WITTGENSTEIN'S CRITERION FOR DETERMINING THE LOGICAL STRUCTURE OF AN ELEMENTARY PROPOSITION IN THE TRACTATUS LOGICO-PHILOSOPHICUS

This paper discusses Wittgenstein's thesis about determining the logical structure of an elementrary proposition i. e., the logical structure of an elementary proposition is determined by determining the sense of an elementary proposition, and not by analyzing it. It also discusses why the sense of an elementary proposition cannot picture a state of affair.

Wittgenstein construes an elementary proposition as a function of an expression contained in it.

TLP 3.318 Like Frege and Russell I construe a proposition as a function of the expression contained in it.

TLP 4.24 Names are simple symbols : I indicate them by single letters ('x' 'y', 'z'). I write elementary propositions as funcrion of names so that they have form 'fx', Q (x, y), etc.

Although like Frege and Russsll, Wittgenstein construes an elementary proposition as a function of the expression contained in it, but unlike them his notion of a 'function of an expression' is a consequence of his representational theory of language. Frege rejects the idea that the logical structure of a proposition can be determined through its grammatical structure. He claims that the subject – predicate distinction is irrelevant to the expression of a thought or a sense of a proposition. He demonstrates it by showing that although the following two propositions

(1) Greeks defeated the Persians at Plataea

(2) The Persians were defeated by the Greeks at Plataea. have different grammatical structure but they express the same sense : even if a slight difference of sense is discernible, the agreement in sense is preponderant.[1] Frege is wrong in saying that the grammatical structure of a sentence is irrelevant to the expression of a sense or thought. However he is right in saying that the same sense or thought can be expressed through another type of logical structure of a sentence or a proposition. Frege claims that the logical structure of a proposition can be determined by spliting up a proposition in two parts : function and an argument of a function. He explains the difference in function and an argument of a function as follows :

> " Suppose that a simple or complex symbol occurs in one
> or more places in an expression (whose content need not
> be a possible content of judgment). If we imagine this
> symbol as replaceable by another (the same one each time)
> at one or more of its occurances, then the part of the ex-
> pession that shows itself invarient under such replacement
> is called the function; and the replaceable part, the argu-
> ment of the function"[2]

Frege demonstrates this distinction by showing that in the expression 'Hydrogen is lighter than Carbondioxide', 'Hydrogen can be replaced by ' Oxygen ' or ' Nitrogen ' and 'lighter than Carbondioxide' stays invariant. So ' –lighter than Carbondioxide' is a function and 'Hydrogen' 'oxygen and 'Nitrogen are the arguments. The value of an argument is the result of completing the function with an argument. Frege adds further that the distinction between function and an argument of a function has nothing to do with the thought or sense of a proposition· ' It concerns only with our way of looking at it.[3] He adds that if, either the function or the argument of the function is indeter-

minate then the distinction between the function and the argument of the function is relevant to the thought or the sense of a proposition. Wittgenstein disagrees with Frege that an analysis of an elementary proposition into a function and an argument of a function is just one way of looking at the thought of a proposition : that parts and relations are not so much determined by the physical nature of a proposition, as by the way a proposition is analyzed and interpreted by the users, only relative to a particular way of analyzing the proposition : proposition does have parts, and relation between parts. Wittgenstein holds that the distinction between the function and the argument of a function represent the distinction between the state – of – affairs and the element in the state – of – affairs (*TLP* 3.21) ; a proposition has parts which denote parts of what it represents, properties of, and relations between parts of a proposition represent properties of and relations between the things denoted Wittgenstein also rejects Russell's way of analyzing a proposition. Russell suggests that propositions stating monadic facts like " This white " would be formal type 'a', and propositions stating dyadic facts like "This next that" would be of the form R (a, b). The difference in the type of symbols is intended to indicate whether the symbol named a component or a constituent (Russell called the universal element in a fact component of that fact and a particular element he called the constituent of a fact); ordinary lower case letter standing for constituents and the capital 'R' and the Greek letter for components. In Russell's view every proposition must contain one symbol for at least each type and every fact must atleast contain one component and one constitutent.[4] Wittgenstein disagrees with Russell's notion of a particular or a constituent (a shade of a colour for example) because object itself has no colour (*TLP* 2.0232), with the colour you get a fact. Wittgenstein also rejects Russell's idea that the function of an argument denotes a property of, and relation

between, of things. He supports the idea that proposition through its logical form shows the properties of, and relation between the properties of things (*TLP* 4.124): the idea that follows from his theory of representation.

Wittgenstein's thesis about determining the logical structure of an elementary proposition is that the logical structure of an elementary proposition is determined by determining the sense of an elementary proposition, and not by analyzing it. An elementary proposition that is a function of an expression contained in it connot be analyzed because an expression and a function of an expression are inseparable elements of an elementary proposition : a function according to Wittgenstein signifies a formal concept and is represented in a conceptual notation by a variable, not by function (*TLP* 4.1272).[5] Understanding how the sense of a proposition is determined depends on understanding the notion of an 'expression'. An expression, Wittgenstein states, is any part of a proposition that characterizes its sense :

TLP 3.31 I call any part of a proposition that characterizes its sense an expression (or a symbol)

Wittgenstein suggests further that an expression (symbol) should be distinguished from a sign because it is not the sign that characterized its sense :

TLP 3.32 A sign is what can be perceived of a symbol. In order to clear the distinction between sign and a symbol (or an expression), Wittgenstein makes a grammatical analysis of the proposition ' Green in green '. He makes this analysis only to illustrate the point, otherwise he does not believe that the logical structure of a proposition can be determined by determining the grammatical structure of proposition. He says :

TLP 3.323 .. (In the proposition ' Green is green '-where the first word is the proper name of a person and the last an adjective—these words do not merely have different meanings : they are *different symbols*).

Wittgenstein wants to illustrate the point that the first ' Green ' and the second ' green ' are different symbols : that they are different symbols is shown from grammatical places they take in the proposition. It is grammatical place, in which a sign occurs that determiness a sign's symbolic form or sense. Wittgenstein here means to suggest that in the same way, the sense of an elementary proposition should be determined. It is the expression contained in a function, that characterizes the sense of a proposition. For example it is ' x ' in ' f ' that *characterises the sense* of a proposition i. e., by providing a logical place where a logical object can occur :

TLP 3.41 The propositional sign with logical co-ordinates that is the logical place

TLP 3.411 In geometry and logic alike a place is a possibility something can exist in it.

By substituting 'a' in place of 'x' in 'fx' we get 'fa'. That *determines the sense* of a proposition.

There is a problem here. Wittgenstein fails to distinguish the essential logical categories of a proposition. If 'x' in 'fx' is a variable and a general name for a concept (*TLP* 4.1271), then 'a' substitute in place of 'x' in 'fx' cannot be used as a name of an o bject as such even if the object is an object in a state–of-affairs. 'a' in 'fa' has to be a name for an instance of the concept that 'x' 'fx' names or signifles (do not denote). If 'x' in 'fx' is a variable name for objects for those which share the property indi - cated by 'f' only then 'a' substituted for 'x' in 'fx' can name an

object having that property. Also if 'x' in 'fx' is a variable and a general name for a concept then the occurring of 'a' in place of 'x' in 'fx' can only show the instance of 'x' in 'fx', that would not be a name of an object but of an instance. The problem with Wittgenstein's notion of a proposition is that he uses only one logical place for two logical categories i. e., name of an object and name for the property of an object; one logical function for two logical categories, even when the logical categories have to perform two different functions. Wittgenstein's reason for holding such a notion of proposition is that a proposition is to express an internal property of an object and that should be expressed in a proposition in such a way that it should show that it is an internal property of an object. He does so by representing the object and expressing its property through one logical space. Wittgenstein also believes that the internal property of an object is a function of an object (" It is essential to things that they should be possible constituents of a state-of-affairs." *TLP* 2.011) so the function of an object can be represented through the function of a name. However this is not a good reason : if an object and its internal property are not identical, although necessarily related in the sense that the property is an internal and necessary property, this difference between the object and its property should be represented or shown through the logical structure of a proposition. When we say that an internal property is a function of an object, it really does not mean that an object and its property are identical, but it shows that an object and its property have a certain relation i. e., an internal property is a function of an object. If an object and its properties are not separately determinable, i. e., an object is determinable only through its internal property, then how can an object and its property be represented through two different logical categories If an object in itself cannot be named, and cannot be determined through the logical category

of a name, as a real object can be determined through the logical category of a name, then we can suggest that if the object is hypothetical then it can be determined through the category of hypothetical name. For example, let us say we write an elementary proposition as follows :

$$O \ (P)$$

'O' indicating a logical category for an object. A logical function of 'O' is to name an object, so it can be replaced by a name of an object. 'P' indicating a logical category for a property. A logical relation between 'O' and 'P' in the proposition 'O (P)' is that 'P' is a description of an object 'O'. To differentiate a logical category of name from the logical category of a hypothetical name, we can add 'H' before 'O' in 'O (P)', and thus get 'HO (P)'.

Wittgenstein's failure to distinguish clearly between the essential logical categories of an elementary proposition leads him to adopt inadequate method for determining the sense of a proposition. As mentioned earlier if 'x' in 'fx' is a variable, and is a general name for a concept then 'a' substituted in place of 'x' in 'fx' cannot be used as a name of an object as such, even if the object is an object in a state of affairs 'a' in 'fa' to be a name of an instance of the concept that 'x' in 'fx' names or signifies (does not denote). In the same way if 'x' in 'fx' characterizes the sense of an elementary proposition, and 'a' that can be substituted for 'x' in 'fx' cannot be the name of an object as such, then only the instance of 'x' in 'fx', i.e., 'fa' can determine the sense of a proposition 'fa' then it may name an instance i.e., a state of affairs, but it cannot name an object as such. However, a state of affair according to Wittgenstein is not to be named by an elementary proposition like 'fa', it is only to be shown through the form of a proposition. Again as mentioned earlier, if 'x' in 'fx' is a variable name for objects which share the property

indicated by ' f ' in 'fx' only then 'a' substituted for 'x' in 'fx' can name an object having that property. In the same way if ' f ' in 'fx' characterized the sense of a proposition and 'x' in 'fx' is a variable name for objects which share the sense characterized by ' f ' in 'fx' only then 'a' occuring in place of 'x' in 'fx' can determine the sense of proposition 'fa', and at the same time 'a' can name an object in a state-of-affairs and 'fa' can show how an object can occur in a state of affairs. Further more if Wittgenstein writes an elementary proposition as HO (P) due to reason mentioned in the preceeding paragraph then the sense of a proposition can be characterized by the sense of both 'HO' and 'P' in 'HO (P)' : 'HO' in 'HO(P)' indicates a logical category of hypothetical objects and 'P' in 'HO(P)' indicates a logical category of a property that can be attributed to a hypothetical object. By taking a name for a hypothetical object, let us say HO 1, and by substituting HO 1 for 'HO' in 'HO (P)' the sense of a proposition can be determined : 'HO 1' in HO 1 (P)' must represent a hypothetical object in a state of affairs and 'P' in 'HO 1 (P)' must show or describe the property P of HO 1.

In the preceeding section of this essay it has been concluded that the logical structure of an elementary proposition is determined by determining the sense of a proposition; the sense of an elementary proposition is first characterized by an expression in a function of an expression by providing a logical place where a name can occur, and by signifying a concept (not denoting); the sense of proposition is determined by the name that occurs in place of an expression in 'the function of an expression', that name must represent an object in a state of affairs. If logical structure of a proposition is determined by characterizing and determining the sense of a proposition and if a logical structure of an elementary proposition pictures the logical structure of

reality (*TLP* 2.18), then possibly the logical structure of reality – a fact or state of affairs is also determined by characterizing and determining the structure of fact or a state of affairs. Therefore, the discussion of Wittgenstein's claims that the logical structure of a proposition pictures the logical structure of reality shall be undertaken from two aspects :

(a) How does the characterizing of a sense of a proposition picture the logical structure of reality or characterizing of logical structure of a state of affairs ?

(b) How does determining of a sense of a proposition picture the determining of a state af affairs ?

(a) Let us say that characterizing of a sense of a proposition can picture the characterizing of structure of a state of affairs : a logical structure of an elementary proposition can share or picture the logical structure of a state of affairs because the structure of a fact or a state of affairs is characterized the same way as the logical structure of a proposition. The first 'logical' thing Wittgenstein tells in the *Tractatus* about a fact or a state of affairs is that the facts in logical space are the world (*TLP*-1.13). So first of all there is logical space. Then a logical place (a place is a possibility such that something can exist in it stet *TLP* 3.411) is determined out of logical space e.g. a proposition determines a place in logical space is guarranteed by the existence of a proposition with a sense (*TLP* 3.4). In the same way the possibility of a state of affairs is that something can occur or exist in it (*TLP* 2.012) that means the possibility of a state of affairs provides a logical place in which something can exist. However possibility of a state of affairs must be written in the thing itself (*TLP* 2.012). So a proposition through an expression in a 'function of an expression' can show that a state of affairs like an expression provides a logical place in which an object can

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occur; an object can occur in a state of affairs, as a name can occur in place of an expression, by its internal nature. Thus, we may say that the characterizing of a sense of a proposition can picture the characterizing of the structure of a fact or a state of affairs because the structure of a fact or a state of affairs is determined the same way as the sense of a proposition. However there is a problem. The expression in 'the function of an expression' does not just occur in the logical place provided by the function, where it can be substituted by a simple name, it also signifies a concept, whereas a state of affairs merely provides a logical place where an object can occur. Thus the sense of a proposition is not characterized the same way as the structure of a state of affairs. The sense of a picture possibly is characterized the same way as the structure of a state of affairs : a picture like a state of affairs provides a logical place where an object can occur. Characterizing the sense of a picture, can picture the characterizing of the structure of a state of affairs because the sense of a picture and the structure of a state of affairs are characterized the same way. Although characterizing the sense of a proposition cannot picture the characterizing of a structure of a state of affairs as the characterizing of rhe sense of a picture can However, characterizing the sense of a proposition can describe the characterizing of structure of a state of affairs, through the description of the concept.

(b) It has been concluded earlier that the sense of a proposition is determined by the occuring of a name in place of the expression in 'function of an expression' and the name must represent an object in a state of affairs. Now it shall be discussed how the determining of a sense of a proposition pictures the determining of a state of affairs. Wittgenstein's position is that the determinate sense of a proposition can picture the determinate structure of a state of affairs because of the following two

reasons (i) the form or structure of a state of affairs is determined the same way as the sense of a proposition :

TLP 2.14 what constitutes a picture is that its elements are related to one another in a determinate way.

TLP 4.01 A proposition is a picture of reality.
∴ What constitutes a proposition is that its elements are related to one another in a determinate way.

TLP 2.15 The fact that the elements of a picture are related to one another in a determinate way represent that things are related to one another in the same way.

TLP 2.151 Pictorial form is the possibility that things are related to one another in the same way as the elements of the picture.

There is a problem here again. Although the structure of a state of affairs is determined the same way as the sense of a picture, but the sense of an elementary proposition is not determined the way the structure of a state of affairs is determined. When a name occurs in place of an expression in a ' function of an expression ', that expression signifies a concept, then that name becomes determinate in two senses : (a) that a name falls under the class of formal concept (b) name becomes a particular name : it becomes a name of an object. On the other hand when an object occurs in a logical place in a state of affairs, it does not fall under any other logical place, it just occurs in that logical place. The relationship between the logical place of a state of affairs and the object occuring in that place is not that of the relation between the general and the particular, like the relation between an ' expression ' and a ' name ' occurring in a function. However, in a picture the elements of a picture become determinate the same way as the objects in a state of affairs : elements

of a picture thus occur in logical space in the picture and make it determinate: the elements of a picture stand in relation to the logical place in the picture the same way as the objects of a state of affairs stand in relation to the logical place in a state of affairs. The structure of a state of affairs and the structure of a picture are determined the same way; so it is possible for a picture to share its pictorial form with the form (structure) of a state-of-affairs. The structre of state–of–affairs and the sense of a proposition are not determined the same way, so the determinate sense of a proposition cannot picture the structure of a state of affairs. However, (ii) the determinate sense of a proposition can communicate about the determinate form of state of affairs, not through picturing but through describing and referring. The substitution of a name in place of an expression that signifies a concept ascribes those conceptual properties to that name and that name through naming an object in a sate of affairs describes the properties of that object.

Wittgenstein fails to distinguish the essential logical categories of a state of affairs as he fails to distinguish the essential logical categories of an elementry proposition. An object, before it occurs in a state of affairs, is subsistent (TLP 2.0271). Wittgenstein also speaks of objects' subsistence as of hypothetical necessity : ' There must be objects if the world is to have unalterable form ' (TLP 2.026). It is after an object occurs in a state of affairs that its logical form is determined. One must note that it is the logical form of an object that is determined and not the object itself. Thus a name in a proposition that is substituted in place of an expression can name only the logical form of an object and not the object itself. However, under such circumstances if we write a proposition as ' HO_i (P)', then the form of the proposition i. e., 'HO (P)' can show that the name 'HO_i' substituted for the variable name ' HO ', can name a

hypothetical object and 'P' either shows or describes the logical form or structure of a proposition that can be attributed to the name substituted for 'HO' in HO(P), and the property described by 'P' can be attributed to the hypothetical object named by 'HO'.

Conclusion :

In this paper I have maintained the following points : (1) Logical structure of a proposition according to wittgenstein is determined through determining the sense of a proposition and not through the logical analysis of a proposition. (2) The sense of a proposition is characterised by an expression in 'the function of an expression' (a) by providing a logical place (argument) where a name can occur, and (b) by signifying a concept. The sense of a proposition is determined by the name that occurs in place of the expression in 'the function of an expression' while the name must name an object in a state of affairs. (3) Wittgenstein fails to distinguish the essential logical categories of an elementary proposition that in consequence leads him to adopt inadequate method for determining the sense of a proposition. (4) characterizing of a sense of a proposition cannot picture the characterizing of a structure or form of a state of affairs. However characterizing of a sense of a proposition can describe the characterizing of structure of a state of affairs. (5) The determining of a sense of a proposition cannot picture the determining of a structure of a proposition : Determining of a sense of a proposition can describe, or refer to, determining of a structure of a state of affairs. (6) Wittgenstein fails to distinguish the essential logical categories of a state of affairs as he fails to distinguish the essential logical categories of a proposition. (7) A suggestion has been made that Wittgenstein could have constructed the logical structure of a proposition as

' HO(P) ' where ' HO ' stands for a hypothetical object and ' P ' for a property that can be attributed to ' HO '.

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NOTES

1. *Translations From the Philosophical Writings of Gottlob Frege.* Edited by Peter Geach and Max Black. Basil Blackwell, Oxford 1960, p. 3.

2. *Ibid* p. 13.

3. *Ibid* p. 12.

4. J. O. Urmson, *Philosophical Analysis*, 1966.

5. Wittgenstein's use of the word function is not very clear. The multiple ambiguity of ' function ', ' functional ' etc. has been widely ruled by other philosophies too. e. g. see W. G. Lycon ' Form, Function and Fact ' in the *Journal of Philosophy* vol Lxxvii, no. 1, January' 81.