known intuitively, Aristotle chose to explain it through reasoning from observation. I chose to be in a position to state that Aristotle did not go against Plato, as if Plato was a rationalist and Aristotle was an empiricist. Instead Aristotle went more 'technical' in his epistemology. It is important to note that the division of rationalism and empiricism as we know now begun during the Enlightenment in Western civilization – not Ancient Greece.

[2] These arguments which are the cornerstone for an Aristotelian framework can be found in Aristotle's *Metaphysics* and *De Anima*.

[3] See Descartes' *Selections from The Principles of Philosophy*. For Descartes, God is not a deceiver, and he is certain of this. The omnibenevolent of God is important for Descartes to remove doubts.

[4] See Locke's objection of *a priori* of knowledge on the starting part of his *Essays on Human Understanding*.

language. The ‘brilliant’ discovery somehow lead the school’s leading thinkers such as Ludwig Wittgenstein, A. J. Ayer and the philosophers in the Vienna Circle to conclude that metaphysics is not a real science; rather it is the result of the limitation of language; and since then “empiricism” takes ‘the seat’ as the fundamental aspect of the philosophy of science. This further led, I think, the divorce of science from philosophy – as if, ‘science’ is standing on its own, and ‘philosophy’ merely provides ‘clarification’ to scientific discoveries or findings. I think, this still stands true today.

By mid-century of the 20th century, criticisms against Skinner’s behaviourism launched the Chomskyian revolution. This brought back ‘rationalism’ to an important position in the philosophy of science. Through his investigation of the syntax of language, Chomsky argues that language is not ‘socially constructed’, but rather an innate ability which is biological too. This brought us the excitement to study language as the window to the study the human mind, and hence, the study of human nature too (Chomsky, 2006, 2015).

3. Logical Proposition

Since we are aim to reach our intention through the mean of language, it is wise that we shall review the logical propositions that we are using in this paper. The knowledge of logical proposition that I am adopting here is derived from *Logic: A Complete Introduction* by Siu-Fan Lee (2017: Location No. 3140-3805).

Below is the meaning of symbols to be used:

Symbols used in propositions	**Ordinary Language**
&	Conjunction ('and' etc.)
¬	Negation ('not' etc.)
∨	Disjunction ('or' etc.)
→	Implication ('if…then' etc.)
≡	Equivalent ('is' etc.)

The syntax of the proposition if bracketed will be read in the following order; ( ), [ ] and { } with negation ‘¬’ ought to be interpreted first.

Below is the interpretations of simple propositions with two atoms in a Truth Table;

Atoms		**Propositions**					
p	**q**	**p & q**	**p ∨ q**	**p ≡ q**	**p → q**	**¬ p**	**¬ q**
T	T	T	T	T	T	F	F
T	F	F	T	F	F	F	T
F	T	F	T	F	T	T	F
F	F	F	F	T	T	T	T

The reason why we may use logical proposition as our method to investigate is to show that our *language permits dualism of the mind and body* and the justification for Cartesian dualism is not merely a language problem, but the statement is logically viable based on the structure of our language itself.

According to Chomsky, which he dubbed as "Plato's Problem", there is a component in our syntax which does not carry a word at its surface structure, nonetheless has a function in language use. In his *Knowledge of Language*, he acknowledges it as an 'empty category' and uses the symbol *e* to discuss the finding (Chomsky, 1985: Location No. 1062).

I will not go in details, but for our quick reference let's look at this sentences below:

(E): It is forbidden to go to school.

(E1): It is forbidden for Jamal to go to school.

(E2): It is forbidden *e* to go to school.

In (E1), as a complete sentence, we can see that Jamal as the subject is clear in our use of language. We do know who it refers to and the sentence is complete. It consisted the necessary grammar rules of sentence consisted of object, verb and subject. In (E) we can see that the subject is absent as pointed out in (E2), yet the sentence still stands. Although the subject is not mentioned in the sentence, we still can know that "a subject is forbidden to go to school" although any specific indication is absent. Because of such, we can see that if language is to be understood by the construction of words with meaning, we can still see that with some absence of words, a meaning still can be constructed in the same sense, although may not be completely the same. This means that, a complex computation may occur in our mind without the presence of a sensible words in a sentence.

4. Logical Proposition and Language Syntax

Let's look at this sentence

(S): It is a good idea to eat healthy, since Ali needs to be healthy.

The sentence above, after it is read, we know that it is a good idea for Ali to eat healthy, although the name 'Ali' is mentioned later after 'good idea' and 'eat healthy'. The above sentence will be much clearer if it was written as

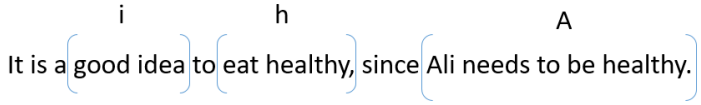
(S1): It is a good idea for Ali to eat healthy, since Ali needs to be healthy.

Although (S1) is better written, (S) is still comprehensible. Our question is, why is this so? In other words, (S) can be expressed as following, with *e* referring to the empty spaces in the semantic of the syntax:

(S2) It is a good idea *e* to eat healthy, since Ali needs to be healthy.

Hence, the question that was posed earlier, can be asked as follow: how is *e* is related to (or referring to) Ali?

To translate the sentence into logical proposition will be as follow:



Thus the logical proposition is as follow;

$$A \rightarrow (i \equiv h)$$

According to the Truth Table, if all the atoms are true, then the proposition is true as well.

Moving on, our question is, how can our mind tend to relate A to h but not i? Given this question, we ought to assume that the mind has the option to relate A to h, or A to i. The next relevant question, in order to justify that there is a difference between "A to h" and "A to i" is to ask "what is the difference?" By staying near to the proposition above as much as possible, we ought to make adjustments of the brackets "( )" and the proposition symbols while still confirming to the maxim that *when all the atoms are true the proposition is true as well*.

Hence, (after I tried some propositions until I was able to progress) we have two new propositions;

(i) $(A \equiv i) \rightarrow h$, and
(ii) $(A \equiv h) \rightarrow i$

Both of these propositions are true when all the atoms are true. Translating each proposition into ordinary language respectively will be as follow;

(i) (S3) If Ali needs to be healthy is a good idea, then he (must) eat healthy.
(ii) (S4) If Ali needs to be healthy (and so) he is eating healthy, it is a good idea.

From the sentences above, we may find that our understanding of (S) which is clearly written as (S1) is to be *naturally* understood as (S4) rather than (S3). The word 'Ali' from (S4) filled in the empty space, *e*, as shown in (S2).

Now, the next question in order for us to move forward from here is to ask "why (S4) is more *naturally* closer or equivalent to (S) rather than (S3)?" To answer this, we shall look at the linear structure of the syntax in the language used based on the logical propositions that we have.

In English language, the sentence is consisted of 'subject', 'verb' and 'object' in a linear order, although a sentence can be creatively expressed in a non-linear order. For example, the sentence (S) as given. When a sentence of an ordinary language is expressed in logical proposition form, we are not expecting it to be in a linear fashion to conform the formal semantic of the language. In sentence (S) we can see that;

$$A \rightarrow (i \equiv h)$$

which to be translated in terms of 'subject' (s), 'verb' (v) and 'object' (o) would be;

$$s \rightarrow (o \equiv v)$$

Furthermore, there will be no difference too if the atoms were arranged such as; $s \rightarrow (v \equiv o)$. However, this would account for a difference when translating the logical proposition for (S3) and (S4) in terms s, v and o.

For (S3) we will see;

$$(A \equiv i) \rightarrow h$$

as

$$(s \equiv o) \rightarrow v$$

And for (S4) we will see;

$$(A \equiv h) \rightarrow i$$

as

$$(s \equiv v) \rightarrow o$$

From the propositions above, we can see that the difference lies between which atoms that are bracketed together. The sign between the atoms in the bracket indicates clearly their relation, in addition to the proposition as a whole.

Take note, in (S3), the subject is identical (or equivalent) to the object, whereas in (S4) the subject is identical with the verb. In (S3), the verb is the implication whereas in (S4) the object is the implication. This difference is important and it is up to our judgement and natural tendency to decide what is the importance of the difference. I think it is fair to say that, it is more acceptable for a verb to be identical to the subject, rather than the object to be identical to the subject, for a verb to be in existence it requires the doer (or comes from a doer).

If one may disagree with this suggestion by arguing that such position is futile in the sense that there would be no difference concerning the position of the object and the verb in the logical proposition, we may reply so as follow;

In (S3), according to the Truth Table, if the verb proven to be false, then the logical proposition would be false too and it would be illogical how the subject to be identified with the object. In (S4) on the other hand, if the verb proven false, the object still be can true, which means that the subject performed a different verb to reach the objective. For this reason, it is more logical (or more valid) to associate the subject with the verb rather than associating the subject with the object.

If our position, thus far is supported and agreed, then we can see that, when the mind perceives (S), it computes (S) onto (S1) which is the correct interpretation of (S2). To reach that interpretation, the mind computed (S) onto (S3) and (S4). Out of these two, the mind chose (S4) as the correct interpretation of (S). All these computation happened in an instance that it safe for us to suppose that if the empiricists argue that the brain is the mind, then the we argue that the brain performing two functions – one is perceiving what the body perceives via sense perceptions and the other is computation of what is perceived. Since the computation as we have briefly seen is a complex process that occur instantly, then the mind has its own merit to be an entity on its own – to be other than the brain. Hence, we get the Cartesian dualism of the body and the mind.

What makes it Cartesian is that, the mind able to judge what it is perceiving (the sentence) without limiting itself to the sensible elements of the sentence, instead its intelligible elements. The intelligible elements of a sentence is what underneath the semantics of the sentence which is known as the syntax. It is at the interest of linguists to investigate the relation of the syntax, which form the meaning with the semantic, hence the morphology of the sentence. For the philosophers on the other hand, especially from the rational tradition, would argue that it was the interest of the philosophers to understand this unique relation of dualism. It will not be a

matter of dualism if the morphology is identical in locality and temporal with the syntax in the whole of human language.

5. Limitation of Language

According to the empiricists, "mind" does not correspond to itself as an existing entity, as it is just a concept that came to be due to the limitation of language. This "limitation" is not at the level of morphology and semantic, but rather at the level of syntax, and can be simplified in logical proposition. Although, semantically we can say that

> "Although the brain is one, the mind and body are two separate things"

In logical proposition, it would be as such (given that 'm' is mind, 'br' is brain, and 'bd' is body)

$$(br \equiv m \ \& \ bd) \rightarrow (m \equiv \neg bd)$$

According to the Truth Table, if all atoms are true, then the proposition is false, hence it is 'illogical'.

However, if we develop the sentence above such as

> "Although the brain is one, the mind and body are two separate things because they have different functions."

We can see that, given that 'm' is mind, 'br' is brain,'bd' is body, 'fm' is function of mind and 'fbd' function of body, we can conclude

$$(br \equiv m \ \& \ bd) \rightarrow [(fm \equiv \neg fbd) \rightarrow (m \equiv \neg bd)]$$

According to the Truth Table, if all atoms are true, the proposition above is true as well, then it is logical too. However for the critics, the "function" element ('fm' and 'fbd') in the sentence above is in dispute. If logical proposition is arranged as such

$$(m \equiv \neg bd) \rightarrow (fm \equiv \neg fbd)$$

And if 'fm' is false, then the proposition above will be false too. This will make the proposition $(br \equiv m \ \& \ bd) \rightarrow [(fm \equiv \neg fbd) \rightarrow (m \equiv \neg bd)]$ to be false also. The proposition $(fm \equiv \neg fbd)$ would be false if the function of the mind and the body is the same. As far as empirical evidence is concerned, there is no excuse to dismiss this fallacy for the empiricists.

6. Function of Mind

As much as there is no empirical evidence for the mind, there is no scientific evidence also that concludes the brain performs the function of the mind, hence to make them as the same. Be as it may, based on the model that I presented as the thesis in this paper showed that the mind did perform a complex computation that is not presented to the sense perceptions. The sense perceptions (taken as the function of the brain) only received limited amount of information of the sentence yet the computation that occurred in the mind is more complex than what the sense perceptions can suggest. Given as such, then we can conclude that the $(br \equiv m \ \& \ bd) \rightarrow [(fm \equiv \neg fbd) \rightarrow (m \equiv \neg bd)]$ proposition is true. Hence, Cartesian dualism is justified in this sense.

7. The Model

The model presented in this essay can be simplified as follow

i. A vague simple sentence can be understood as it is naturally and pre-adjustment of the sentence to a clearer one.
ii. The natural tendency is at the level of syntax of the language (sentence).
iii. Adjusting the logical proposition of the syntax to equal validity of truth led to different forms and choices of logical propositions.
iv. The mind chose a certain logical proposition (naturally).
v. Further investigation shows that an inner logic of the selected logical proposition to be more true than the rest.

Given the steps performed above is complex, we can see that the mind performed a complex computation on the limited perceived information from a language (sentence). Hence, we argue for the dualism of the mind and the body, as the body is dealing with sensible things and the mind is dealing with the intelligible things.

8. Further Inquiry

After we established that there is a complex computation going on in our cognition as we are using language, a wise question to be asked for us to move forward is, what is the most basic, or the foundation, in terms of logical proposition in our language use? In the Cartesian system, it is important to establish clarity by establish the certainty. The ultimate certainty for Descartes, and the beginning point of the Cartesian system is the axiom "I think therefore I am" (*Cogito, ergo sum*). However, for our purpose in this essay we ought to ask, what is the "Cogito" and the "ergo sum" in our use of language. As we already discussed, the mind applied complex computation as we are using our language. A logical proposition upon logical proposition occurred to construct our cognition in our use of language. To answer the question that is posed at this current point of the essay, it is wise if we look back at the Cartesian axiom of "I think therefore I am" before we able to move forward.

To translate the "Cogito, ergo sum" into logical proposition, we will have;

$It \rightarrow Ie$

We prefer to understand the sentence as 'implication' rather than a statement. Hence we express it such as above, rather than "$It \equiv Ie$". The reason is, when Descartes was referring that "I am", which means I do exist, is because of I am thinking. My existence is not identical with my act of thinking, but rather, my act of thinking is the proof of my own existence. Hence the proposition above ($It \rightarrow Ie$) is used instead. It is clear, the abbreviations presented meant "I think" for "It" and "I exist (I am)" for "Ie".

The Truth Table for that proposition (I think therefore I am) is such as follow;

	It	Ie	$It \rightarrow Ie$
(a)	T	T	T
(b)	T	F	F
(c)	F	T	T
(d)	F	F	T

To take the truth value as qualification for existence, from the Truth table above, we can disregard column (b) and column (d) for obvious reasons[5]. However, to make sense of column (a), it is worth beforehand to discuss column (c).

Column (c) would suggest to us that, I still do exist although I may not be in the act of thinking. Indeed, the proof of my existence could be something else other than me engaging in the act of thinking. Or, statement in column (c) suggests to us that, I still do exist although I am not engaging in the act of thinking at this moment. Hence column (c) would suggest to us that "thinking" is not necessary to prove our existence.

But Descartes would not agree with this. The foundation of the Cartesian epistemology is the method of doubt. The only way to move forward from doubts is to find certainty, and according to Descartes, nothing is more certain than the consciousness, which is manifested to us clearly when we are thinking; hence the axiom *Cogito, Ergo Sum* (I think therefore I am). Therefore, for our inquiry on the Cartesian system, it is necessary that the atom "It" to be T. Hence in the Truth table, only column (a) is applicable – and practical – for our purpose here.

To move forward, if column (a) is our principle in our investigation, a relevant question that need to be asked is, is the act of thinking is predicate to the our existence (or the mind)? It is futile to ask, if our existence itself is a predicate to thinking, as this question is a redundant and a paradox. To ask if 'thinking' is a predicate is an important question, for from that question, if 'thinking' is predicate, then it is a strong proof for our existence. On the other hand, if 'thinking' is not a predicate, then to relate it to our existence would be very weak.*

To answer the question, we shall invert the proposition to be as follow: Ie → It

The Truth table then would be;

	Ie	It	Ie → It
(a)	T	T	T
(b)	T	F	F
(c)	F	T	T
(d)	F	F	T

From the table above, we can disregard column (d). Column (a) would be obvious for us, but columns (b) and (c) have some debatable values.

Column (b) suggests that, if I do exist but I do not think, then 'thinking' is not a predicate in respect to my existence. Column (c) on the other hand suggests that, I do not exist, but I do think, and my 'thinking' could be an attribute to something else. At this point, this is still obscure. Hence, we ought to make a comparison between the Truth tables for "It → Ie" and "Ie → It".

	It	Ie	It → Ie	Ie → It
(a)	T	T	T	T

[5] It is clear that if we translate the truth value for existence qualification, any F would be non-existence. Therefore, the *Cogito Ego Sum* proposition is non-existence for column (b). Regarding column (d) since the abbreviations ("It" and "Ie") are non-existence, the proposition is insignificant for us although the Truth table may mark it as T.

(b)	T	F	F	T
(c)	F	T	T	F
(d)	F	F	T	T

Again, the difference in columns (b) and (c) caught our attention and likewise, we can disregard (a) and (d). From the Truth Table above, we can learn that, if I do think, but I do not exist (column (b)), then my existence cannot come from me being 'thinking', yet my 'thinking' could be come from somewhere. On the other hand, if I don't think, yet I do exist (column (c)), then my 'thinking' cannot come from my existence, yet my existence can come from something. This exercise is futile.

To move forward, a higher degree of logic is needed.

"I think therefore I am" perhaps can be translated (partially) in the Russellian logic form as follow;

$\exists\, e\, [\, Ie\ \&\ y\, (\, It \rightarrow y = t\,)\,]$

Given that the symbol '$\exists$' means to be 'some' and the abbreviation 'y' as a predicate, the proposition above can be translated as follow;

"There is some existence ($\exists$ e). If amongst them, I exist (Ie) with a predicate (y). If I think (It), then the predicate (y) is 'thinking' (t)."

From the logical proposition above, it is clear to us that, if 'thinking' is false, then the 'truth' for our existence will collapse. Therefore, the Russellian logical form gives us the better clarity of the Cartesian axiom.

Therefore, the answer to the question if 'thinking' is a predicate[6], we able to prove it so, hence this will strengthen the Cartesian position that 'thinking' is the proof of our existence, for 'thinking' is not an independent entity (substance), but an attribute to our mind.

9. Language as the Reflection of Thought

If 'thought' (or 'thinking') is the attribute for our existence, where do language fit in this picture? To bring the Cartesian axiom, "I think therefore I am" to a more concrete level – as from an abstract idea to a concrete or empirical observation – perhaps we can translate it as "I have a language, therefore I am a human". Therefore the study on language is a study of human nature. Now what would be the appropriate Cartesian analogy to the study of language? At this point, we don't have any methodology yet to determine Cartesian analogies for other subjects in the study of human nature. However, in the spirit like Einstein's, some imaginative deduction would be useful for us at this point. Following is a table of Cartesian analogies:

Subject	**Cartesian analogies**	**Logical propositions**
The first principle / existence (metaphysics, epistemology, ontology)	I think therefore I am	It → Ie

[6] See the paragraph above with the * mark on it.

Human nature	I have language therefore I am human	Il → Ih
Language	Semantic has syntax therefore it is language	SemSyn → Lan
Logic	Syntax has order therefore it is logic	SynOr → Log

From the table above, we can conclude that, if logic is used at the level of syntax in our use of language, and our use of language is uniquely what makes us humans, and the work of language is the work of the mind; then we can see that logic is related to our mind; or if in another paraphrase, a system of logic can map out the nature of the human mind, and thus, human nature too. How could this be possible? The answer is through the study of human language.

By looking at the use of the human language, we may find how unique is the relation between syntax and semantic. While semantic can be in many forms, meanings are particularly concerned with syntax and with the aid of logical proposition, we can express the syntax without semantic. Nevertheless, we still not be able to abstract a pure syntax, because by using symbols and signs of logics itself, we are already practicing of writing semantics. In other words, the logical forms that we able to deduce, is not pure syntax, but more so as a filtered version, after we removed the jargons of words. Nonetheless, we also notice that, we are not able to communicate effectively with logical propositions. We may be able to see the sentence clearer, but we will fail to communicate. Communication within the use of the human language, is only possible through the medium of ordinary language. Not only that. But more information can be delivered via ordinary language than logical propositions. In fact, the effective of literature like poems and dramas cannot be rivalled by a collection of logical propositions. Because of this obvious facts, we already suggested that, upon the mind perceives a language, a complex computation occurred in the mind. We suggested that the computation can be expressed by writing down the logical propositions that semantically representing what is occurring in our mind. Hence, as supported from the table of Cartesian analogies above, we can see that how 'logic' is linked to 'syntax' which is linked to 'language' and 'language' linked to 'human nature', whose being is proved by the cognitive 'thinking'.

10. The Principle for the Logical Propositions

To move forward in our discourse, a relevant question that needed to be asked is then, for how is the occurrence of the computation in our use and understanding of language? This question is important and it is necessary to be asked for in the Cartesian system, there is need a foundation, which the rest of the system will stand on. In the case of current discourse, it is necessary to find the 'foundation' in our mind which the rest of the logical propositions stand on.

We must not be deluded enough to think we able to provide an answer for this, for current literature find the mind-body problem still a mystery. However, (again, in the spirit of Einstein) with some creative ideas we may be able to 'sketch' a possible answer.

If we see post Cartesian philosophy of science, it was the Newtonian framework that caused a paradigm shift. The Newtonian framework, until today for our estimation, is still remain powerful, as Einstein himself, in one way or another, is a Newtonian physicist-philosopher. In this paper however, we are in the position that, although Newtonian philosophy replaced Cartesian framework in the 18th century and onward, Newtonian system did not nullify

Cartesian system, nor, it is a different approach like how the Aristotelian system was different from the mechanical philosophy of the 17th and 18th centuries. Rather, we would like to insist that, the incompleteness of the Cartesian system is aided by Newton and the Newtonians.

According to Newton, the movement that we see as empirical evidence is not the absolute movement, for the absolute geometry (as movement corresponds to space) is independent from anything (Janiak, 2019). This absoluteness of physics law, perhaps, can be known intuitively, a tradition that can be traced back all the way to Plato. Bringing this understanding to the understanding of language, the logical proposition on the level of syntax in our estimation can be reduced to an absolute sense.

11. The Logic in Our Cognition and External Event

According to Frege, language with meaning is referring it to have a 'sense' with 'reference' (Soames, 2010: Location 236). Being a Platonist himself, in this respect, language has meaning when it is relating or 'pointing' to the truth (Soames, 2010: Location 357). Therefore, a language or a sentence may be true when its meaning is intended for that 'reference', or truth in that respect. Alfred Tarski, believes that predicates that attached to language to be true, if it corresponds to the metalanguage (Soames, 2010: Location 719). Hence, in translating Ferege's formula into Tarski's, we can see that, a language would be in error if its logical proposition is not in harmony with the central system's (reference) logical proposition.

Let's say, a principle sentence is given as such:

(S) At 9 o'clock tonight Ali will be home with a present for his mother.

From the principle sentence, we get these various sentences:

(S1) Ali will get back home at 7 o'clock tonight give her mother a present.

(S2) Ali will be home at 9 o'clock tonight to catch a football match on TV

(S3) Ali is bringing food for her mother tonight.

(S4) Ali is bringing a present for her mother tonight.

(S5) Ali will be home 9 o'clock in the morning for breakfast with mother.

(S6) At 9 o'clock tonight Ali will give her mother a present.

(S7) At 9 o'clock tonight Ali will be home with a present for his sister.

(S8) At 9 o'clock tonight Julia will be home with a present for Ali's mother.

If the atomic syntax for (S) would be as follow;

```
                t          a          h
[At 9 o'clock tonight][Ali]will[be home]with
[a present]for[his mother]
      p            m
```

Then, the logical proposition for S would be;

$$[(h \& t) \& (a \& p)] \equiv (m \& p)$$

From the logical proposition above, if one of the atoms (h, t, a, p, and m) proven to be false, then statement (S) will be false as well. Let's take (S) as the truth maxim. Following then, given the atoms and their meanings as above, the logical proposition for other sentences (S1-S8) would be

(S1) $[(h \& \neg t) \& (a \& p)] \equiv (m \& p)$

(S2) $[(h \& t) \& (a \& \neg p)] \equiv (\neg m \& \neg p)$

(S3) $\{ [h \& (t \vee \neg t)] \& (a \& \neg p) \} \equiv (m \& \neg p)$

(S4) $\{ [h \& (t \vee \neg t)] \& (a \& p) \} \equiv (m \& p)$

(S5) $[(h \& \neg t) \& (a \& \neg p)] \equiv [(m \& \neg p) \& a]$

(S6) $\{ [(h \vee \neg h) \& t] \& (a \& p) \} \equiv (m \& p)$

(S7) $[(h \& t) \& (a \& p)] \equiv (\neg m \& p)$

(S8) $[(h \& t) \& (\neg a \& p)] \equiv (m \& p)$

According to the Truth Table, in reference to (S), the truth values for (S1-S8) are

(S1) F

(S2) F

(S3) T

(S4) T

(S5) T

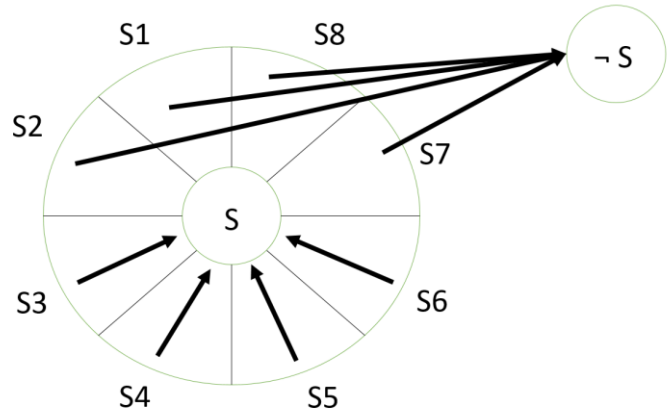
(S6) T

(S7) F

(S8) F

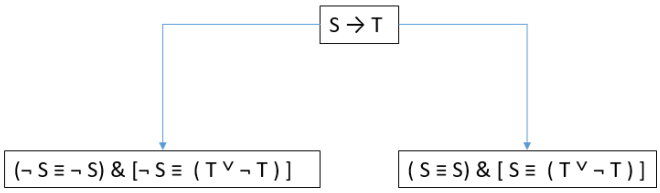
Take note that amongst the (S1-S8) with T as their truth value, are not in conflict with the statement (S). For example, (S5) stated that Ali will have breakfast with her mother, and this will contradict (S) which means Ali will give a mother a present at night time. Unlike (S2), Ali will be home at 9 o'clock to catch football is in contradiction with (S) which stated that Ali will give the present to his mother at 9 o'clock.

Returning back what we just briefly mentioned about Frege and Tarski's take on language, we can sketch the diagram below;



Now, let's assume that we do not know (S) and the (S1) until (S8) are at our disposition. Since we do not know (S), we also would not know if our usage of (S1) until (S8), each will it point to (S) or (¬S). Be as it may, we do know that the probability to (S) or (¬S) is certain. The question is, which one is leading to which one? According to Descartes, the first step to the answer that question would be the 'radical doubt'.

After the 'radical doubt' we are left with the question is (S) true or false? Likewise, if (¬S) is true or false? The state of our mind, expressed in logical propositions will be as follow (given T as 'truth'):



The diagram above reflects the state of 'doubt' in our mind. To determine the value (T) and (¬ T) in respect to (S) and (¬S) is unresolvable unless we have (S ≡ T) and (¬ S ≡ ¬ T) already in our cognition. We can't help but to accept Descartes' proposal that there are innate knowledge in us.

12. Language Use and Experience

The criticism against this Cartesian philosophy during the Enlightenment was made critical by John Locke. The English philosopher simply ridiculed the innateness of knowledge by asking, do new born babies know the fundamental principles in knowledge? For example, "*God is all good*" for Locke is a universally accepted maxim. He questioned however, can it be accepted by babies? He broke down that maxim to atoms that can be asked, can a baby know the concept of "God" and the concept of "all goodness"? By assumption (*as baby cannot talk yet*) we suppose that babies do not know these so called innate ideas.[7] Therefore for Locke and the empiricists, knowledge is from experience and the truth cannot be known by pure reason – a position by the rationalists.

[7] See Locke's *An Essay Concerning Human Understanding*, Chapter IV, paragraphs numbered 7 and 8.

David Hume, believes that our reasoning is resulted from past experience to understand the future (Morris, 2020). The connection of the past and the future, known as the Hume's fork, becomes the foundation for us to be able to make sense of the world – to understand the world. For the empiricists, there is no such thing as innate knowledge, because knowledge is built from our constant reflections on our experiences. Therefore, in relating to our investigation above, for the empiricists, (S ≡ T) and (¬ S ≡ ¬ T) are not something that is innate in us, but rather, a product of constant reflections by associating ideas in patterns.

This attitude is further systemized by the empirical logicists in early 20th century, together with prominent analytic philosophers like Russell and Quine. Perhaps, to this line of thinkers, (S ≡ T) and (¬ S ≡ ¬ T) can be achieved when empirical evidence in correspond to the language used becomes evident. Otherwise, it is a matter of language being expressed in behaviourism based on subjective experiences. What is the truth for them then, that it must be proved with empirical evidence and for this reason, science becomes the authority or a major role in epistemology (Hylton, 2020). The approach is further refined by Davidson, who introduced the concept of triangulation, argues that, the truth ought to be achieved by the affirmation of three things; knowledge of the self (mind), knowledge of others and the knowledge of the world (Malpas, 2019)

Assuming that the knowledge of others and knowledge of the world under the same category, translating the Davidsonian epistemology onto Russellian, we can suppose that, under the neutral monism program (Irvine, 2020), the law (or rule) of (S ≡ T) and (¬ S ≡ ¬ T) will be known through empirical experience whilst its concept as that logical proposition is present in our mind according to the rules of our cognition. Therefore, from this perspective, dualism as suggested by Descartes is ought to be rejected.

13. Language Beyond Experience

If we take the position of the empiricists, then, there is no reason to doubt if the statement "(S ≡ T) and (¬ S ≡ ¬ T)" is true or false. The reason to doubt is because from doubt we may start for a starting point that we can be certain of. From the logical positions that we already suggested, we are obliged to accept that the statement "(S ≡ T) and (¬ S ≡ ¬ T)" to be true in order that the logical propositions in our mind can function. Assuming, such innate knowledge is not possible, then the logical propositions in our mind cannot be built because there is no logical proposition can be computed in order for it go forward.

If the statement "(S ≡ T) and (¬ S ≡ ¬ T)" can only be known from empirical experience, then the whole logical propositions in relate to (S) cannot be constructed because it is relatively unknown in our mind as the "(S ≡ T) and (¬ S ≡ ¬ T)" is unknown to us. Assuming that the position of the empiricists in this regard is correct, then there is no use of language and logical propositions as the means to explore reality, which is the purpose of philosophy.

For empiricists within the Analytic tradition, they would argue that the concept of meaning and truth very much depend on our use of language, and philosophical investigations will be investigated on the use of language and logical propositions. Knowledge and the projection of reality can be expressed with words as sensibly perceived. What is not evidence to the senses but exist in words, according to them is a language problem of tautology.

However, the use of language is in the system of logic. If the language used without the flow of logic, then it will be meaningless. Too much "meaninglessness", then language will cease as the morphology of the language itself to will be undistinguishable. The world also in logical

forms; in the empirical world is governed by what is known as physics laws. As physics laws is already there in nature, it is the job of the physicists to discover such laws. Like in the use of language, logic is already there in language use if it is ever to be meaningful.

If we are born in 'plain slate' with no innate knowledge available to us, then logical propositions in our cognition would be absent and it is impossible for us to construct language and to understand the world. As we are constituted of matter, we are not passive objects, not affected with physical laws. Indeed we are very effected by it and this includes our brain. But the movement of matters is not limited to matter itself. Newton maintained that the movement of matters is not limited to the external space and time, but rather from geometry without external appearance or expression. Geometry for we know, is categorized as innate knowledge by Descartes. Therefore, for Newton, absolute movement in not the external appearance of movement, but rather the movement as projected in by geometry. Newton does not limit reality to the external space and time for he counts the abstract world too. Newton was not alone in this approach. According to Einstein, in different set of space and time, different physics laws is applicable. It was through this method that he discovered his Theory of Relativity (Howard, 2019). The effort made by Einstein proves the absoluteness that Newton referred to, in the sense that the external manifestations of physical event within time and space are relatives to its absolute.

If reality is understood by Newton and Einstein to be true, then the practice of philosophy of language within the Analytic tradition would be sensible and not be self-contradicting. If the world that is described by empirical observations or experiences is reflective with the use of language in relate to its truthfulness and reality, then there must be a referent point for each medium (empirical experience and language). Hence, the relevant question now is, what is that 'reference'? If we can agree with Newtonian conception of absoluteness in regard to physics laws, then we also can say the same 'absoluteness' regarding language, which is reducible to absolute logic. Since 'absolute logic' is not a matter of guessing, then it has to be a certainty which is innate to us. Therefore, innate knowledge is necessary if language is to be possible.

14. Conclusion

In this essay, we have gone through the following steps;

i. We argued that we can understand a vague langue use naturally
ii. The reason we able to do is because our mind performs a complex computation with more than one logical propositions of the language used
iii. This shows the dualism relationship of the mind and the body
iv. We also clarified the Cartesian maxim of *Cogito Ergo Sum* in logical forms
v. We related language to our nature as humans, hence the relation of logic and our mind too
vi. We demonstrate with logical propositions how language is used in relate to the Truth
vii. We reviewed briefly the empiricist approach within the Analytic tradition
viii. We revised the relevance of rationalism against empiricism

According to Britannica, in an entry dedicated to Analytic philosophy, Noam Chomsky was considered an important figure in the Analytic tradition by analytic philosophers. However, after some development within the Analytic tradition, they consider his method (Chomsky's) was not an appropriate methodology to do analytic philosophy (Donnellan & Stroll, 2017). One reason, perhaps, is his field, linguistics, seem to be distant from the Analytic tradition. Bryan

Magee, a professor of philosophy, well known for his series of interviews with renowned philosophers available on YouTube, made a point that, although many philosophers don't consider Chomsky as part of their community, Chomsky's influence in philosophy is immense (Philosophy Overdose, 2015).

There are three approaches in the study of linguistics; externalists, emergentists and essentialist. Chomsky belong to the essentialists and according to Chomsky, the externalist study of linguistics is futile (Scholz, 2015). Because of Chomsky only pay attention to the study of language as essentialist, his methods on the abstract level involves many philosophical insights. For this reason according to Chomsky, the study of language is the study of the human nature.

In this essay, we however did not discuss the Chomskyian worldview specifically. Nonetheless, it is clear how much is this paper influenced by his philosophy. In the opening of his book, *Cartesian Linguistics: A Chapter in the History of Rationalism*, Chomsky quoted Alfred Winfield stating that very much of the progress and scientific discoveries of the 20th century are in debt to the philosophies and discoveries from the Enlightenment period of the 17th and 18th centuries (2009: Location 1458). It is wise to heed this advice, as we have seen, many ideas from the 17th and 18th centuries provide interesting insights to the nature of our mind in our language use, be it from the rationalist or empiricist point of view.

Although the legacy of empirical logicists is immense within the Analytic tradition, we still find the rationalist position still the preferred one. In this essay we backed up this claim with a brief reflection on the philosophies of Newton and Einstein. If the object within a set of space and time is relative to its abstract absolute, then epistemology limited to space and time will be self-contradicting and our effort would be incomplete if we ought to understand the nature of the object.

With language then, we already found that language is based on logic, which is its syntax. The syntax of the language can be expressed in the forms of logical proposition. But from one aspect, the expressed logical proposition can be semantic itself, and within it there is another syntax which can be expressed with another logical proposition, and so on until its foundation or absolute in the abstract. If we agree the foundation of language is logic, then the absolute logic must be something of certain and not to be doubt. This sort of certainty is evident to us as an innate knowledge, for no empirical justification is necessary for its being.

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Declarations

Not applicable.