Construction of Maximal Projections: A Comparative Minimalist Study of Punjabi and English

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Abstract
Chomsky's Theory of Universal Grammar incorporates some universal principles for grammatical description of all possible human languages. As all the aspects of human languages may not be universal, this theory also set some parameters along which languages may vary from one another. Among other criteria of adequacy, it is a prerequisite for Universal Grammar that it must provide minimal (as simple as possible) theoretical and descriptive apparatus for all human I-languages. This criterion was fulfilled by introduction of minimalist program. Utilizing minimalist apparatus for syntactic description, this research aimed to compare the construction of maximal TP (Tense Phrase) projections in Punjabi and English. It applied three principles of Universal Grammar i.e. Headedness Principle, Binarity Principle and Extended Projection Principle (EPP) for minimalist description of selected clause structures of Punjabi and English language. The analysis demonstrated that Punjabi is a head last language while English is a head first language; Punjabi interrogative clauses cause no movement operation, but in English questions, movement of wh- expression or auxiliaries take place. However, both the languages follow Universal Grammar principles.

***Key Words**: Syntax, Minimalist Program, Universal Grammar, Principles, and Parameters*

Introduction
Minimalist Program provides minimal theoretical and descriptive apparatus for describing all possible human languages. This program builds on a theory of Universal Grammar which presupposes that human beings are possessed with a biologically endowed language faculty that incorporates some finite set of universal principles and parameters capable of producing infinite structures. This language faculty enables a child to develop a grammar of any language to which he/she is exposed. The syntactic structures and constraints on them are governed by these principles. The principles seek to describe the universal aspects in human languages and the

parameters describe the variation among different human languages. Two major universal principles are headedness and binarity (Radford, 2009). Headedness means every syntactic structure is projection of a headword, and binarity means every syntactic structure is a binary branching. These principles imply that all grammatical structures are formed by binary merger operations, and the maximal projections achieved by these merger operations are projection of one head word. These principles are universal as they govern grammatical operations in all human languages. Along with these universal principles Universal Grammar set parameters on which languages may vary from one another. For instance, in English and Punjabi syntactic structures are formed by binary merger operations and the resultant structures are projection of head words, but both the languages may differ in the positions of heads. In English, a head word comes before its complement, but in Punjabi a headword usually comes after its complement. For this reason, a minimalist description of language sets some parameters, which are also binary in nature i.e. a language may be a head first language or a head last language. In this way, minimalist program fulfills the criterion of universality by describing all human languages under binarity principles and binary parameters.

Based on the principles of binarity and headedness, *The Minimalist program* divides syntactic structures into maximal and minimal projections. The Extended Projection Principle (EPP) of the program suggests that all clauses having a finite verb must be extended into maximal projection (TP) having a subject as a specifier. Before constitution of TP the tense marker (T) forms an intermediate (T-bar) minimal projection by merging with a VP. The T-bar projection merges with a specifier- pronoun to form a maximal TP. By applying Universal Grammar Principles, this study aimed to investigate how TP's (Tense Phrases) are constructed by different binary merger operations, in the two languages i.e. Punjabi and English, under same universal principles and parameters, and how different head positions are allotted by virtue of different merger operations along different parametric settings in the two languages.

Research Questions

1. What different merger operations occur in the constitution of Punjabi and English Maximal Tense Phrases projections?
2. What different parameters empower EPP features to move some constituents like auxiliary heads in English and restrict the movement of the same constituents in Punjabi?
3. How do tense auxiliaries merge with other constituents to form intermediate (T-bar) projections in both languages?

Literature Review

Radford (2009) defines syntax as "the study of the way in which phrases and sentences are structured out of words, and so addresses questions like '*What's the president doing?'* and what is the nature of the grammatical operations by which its component words are combined together to form overall sentence structure?" With the advent of the theory of Universal Grammar, the old taxonomic conceptualization of complex grammatical structures gave way to new simple descriptive and explanatory tools to describe grammars based on universal principles governing the structures in all possible human languages.

The traditional grammar adopts a taxonomic approach for description of syntactic structures in language. It builds on the central traditional assumption that all syntactic units (i.e. phrases, clauses, and sentences) are constituted from a series of constituents each of which belong to a specific grammatical category (i.e. noun, verb, adverb, etc) and serves a specific grammatical function (i.e. Subject, Predicate, and Adjunct) (*ibid*, 2009, p.1).The problem with this approach

was that it provided a complex apparatus for linguistic description which did not match with the grammar/language acquisition in a child, and could not present universal principles that enable human beings to learn different grammars of the world like their native languages.

In contrast to taxonomic approach adopted in traditional grammar, Chomsky takes a cognitive approach to the study of grammar. He considers it is task of a linguist to determine a native speaker's knowledge about his/her language, so that description of a language corresponds with the internalized language faculty which enables human beings to develop a competence of their language since childhood. In this way studying grammar means to study internalized linguistic system or I-language. (as Chomsky termed it). His ultimate goal was to develop a theory of 'Universal Grammar' which generalizes particular I-languages to grammar of all possible human I-languages (Chomsky, 1986a, pp. 19-56). So the linguistic theory of Universal Grammar must provide tools to describe descriptively and explanatorily enough tools for description of all possible human languages, if it fails to do so it would not be universal. Furthermore, it must provide the simplest possible grammatical apparatus to correspond a child's early age development of a grammar of a language.

In order to fulfill the criterion of minimal adequacy of grammar, Chomsky (1993, 1995) introduced minimalist program that enfranchised grammar from a complex descriptive apparatus by introducing a minimalist apparatus for grammatical description. An example of the application of this program can be found in Chomsky (1998, 1999), where he suggests that an EPP (Extended Projection Principle: A finite T constituent must be extended into a TP containing a subject) feature is the mechanism which compels wh- expression to spec-CP position. To elaborate this feature he maintains that as T in finite clauses contain an EPP feature requiring it to be extended into a TP projection containing a subject as its specifier, so too C in wh-questions carries an EPP feature requiring it to be extended into CP projection containing a wh-expression as its specifier.

As the Universal Grammar principles must govern grammar of all possible human languages. Different languages have been passed through the laboratory of Minimalist Program. South Asian languages are no exception in this regard. Nayudu (2008) addresses syntactic issues Marhati language by applying minimalist framework. Kiani (2011) applies this framework or studying the syntax of Urdu complex predicates. In his study, he briefly touches the issues in other languages like 'Gojri and Punjabi', but does not analyze these languages in detail. Punjabi, being the 11th most widely language of the world still needs a syntactic description which corresponds the current syntactic theory.

With the establishment of Punjabi University in 1962, serious academic work in Punjabi began to take shape. Harjeet Singh Gill and HA Gleason Jr.'s *A Reference Grammar of Punjab* was a pioneering effort in Punjabi teaching. Then followed Christopher Shackle's *Teach Yourself Punjabi* (1976), Tej Bhatia's *Punjabi:* A Cognitive-descriptive Grammar (1993) and Mangat Bhardwaj's *Punjabi: A comprehensive grammar* (2016). Shackle (2017) views that Indian Punjabi which is officially recognized is considered as the standard description of this language. Although it has a mutual intelligibility with Urdu and Hindi, yet it is historically different from them by its preservation of the Middle Indo-Aryan (MIA) doubled consonants following a short vowel. For instance**,** Sanskrit *akshi* 'eye' becomes Middle Indo-Aryan *akkhi* and Punjabi *akkh*, which is different from Urdu-Hindi 'Aankh'. the most distinctive characteristic of standard Punjabi is the realization of historical voiced aspiration as tones. For instance, Hindi-Urdu *ghora* 'horse' becomes *k'òra* in Punjabi (with glottal constriction and low-rising tone) and Hindi-Urdu *rah* 'way' becomes Punjabi *rá* (with high-falling tone).

The modern Punjabi grammars either address colloquial and cultural aspects of language helpful for having a pragmatic and scoio-cultural insight of the language. For instance, Bhardwaj (2012) in his description of Punjabi Grammar observes, "The order of words in Punjabi language is not rigidly fixed as in English. A Punjabi speaker or writer enjoys considerable freedom in placing words in an utterance, but this does not mean that you can put anything anywhere in a Punjabi utterance……..a verb in a Punjabi utterance is placed at the end Adjectives usually precede the noun they qualify (as in English). In spoken Punjabi you can form a yes/no question by just changing your intonation. You do not have to put the verb before the subject as you do in English. *Sab khariat ai (Is every thing fine?)."* (p.28) His comparative analysis is of English is mainly based on colloquial aspect of language and primary significance is given to spoken form; therefore, his claim that a Punjabi speaker enjoys more freedom as compared to other languages like English needs further investigation as this claim is not attested by the other modern grammarians of Punjabi like Bhattia and Maan.

Bhattia (1993) maintains that no change of word order occurs when a declarative sentence is converted into a Punjabi question which contains a question word. What happens is that the questioned constituent is replaced by a question word like-*kii, what; koun, who; kinj, how, kidhar* etc. For instance, if we compare a Punjabi question '*tuada naa ki ai?'* with its possible declarative answer *'mera naa Ali ai'*, we find no change in word order. The k-words just replace the questioned constituents. Bhattia's description of this feature of Punjabi does not carry any explanation of this feature. The explanatory adequacy of grammar demands that why is it different from other languages like English where a movement take place when Wh-question is constituted. Maan (2011) mentions that Punjabi question words inflect for gender and number i.e. for which kera (masculine) and Keri (feminine) ; how much/ how many *kinnian* (feminine plural) and *kinnay* (masculine plural) etc. Furthermore, Punjabi question also take different forms in direct and oblique cases. These studies on Punjabi grammar adopt a traditional approach as they describe the taxonomy of different grammatical structures by combination of different grammatical categories which perform different grammatical functions in syntax. In this way, these works on grammar does not correspond with the current syntactic theory. The current research aimed to fill this gap by conducting a comparative research on Punjabi and English syntax to bridge the gap that exists between existing work on Punjabi grammar and current syntactic theory.

Theoretical Framework

This research borrowed theoretical framework from Chomsky's theory of Universal Grammar. In contrast to the taxonomic approach adopted by traditional grammar, Chomsky adopts a cognitive approach by suggesting that the goal of a linguist is to determine the knowledge of a speaker about his/her native language which makes him speak and understand a particular language. By this knowledge, Chomsky has meant competence of a native speaker about his/her native language. Chomsky (1986a) views that to study the grammatical competence of a speaker's language means to study the internalized linguistic system or I-language (as Chomsky terms it). This cognitive approach governs the task of a linguist who is concerned to describe and develop a grammar of a particular I-language. Chomsky's ultimate aim is to develop a theory of Universal Grammar which he defines as "the theory of human I-languages …that identifies the I-languages that are humanly accessible under normal conditions.'(p. 23). This theory of Universal Grammar informs the defining features of the grammars of all human I-languages.

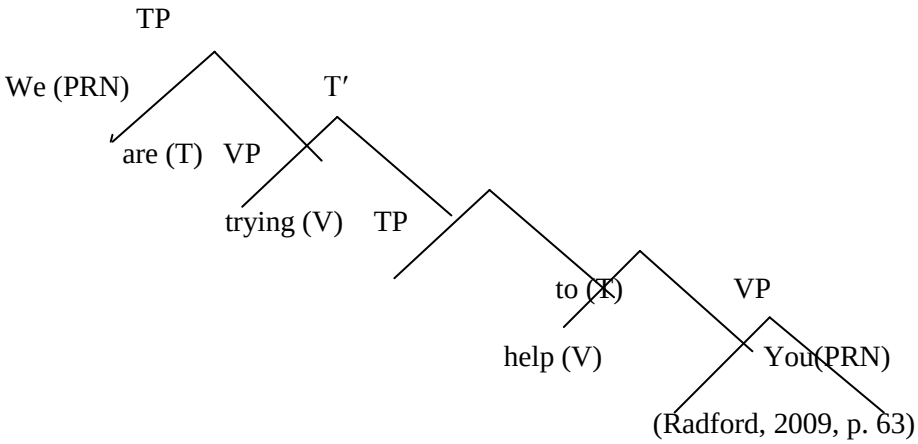
Radford (2009, p.3-4) enlists the criteria of adequacy which must be fulfilled by the theory of Universal Grammar. First of these criteria is universality which implies Universal grammar must provide us adequate tools for description and explanation of each and every human language. It would be universal if it enables us to describe every possible human language. Secondly, the theory of UG must be maximally constrained; that is, its apparatus should be enough to describe only the grammars of natural language and must not be capable of explaining or describing any other system of communication. Thirdly, it should provide us with minimal theoretical and descriptive apparatus to describe a particular human language. It implies that grammar of a language must be as simple as possible. This aspect of UG led Chomsky to introduce minimalist program for linguistics which aimed to make grammatical description as simple as possible. Lastly, the apparatus provided by UG should be easily learnable for a child.

Methodology

This was a qualitative study conducted under Chomsky's (1993, 1995) minimalist program which suggests that linguistic theory should provide minimal theoretical and descriptive apparatus to describe human languages. The framework of analysis was derived from Radford (2009) who applies Chomsky's minimalist approach for description of English syntax. His framework of analysis is based on the principles and parameters of Universal Grammar. It seeks to abstract general principles of constituent structures underlying grammars of all human languages. Two major principles are Headedness and Binarity. The former means that every syntactic structure is a projection of a head word, and later that every syntactic structure is a binary branching.

The following tree diagram (*figure 1*) demonstrates both headedness and binarity principles in a sample analysis of a declarative sentence. It shows that according to minimalist program clauses and sentences are formed by same binary merger operations as phrases as shown by binary branching at each level, and the whole structure is the projection of the tense auxiliary *are* which is the head word of the TP. An analysis, consistent with both the principles, show that whole structure is formed by merging tense auxiliary '*are'* with the verb phrase '*trying to help you'* and then merging intermediate T-bar (T′) with the pronoun '*we'*. The structure of the whole clause is divided into binary branching at all levels, and the whole structure can be seen as projection of auxiliary are. The reason for introducing intermediate projection (T-bar) is that merger of auxiliary *are* with VP does not give a grammatically complete structure; therefore, it can't be labeled as complete TP. In this situation T-bar merges with Pronoun '*we*' to form the maximal projection TP. Extending the analysis of such clauses/sentences which don't contain a complementiser, the minimalist approach presuppose that all such clauses must have a null complimentiser as the force of a clause is determined by a complimentiser. Since all structures in language are not formed by merger operations. There are structures which demand movement operations as well. This research will also take into account the movement operations if they are involved in the formation of some particular CP's.

Figure 1



(Radford, 2009, p. 63)

This research used tree diagram to demonstrate the comparative analysis of Punjabi and English syntactic structures. The data consisted of 6 clauses *(3 Punjabi + 3 English)* that belonged to three types of clauses i.e. declarative, interrogative, and imperative. The Punjabi clauses were transliterated into English for convenience of analysis.

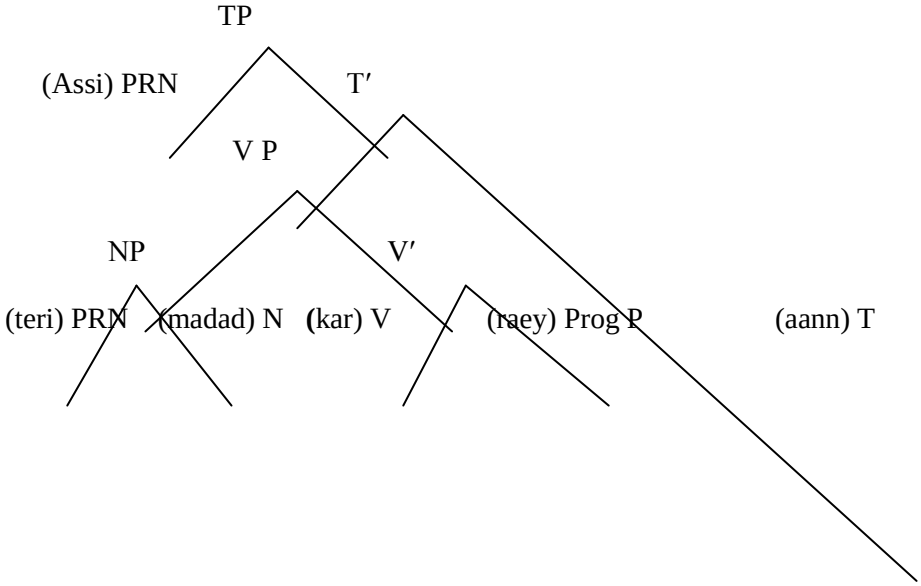
Analysis

In this section a comparative study of Punjabi and English syntax has been demonstrated through tree diagrams followed by the discussion which explained how binary merger operations constituted syntactic structures in two languages. The section has been divided into three sub-sections. Every sub-section discussed the sentence of a particular type i.e. declarative, interrogative, and imperative.

(A) Assi teri madad kar raey aan…….Punjabi.

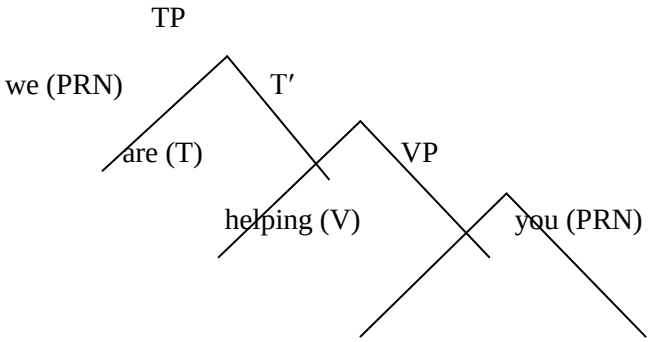
(B) We are helping you……..English

Figure 2



The tense auxiliary '*aan*' merged with verb phrase ' *teri madad kar raey'*, which was formed by merger of NP *'teri madad'* with verb *kar raey'*, to form intermediate (T-bar) projection which merged with the specifier- Pronoun (assi) to form maximal TP projection. The important thing to note in the above structure was that Punjabi takes post-head positions. The complements usually precede the heads. For instance the tense marker auxiliary *'aann'* comes at the end of the clause. In the same way the complement of the VP i.e. the NP also precedes the head verb.

Figure 3



The pronoun *'you'* merges with verb *'helping'* to form VP which merges with Tense auxiliary *'are'* to form intermediate (T-bar) projection which merges with specifier- PRN *'we'* to form TP projection. A comparative analysis of Punjabi and English structures in Figure 2 and 3 respectively showed that the former is a head last language in most of the cases while the later is a head first language. However, both languages form Tense Phrase (TP) projections by virtue of Extended Projection Principle abiding by headedness and binarity principles.

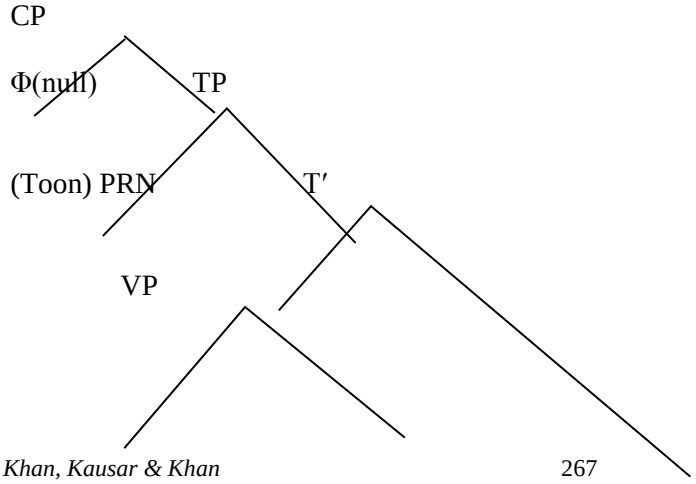
After comparative description of declarative clause structure analysis moved on to comparison of English *Wh question* and its Punjabi counterpart i.e. *k-question*.

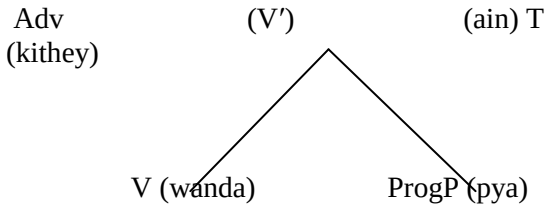
(C) Toon kithey wanda pya ain?..... *Punjabi*

(D) Where are you going?..... *English*

In his analysis of apparently complementiser less clauses Radford (2009, p.103) concludes that all finite clauses are CPs (complementiser phrases) even though they have no overt complementiser. The argument presented in favor of this assumption is that in clauses having an overt C, it is complementiser which determines the force of the clause. So, in the absence of a C, there should be a null complementiser to determine the same force.

Figure 4





The Punjabi interrogative structure in figure 4 was formed by the merger of the tense auxiliary *'ain'* with VP *'kithey wanda pya'* which was formed by the merger of Adv *'kithey'* with verb 'wanda pya' (verb + progressive particle); Hence, the intermediate T-bar is formed which merged with the specifier-pronoun *'Toon'* to form maximal TP projection. This TP merged with the null complimentizer to form CP.

Figure 5

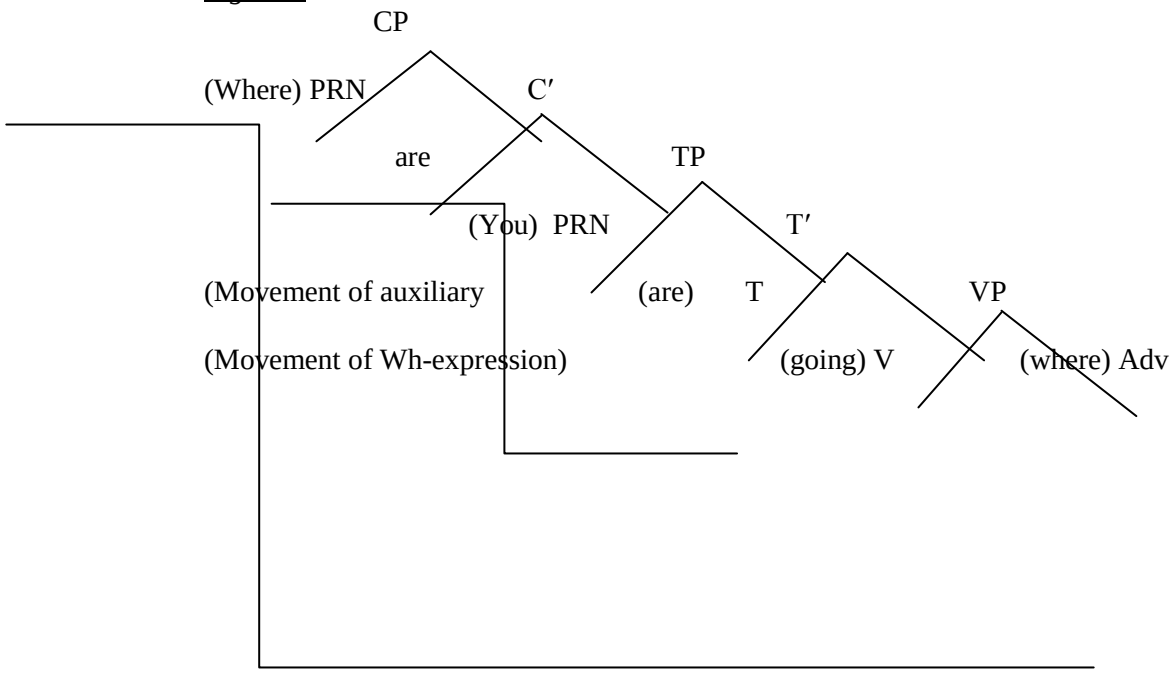


Figure *4 and 5* demonstrate analysis of a Punjabi and an English question. According to the minimalist framework applied by Radford these two questions can be analyzed as CP's having a null or overt complementiser.

In English wh-question, the verb '*going'* merged with its complement Adv *where* to form VP which merged with tense auxiliary '*are'* to form intermediate tense projection T-bar which having an EPP feature mergerged with its pronoun you to from maximal projection TP which merged into minimal C′ projection that contained all EPP, tense and wh- features. This minimal C′ projection needed specifier to merge with to form maximal CP projection. As Wh- contained feature of a complement, the need of a specifier at CP position triggered its movement to spec-CP position. The tense auxiliary '*are'* is also moved to C′ position as it contained tense features.

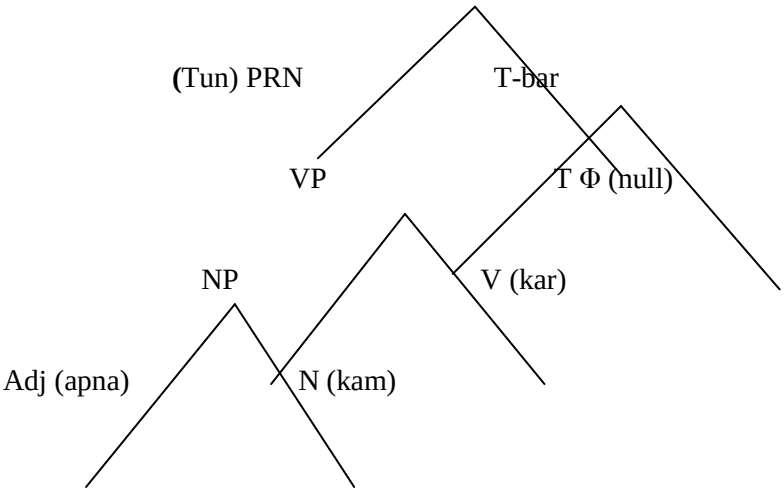
A comparative analysis of both structures showed that Punjabi, unlike English, had post head positions. As we saw that tense auxiliary '*ain' and VP 'wanda pya'* occured at the end of the phrases headed by them. It implies that Punjabi language does not take head at first position. In most of structures it takes heads at last position. Moreover, no movement operation, like the movement of *wh-expression* of English, takes place in Punjabi *k-questions*. The position of constituents remains the same as it might have been in declarative (non-question structure).

After interrogative clauses, the analysis moved on to description of imperative structures.

(G) Tun Apna kam kar…….*Punjabi*

(H) Do your own work…….*English*

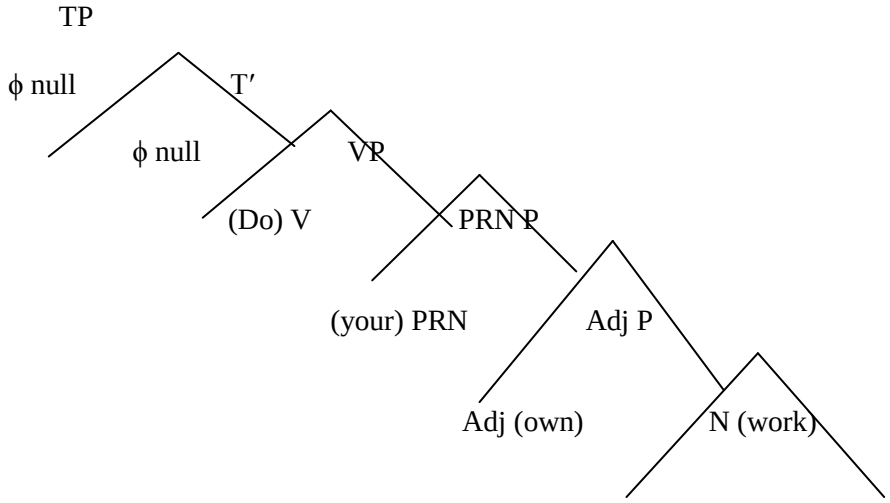
Figure 6



The analysis on the basis of tree diagram in figure ? shows that the Punjabi imperative sentence is a TP which contains a null Tense auxiliary. As in Punjabi language auxiliary marks the tense of the TP, there must be a null auxiliary in apparently auxiliariless finite clause in the above sentence, and this must be extended into a TP containing a subject *'Tun'.*

Following binarity principle, the null constituent T merges with VP *'Apna kam kar',* which is formed by merger of NP *'Apna kam'* and the verb *'ker',* to form the intermediate tense projection T′. This intermediate projection merges with the subject-specifier *'Tun'* to form the maximal TP.

Figure 7



In English imperative clause *(H) ,* the noun '*work'* merged with Adjective '*own'* to form Adj P which merged with pronoun *'your'* to form PRN P which merged with the verb *'do'* to form VP which merged with the null auxiliary to form intermediate T- bar projection which merged with the null subject specifier-pronoun to form maximal TP projection.

As imperative structures in English contain null subjects the specifier position was assigned a null constituent in the clause. However, the auxiliariless clauses also contained a null T constituent, so having no auxiliary in T for it to attach to, the *Tns* affix is lowered onto the verb *'Do'* by the morphological operation of Affix Hoping (Radford , 2009).

Conclusion

A minimalist syntactic analysis of the data illustrates that Punjabi and English clauses observe binarity, headedness and extended projection principles of Universal Grammar (UG). However they exhibit parametric deviations which can be enlisted as following.

i. Punjabi is a head last language in most of the clauses wherein the complement precedes the head word. The construction of Punjabi TP's shows that the tense auxiliary occurs at the end of the clause. On the other hand, English head words occur before complements in phrases.
ii. In Punjabi interrogative clauses no wh-expression or auxiliary movement takes place, rather the word order remains unaffected by the interrogative structure. Contrary to this feature of Punjabi language, English interrogative clauses allow the wh-expressions and auxiliary to move from their positions by virtue of EPP- features.
iii. Owing to the fact that Punjabi auxiliary heads take last positions in the clauses, there is more possibility of occurrence of split projections in Punjabi as compare to English.

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