

Logic and Language in Wittgenstein's *Tractatus Logico-Philosophicus*

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Abstract

This paper sets out to investigate some fundamental aspects of Wittgenstein's conception of language and logic in his *Tractatus Logico Philosophicus*. This is with the aim of showcasing a new perspective in the understanding of Wittgenstein's philosophical thought process. In this paper we shall argue that the starting point or the best way to understand Wittgenstein's *Tractatus* is to understand his response to Frege's conception of logic, G.E Moore and Russell's theory of judgment. And that from these scholars he was able to come build philosophy of language and logic in the early analytic period. To buttress this argument the paper examines Wittgenstein's position and account of the relation between elementary and molecular propositions in the *Tractatus*. The paper observes that a natural and careful reading of Wittgenstein's *Tractatus* gives an account of fundamental propositions, based on the picture theory, and a different account of molecular ones hinged on the principle of truth functionality, and that logical complexity is already given by a correct account and understanding of the pictorial nature of elementary proposition. This implies that an elementary proposition as he posits "contains all logical constants/operations. This paper concludes that Wittgenstein's *Tractatus* can be said to stipulate a consolidated or unified account of language and logic.

Keywords: Logic, Language, Wittgenstein, *Tractatus Logico Philosophicus*

Introduction

It was towards the end of 1898 that Bertrand Russell wrote:

That Moore and I rebelled against both Kant and Hegel. Moore led the way, but I followed closely in his footsteps I felt... a great liberation, as if I had escaped from a hot house onto a windswept headland. In the first exuberance of liberation, I became a naïve realist and rejoice in the thought that grass really is green.¹

¹. Russell, B. and Whitehead A.N., *Principia Mathematica*. vol. 1. (Cambridge: Cambridge University Press 1910) 22.

The quotation above shows the breaking away of G.E. Moore and Bertrand Russell around the turn of early twentieth century from absolute idealism which was then the dominant philosophical thought in the British universities. Gottlieb Frege the German mathematician is also considered as the founder of analytic thought and progenitor of formal logical system. Frege had provided his own system of formal logic, with its own system of symbolic notation. Frege's goal in doing so was to prove logicism, the view that mathematics is reducible to logic. This was also Russell's goal in the *principia mathematica*.² When Moore and Russell articulated their alternative to idealism, they used linguistic idiom, frequently basing their arguments on the "meaning" of terms and propositions. Additionally, Russell believed that the grammar of natural language often is philosophically misleading, and the way to dispel the illusion is to re-express the propositions in the ideal formal language of symbolic, thereby revealing their true logical form.³

It is important to note that given the above background, Wittgenstein's *Tractatus* got its inspirations and basic assumptions from Russell's *Principia Mathematica*. The logic of *principia Mathematica* is entirely truth-functional; that is, it only allows for molecular propositions whose truth values are determined by their atomic constituents. Thus, given all true atomic propositions, together with the fact that they all, every other true proposition can theoretically be deduced by logical methods. This thesis of truth –functionality lies behind the *Tractatus*.

An Overview of Wittgenstein's *Tractatus Logico Philosophicus*

Wittgenstein's *Tractatus* is organized around seven propositions, as here taken from the 1922 translation by C.K. Ogden:

1. The world is everything that is the case

². Hylton, S. *Wittgenstein and Scepticism*. (London: Oxford Press, 2022), 5,7.

³. Beany, C. *Wittgenstein on Language: from Simples to Samples*. (Lepore and Smith. Oxford Handbook), 240.

2. What is the case, the fact, is the existence of atomic facts.
3. The logical picture of the fact is the thought.
4. The thought is the significant proposition.
5. Propositions are truth-functions of elementary propositions (An elementary proposition is a truth function of itself)
6. The general form of a truth-function, this is the general form of a proposition.
7. Whereof one cannot speak, thereof one must be silent.

In the introduction to the *Tractatus*, Wittgenstein's indicates that his overarching purpose is to set the criteria and limits of meaningful saying. The structural aspects of language and the world-those aspect that are shown-fall beyond the limits of meaningful saying Wittgenstein argues that the proposition of logic and mathematics are purely structural and therefore meaningless.

The body of the *Tractatus* is made of sequential levels of numbered discourse or propositions. Proposition 1 and 2 establishes the metaphysical side of logical atomism: the world is nothing but a complex of atomic facts. Proposition 3 and 4 establishes the isomorphism (one to one correspondence) between language and reality: an important meaningful proposition is a "logical picture" of the fact that constitutes some possible or actual state of affairs. It is a picture in the sense that the structure of the proposition is identical to the structure of the corresponding atomic facts. This point of view constitutes the basis for the metaphilosophical thought and characteristics of the early analytic philosophy: All philosophy is a "critique of language ..."⁴ Proposition 5 asserts the thesis of truth-functionality, the view that all complex propositions are built out of atomic propositions joined by truth -functional connectives, and the atomic propositions and truth-functional in themselves. There are certain challenges to this position. For instance, it has been recognized that

⁴. Anscombe, E.E.M, *An Introduction to Wittgenstein's Tractatus* (London: Hutchinson 1963) 65.

a truth -functional logic is not adequate enough to capture all phenomena of the world; moral facts are problematic and may defy truth-functional proposition. For example, knowing whether the constituent "X" is true, does not appear to tell us whether it ought to be the case that "P" is true. In the same vein, problematic are facts about thoughts, beliefs, and other mental state. For example,

Josiah believes that ...

Echono thinks that...

These concepts and modal facts embedded in statements about the necessity or possibility of certain states of affairs are not enough to adequately account for infinite number of facts about numbers in – that there certainly are more real numbers than available name to names correlations. Proposition 6 highlights some usual symbolism that give general ingredient for the creation of molecular proposition. Proposition 7 has no supplementary propositions.

Picture Theory of Language

Picture theory of language is a proposed explanation of the capacity of language and thought to represent the world.⁵ By this, Wittgenstein meant the way propositions function as representations. Picture theory holds that proposition can "picture" the world as being a certain way and as a result correctly represent it either truly or falsely. For instance, if I think the proposition;

"The moon shines in the sky".

The implication here is, that the proposition accurately pictures the world if and only if the moon shines in the sky. Wittgenstein in the *Tractatus* believes that we can directly see in the picture what the situation shows devoid of knowing if the situation is actually obtained. This position allows Wittgenstein to different

⁵. Kenny, A. *Ludwig Wittgenstein*. (Harvard Press, 1973), 44.

between how false propositions can have meanings.

Stem posits that it is believed that Wittgenstein was inspired by this theory by the way that traffic courts in Paris reenact automobile accidents.⁶ A toy car is a representation of a real car, a toy truck is a representation of a real truck and dolls are representations of people. In order to convey to a judge what happened in an automobile accident, someone in the courtroom might place the toy cars in a position like the position the real cars moved. In this way, the element of the picture (the toy cars) is in spatial relation to one another, and this relation itself pictures the spatial relation between the real cars in the automobile accident.⁷

Pictures have what Wittgenstein calls *der Abildung* or pictorial form, which they share with what they depict. This means that all the logically possible arrangements of the pictorial element in the picture correspond to the possibilities of arranging the things which they depict in reality.⁸ Thus, if the model for car A stands to the left of the model for car B, it shows that the cars in the world stand in the same way relative to each other. This picturing relation, for Wittgenstein, was key and fundamental in understanding the relationship proposition holds to worlds.

Wittgenstein believes that propositions are logical pictures of the world by virtue of sharing logical form with the reality which they represent.⁹ This explains why Wittgenstein thinks and explain how we can understand a proposition without its meaning having been explained to us. He holds that they can directly see in the proposition what it represents as we see in the picture the situation which it depicts just by virtue of knowing its method of depiction' propositions show their sense.¹⁰ Wittgenstein's concept

⁶ Stem (35). *Method and Morality: Elenchus from Socrates to Wittgenstein. Synthese* 2005

⁷ Kenny, A. *Ludwig Wittgenstein*, 45.

⁸ Sullivan, P.M., *The Totality of facts Proceedings of the Aristotelian Society*. Vol. 100, (2000) 90-01.

⁹ Wittgenstein's *Tractatus Logico-Philosophicus* Trans. D Pears and Bf McGinnes (London: Routledge 1922. (1963)) TLP 2, 18–2.2.

¹⁰ Wittgenstein's *Tractatus Logico-Philosophicus*. TLP 4.022.

of representation as picturing in like manner allows him to deduce two prominent claims:

1. There are no a priori truths
2. There are only logical necessities¹¹

Since all propositions, by virtue of being pictures, have sense independently of anything being the case in reality, we cannot see from the proposition alone whether it is true (as would be the case if it could be known a priori) but we must compare it to reality in order to know that it is true.

Logical Atomism

It must be noted that Wittgenstein did not use the term logical atomism himself, but his metaphysical concept all through the *Tractatus* suggests it.

Russell's theory of descriptions is a way of logically analyzing sentences containing definite descriptions without presupposing the existence of an object satisfying the description. According to the theory, a statement like "There is a man to my left" should be analyzed into. "There is some x such that x is a man and x is to my left", and for any y, if y is a man and y is to my left, y is identical to x. If the statement is true, x refers to the man to my left¹² whereas Russell believed the names like x in his theory should refer to things we can know directly by virtue of acquaintance. Wittgenstein did not believe that there are any epistemic constraints on logical analyses: the simple objects on whatever is contained in the elementary propositions which cannot be logically analyzed any further.

By objects, Wittgenstein did not mean physical objects in the world, but the absolute base of logical analysis, that can be combined but not divided.¹³ Wittgenstein's logico- atomistic metaphysical system, objects each have a "nature" which is their

^{11.} Wittgenstein's *Tractatus Logico-Philosophicus*. TLP 3.05.

^{12.} (Kenny 66). Ludwig Wittgenstein. Harvard press. 1973

^{13.} Wittgenstein's *Tractatus Logico-Philosophicus* TLP 2.02-2.0201.

capacity to combined with other objects. When combined, objects form “state of affairs”. A state of affairs that obtained is a fact. Facts properly constitutes the entirety; they are logically independent of one another, as are state of affairs. By this, he also meant that fact does not allows us to infer whether or not another state of affairs does exist.

Anthony Kenny provides a useful analog for understanding Wittgenstein's logical atomism; a slight modified game of chess just like objects in state of affairs, the chess pieces alone to not constitutes the game – their arrangements, together with the pieces themselves, determined the state of affairs.¹⁴ Through Kenny's chess analogy, we can extrapolate the relationship between Wittgenstein's logical atomism and his picture theory of representation. We can communicate the game of chess in the exact manner Wittgenstein says a proposition represents the world.

Distinction Between Saying and Showing

Traditional reading of the *Tractatus* reveals that Wittgenstein's conception of logic and language led him to believes that some features of language and reality cannot be expressed in senseful language but only “shown” by the form of certain expressions. In picture theory for instance, when a proposition is thought of or expressed, the proposition represents reality (true or false) by virtue of sharing some features with that reality in common. Wittgenstein argues that nothing can be said about those features that we cannot describe the relationship that picture bears to what they depict, but only show it through fact stating proposition¹⁵ against this background therefore, we can extrapolate that we cannot say that there is a correspondence between language and reality, the correspondence itself can only be shown.

Cora Diamond and James Conant in recent times argues that “showing” as used by Wittgenstein were not in fact an attempt by Wittgenstein to gesture at the existence of language in reality but

¹⁴. Kenny, A. *Ludwig Wittgenstein*, 3

¹⁵. Wittgenstein's *Tractatus Logico-Philosophicus* TLP4.121.

rather the distinction was meant to draw a sharp contrast between logic and descriptive discourse. Going by their interpretation, Wittgenstein actually meant that somethings are shown when we reflect on the logic of our language, but what is shown is not that something is in the case, as if we could somehow think if but for some reasons we just could not say if.¹⁶ This interpretation is grossly lopsided because Wittgenstein upholds a proposition to be either true or false.¹⁷

In similar vein, Micheal Kremer suggests that Wittgenstein's distinction between saying and showing could be compared with Gilbert Ryle's famous distinction between "knowing that" and "knowing how".¹⁸ We can extrapolate that assertion is akin to mean that if is just as practical knowledge or skill (such as driving a car) is not reducible to propositional knowledge. Ryle posits that, Wittgenstein also thought that the mastery of the logic of our language is a unique practical skill that does not involve any sort of propositional "knowing that" but rather is reflected in our ability to operate with senseful sentences and grasping their internal logical relation.

Internal Unity of Language and Logic in the Tractatus

The Tractatus explanation of proposition in terms of pictures is properly, acknowledged by what Wittgenstein calls elementary proposition; and elementary proposition - the "simplest kind proposition"¹⁹ is a nexus, a concatenation of name",²⁰ and it has a pictorial nature because its element (name) is combined in the same way as the elements of its corresponding state of affairs. Essentially, Wittgenstein holds that molecular and complex propositions, between which important proposition of logic is hinged is reliant on the idea that they are truth functions of

^{16.} Cora Diamond and *Tractatus Logico-Philosopcus* TLP4.121

^{17.} Wittgenstein's *Tractatus Logico-Philosopcus* TLP4.121.

^{18.} (157-158) Michael Kremer. Science, Logic, and Mathematics in Studies in History and Philosophy of Science. 2012. 2.1

^{19.} Wittgenstein's *Tractatus Logico-Philosopcus* TLP4.21

^{20.} Wittgenstein's *Tractatus Logico-Philosopcus* TLP4.21.

elementary propositions, such as proposition whose truth – value is determined by the truth value of their constituent propositions, examples: a proposition obtained by the application of truth-functional connectives such as '¬', (negation), "&" (conjunction), "v" (disjunction), etc.

Section 5 of the *Tractatus* reads "A proposition is a truth – function of elementary propositions". The implication of this reading is that we have elementary propositions which directly picture states of affairs, and on the other hand, molecular propositions are a truth-function of elementary propositions.

The imperative of the *Tractatus* conception of the nature of proposition brings to light that the *Tractatus* account of language and logic has dualistic dimensions. Firstly, it rests on the principle of pictorial representation which accounts for elementary propositions, secondly on the principle of truth functionality which accounts for molecular and quantified proposition e.g and also and therefore to logical complexity. Against the above position, Anscombe posits that "the whole theory of proposition is (...) a merely external combination of two theories" a picture theory of elementary propositions, namely; that (they have meaning by being logical pictures of elementary state of affairs), and the theory of truth-functions as an account of non-elementary propositions".²¹ Georg Von Wright, outrightly endorsed this position when he posits that "Wittgenstein's *Tractatus* may be called a synthesis of the theory of truth functions and the idea that language is a picture of reality."²² Fann upholds this view arguing that "Wittgenstein's theory of languages in the *Tractatus* has two components: the picture theory and the truth – function theory."²³

Whatever the argument may be, it is clear that reading Wittgenstein's analysis of language and logic in the *Tractatus* is perhaps a natural way of understanding the relation between

²¹. Anscombe, E.E.M, *An Introduction to Wittgenstein's Tractatus*, 25-26.

²². Georg Von Wright (533). *Wittgenstein Notes on Certainty*. Oxford: Basil Blackwell .1979

²³. Fann, K.T., *Wittgenstein's Conception of Philosophy*. (Oxford: Basi Blackwell, 1962) 8.

elementary and molecular proposition. Brian M. expresses his mental agitation in respect to the problematic nature of the *Tractatus* thus: "In the first part of the *Tractatus* (...) we seem to be told that the essence of a proposition is to be a picture, while in the later parts we are told that its essence is to be a truth-function. The serious difficulty in this interpretation is that the two accounts seem to be quite separate things and, if this is so, cannot both be adequate accounts of what it is to be a proposition".²⁴ In the same vein, Michael argues that:

There is a risk of understanding Wittgenstein's account of language (...) as falling into two completely unconnected parts: One which is appropriate to the conception of elementary sentences as models, the other which concerns the construction of other sentences out of elementary sentences.²⁵

It is arguable that the above position claiming that Wittgenstein has an account of the nature of elementary propositions cum a different one of molecular propositions, seems to make the relation between elementary, and molecular propositions a mystery as it does not adequately explain it.

Logical Constants, Operations and Functions

Wittgenstein stated that "Negation, logical addition, logical multiplication, etc are operations".²⁶ Consequently, Wittgenstein's at 5.47 holds that an elementary proposition contains all logical constants. This implies that it contains all logical operation; in order to understand Wittgenstein's account of the unity of language and logic when we depend on the claim that all logical operations are present in an elementary proposition, we first of all attempt to clarify his notion of an

²⁴ Brian M (65-66). *A Shock to Theory of Thought and Expression After Deleuze and Guattari*. Routledge. 2002

²⁵ Michael. *Science, Logic, and Mathematics in Studies in History and Philosophy of Science*. 2012. 2.1

²⁶ At 5.2341

operation. Wittgenstein succinctly captures this notion as the structure of propositions stands in internal relations to one another.²⁷ In order to give prominent to these internal relations, we can adopt the following mode of expression:

We can represent proposition as the result of an operation that produces it out of other proposition (which are the bases of the operation)²⁸

The operation is what has to be done to one proposition in order to make the other out of it²⁹

It is imperative to note from the foregoing that the notion of an operation is linked to that of a truth-function, which 5 was employed in order to define or clarify the notion of a (molecular) proposition. Wittgenstein posits that “truth-functions of elementary proposition are results of operations with elementary proposition as bases”. (These operations I call truth-operation.³⁰ It is important to note that Wittgenstein applies this truth-functioned account to all propositions.

In the *Tractatus*, Wittgenstein rejects the assimilation of operations to functions: “operations and functions must not be confused with each other”.³¹ Corroborating this line of thought Peter Hylton agreeing with Max Black holds that “... however, it appears as if everything, or almost everything, that Wittgenstein says about operations could with equal correctness be said about functions”³² and for example they claim that no statement is made by an operation³³ appears scarcely in aiding our ability to differentiate between operations and function because no statement is made by a function either: the function y^2 , for instance does not assert or say anything. Also, the fact that “(a) function cannot be its own argument, whereas an operation can take one of

^{27.} Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.2.

^{28.} Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.21

^{29.} Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.23

^{30.} Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.234

^{31.} Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.25.

^{32.} Hylton, S. *Wittgenstein and Scepticism*, 140.

^{33.} Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.25.

its own results as its base”³⁴ is not sufficient enough to differentiate functions from operation in that operation cannot be operated on what can be operated on, is the result of an operation. What Wittgenstein refers to as a proposition, a truth-function, but equally the consequence of the saturation the consequence of the saturation of a function with argument (its own value) can, no matter what in some case be an argument.

Hylton further argues that when Wittgenstein opposes operations and function, he has in mind Russell and Whitehead's notion of a propositioned function. The duo stipulates and be speak sentential connectives exactly in terms of propositional functions “aggregation of propositional functions into a single more complex than its constituents, is a function with propositions as argument”³⁶. The resulting proposition (the value of the function) is a complex or molecular proposition.

Russell and Whitehead identify four basic principles of aggregations of propositions

1. The contradictory function
2. The logical sum also called disjunctive function
3. The logical product also called conjunctive function
4. The implicative function.

The above highlighted principles of propositional aggregation correspond to the sentential connectives of “negation” “disjunction”, “conjunction” and “the material condition”. It is therefore clear from the above discourse that what Wittgenstein conceives as operations Russell and Whitehead conceives it as propositional functions.

It's imperative to bring to mind the Wittgenstein remark in this regard: “(a) function cannot be its own argument, whereas an operation can take one of its own results as its base”. It is essentially significant to note that while an operation, for instance,

³⁴. Wittgenstein's *Tractatus Logico-Philosophicus*, TLPTLP2.251.

³⁵. Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.251.

³⁶. Russell and Whitehead, *Principia Mathematic*, 43.

“negation” can be applied to the result of its own application, the “propositional function”, let says “x is wise”, cannot take one of its values as argument: this means the proposition “Socrates is wise” (one of the values of the propositional function “x is wise”) cannot itself be an-argument of that very propositional function: “Socrates is wiser is nonsense. It suffices to extrapolate that an additional reason for Wittgenstein's dichotomy between functions and operations as deduced from his work is that no statement is made by an operation, but only by its result and this depends on the bases of the operation.

Russell and Whitehead stipulate and concede as:

true the notion of asserting any value of propositional function is question where a propositional function is defined as a statement containing a variable x, and such that it becomes a proposition when x is given any fixed determined meaning.³⁷

If we compare his notion of an operation with that of a propositional function, the possibility poops open to assume that Wittgenstein's might have held that operations are mathematical functions like Frege held. Gottlob Frege holds the view that the functional conception of propositional complexity can be extended, with the introduction of some particular functions (truth – functions) to account for logical relations between prepositions. Consequently, the relation that a proportional constituent (a name for instance) has to the proposition of which its constituent is in principle not different from the relation a proposition has to the more complex proposition of which it is a constituent. A proposition on this account, occurs in another in no different ways from how a sub-propositional constituent occurs in a proposition; both are augment of some functions.³⁸

The Tractatus characterizes an operation regarding to “What has to be done to one proposition in order to make the other out of

³⁷. Russell, B. and Whitehead A.N., *Principia Mathematica*, 15-18.

³⁸. Sullivan, P.M., *The Totality of facts Proceedings of the Aristotelian Society*. Vol. 100, (2000) 90-01

it.³⁹ This implies that an operation is less like an entity that might be a constituent of a more complex entity than something that we do. This suggests some kind of procedures.

Wittgenstein Stipulates operational rules or guidelines for constructing proposition. He writes:

- (1) $\sim P$ it is not $\sim$ that negates; it is rather what is common to all the signs of this notation that negate p .

That is to say the common rule that governs the construction of ' $\sim p$ ', ' $\sim \sim p$ ', ' $\sim p \vee \sim p$ '; ' $\sim \sim p$ ', etc. And this common factor mirrors negation.⁴⁰

The expression of an operation should not be confused with the operation itself' in ' $\sim p$ ', it is not the symbol ' $\sim$ ' that negates, as well as in ' $p \cdot q$ ', it is not the ' $\cdot$ ' that conjuncts. The negative factor in ' $\sim p$ ' is represented as Wittgenstein argues by "what is common to all the signs of this notation that negates p ". That common element (the operation "negation") is a rule that governs the construction of proposition in which ' p ' and ' q ' and what is common or shared between these propositions is having been constructed according to the same rule.

Significantly, the availability of operations, of rules for constructing propositions appears for Wittgenstein to be hinged on the establishment of a language. So long as we have language, we have rules for truth – operations; this perhaps might be what Wittgenstein refers to when he posits that operations are in place once a notation has been establish. He succinctly captures it thus:

Once a notation has been established, there will be in it a rule governing the construction of all propositions that negate p , a rule governing the construction of all propositions that affirm p or q and so on (...). Operations are consequently not something over and above the workings of propositions of language, but are rules for constructing proposition (the result of operation) given other propositions which serves as the bases of the operations.⁴¹

³⁹. Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.23.

⁴⁰. Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.512

⁴¹. Wittgenstein's *Tractatus Logico-Philosophicus*, TLP 5.514 43. A

Wittgenstein's *Note on Logic*: The Place of Language and Logic

In the 1913 Notes on logic Wittgenstein conceives of propositional sense in terms of bipolarity:

Every proposition is essentially true – false: to understand it, we must know both what must be the case if it is false. Thus, a proposition has two poles, corresponding to the case of its truth and the case of its falsehood. We can call this the sense of a proposition.⁴²

The pole of a proposition (indicated by the letters 'a' and 'b' represents its possibility to be true or false. A proposition has two poles because of it can be true and it can be false and this amount to its sense.⁴³ In the notes dictated to Moore, Wittgenstein writes:

(T) rue and 'false' are not accidental properties of a proposition, such that when it has meaning, we can say it is also true or false. On the contrary, to have meaning means to be true or false: the being true or false actually constitutes the relation of the proposition to reality, which we mean by saying that it has meaning.⁴⁴

The proposition 'p' together with its poles for truth and falsehood is rendered by Wittgenstein as a – p – b'. poles are essential in the Note on logics account of molecular propositions called ab-function⁴⁵ and obtained by the application of ab-operation 'not p', for instance is expressed in Wittgenstein notation as 'b-a-p-b-a'; what the ab-operation 'negation' does is reversing the truth – poles of the proposition a-p-b thus turning it's a-poles into a b-pole and its b-pole into an a-pole thereby getting as a result the formular 'b –a-p-b-a' with opposite sense. A different example, involving two elementary propositions, is the proposition 'p and q'. Wittgenstein expressed this ab-notation, p and q of proposition expressed by mean of a truth – function diagram similar to the one in figure 1

^{42.} Wittgenstein, L., *Notes on Logic*. In: Wittgenstein (1979) NL 98-99.

^{43.} Potter, M., *Wittgenstein's Note on Logic* (Cambridge: Cambridge University Press, 2008) 193-194

^{44.} (Sinn sense) NM: 113).

^{45.} Wittgenstein, L., *Notes on Logic*, 102-103.

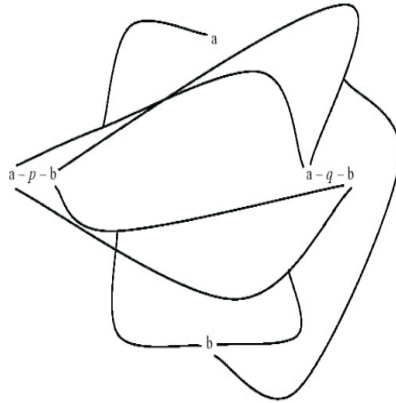


Figure 1. Diagram of the proposition 'p.q'

In the diagrammatical representation of a conductive proposition the outer a-pole (the true pole) is only connected with the pairing of the a-poles of 'p' and 'q' (that is to say, with the possibility of 'p' and 'q' being both true), and the other pairings of the poles of 'p' and 'q', Ab- functions, as well as elementary propositions, have ab- poles (one essentially true/false) are consequently bipolar in the same way in which elementary propositions are. This is made clear by truth – diagrams, which shows how a molecular proposition gets its ab-polar (its sense) by correlation with the ab-poles of the original elementary proposition(s). Wittgenstein puts us in remembrance that “as the ab functions of atomic proposition are bi-polar propositions again we can perform ab operations on them. We shall by doing so, correlate two new outside poles via the old outside poles to the poles of the atomic propositions”.⁴⁶

The ab-operations can be iterated and made visible by the truth – diagram method. For example, the proposition $(p.q) \supset r$, can be represented diagrammatically as shown in figure 2

Figure 1: Diagram of the proposition $(p.q) \supset r$

From the diagrammatical pole above, the ab-pole of 'p' and 'q' are connected to determine the ab-poles, of p, q; then the ab-

⁴⁶ Wittgenstein, L., *Notes on Logic*. 94.

poles of p, q . are in turn connected to the ab-poles of 'r' to determine the ab – poles of the molecular proposition $(p,q) \supset r$. We can reasonably deduce or extrapolates from the above examples that in light of Wittgenstein's account in the *Tractatus*, the nexus between elementary and molecular proposition is made available by the notion of bipolarity which in turn explains what it is for a proposition to be true or false.

Language and Logic in the *Tractatus*: Why an Elementary Proposition Contains all Logical Operations in Itself

Wittgenstein account of the relation between elementary and molecular propositions in the *Tractatus* is prominently articulated. However; it is important to note what is there in the *Tractatus* that was not fully articulated in the *Notes on logic*, is his conception of a proposition as a picture of reality as having sense by showing a particular situation (a state of affairs). “A proposition states something only in so far as it is a picture”⁴⁷ And: “instead of 'this proposition has such and such a sense, we can simply say “this proposition represents such and such a situation.”⁴⁸ It must however be observed that having sense still means according to the *Tractatus* to be either True or false. In a supportive view, Wittgenstein stressed that “a proposition can be true or false only in virtue of being a picture of reality”.⁴⁹

In the *Notebook*, Wittgenstein captures it thus “only in this way can be proposition be true or false: if can only agree or disagree with reality by being a picture of a situation”.⁵⁰ Wittgenstein in the entry to the *Notebook* emphatically stressed, the relation between pictures and truth/falsity. He argues that truth and falsity rely on that fact that pictures are essentially logically articulates. He succinctly captures when he argued that “the proposition is a picture of a situation only in so far as it is

⁴⁷. Wittgenstein, L., *Tractatus Logicus Philosophicus*, TLP 4.031

⁴⁸. Wittgenstein, L., *Tractatus Logicus Philosophicus*, TLP 4.031

⁴⁹. Wittgenstein's, *Tractatus Logicus Philosophicus*, TLP 4.06

⁵⁰. Wittgenstein's, *Notes on Logic*, NL 8.

logically articulated. Thus a “simple – non-articulated-sign can be neither true nor false”.⁵¹

It can be reasonably inferred from the foregoing that a picture is capable of being true or false is dependent on it having a structure through which it represents or shows a state of affairs in reality. Consequently, a picture is a representational or pictorial structured fact; a fact representing elements in reality to be as combined as its elements are combined. A proposition by being a picture of reality is as a result intrinsically true or false. If things in reality are combined as it depicts them to be then the proposition is true or false in the contrary.

An understanding of Wittgenstein's *Tractatus* conception reveals the position that a proposition depicts a situation, a state of affairs, and that letters of existence make the proposition true. He captures it thus “If an elementary proposition is true the state of affairs exists, if an elementary proposition is false the state of affairs does not exist”.⁵²

It can be reasonably extrapolated that possibilities of existence and non-existence of state of affairs determine the possibilities of truth and falsehood of their corresponding propositions. Wittgenstein further argues that: Truth-possibilities of elementary propositions means possibilities of existence and non-existence of state of affairs.⁵³ It is important to note that it is within the content of his debate or conversation of truth – possibilities that Wittgenstein announces or introduces the truth – tabular (T-f) notation; in the truth-tabular notation, a proposition 'p' is assigned T-f poles, that is, truth – possibilities where “T means” “true” (and) “F” means false”.⁵⁴ It is against this background that the bipolarity of propositions is bolstered or reaffirmed. This implies that Wittgenstein's conception in terms of ab-poles in the *Notes on Logic* turns into, in the

⁵¹. (NB: 8)

⁵². Wittgenstein's, *Tractatus Logicus Philosophicus*, TLP 4.

⁵³. Wittgenstein's, *Tractatus Logicus Philosophicus*, TLP 4.3.

⁵⁴. Wittgenstein's, *Tractatus Logicus Philosophicus*, TLP 4.31

Tractatarian conception truth – possibilities or truth – conditions. (Consequently, picturing or representing) spawns' bipolarity: by picturing its subject "from a position outside of it".⁵⁵ Hence, a picture represents it either correctly or incorrectly and thus gains truth – possibilities. It is in the same line of thought that Thomas Rickett, posits that "the conception of elementary sentences as pictures makes their agreement or disagreement with reality – their possession of true – false poles, of sense – intrinsic to them."⁵⁶

It could be reasonably extrapolated that truth possibilities T-f poles are consequently encapsulated in the same representational nature of a proposition, and are not ascertained by for instead the judgmental or assertoric nature with which a proposition can be expressed. Wittgenstein argues in the Notes on logic that judgment, question and command are all on the same level. What interest's logic in them is only the unasserted proposition".⁵⁷ Judgment and ascertain are merely psychological.

Before we draw the conclusion, it is important to restate that Wittgenstein conceives truth-operations as well as ab-operations as ruler for the construction of molecular propositions: they are not representatives, names of entities (cf TLP 4.0312) such as Fregean functions or Russellian propositional functions; the proposition 'p.q' whose formulation in Russellian notation might encourage the idea that there is something corresponding to the dot, can be rearrange as (TTTT) (p,q) where nothing correspond to the logical constant. In addition, Wittgenstein's notation makes it clear that the molecular proposition in view does not contain anything ever and above what is contained in the elementary propositions of which it is a truth- function, because there is no new material element, in it which was hitherto missing from the elementary propositions 'p' and 'q'.

One can extrapolate however that this appears problematic

^{55.} Wittgenstein's, *Tractatus Logicus Philosophicus*, TLP 2.173

^{56.} Ricketts, T, *Wittgenstein's Against Frege and Russell*. In: Reck, E.H ed from Frege to Wittgenstein: Perspectives on early Analytic Philosophy (Oxford: Oxford University Press: 2002) 80.

^{57.} Wittgenstein's, *Notes on Logic*, 95.

and contradictory against the backdrop of Wittgenstein's claim that elementary proposition reality contains all logical operation – logical constants – in itself. Since an elementary proposition is an immediate concatenation of names, if logical operations were present in an elementary proposition, they would have to be names, and as a result would be representative of object. This is contracting to Wittgenstein's view that “operations cannot make their appearance before the point at which one proposition is generated out of another in a logically meaningful way; i.e, the point at which the logical construction of proposition begins”.⁵⁸ This notwithstanding, our engagement of the notion of an operation gates us the intellectual resources to understand what Wittgenstein implies by elementary propositions, by depicting reality truly or falsely, correctly or incorrectly, and thus have truth – possibilities.

Conclusion

This work has been able to establish that language and logic as an entity in Wittgenstein's conception, avails or is given at the level of elementary propositions depicting or saying something about reality. A proposition having sense (depicting reality) is consequently all that is needed to carry out a logical operation, and this obtain molecular (and logical) propositions out of elementary ones. This work find not that this is the core incentive or motivation that underscore Wittgenstein's idea that logical complexity is contained in – forms part of – linguistic complexity; and also, his idea that an elementary proposition already contains all logic constants (operations) in itself. Thus, logic is given as soon as language through which we express judgments about the word is given. It is already complete when we have a language that we utilize to convey how things are, these explains Wittgenstein's conception of the unity of language and logic in the *Tractatus*.

⁵⁸. (4.0312)

Bibliography

- Anscombe, E.E.M, *An Introduction to Wittgenstein's Tractatus*. London: Hutchinson 1963.
- Black M., *A Companion to Wittgenstein's Tractatus*. Cambridge: Cambridge University press 1964.
- Fann, K.T., *Wittgenstein's Conception of Philosophy*. Oxford: Basiy Blackwell, 1962.
- Cheug, L., *The Unity of Language and Logic in Wittgenstein's Tractatus Philosophical Investigation*. 2006.
- Beany, M., *Wittgenstein's on Language: From simples to Samples*. In: P. Lepore and B.C Smith, eds. *The oxford Handbook of Philosophy of Language*. Oxford: Clarendon Press, 2006.
- Cora .D. and James C. Wittgenstein and the Moral Life. Cambridge University Press. 2018
- Georg Von Wright (533). *Wittgenstein Notes on Certainty*. Oxford: Basil Blackwell .1979
- Hylton, P., *Functions, Operations and Sense in Wittgenstein's Tractatus*. In: Hylton P. *Propositions, Functions and Analysis: Selected Essay on Russell's Philosophy*. Oxford: Oxford University Press, 2005.
- Hylton .P. *Wittgenstein and Scepticism*. Oxford Press. 2003
- Johnston, C. "Assertion, Saying, and Propositional Complexity in Wittgenstein's Tractatus" Kuucela, O. and Mclainn, M. (eds) *The Oxford Handbook of Wittgenstein*. Oxford: Oxford University Press. 2011.
- Kenny A. *Ludwig Wittgenstein*. Harvard university press. 1973
- McGinn, M., *Elucidating the Tractatus: Wittgenstein's Early Philosophy of Language and logic*. Oxford: Oxford University Press, 2006.
- McGinn, B., "Pictures and form" MaGinn M., (Ed.) *Approaches to Wittgenstein*. London: Routledge 2002.
- Michael K. Science, Logic, and Mathematics in Studies in History and Philosophy of Science. 2012. 2.1
- Morris, M., *Wittgenstein's and the Tractatus Logic-Philosophy*. London: Routledge, 2008.
- Potter, M., *Wittgenstein's Note on Logic*. Cambridge: Cambridge University Press, 2008.
- Potter, M., "The Logic of the Tractatus" Gabbay DM. and Woos J., (Eds) *Handbook of the History of Logic* vol. 5, Amsterdam: Elsevier BV, 2009.
- Rickeffs, T., "Pictures, Logic, and the Limits of sense in Wittgenstein's Tractatus". Sliga H. and Stem D. (Ed.) *The Cambridge Companion to Wittgenstein's*. Cambridge: Cambridge University Press, 1996.
- Ricketts, T, "Wittgenstein's Against Frege and Russell". Reck, E.H (Ed.)

- From Frege to Wittgenstein: Perspectives on early Analytic Philosophy.*
Oxford: Oxford University Press, 2002.
- Russell, B. and Whitehead A.N., *Principia Mathematica*. vol. 1.
Cambridge: Cambridge University Press, 1910.
- Stem R.C . Method and Morality: Elenchus from Socrates to
Wittgenstein. *Synthese* 2005
- Sullivan, P.M., *The Totality of facts Proceedings of the Aristotelian Society*.
Vol. 100, 2000.
- Wittgenstein's *Tractatus Logico-Philosophicus* Trans. D Pears and Bf
McGinne's London: Rutledge 1922. (1963) (TLP)
- Wittgenstein, Stein, L. *Notebooks 1914-1916*. 2nd ed., ed. G.H. Von Wright
and G.E.M. Anscombe, Trans G.E.M Anscombe: Oxford Basil
Blackwell. 1979.