

## **METALINGUISTIC INVESTIGATION OF POWERFULNESS OR POWERLESSNESS OF ANALYTIC TOOLS IN CORE LINGUISTICS DESCRIPTION**

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### **Abstract**

Researchers, students and teachers of linguistics basically use tools like symbolic properties, charts, logos and other iconic devices in their formations, descriptions and analyses of phonological, syntactic, semantic and morphological units. Of this analytical trend, not everybody is sufficiently equipped with the theoretical and practical implications of those tools, as they are seen as elements for rendering linguistics as adequately as scientific. Most of the tools, also, emanate from mathematical and logical contents but are situated within linguistic study. This study therefore targets to theoretically and descriptively examine the extent of positivity or negativity of those analytic devices in representations and readings of linguistic information across four core linguistics disciplines. This is done by responding to some questions that reflect the ways and manners those tools are handled. The primary data of this study is generated from student's tests, researcher's documents like journal article and conference papers, this is also supported by the supplement of back up from other secondary sources, mostly textbooks. The selection is thus random and the analysis is descriptive. At the end of the investigation, the research came up with the following results: students found that the analytic tools are insufficiently relevant as such rarely use them in their linguistic formations and analyses; they also use the available tools most importantly in the realm of syntax. This tallies with what is

obtained in the teachers' or researchers' use of the tools. The teachers/researchers however find the tools useful in exhibiting the scientific ramifications of linguistics.

**Keywords:** metalinguistic, analytic tool, core linguistics  
Scientificity of linguistics

## **Introduction**

One of the seminal and fundamental breakthroughs of linguistic study is most importantly the attestations of how linguistics is considered scientific. This is unarguable acknowledged especially to those linguists like Chomsky whose works distinguish linguistics from other disciplines like History and Literature. Thus, users of linguistic materials like students and researchers find it evidently impressive to use different avenues in easing and understanding of linguistic information and if possible, in adequately representing such units. There is no specification of who needs such tools much in handling such tasks but what is most important is that all and sundry of linguistic materials users need to have it in mind that scientific tools for linguistic analysis play salient roles in formations and analyses of structural and functional units being them in syntax, morphology, phonology or semantics.

## **Literature Review and Reflection of Data**

### **Linguistic Analysis and the Question of its Scientificity**

Basically, Linguistics as a new discipline achieves prominence in the understanding of language and all factors surrounding or relevant to language. These factors could be religion, culture or human feeling. This array of linguistic domains attracted definitions of linguistics from diverse perspectives mostly from scientific, theological, phenomenological and anthropological. The most widespread and heartbreaking definitions of linguistics come from scientific jurisdiction which buttress on the technical properties of language such as fecundity,

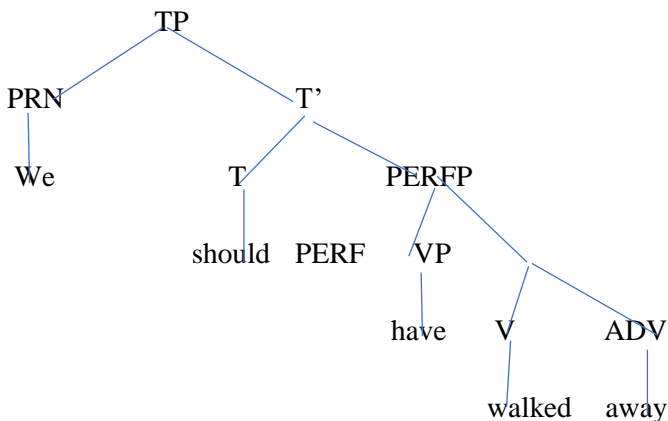
duality, and displacement. These definitional tracts have added great gamut of literature worthness to the understanding of language and linguistics from the interplay of primary attributes to language. What is most common across the definitions is that, language or linguistics as process and product requires painstaking procedural interpretations. This network or structural representation does not happen at a vacuum but as an emblem of systemic function or structuration or procedural interpretation.

The whole trend reflected above emanated from the relationship between philosophy of mathematics and philosophy of science which comes not of sudden but has a long integral tradition. Most of what is seen is the use of symbols like  $\langle + - * \times \rangle$  some of which are iconic not symbolic. Their analytic scope in this regards are the simplest symbolic language. They gain prominence and recognition during the 1950s-1960s under the influence of John Austin, Donald Davidson and Paul Grice. Although analytical tools are non-explanatory but it offers avenue through which analytical and synthetic explanations are extracted and developed. This further offers a theoretical vindication that language was a central topic in discussions of the foundations of mathematics since Frege, Peano and Hilbert scholarly era. For instance, in the semantic analysis, they are based on manipulations with numerical symbols. The arguments of the scientificity of linguistics, therefore, compels us to take note of what the defining properties of science are that make the modern approach to language study what it is. This is pictured by (Crystal, 1971:77) in Haegen (2006:4-5) who identified the main features of the scientific methods like systematic and formulation of knowledge, and explanation of their orderliness and regularity.

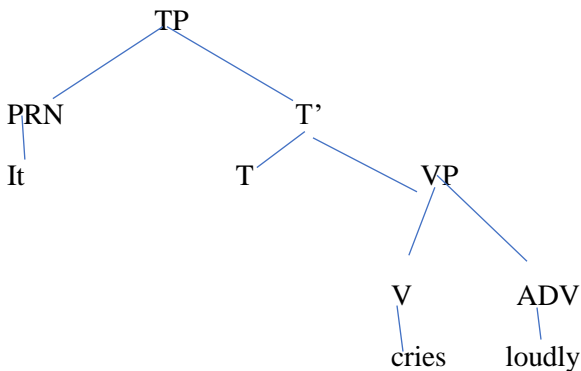
### **Syntax and Analytic Tools**

This is one of the core linguistics areas that stresses adequately how language works as a system of systems. In fact, it is built as

the most known field of scientific study of language. This can be seen in most of the works dominating structural and descriptive linguistics like Noam Chomsky, Andrew Radford and Zellig Harris. Most of the arguments reached on this postulations dwell on the analytic sufficiency in descriptive posture of language. It divides linguistic units into four; word, phrase, clause and sentence. This fact proves that the lowest point of analysis is word and the highest is sentence. However, with the discovery of new trends in syntax, there is strong concern of morphemes mostly bound, which according to the proponents of this play salient role in syntactic selection, placement and roles. For instance, in the Minimalist Program (MP), where inflectional/tense phrase is made, depends on the currency of syntactic theoretical doctrine. We can attest to this in so many manifestations. For instance, in their works, contemporary syntacticians are of the opinion that to do syntactic study or analysis of structural/linguistic units is tacitly use tools such as vine diagram, bracketing, tree diagram and other symbolic representations like those in Mathematics. This is can be seen in the tree diagram below

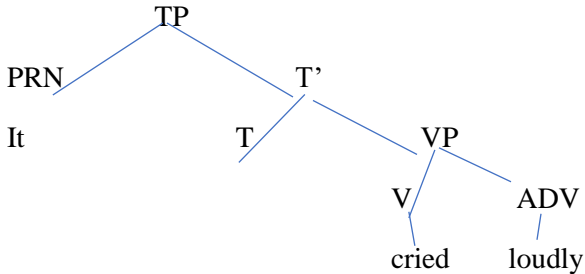


This tree has the power to spell several ways of identifying verbs or nouns by their inflectional morphology in English. Radford (2009:34) posits that, in addition to their uninflected base form, verbs typically have up to four different inflectional forms which include, base, perfect, past, present and progressive forms. From the above tree diagram we can see how economical it serves with grammatical, morphological and syntactic information. For instance, the terminal word ‘walk’ has an inflectional or affix hopping -‘ed’; which is due to indexicalisation of auxiliary. Syntactically, the *PERFP* has no connection with the NP-*we* in number, gender or case but wholly with the verb.

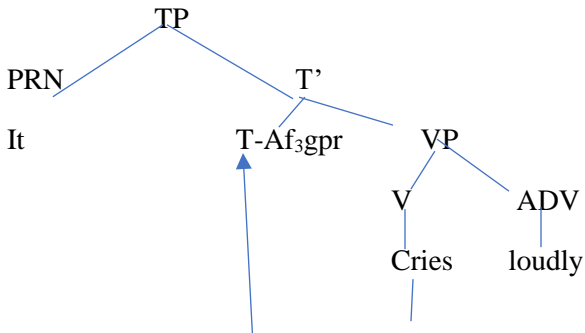


Unlike in the first tree, here, the inflected verb-*cries* has a connection with the NP-*It* most importantly in number. What is essentially noticeable is how the tree marks its phrasal distributions clearly. For instance, the TP represents the phrase class, the T' indicates that an inflection is required through merge to have a tense word, while the VP concerns with the main scope of the phrase. In the same T', there is close recognition of abstracted information

which can only be understood through the minimalism maxims or operations like merge, delete, copy and select.



There is indiscriminate ground of tense determinacy due to subject involvement. But in the below tree, the NP *It* has the control of *cry* to be *cries*. For it to be comprehensibly grasped, there is need to operationalized the whole syntactic network through what is called *feature checkers* like '*s*' as in this regard, and '*d*' in the foregoing tree. The whole system affects both logical and phonetic forms of the inflected verbal particle.



## **Bracketing**

Bracketing has similar pattern with the tree diagram formation and analysis in terminal and non-terminal inclusion. For instance, where two opening brackets are used, the first represents highest order, as in the above formation is clause or sentence, the second bracket represents second tier of entry, which is phrase identification and the last one represent the terminal node, i.e. the grammatical words immediately following the bracket. All the opening brackets as mirrored below are closed in the right-hand and this marks the boundary or unit containment. This is illustrated in the labelled square brackets below:

NP, PRN[[[It]]] VP[[cries] AP[[loudly]]]

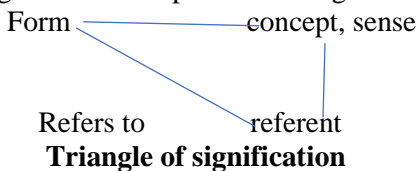
These devices are rich in analytic description and conveyance of linguistic meaning. They also cover the whole gamut of analytic circumstances from the traditional grammar to the more refined generative grammar. Their communicative features regulate how data is patterned through general laws and offers explanatory scope. In the first place they form a basis through which information is formulated and how it is systematically presented and analyzed mostly through rewrite rules or what is called PSR. This has also attributed scientific outlooks of the syntactic analytic tools which aim at achieving something, or what Haegen (2006) calls 'search', a 'hunt', 'a pursuit'. What is importantly discernible in most of the descriptive purview is compositionality, which must not necessarily be on syntax alone. Borg (2004:7), opines that:

formal semantics tell us, roughly what we can hope to deliver something which will serve as a theory of linguistics meaning based solely on the formal aspects of language (perhaps together

with a formal description of the context in which linguistic items are produced). For any sentence of the natural language question, our theory will take a formal description of that linguistic item and, on the basis of a finite set of axioms and recursively specified rules of composition, yield a specification of the meaning (for instance, in terms of truth conditions) of that sentence

### **Semantics and Analytic Tools**

Most of the theories of semantics such as Componential Analysis Theory, Referential Theory and Relevance Theory have set off scientific qualities of compositionality and referential target. Because of this binary obligation, their thrust remains resolute to give a take away tool for meaning formation or interpretation. There is no way this is made unless it passes through linguistic description which by extension dwells on analytic tools. These tools could be borrowed from those in syntax, but what is essentially based is binary inclusion and which is best analyzed using tables. In a more refined theoretical description, in this sphere, there is close dependence on mathematical tools such as chevron, use of arrow, and all other features valuable in that preoccupation. And because of its primacy in meaning studies, semanticists uses different tools that convey how meaning is enacted through reference- referent relationship. This referential relationship is known as ‘signification’. We can examine how meaning becomes the products of signification as,





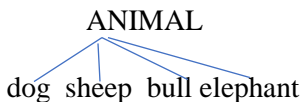
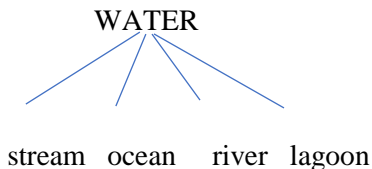
The relationship between the above triad components-form-concept-referent, has to do with referring or referencing and is not a simple or direct relation between words and things; the referent in the world, and the form and concept in the language. This network of relationship, which also accounts for one of the analytical tools shows how adherent linguistic forms are to world entities. However, scholarly arguments like Finnegan (2008), Bloomfield (1933) and Sapir (1918) verify the inequality in the relationship; that should not often be conventional. In other words, the meaning is arbitrarily designated.

### **Markedness-Binarity**

Hofman (1993:21) stresses on the notion of markedness which he sees it useful for coming to grips with many other phenomena in language. One of the roles of markedness representation is been helpful in the pairs of ‘oppositeness’ such as male/female or long/short. When a word is being marked, it means that it has some special or additional element(s) of meaning that other do not have as we can see below:



We can also equip a tree-like diagram in labelling lexical features which is one of the most basic types of lexical structure that shows inclusion. This process or superordinate and sub-ordinates relationship is HYPONYMY.

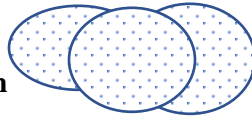


Logically, there is a basic rule of human language that if there is a common word that means just what you want to say, you should use it rather than the general word, e.g. *cow* rather than *animal*, *millet* rather than *grains* or *stream* rather than *water*. This further adumbrates on the notion of specification

### **Set/Set Theory**

Set is geometric or mathematics tool use is communicating ideas. It gains the popularity of theorization (i.e. Set Theory). Its function in mathematics tallies with what it is used for in linguistics. Linguists found it credibly appropriate to use set in exhibiting information. Most of what it is used for settles on variables groupings. For instance, the variables house, class, motel and room have commonplace nature/function, i.e. of accommodation. If this is their common feature, they can have unionship or what is called intersection grouping. In the same vein, some variable can be subset of other parallel representation. Thus, linguistics can be understood on how well this set is put in place especially in the realm of semantics.

## Symbolic/Pictorial Orientation



Another informative display use in semantics include orientation which mostly comes in pictorial display. Some orientations have no linguistic or language related manifestation but carries how the information contained in it represents additional value to the understanding of linguistics. For instance, in the diagram below, the map has no linguistic functions or significations but in some cases it is used most importantly in indicating isoglosses which mark linguistic variations across ethnic or any other social ebbs. We can use map to highlight how postvocalic 'r' is used in some parts of Asian Continent or how gender is engendered in some parts of Kaduna state.



This pictorial labelling can also communicate to reader how some conventions and arbitrariness of how language behave. Ian Weinrich in Chambers (2002), for example used isogloss map in his DIASYSTEM, which is a very famous model in dialectology.

## Componential Analysis

This is another trend or tool for linguistic studies. It has scientific and mathematical integrity especially by the fact that it operates as formal language or metalanguage. Just like in many examples, this linguistics apparatus helps in meaning designation mostly through inclusion or seclusion. The plus mark (+) indicates the feature manifest in the labelling while the minus mark (-) spells absence of the feature(s) in the linguistic description or attribute. One of the strengths of this method is that the binary or grid network of reference summarizes economical display of information. It also reduces fussiness of information or meaning representation. This ensures that meaning of words is determined by COMPOSITIONALITY/ATTRIBUTION, i.e. by the relational network of components and their intrinsic features:

	COW	CARPET	MAN	TREE	SHOE	GOAT
LIVING	+	-	+	+	-	+
FOOD	+	-	+	+	-	+
HUMAN	+	-	+	-	-	-
ANIMAL	+	-	+	-	-	+
NATURAL	-	-	+	-	-	+

The notion of compositionality of semantic variables are best treated in structural semantics which distinguishes between the linguistic encyclopedic levels of those not residing in the content

of distinctive features. If features are common to certain class of semantic entities, they could be categorized out of the schema of commonness or categorization.

### **Morphology and Analytic Tools**

In morphology, the description revolves within the scope of word (or by a bound and free morpheme). Each of these two words features has peculiar entry and represents certain functional or structural potentials. Whether it is this or that, what is important is adequacy and appropriateness in representation. A word to have been concatenated for example must have met unique structural depiction. What is most important is how word is formed or represented morphologically. This can be seen in word formation processes like coinage, blending, hypocorism and inflection or derivation. The last two have unique structural patterning in theory formations, and they undergo through scientific governance. In most of the works on word formations process, these are represented in a sizeable tabular form. This tabulation therefore serves strong pictorial power and ease understanding of the formation load as in the following:

#### **Derivation**

<b>Affix</b>	<b>ed/en</b>	<b>ing</b>	<b>s</b>
<b>Word</b>	walked	walking	walks
	stolen	stealing	steals
	stopped	stopping	stops

#### **Inflection**

<b>affix</b>	<b>io</b>	<b>sion</b>	<b>ism</b>	<b>age</b>	<b>al</b>	<b>ic</b>	<b>ly</b>
<b>word</b>	rendition	admission	capitalism	drainage	rebuttal	historic	readily
	donation	vision	monism	marriage	classical	heroic	happily

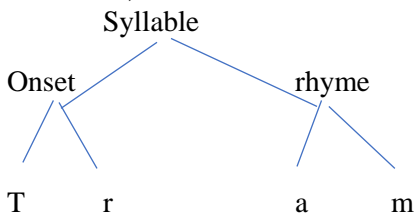
tuition mission feudalism spoilage radical simplistic complete

The first table marks how words are formed by an affix but what is most essential is change in grammatical class. For example, the word walk (v) is affixed with *ed-* walked (V). This means the affixation does not change the word from being a verb. In the second table, the same processes are applied, but in this case, there is no shift in grammatical class but in function content. For example, the word donates (V) can have an affix *tion* to become donation (N). The same procedures can be used in tree diagram, what is often needed in this regard is utilizing information in accurate and economical resources.

Another landmark of science of word is syllabic structuration. In syllabic/foot representation/ relationship between sequential and segmental structure. On this, Anderson, (1987: 8) agrees with Aronoff and Fudeman (2011) by situating that segments belonging to a particular grouping share some properties which can be associated with morphological and to some extent to phonological. The thrust is often on understanding definable parameters and must incline to asymmetrical linearization.

### **Syllabification**

This is another morphological outlook that is meant for syllable formation out of individual letters or morphemes. Use of tree as example in the diagram below, brings an apt understanding of English syllable formation,



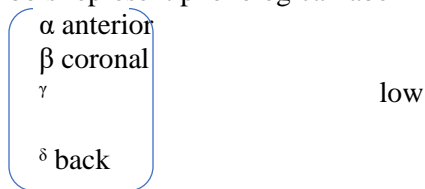
The above constituent is predictable because onset universally precedes rhymes that the (*am*) unit follows the (*tr*) unit in order to constitute a well-formed syllable. Going by this description, as opined by Disciullo (1984), s syllable is a constituent and predictable because onset universally precedes rhyme, that the (*am*) unit follows the (*tr*) unit in order to constitute a well-formed syllable. This mode of analytic/scientific formation addresses the strength of their linearity. However, this adds value to their structural licensing or constraints. If these licensing conditions are met, there is high possibility in evidential proposition, and in this regard are structurally and morphologically determined.

### **Phonologically and Analytic Tools**

This area is as long as human being as it possesses features obtainable in long past. There is no way human lives without verbal utterance which also bear phonetic flow. These utterances are produced in sound forms which are transcribed into writing. To have a clear description of the sounds, a phonological domain called acoustics is responsible for that. Technically, phonetics, which is a science of sound has in it fields of structural description. And phoneticians like Roach (1998), Avery & Rice (2008) and Even & Kaisse (2010) have agreed on how sounds formation and production are produced via scientifically and complex manners. They also confer on phonological tools or theories which account for the occurrence and variations of the phonological properties within and across languages and thus to provide a substantial definition of phonological systems tenable for a given human languages.

One of the contemporary phonological theorizing grounds as examined by Harry, Jan, and Henk, (2005) is Synchronic Phonology, through which it theoretical background offers us with processes like Componential Assumption. This view goes with the view of Chomsky & Halle (1968), which states that representation

in componential assumption of the internal structure of segments optimizes the expression of phonological relationship ('class and regularity') adequacy of binary features. The diagram below accounts for how symbols represent phonological labelling:

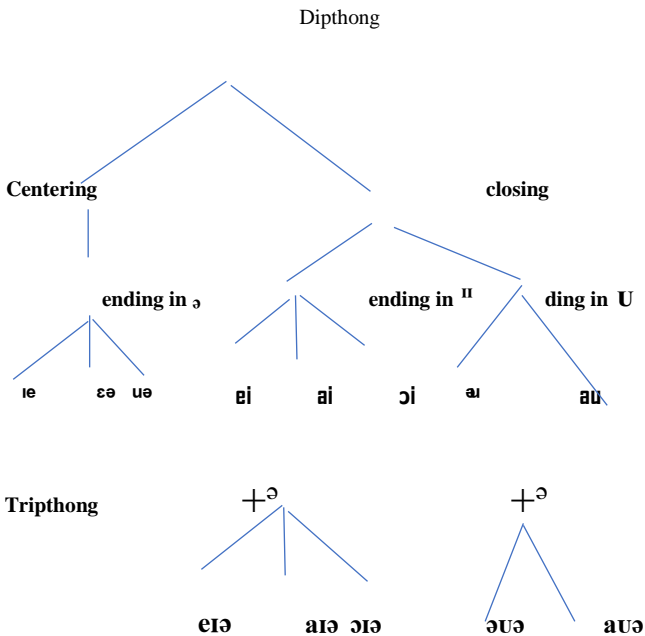


These phonological representation illustrates and formalizes between members of any arbitrary set of features, or indeed between different features. By use of those symbols like  $\beta$ ,  $\alpha$ ,  $\gamma$ , and  $\delta$  also, we are instrumented with clear cut scientific documentation of data. Evidently, there are some permissible features in describing how a particular group of phonetic units are patterned. In the realm of sounds like in (i) below undergo feature patterning, but which depends on how it conforms to naturalistic order. In *ptk* articulation, there is apparent zero air emission-blockage of air. On that, they are seen as plosive voiceless. But in the production of *bdg*, the manner of the articulation depends wholly on how air passes through the pulmonary track and this ensures them be voiced. All this cannot occur without scientific support through acoustic display. In the same vein, the pattering in (ii) has impermissible network of incoherence or inequality especially in the English language. This attracts use asterisk which is mathematically or scientifically oriented.

- |   |  |
|---|--|
| (i) $\left. \begin{array}{l} \mathbf{ptk} \\ \mathbf{bdg} \end{array} \right\}$ | (ii) $\left. \begin{array}{l} \mathbf{a} \ *tkl \\ \mathbf{b} \ * \neq kt \\ \mathbf{c} \ *tk \neq \end{array} \right\}$ |
|---|--|



Another landmark plausible in phonological description is the use of charts and tables. The designated analytic tools show points of contrast, sameness and inclusion. These behavioristic indices of the tools also brings to readers a clearer point of presentation. For instance, sound systems are most studied in chart or table form. Through these ways, each sound is attributed with natural features as sibilant, sonorant, stop, glide etcetera. With regards to primary cardinal vowels, vocal cavity chat is used to showcase the position, size, shape and function of each sound. In agreement with this, Crystal (1994:239) presents a glaring description of vowel sound units display as,



These representations facilitate in so many instances, how great gamut of information is economically represented. They include symbols like + ( ) \*/ and arrow like and each of these tools is significant in phonological or phonetic description, and they are universal to some extent. Finnegan (2008:109) notes that slanted lines // are mostly used to enclose phoneme and square brackets [ ] are used to enclose allophones, while angled brackets < > are used for enclosing letters. This clarification helps linguistics analysts in addressing all forms of phonological labeling.

### **Data Documentation and Methodology of the Investigation**

This study is exclusively theoretical and descriptive and has a blend of qualitative and quantitative research features. The latter twofold investigations pattern is essentially suitable in describing data in numerical and character integrity. It proves how the research outcomes can be assessed with precise interpretation. The data is grouped into four domains; according to classification of linguistics into its core disciplines- Phonology, Syntax, Semantics and Morphology. Each of these disciplines attracted a response of fifty respondents. In sum, a total of 200 respondents' scripts apart from a total of 30 terminal/journal papers are used. This is pictorially represented as:

#### **Sources of the research Data**



Students' scripts-200

terminal papers journal/ projects -30

The students/researchers responses are guided by the following questions/tasks, but to their own volitional space:

- a. *How do we analyze linguistic units?*
- b. *Form and analyze the following.... linguistic units in a more formal manners.*
- c. *Compare and contrast between the core linguistics in terms of how they are analyzed.*
- d. *What are the strengths of the format of your analysis?*
- e. *How scientific is your formation/analysis?*

These questions/tasks are responded and answered in the tables below. The responses are recorded in percentages summation:

Table 1

Students scripts	Task/ Question a	Task/ question b	Task/ Question c	Task/ Question d	Task/ question e	Total %
<b>Morphology</b>	24/100	43/100	40/100	48/100	53/100	<b>41.6%</b>
<b>Semantics</b>	58/100	55/100	45/100	53/100	32/100	<b>48.6</b>
<b>Syntax</b>	75/100	64/100	67/100	53/100	51/100	<b>62%</b>
<b>Phonology</b>	45/100	45/100	53/100	43/100	54/100	<b>48%</b>
<b>Total % of response</b>	<b>50.5%</b>	<b>51.8</b>	<b>51.3%</b>	<b>49.3</b>	<b>47.5</b>	

Table 2

<b>Journal/Term</b>	<b>Task/ question a</b>	<b>Task/ question b</b>	<b>Task/ question c</b>	<b>Task /question d</b>	<b>Task/ question e</b>	<b>Total %</b>
<b>Morpholog</b>	67/100	54/100	43/100	54/100	65/100	<b>56.6%</b>
<b>Semantics</b>	54/100	44/100	40/100	65/100	70/100	<b>54.6%</b>
<b>Syntax</b>	43/100	56/100	67/100	76/100	79/100	<b>64.2%</b>
<b>Phonology</b>	54/100	50/100	42/100	54/100	76/100	<b>55.6%</b>
<b>Total % of response</b>	<b>54.5%</b>	<b>51%</b>	<b>48%</b>	<b>62.3%</b>	<b>72.5%</b>	

Based on the findings which reside on the investigation questions, table 1 shows that syntax has the highest score 62% of the use of scientific or analytic tools in the formation and analysis of syntactic units, while morphology has the least in the use of such analytic tools with 41.6%. The students also find it difficult to volitionally use the tools until they are compelled to do so. This is seen in the score content of 51%. The result also shows that the students could not assess or ascertain the scientific power of the analytic tools.

In the same vein, table 2 proves that syntax is considered most scientifically accessible in the use of analytical tools with

64.2%, as semantics record the lowest patronage in using the analytic devices. Similarly, on the ground of the research questions, there is disclosure that the use of the tool's marks how terminal and journal papers researchers execute their works more scientific and comprehensible, as it is marked with the highest score of 72.5%. However, the journal/conference publications find it inadequate to assess the extent of how the tools are used across the core linguistics fields. This is contained with only 48%. Summarily, the two findings vindicated that the students are naïve and ill-informed of the usefulness of the linguistic analytic tools. It is also noticed that the quality of ideas presentation in students write up could have been other indices of inadequate usage of the tools.

Similarly, the students found it less functional in attributing their linguistic tasks with such tools. This has drastically created a sharp gap with the way terminal papers such as journal or project papers are written, perhaps this is due to the tasking nature of the paper. This task attributed its scope to some of the communicative features of the analytic devices which include economy of information representation, implicitness of linguistic variables, clarity and precision of presentations of data. Conclusively, the thrust of this study does not only rely on the discovery of how or the extent of how the tools are used but to inculcate the culture of using them. This will inextricably reveal or ascertain the scientific state of linguistics and how it is related to other fields like general science and philosophy.

### **Conclusion**

This study investigated both theoretical and practical aspects of analytic tools use in core linguistics. The use of these tools is essentially a recognition of the fact that linguistics is science oriented. The tools are also scientific tools, and wherever they are used, there is remarkable scientific reflection. The study also becomes apparent as it forms its basis on twofold, i.e. reading

of the tools and examining how the tools are ardently used or otherwise by students in their terminal paper write ups. From the analysis of the data, there is clear understanding of how the tools are used, however, there is no clear cut of that with regards to the fixed number of the tools.

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