Operation labeling algorithm within Xamtanga sentences

Berhanu Asaye Agajie
Department of language
Injibara College of Teacher Education, Ethiopia
email: berhanuas@gmail.com

Abstract - The objective of this article was to look at the operation of Labeling Algorithm within Xamtanga sentences. A descriptive research design was used to examine research objective. The proposed sentences were gathered from Xamtanga college lecturers (3 males, 1 female) who teach the intended language. By expert sampling, 11sentences were chosen, prearranged and portrayed. The method of data analysis working in this research was Labeling Algorithm {XP, YP}. Thus, results designated that simple sentences in Xamtanga have barely single Verbal heads. On the other hand, compound, complex and compound complex sentence structures have more than one verbal heads. Regarding sentences appearances, Syntactic Object representations they enclose were dissimilar. Alternatively, every sentence types share Syntactic Object representations like Noun Phrase (NP), Verb Phrase (VP), Determiner Phrases (DP), Prepositional phrase (PP), Tense Phrase (TP), Adverbial Phrase (ADVP) and Adjectival Phrase (AP). Lastly, the study suggested that additional research on how {XP, H} and {X, Y} employed to explain Xamtanga sentences.

 Keywords: labeling algorithm, {XP, YP}, sentence, xamtanga

1. Introduction

Agaw is a division of the Cushitic macro-family and branch of the bigger phylum normally called Afroasiatic. According to Desalegn (2016) the Agaw people are one of the Cushitic races and the oldest ethnic groups in Ethiopia and Eritrea. They are earliest inhabitants of the Northern and Central highlands of today's Ethiopia and Eritrea. Agaw were either forced out of their original settlements and formed a number of scattered enclaves, or assimilated with Semitic people and adopted their culture.

The current Agaw people can be classified into four grouping. Northern Agaw is Blin. They live in Eritrea, in and around Keren in Anseba zone. The Southern Agaw includes Awgni. The ethnic group of southern Agaw is Awi live in Central Gojjam in north western Ethiopia (Tsegaye, 2013). Most speakers of the Awŋi language live in the Awi Zone Amhara Region, but there are also communities speaking the language in various areas of Metekele Zone of the Binshangul-Gumuz Region. Awŋi is not the official working language in Awi Administrative Zone of Amhara Region (Esubalew, 2015). Western Agaw includes Qemant (ethnic name), who live around Gonder, of the Amhara regional state, north of Lake Tana and West of Takkeze. The Western Agaw Kemantney is the original language of the Kemantney people of Semen Gondar Zone, Ethiopia. According to Semalgn (2015), the Kimant are the original inhabitants of the north central Ethiopia. Their historical land stretched from north of Lake Tana, the origin of Abay River (Blue Nile), to North West rural areas around Gonder town.

The Eastern Agaw people, the focus of the current research live around the Simien mountainous highlands of northern Ethiopia are known as the Xamir. Currently, they are living around the Wage Xamir Zone, sandwiched between the Southern part of Tigrinya and the Amharic speaking people. The language the Xamir people speak is called Xamtanga although their language is also known as Agawinya, Khamtanga, Simt'anga and Xamtanga. As noted by Darmon (2012) there are at least five dialects of Xamtanga: Sak'ʷät'ä (South East), S'agïbği (East), Zïqʷalä (Central), Sämen (West) and Abïrgälle (North). Languages in the surrounding area are Amharic, Afar and Tigrigna. Xamtanga is used in schools and is known by most of the people, although some also speak Amharic. The Xamir people are agriculturalists and produce primarily wheat and sorghum (Teshome, 2015).

The Xamtanga is one of the least researched languages found in Ethiopia (Desalegn, 2016). The Eastern Agaw speakers are bilingual; speaking both Xamtanga and Semitic languages (Amharic and Tigrinya). The official language of the region is Amharic. Xamtanga heritable cultural legacies have mainly existed in the memories of tradition bearers. Thus, it can naturally be considered on the verge of extinction. There has been a high acculturation process between Xamir, Tigrai and Amhara tribalism and there is the probability that the Xamtanga language will soon be extinct. Research (Teshome, 2015) approved that Xamtanga is a little documented Central Cushitic language spoken by over 200, 000 native speakers in the northern part of Ethiopia; but there has been little research on the language. In order to preserve information on the Xamtanga language, operation of Labeling Algorithm in Xamtanga sentences will be studied. Therefore, the focus of this research is to fill this

gap by conducting an in-depth analysis on Operation Labeling Algorithm within Xamtanga sentences classified by their structure. Thus, the objective of the study is applying Labeling Algorithm to examine syntactic object representations found in Xamtanga sentence structures.

Syntax studies sentences and their structure, through investigating the arrangement of words and the relationship among words in a sentence. Particularly, Miller (2008) recognizes how words are sequenced to construct phrases, how phrases are joined to assemble clauses or longer phrases, and how clauses are combined to build sentences. The negligible component of syntactic structure is a word that grammatically interrelated with other such units, structuring constructions on various levels. The study of syntactical structures attempts to provide set of rules that will correctly predict the possible combinations of words, which form grammatical sentences (Cinque, 2010). Researchers use visual displays of hierarchical order to describe exactly how structural relations between lexical items or words, and the way they are sequenced in a sentence contribute to the reader or listener's interpretation. Thus, the job of researchers who map syntax is to discover and formulate rules or principles that tell us how words are combined to form grammatical phrases and sentences within and across language. Generative syntax is the word to identify when the findings are accounted that typify the structure of sentences which native speakers that are grammatically accurate sentences. As part of the process phrases are examined to help identify their hierarchy within a sentence, facilitating mapping of the language (Ott, 2011; Thráinsson, 2007).

A phrase is an element of structure typically containing more than one word, but lacking the subject-predicate structure usually found in a clause. It is a syntactic unit which typically consists of more than one word and is intermediate between word and clause level in sentences. In a phrase, words go together to form a single syntactic entity which can be moved 'around' and also substituted by another word (Carnie, 2013; Marques, 2011). Phrase structure is the basic unit of syntactic analysis, which is easier to see the parts of (phrases) and subparts (parts of speech) of the phrase in a tree. According to Richards (2010) syntactic tree allow to observe at a momentary look the hierarchical structure of Phrase. Structure dependency is worried with the hierarchical structure, usually revealed in syntactic examination by means of tree diagrams (Pullum, 2011). Therefore, relations between any given pair of nodes contained in the same phrase marker are dominance and precedence. The relation that can be appearing between nodes in p-marker is dominance. A single node exhaustively dominates sets of nodes. Therefore**,** exhaustive dominance holds between a set of daughter nodes and their mother node. When the mother nodes dominate the entire set, it can be said that the mother node exhaustively dominates the rest (Sag, 2010a).Where one node contains another, the containing node is mother and the contained node is the daughter. A mother node contains several daughters, where these are said to be sisters to each other (Sag, 2010b).

Labeling Algorithm is just minimal search, presumably appropriating a third factor principle, as in agree and other operations. The relevant information about SO will be provided by a single designated element within it: a computational atom, to first approximation a lexical item LI, a head. This LI should provide the label found by LA, when the algorithm can apply. Chomsky (2013a) supposes that a label is necesary for explanation at the interfaces, and that labels are assigned by a minimal

investigation, algorithm LA will be applying to [a Syntactic Object] an SO (like other operations, at the phase level). The output of the Labeling Algorithm is thus needed at the CI interface for interpretation; it licenses some Syntactic Objects (SOs) so that they can be interpreted at the interfaces. It applies at the Phase level like other operations, except External Merge that is needed to form the structure (Narita, 2011).

Syntactic object SO to be interpreted, some information is necessary about it. Thus, labeling is the process of providing that information. It is part of the procedure of forming a syntactic object SO. A fixed labeling algorithm (LA) licenses SOs so that they can be interpreted at the interfaces, operating at the phase level along with other operations (Chomsky, 2013). Chomsky (2014a) further explains that the identical labeling is required at CI and for the procedures of externalization; it must take place at the phase level, as part of the Transfer operation.

The operation Merge in minimalism has been taken, whether implicitly or explicitly, to include two self-determining tasks: one is to merge two syntactic objects (SOs) and the other to establish which one of the two combined SOs to project or to become the label of the resultant structure (Ishii, 2017). According to Chomsky (2013) labeling is a part of the procedure of forming a syntactic object SO.   In order to examine syntactic objects in systematic way, Chomsky (2013) developed the model SO = {XP, YP}. In this model the identification of such a unique head is problematic because the structure contains two heads that are equally embedded, that the head X of XP and the head Y of YP. Consequently, LA cannot unambiguously determine which of the two heads should become the label of the structure (Blümel, 2017; Mizuguchi, 2016b; Rizzi, 2016; Saito, 2016; Shim, 2018; Rizzi, 2015a, 2015b). Furthermore, Chomsky (2013, 2015) discusses the following two scenarios where a unique label can nonetheless be identified in seemingly unlabelable {XP, YP} structures as in:

a. {XP ... {α <XP>, YP}}

b. {β XP [F], YP [F]}, where [F] of XP matches with that of YP.

In the position {XP... {α <XP>, YP}} α of (a) is a reproduction (of the moved XP).

In this regard, Chomsky (2013) claims that the head of YP is explicitly identified as the label of α on the assumption that copies such as <XP> are indistinguishable to LA (i.e. copies are unspecified to be inappropriate for labeling purposes). Concerning the second scenario {β XP [F], YP [F]}, where [F] of XP matches by means of YP, the apparently unlabelable structure of {XP, YP} can nevertheless be unambiguously labeled. Thus, the two phrases in (b) share a feature indicated as [F]. Chomsky (2013: 45) adds the following with respect to the labelability of a feature shared by X and Y "Searching {XP, YP}, LA finds the same most prominent element [i.e. a feature] [...] can take that to be the label of α [α = {XP, YP}]."
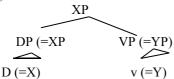
Chomsky (2015) proposes to parameterize the strength of T regarding labeling: T in English-type non-natural languages, with weak agreement, is too "weak" to serve as a label, hence there must be an overt subject in SPEC-T to label the SPEC-TP as <φ, φ> by the agreeing features.

It has been widely discussed in the literature that natural language syntax and action grammar are parallel in that both involve hierarchical structures of some sort (Pulvermüller, 2014; Stout 2010; Arbib, 2012; Knott, 2012; Moro, 2014). When a Determiner Phrase and a TP are merged, they agree with each other, so that the

common agreement feature can supply its label to the merged phrase, and solve the POP (Chomsky, 2013). In Xamtanga, specific morphemes unambiguously characterize nouns, verbs, adjectives, and adverbs. These are for example, more prominent in Xamtanga, with some exceptions. For instance, the morphemic suffixes added at Nouns are Determines and they form Determiner Phrases. The constituent marked by agreement morphology is licensed to project that agreement feature as the label of its mother node, and that agreement morphology to result from agreement with its sister. Saito's (2016) proposal about case morphology as a solution the POP, suggests that agreement and case morphology mirror each other as different solutions to the POP. If this is true, it suggests that agreement and case morphology are reflexes of each other and two different ways to resolve a POP.

Proposal

Based on Chomsky's (2013) supposition SO= {XP, YP}, neither a head. Here minimal search is ambiguous locating the heads X, Y of ZP, YP respectively. This creates the problem of Xamtanga sentence structure projections. To find solution in current research, LA defines labeling through modifying SO (by raising XP) so that there is only one visible head in the case of simple sentence structure. If, say, XP rises, then the result will be the structure with two copies of XP (Chomsky, 2013, 2014; Elly, 2015) as in:

$$
\begin{array}{ccc}
 & XP & \\
 & \diagup \ \ \diagdown & \\
DP\ (=XP) & & VP\ (=YP) \\
\diagup\!\!\!\!\!\diagdown & & \diagup\!\!\!\!\!\diagdown \\
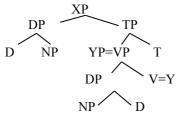D\ (=X) & & v\ (=Y)
\end{array}
$$

In the above model, the Labelling Algorithm notices YP, other than XP, which is the lower division of a broken constituent, a sequence consisting of a succession of copies headed by the structurally most significant element. It is necessary that a grouping be assigned, and the alternative is predetermined to be Y=v, the verbal head of the sentence, obviously the preferred ending (Narita, 2015).
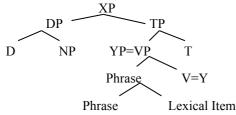
In terms of internal merge of a WH phrase, Xamtanga does not allow complementizers (C) like *that, if, whatever, etc.* As a result, the position of CP occupies the label of Determiner Phrase (DP). Moreover, the subject (including interrogative case) must be visible in {DP, TP} positions (Davies & Dubinsky, 2009). Cinque (2014), Hartman (2011), Leu (2014) and Roberts (2010) studies showed that sentential components such as focus, complementizers, sentence-final particles, tense, characteristic, topic, and determiners, conformity morphemes and verbs found in embedded clause are not really the head of that phrase, which ought to rather taken to be quiet. Moreover, Xamtanga discards Syntactic Object movements as a syntactic process, because they by no means have semantic effects.

Thus, I will assume, following Chomsky (2013, 2013a, 2013b, 2014, 2014a, 2014b, 2015), Rizzi (2016) and Shlonsky and Rizzi, 2015) is that syntactic trees must be uniformly labeled at the interfaces. Labels tell the interfaces what kind of syntactic objects they are. Hence, consistent labeling can be a consequence of interpretive principles, which may need labels to be properly interpreting structure. The other postulation that I will make use of Chomsky (2013) is that the labeller of a category created by Merge is {XP, YP} case, defined by LA that modifies SO by raising XP so that there is only one visible head Y for the entire sentence structure (Adger, 2016; Elly, 2015; Rizzi, 2015a). Y represents the main verb that is found at the end of sentence

structure. On the other hand, auxiliary verbs might occur at the end of sentence structure. In this case, they correspond to T position and just help the main Verb that comes before it. T in Xamtanga is too weak to serve as a label, Throughout the analysis, XP, CP, DP, TP, VP etc, are used for expository convenience (Adger, 2016; Chomsky, 2014; Mizuguchi, 2017a).

What proceeding tree notifies us is that; merge joined two Syntactic Objects, for instance, DP and TP to outline a set {DP, TP} from them. These generate an innovative Syntactic Object XP, which is dissimilar from its constituents. Hence, only YP is visible to the Labeling Algorithm and the structure is labeled as V, that is verbal, the desired outcome. This model applies only in simple sentence structure. In the case of compound, complex and compound complex sentence structure, there exists at least two verbal heads. In order to display syntactic object representations, I developed the model as in:

2. Method

The research design used in this study was descriptive and involved gathering data which describe the syntactic object representation of Xamtanga language structural based sentences. Expert sampling was used to capture knowledge rooted in a particular form of expertise in Xamtanga. Therefore, 4 lectures in Sekota College of teachers' education (three males and one female) who teach Xamtanga were involved in computer assist telephone interview. Through this sampling based on layout, the length of data, meaning and structural simplicity as simple to display, 11 anticipated sentences were chosen for analysis. The method of data analysis employed was collection, systematic classification and description supported by the use of syntactical trees to aid the reader in understanding the structure of phrases in the Xamtanga language.
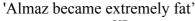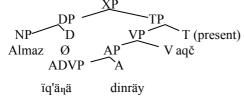
3. Results and Discussion

Simple Sentence
A simple sentence consists of one independent clause. Comprising a subject and a predicate, this short and independent syntactic entity intends to convey a complete
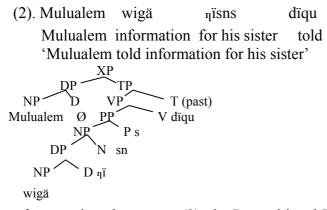
idea. Xamtanga is SOV language; it may have a modifier besides a subject, object, and verb.

(1). Almaz   ïq'äŋä   dinräy   aqč

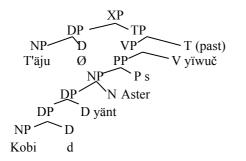   Almaz extremely fat   became

   'Almaz became extremely fat'

What (1) portrays is that *Almaz ïq'äŋä dinräy aqč* is a simple sentence. The subject of the sentence is *Almaz.* The head of the overall sentence structure is the verb *aqč.* It is true that *ïq'äŋä dinräy* is the part of the VP *ïq'äŋä dinräy aqč* (compliment of the verb *aqč*), it is equally true that *ïq'äŋä dinräy* is itself a phrase, namely, an Adjective Phrase (AP).

(2). Mulualem   wigä   ŋïsns   dïqu

    Mulualem information for his sister   told

    'Mulualem told information for his sister'

In the aforementioned structure (2), the Prepositional Phrase *wigä ŋïsns* goes with the following the Verb Phrase *dïqu* to form the Verb Phrase [wigä ŋïsns dïqu].The genitive marker, [-s] was attached within the Noun *ŋïsn.* The subject of the sentence is the Noun *Mulualem* and the head is the verb *dïqu.*

(3). T'äju   kobidyänt Asters   yïwuč

    T'äju the pen   for Aster   gave

    'T'äju gave the pen for Aster'

In (3) *T'äju* is the subject of the sentence. The Verb *yïwuč* is the head of the sentence. The head *yïwuč* conjoin with immediately with Prepositional Phrase

[kobidyänt Asters]. It is the immediate complement for the head verb. The Noun Phrase *kobid* and the Determiner *yänt* conjoined to form Determiner Phrase [*kobid yänt]*. The Determiner Phrase also conjoined with *Aster* to form Noun Phrase.

(4). Ïjïrd   ŋŋnizgʷä   firu
    The man   of the house   went
    'The man went to his house'

What example (4) notifies that *ijïrd* is the subject of the sentence. The Prepositional Phrase ŋŋnizgʷä is a secondary part of the sentence, which modifies the head verb *firu*. It completes its meaning indicating the phenomenon affected by the action of the predicate.
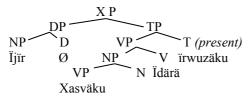
Compound sentence
Compound sentences in Xamtanga contain two or more independent clauses linked by coordinating conjunctions (like *ïnäŋi/however*). Coordination suggests that the balance of equal weight between the two clauses as in:

(5). Alämu abäzgʷä   fu;   anäŋi   täryäwum
    Alämu   to the hill went up; however, didn't come
    'Alämu went up to the hill; however, he didn't come'

    Under the analysis in (5) *Alämu ïbä* zgʷä *fu, anäŋi täryäwum* is a compound sentence which contains two independent clauses such as *Alämu ïbä* zgʷä *fu* and *anäŋi täryäwum*. Semicolon joins these independent clauses. The conjunctive adverb *anäŋi* was used to join two independent clauses together. Each node under the tree has their linear and hierarchical relationship.

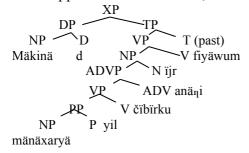(6). Ïjïr xasväku;   Ïdärä ïrwuzäku

 Man proposes, God   disposes
    'Man proposes, God disposes'

Compound sentences like (6) may not require conjunction. In that case, syntactic structure of *ijïr   xasväku;ïdärä ïrwuzäku* consists of S₁ *ijïr ïrwuzäku* and S₂, *Ïdärä xasväku.* In terms of relation, the mother XP node immediately dominates DP and TP daughters. Thus, DP precedes TP Node.

(7). Mäkinäd mänäxaryäyil čïbïrku; anäₙi ïjr   fiyäwum

   Car   at bus station   stopped, however no one got off
   'The car stopped at the bus station; however, no one got off

In accordance with (7), the independent sentence element (represented by the *XP*) consists of two constituents: Sentence (S₁) *mäkinäd mänäxaryäyil čïbïrku* and another Sentence (S₂) *anäₙi ïjr fiyäwum.* Sentence S₁ in turn contains the subject Determiner Phrase *mäkinäd* and the Verb Phrase *mänäxaryäyil čïbïrku.* This Verb Phrase in turn encloses Prepositional Phrase (PP) *mänäxaryäyil* and the Verb Phrase *čïbïrku.* Similarly, S₂ contains bare Noun Phrase (since it was stated in S₂), and the Verb Phrase *anäₙi ïjr fiyäwum.* This Phrase is further broken down into three bits:

Adverb Phase *ïnäₙi,* the Noun ïjr, and the Verb *fiyäwum.*

A Complex Sentence

A complex sentence in Xamtanga contains at least one independent clause and at least one dependent clause. Dependent clauses in the intended language can refer to the subject, the sequence or the causal elements of the independent clause.
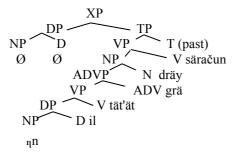
   (8). Laway säräšräw šïrzu ŝaqud   qalä
      Laway   cooked shiro   wot   here it is
      'The shiro wot which Laway cooked is here'

The resulting structure in (8) shows that a complex sentence contains one independent clause *[qalä]* and one dependent clause [*Laway srašïräw šïrzu ŝaqud*]. Dependent clause *Laway srašïräw* comes first. It modifies the Determiner Phrase *šïrzu ŝaqud.* Noun *ŝaqud* has the complement *šïrzu. Šïrzu ŝaqud   qalä* is independent clause and it carries the main meaning. The main clause comprises the subject *Laway*, the Verbal predicate *qalä* and the complement clause *Laway srašïräw.*
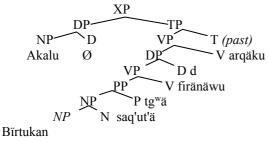
(9). *Ŋnil tät'ät grä   dräy säračun*

   House I came after   dinner cooked

  'I cooked my dinner after I came to my house'

```
                     XP
            DP               TP
      NP        D        VP        T (past)
      Ø         Ø       NP            V säračun
                    ADVP       N  dräy
                    VP      ADV grä
                DP      V tät'ät
            NP      D il

        ŋn
```

In the foregoing tree, *ŋnil tät'ät grä dräy säračun* is complex sentences. The Verb Phrase consists of Noun Phrase *ŋnil tät'ät grä dräy.* It serves as the complement of the sentence. The Adverb Phrase is bounded by Prepositional Phrase *ŋnil tät'ät.* The subject of the entire sentence structure is empty. Moreover, the Verb Phrase (VP) was built from complement Noun Phrase *(dräy)* immediately followed by a Verb *(säračun)* where *dräy säračun* is an independent clause.

(10). Akalu Bïrtukan   saq'ut'ätgʷä firänäwud arqäku

    Akalu Bïrtukan   to Sekota   went   knew
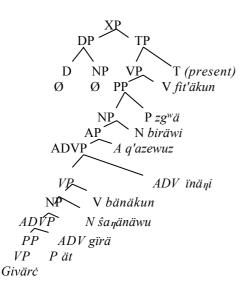
   'Akalu knew that Bïrtukan went to Sekota'

```
                     XP
            DP               TP
      NP        D        VP        T (past)
      Akalu     Ø       DP           V arqäku
                    VP       D d
                PP       V firänäwu
            NP      P tgʷä
        NP      N saq'ut'ä
    Bïrtukan
```

(10) Tells us that, *Akalu* is the subject of the entire sentence structure. *Bïrtukan* saq'ut'ätgʷä *färänäwud arqäku* is the Verb Phrase that contains the head *arqäku* and the prepositional Phrase *Bïrtukan* saq'ut'ätgʷä. The head *arqäku* is transitive verb.

A Compound-Complex Sentence

A compound-complex sentence has at least two independent clauses and at least one dependent Clause.

(11). Givärčät gïrä   ŝaŋänäwu bänäkun; anäŋi q'azewuz biräwizgwä   fit'äkun

   'After   graduation, I will travel; I had to go to the office soon'

As stated in the above tree *givärċät gïrä   ŝaɳänäwu bänäkun; anäɳi q'azewuz biräwizgʷä   fit'äkun* is a compound-complex sentence. It is the combination of two independent clauses *givärċätgis gïrä ŝaɳänäwu bänäkun* and *ïnäɳi q'azewuz biräwizgʷä   fit'äkun.*

On the subject of discussion, the current study in Xamtanga allowed the hypothesis it pursued that each lately shaped SO by Merge have to hold label. The marker of SO is compressed through the process of Labeling Algorithm (LA). Comparable to Chomsky's supposition, the consequence from current research demonstrated that Syntactic Object {XP, YP}, neither a head afterward negligible search is doubtful, judgment both the head X of XP and the head Y of YP. So as to resolve this imprecision, LA defines labeling from ending to closing stages through modifying SO (by raising XP). As a result, there is only one noticeable head. Contrasting to Chomsky (2013, 2014, and 2015) and Adger (2016), compound, complex and compound complex sentences, have at list two verbal heads. Within this dissimilarity, then the Labeling Algorithm sees YP, which is the inferior division of a alternating component, a succession consists of a chain of copies headed by structurally most important element.

Similar to Shlonsky and Luigi (2015) research finding, the main premise in the current study was that syntactic trees were continually labeled at the interfaces. Therefore, standard labeling can be a invention of interpretive standards, which might involve labels to be correctly interpreting structure. The subsequent premise that the current research used Chomsky's study (2015) was that, the labeler of a cluster shaped by Merge was {XP, YP} case, defined by LA that adapts SO by raising XP. As opposed to Chomsky (2015) in Xamtanga complementizers, aspect, sentence-final particles, tense, topic, focuses and agreement morphemes and determiners are not really the head of that phrase. Similar to Cinque's (2014) and Hartman's (2011) research result, Xamtanga discards Syntactic Object movements as a syntactic process, because they never have semantic results.

4. Conclusion

Minimalist Labelling Algorithms [XP, YP] is problematic, which rely on structural irregularity to make out the intended label. At this instant, minimal search is uncertain to locate the heads X, Y of ZP, YP in the equivalent method. To resolve the notation problem, LA defines labeling through adjusting Syntactic Object by raising XP; as a result there were one and above noticeable verbal heads in different sentence structures. Subsequently the Labelling Algorithm perceives YP, but not XP, which is the lower partition of an alternating component, a sequence consisting of a succession of copies headed by the structurally most significant constituent. It is necessary that a grouping be allocated, and the alternative is predetermined to be Y=v, the verbal head of the sentence, obviously the preferred result in Xamtanga Syntactic Object demonstration. Syntactic Object representations originated in sentence structures include: Noun Phrase (NP), Determiner Phrase (DP), Prepositional phrase (PP), Verb Phrase (VP), Tense Phrase (TP), Adjectival Phrase (AP) and Adverbial Phrase (ADVP).

References

Adger, D. (2016). "Roll-up, Roll-up, There Is Nothing to see." ‖ Video Presentation presented at the Baggett Lecture 2, University of Maryland. https:// www. Youtube. com/ watch? v= UCJ1w0qAFNc.

Arbib, A. (2012). How the Brain Got Language: The Mirror System Hypothesis. Oxford: Oxford University Press.

Blümel A. (2017). Symmetry, Shared Labels and Movement in Syntax. Berlin: De Gruyter.

Carnie, A. (2013). Syntax: a generative Introduction. Oxford: wily Blackwell.

Chomsky, N. (2013). Problems of projection, *Lingua,* 130, 33–49.

Chomsky, N. **(**2013a). Notes on Denotation and Denoting. In Caponigro, I, and Cecchetto, C (eds.) *From Grammar to Meaning: The Spontaneous Logicality of Language.* Cambridge: Cambridge University Press, 38–46. DOI: http :// dx.doi. org/10.1017/ CBO9781 139519328.004

Chomsky, N. (2013b). Problems of Projection. *Lingua,* 130, 33–49. DOI: http://dx.doi. org/10.1016/j. lingua.2012.12.003

Chomsky, N. (2014). Minimal Recursion: Exploring the Prospects. In T. Roeper & M. Speas (Eds.). *Recursion: Complexity in Cognition*, 1-15. Berlin: Springer.

Chomsky, N. (2014a). Problems of Projection: Extensions. Ms., MIT.

Chomsky, N. (2014b). Lectures on syntax at MIT. http://whamit.mit.edu/2014/06/03/recent- linguistics- talks- by- chomsky/

Chomsky, N. (2015). Problems of projection: Extensions. Structures, Strategies and Beyond: Studies in Honour of Adriana Belletti, ed. by Elisa Di Domenico, Cornelia Hamann, and Simona Matteini, 3-16. Amsterdam/Philadelphia: John Benjamins.

Cinque, G. (2010). The Syntax of Adjectives. A Comparative Study. *C*ambridge MA: The MIT Press.

Cinque, G. (2014) .The Semantic Classification of Adjectives: A View from Syntax. *Studies in Chinese Linguistics,* 35(1), 1–30.

Darmon, C. (2012). Light Verb Constructions in Xamtanga and in the Ethiopian Linguistic Area. In *Selected Proceedings of the 42nd Annual Conference on African Linguistics*, ed. Michael R. Marlo et al., 183-194. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document no. 2768.

Davies, W. & Stanley D. (2009). On the Existence (and Distribution) of Sentential Subjects. Gerdts, Donna B., John C. Moore & Maria Polinsky (eds.), *Hypothesis A/Hypothesis B. Linguistic Explorations in Honor of David M. Perlmutter,* 111–128. Cambridge, MA: MIT Press,

Desalegn, A, (2016). An Ethnographic Introduction to the Kumpal Agaw. *Journal of Ethiopian Studies*, 49, 35-56.

Elly, G. (2015). *Where are the parameters in Problems of Projection?* ICHL 22.

Esubalew, A. (2015). Developing Awgni-Amharic Cross-Language Information Retrieval (CLIR): A Dictionary Based query Translation Approach. Msc thesis, Gondar University.

Hartman, J . (2011). The semantic uniformity of traces: Evidence from ellipsis parallelism. Linguistic Inquiry, 42(3), 367–388.

Ishii, T. (2017). Transfer and self pair-Merge. In Nicholas LaCara, Keir Moulton, and Anne-Michelle Tessier (eds.), A shrift to fest Kyle Johnson, 159–167. Amherst, MA: University of Massachusetts – Amherst, Linguistics Open Access Publications.

Knott, A. (2012). Sensor motor Cognition and Natural Language Syntax. Cambridge, MA: MIT Press.

Leu, T. (2014). *The Architecture of Determiners,* Oxford University Press, New York.

Marquez, M. (2011).*working with words: An Introduction to English linguistics.* Valencia : Universities de Valencia.

Miller, J. (2008).*An Introduction to English Syntax.* Edinburgh University.

Mizuguchi, M. (2016b). Simplest Merge, labeling, and A'-movement of the subject. In Miyoko Yasui and Manabu Mizuguchi (eds.), Phase theory and its consequences: The initial and recursive symbol S, 41–83. Tokyo: Kaitakusha.

Mizuguchi, M. (2017a). Labelability and interpretability. *Studies in Generative Grammar*, 27(2), 327–365.

Moro, Andrea. (2014). On the similarity between syntax and actions. Trends in Cognitive Sciences, 18, 109–110.

Narita, H. (2011). Phasing in Full Interpretation. Doctoral dissertation. MIT.

Narita, H. (2015). Proceedings of the 32nd West Coast Conference on Formal Linguistics, ed. Ulrike Steindl et al. Somerville, MA: Cascadilla Proceedings Project, 286-295.

Ott, D. (2011). Local instability: The syntax of split topics. Doctoral Dissertation, Harvard University.

Pullum, G. (2011). On the mathematics of *Syntactic Structures*. *Journal of Logic, Language and Information*, 20, 277-296.

Pulvermüller, F. (2014). The syntax of action. *Trends in Cognitive Sciences,* 18, 219–220.

Richards, N. (2010). Uttering trees. Cambridge, MA: MIT Press.

Rizzi, L. (2015a). Cartography, criteria, and labeling. In Ur Shlonsky (ed.), beyond the functional sequence, 314–338. New York: Oxford University Press.

Rizzi, L. (2015b). Notes on labeling and subject positions. In Elisa Di Domenico, Cornelia Hamann & Simona Matteini (eds.), Structures, strategies and beyond: Studies in honour of Adriana Belletti. Amsterdam: John Benjamins.

Rizzi, L. (2016). Labeling, maximality and the head-phrase distinction. *The Linguistic Review*, 33(1), 103-127.

Roberts, I. (2010). Agreement and Head Movement: Clitics, Incorporation, and Defective Goals. Cambridge, MA: MIT Press.

Sag, I. (2010a). English filler gap constructions. *Language*, 86, 486-545.

Sag, I. (2010b). Feature geometry and predictions of locality. In *Features: Perspectives on a Key Notion in Linguistics* (ed. A. Kibort and G. G. Corbett), Oxford University Press, 236-271.

Saito, M. (2016). (A) Case for labeling: labeling in languages without φ-feature agreement. The *Linguistic Review*, 33(1), 129-175.

Semalgn, E. (2015). Developing Stemmer for Kemantney Text. Msc, Gondar University.

Shim J. (2018). <φ, φ>-less Labeling. *Language Research* 54-1 (March 23, 2018) 23-39, https: //doi.org/ 10.30961/ lr.2018.54. 1.23

Shlonsky, U & Luigi R. (2015). Criterial Freezing in small clauses and copular constructions in Italian and Hebrew. Ms., University of Geneva, University of Siena.

Stout, D. (2010). Possible relations between language and technology in human evolution. In April Nowell & Iain Davidson (ed.), Stone Tools and the Evolution of Human Cognition, 159–184. Boulder, CO: University Press of Colorado.

Teshome, B. (2015). Grammar of Himmt'0anga (Unpublished doctoral dissertation). Addis Ababa University, Addis Ababa, Ethiopia.

Thráinsson, Höskuldur. (2007). *The Syntax of Icelandic*. Cambridge: Cambridge University Press.

Tsegaye, M. (2013). Developing a Stemming Algorithm for Awngi Text: A Longest match approach., Msc. Addis Ababa University.