STRUCTURE OF NOUN PHRASE IN THE HEAD-LAST LANGUAGES OF PAKISTAN: A SYNTACTIC ANALYSIS

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Candidate of **Master of Philosophy** at the National University of Modern Languages do hereby declare that the thesis **Structure of Noun Phrase in the Head-last Languages of Pakistan: A Syntactic Analysis** submitted by me in partial fulfillment of MPhil degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

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Abstract

Title: Structure of Noun Phrase in the Head-last Languages of Pakistan: A Syntactic Analysis

Although noun phrase holds immense significance in a language, the structure of noun phrase in the head-last languages of Pakistan has remained unexplored. This study is an attempt to analyze the structure of noun phrase in the three head last languages of Pakistan, namely: Urdu, Punjabi and Pashto with the help of X-bar theory while taking the structure of noun phrase in English as reference. The theoretical framework selected for the study is Principles and Parameters (P&P) theory by Chomsky (1981). The study is exploratory and qualitative in nature. Forty-Five noun phrases are collected from the grammar books of the three selected languages through purposive sampling. In order to make the selected phrases of the study comprehensible to the speakers of other languages, syntactic gloss has been incorporated. Side by side analysis of noun phrases (NPs) of the three selected languages is performed and a comparison is drawn with the structure of English NP. The findings of the study reveal that in the noun phrases of the three selected head-last languages, the position of adjuncts is fixed; all the adjuncts appear before the head noun. Moreover, the distinct category of articles is missing in the noun phrase of all the three selected head-last languages. In the NPs of the three selected languages, adjectives as adjuncts intervene between the head and the complement, which does not comply with the generic structure of phrase proposed by X-bar theory. Finally, in the prepositional phrase as a complement/modifier of the head noun, a peculiar irregularity is observed in the case of pre- and post-positions in the prepositional phrase of Pashto language while the other two languages (Urdu and Punjabi) have only post-positions. Besides delving into an unexplored area of research, the study hopes to foster cross-linguistic understanding by comparing the structure of NP in English with the same in the three head-last languages spoken in Pakistan. By highlighting both the similarities and differences in the structure of NP across these four languages, this study promotes a deeper appreciation for linguistic diversity in general and syntactic variations in particular.

Keywords: *noun phrase, head-last languages, x-bar theory, principles & parameters, universal grammar*

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List of Abbreviations

NP	Noun Phrase
PP	Prepositional Phrase
Adj P	Adjective Phrase
VP	Verb Phrase
P&P	Principles and Parameters
CP	Complementiser Phrase
TP	Tense Phrase
DP	Determiner Phrase

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DEDICATION

This thesis is dedicated to my mother for her love, endless support and encouragement. Mom! You are the woman behind my success. My all-worldly achievements are because of you.

Chapter 1
Introduction

Language acquisition, a pivotal aspect of human development, underscores the significance of nouns in shaping linguistic proficiency; nouns serve as fundamental building blocks in the construction of language, laying the groundwork for comprehension and communication (Chomsky, 1957). As the bedrock of syntax and semantics, nouns facilitate the categorization of the world around us, enabling individuals to conceptualize and articulate their experiences. Through the acquisition of nouns, learners grasp essential concepts, fostering the development of vocabulary and grammatical structures essential for effective expression. In essence, the mastery of nouns is integral to the acquisition of language, serving as a cornerstone upon which linguistic proficiency is built.

In almost all languages, nouns are crucial. They have been noted to be a predominant part of speech alongside verbs, as they generally constitute major part of semantic substance of a sentence (Algeo, 1995, p. 203). The European Science Fund recognized the significance of the noun phrase when it declared it one of the main focuses of its Eurotyp Project (Programmed in Language Typology, 1990-4; Siewierska, 1997). However, rather than focusing specifically on the typology of English, Eurotyp was interested in universals among the languages of Europe. Research on English noun phrases has tended to focus on certain, isolated features of their internal structure, whether it be theoretical, typological, or descriptive.

In Syntax, it is observed that a number of studies have been executed on the structure of noun phrase in English language and its structure has been analyzed through Phrase Structure and X-bar rules. Chomsky (1965) initially discussed and analyzed the structure of Noun Phrase through Phrase Structure Rules but later on, while studying phrases in English, he observed that Phrase Structure Rules were not able to deal with the issues of dominance and c-command. In 1981, Chomsky came up with the revised version of his Universal Grammar theory and while giving lectures on the topic, Government and Binding, he proposed the idea of linguistic universals, which he termed as 'principles and the differences across languages as 'parameters', word order being one of the parameters. Another important parameter is the position of the head in the phrases in different languages; on the basis of head position, there are two types of languages: head-initial and head-final or head-last. X-bar theory of phrase structure, proposed by Chomsky in 1970, has not been applied to any of the head-last languages in order to expose the similarities/differences that may occur in the phrase structure of head-

initial and head-last languages. Keizer (2007) carried out a vast research work on the Noun Phrase of English and addressed the following research issues among others:

A. Headedness within the NP

B. Complements and Modifiers in NP

C. Possessive Constructions in NP

D. Discontinuous NP

The present study aims to focus on the Principles and Parameters found among the three head-last languages of Pakistan, which are: Urdu, Pashto and Punjabi languages. Out of these three languages, Urdu is the national language as well as national lingua franca in Pakistan, which observes the SOV word order. In the rest of the two languages, Pashto is a regional language that is spoken in Khyber Pakhtunkhwa (one of the four provinces of Pakistan). The third language, Punjabi is also a regional language of Pakistan, which is spoken in the province of Punjab. X-bar theory provides the analytical framework for this study with the help of which the noun phrases of the three selected head-last languages will be analyzed in order to find the principles and parameters in their phrase structure. Moreover, the study endeavors to ascertain the extent to which the structure of noun phrase across all the three selected head-last languages conforms/does not conform to the generic structure of phrase proposed by X-bar theory.

1.1 Background of the Study

Research on phrase structure has been a significant area of inquiry within linguistics, attracting attention from various scholars who have offered insights into the syntactic structures and linguistic features of these languages.

One notable scholar in this domain is Andrew Carnie, whose work in *Syntax: A Generative Introduction* (2013) provides a comprehensive overview of phrase structure within the generative framework. Carnie emphasizes the importance of understanding head-final structures, particularly in languages like Japanese and Turkish, where the head of phrases typically appears at the end. His exploration of the syntactic hierarchy and the role of heads in determining phrase structure serves as a foundational framework for analyzing head-last languages.

In linguistics, the exploration of head-last languages has been pivotal for understanding the diverse syntactic structures present across different language families. These languages, characterized by their tendency to place the head of phrases at the end, pose unique challenges and opportunities for syntactic analysis. A few researchers, some of them

mentioned below, have turned their attention to languages like Urdu and Pashto, spoken in Pakistan, to unravel the intricate patterns governing their syntax.

Batra (2010) presents a rule-based machine translation of noun phrases from Punjabi to English, focusing on the conversion of Punjabi noun phrases to English within a transfer approach. His work showcases the syntactic and semantic complexities involved in translating noun phrases between languages, providing insights into the structural transformation of phrases.

Building upon this foundation, Hum and Ali (2023) undertook a study on Urdu Nominal Phrases using the X-bar theory. Their study provided valuable insights into the syntactic differences between Urdu and English, shedding light on the unique structural features of Urdu NPs within the head-last linguistic context. By applying X-bar theory, they offered a systematic analysis of NP structures, contributing to the ongoing discourse on head-last languages.

Similarly, Kainat and Khan (2020) delved into the syntactic structure of English and Pashto prepositions, highlighting the differences in prepositional usage between the two languages. Their study showcased how distinct linguistic structures convey similar concepts across different languages, offering insights into the syntactic diversity present within head-last languages.

Suhendro (2013) conducted a syntactic analysis of noun phrases in George Bernard Shaw's *Arms and the Man* using the X-bar theory. His study applied descriptive qualitative methods to analyze noun phrase constructions in the context of a literary text, offering insights into the syntactic organization of noun phrases within the head-last linguistic context.

Drawing upon these studies and the broader literature available on head-last languages, this study aims to conduct a comparative analysis of NP structure in Urdu, Punjabi and Pashto within the framework of Chomsky's principles and parameters theory. By synthesizing insights from previous researches and analyzing the selected NPs with the help of a rigorous theoretical framework, this study seeks to uncover universal syntactic principles as well as language-specific variations in NP structure.

Despite the valuable contributions of existing studies, there remains a gap in our understanding of how NP structures in Urdu, Punjabi and Pashto align with broader syntactic principles proposed by Chomsky's P&P theory. While previous studies have shed light on specific aspects of NP construction within these languages, there is a need for a

comprehensive comparative analysis across head-last languages using a suitable theoretical framework.

The present study aims to fill this gap by conducting a thorough examination of NP structure in Urdu, Punjabi and Pashto within the framework of Chomsky's P&P theory. By investigating both commonalities and differences in NP construction across these languages, this research seeks to elucidate universal syntactic principles as well as language-specific variations.

Furthermore, the present study may contribute to our understanding of the implications of NP structure for broader linguistic theory and language processing models. By uncovering the syntactic mechanisms underlying NP structure in head-last languages, this research has the potential to inform the understanding of language universals and the nature of human language cognition.

1.1.1 X-bar Theory

X-bar theory is the extended standard theory which has been the developed form of the standard theory. There are certain constraints on the phrase structure rules on the basis of the idea that all the phrases share some essential structural properties; for example, in a phrase, the head is preceded and followed by certain other words termed as: specifiers, complements, adjuncts and modifiers. Phrase Structure rules fail to account for all these terms. Moreover, the phrase structure rules also fail to identify that which element is obligatory in a specific phrase and which is optional. The syntacticians, therefore started looking for a new theory which could entertain all these problems, then Chomsky came up with the revised theory called X-bar theory. The possible structure of phrase according to X-bar is the following, that accounts for all the obligatory and optional elements of a phrase.
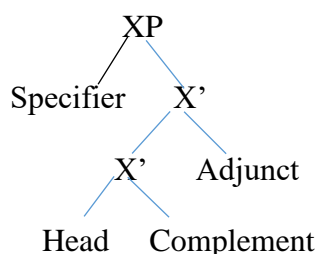
Here XP stands for a type of phrase such as NP, VP, PP and the X shows the category, the word belongs to, it can be noun, verb, preposition, adjective or adverb.

X-bar theory has been applied to the phrases and sentences of English language by the syntacticians. English enjoys the status of international language and it has its uses across the globe. Crystal (2003) calls it a global language because everywhere in the world, one will find signs, advertisements, newspapers and books written in English language. It is a tool for communication almost everywhere in the world. In this research, the researcher makes an attempt to apply X-bar theory to the structure of noun phrases of the head-last languages of Pakistan. Almost all of Pakistan's languages belong to Indo-Iranian group of the Indo-European language family, such as: Punjabi, Pashto, Saraiki, Hindko, Urdu, Punjabi, Khowar, Dhatki, Haryanvi, Marwari, Wakhi and Burushaski but this study focuses on the three head-last languages that are most commonly spoken in the linguistic landscape of Pakistan which include: Urdu, Pashto and Punjabi. Out of these three languages, 'Urdu' language holds the status of the national language of Pakistan and is also called lingua franca of Pakistan; while the rest of the two languages are regional languages and dominate the linguistic landscapes of the provinces of Khyber Pakhtunkhwa and Punjab, respectively. The nature of the study will be exploratory as well as explanatory in nature, so the study will fall in the domain of qualitative research. The researcher will apply X-bar rules to the selected noun phrases of the above-mentioned languages of Pakistan. The data will be collected from the selected Grammar books of the selected languages and analyzed with the help of X-bar theory to find out any similarities or dissimilarities in the structure of the noun phrase in the three selected languages.

1.2 Statement of the Problem

This study focuses on three head-last languages spoken in Pakistan: Urdu, Pashto, and Punjabi, each exhibiting unique structural characteristics. X-bar theory proposes a universal hierarchical structure for phrases across natural languages, with variations primarily influenced by parameters such as headedness. While extensively applied to English syntax, its applicability to the phrase structures of head-last languages in Pakistan remains unestablished. This study aims to apply X-bar theory to Urdu, Punjabi, and Pashto to investigate its adequacy in describing their phrase structures. Specifically, the study seeks to ascertain whether the theoretical framework accurately represents the noun phrase structures in these languages, despite their divergent syntactic properties. Additionally, the research endeavors to identify similarities and divergences in the organization of noun phrases among Urdu, Punjabi, and Pashto, contributing insights into linguistic typology and syntactic variation.

By exploring these languages through the lens of X-bar theory, the study not only addresses theoretical questions regarding syntactic universals and parameters but also offers practical implications for language teaching, translation, and cross-cultural communication. The findings are expected to enhance understanding of syntactic diversity and universality, thereby informing both theoretical linguistics and applied language studies in multicultural contexts.

1.3 Objectives of the Study

The objectives of this study are as follows:

1. To look for the similarities and differences that exist between the noun phrases of the three selected languages.
2. To look for the specific ways in which the structure of the noun phrase of each selected language conforms to or does not conform to the generic structure proposed by X-bar theory.
3. To explain the observed similarities and differences in the structure of the noun phrases on the basis of P&P theory.

1.4 Research Questions

The study seeks to answer the following research questions:

1. What structural similarities or differences are there in the noun phrase (NP) of the three selected languages?
2. How does the structure of NP in each selected language align with or diverge from the generic structure of the phrase proposed by X-bar theory?
3. How does the P&P theory address the similarities or differences in the structure of the noun phrase in the three selected languages?

1.5 Significance of the Study

While studying syntax, students, who come from various linguistic backgrounds, are made to practice the analysis of the structure of English phrases and sentences. They are usually not expected to apply the syntactic analysis to the languages spoken in their own region. After reading lectures on P&P by Chomsky (1981), which is a part of Government and Binding theory, the researcher thought of applying X-bar theory to the three of the head-last languages that are spoken in Pakistan. The study is an attempt at tapping an untapped area in syntax, i.e., the structure of noun phrases in the three head-last languages of Pakistan. X–bar theory as

'analytical framework' has not been applied to the structure of the noun phrases of the selected head-last languages. By exploring the structure of noun phrases in the three selected Pakistani languages, this study hopes to make academic contribution to the body of research in syntax in general, and to the understanding of the structural complexities of head-last languages in particular.

1.6 Delimitation

The present study is delimited to the three of the head-last languages spoken in Pakistan, namely: Urdu, Pashto and Punjabi. The study is further delimited to study the structure of noun phrases in the three selected languages.

1.7 Chapter Breakdown

The thesis comprises five chapters. The chapter breakdown of the remaining chapters is provided below:

Chapter 2

In chapter 2, an in-depth exploration of the relevant literature regarding the structure of noun phrases in head-last languages of Pakistan is presented. The chapter commences with an introduction to the theoretical framework prevalent in linguistic analysis, primarily focusing on Generative Grammar. It elaborates on Generative Grammar's perspective on the structure of noun phrases, highlighting its applicability and limitations in analyzing head-last languages.

Following the theoretical overview, the chapter provides a review of previous studies that have examined the structure of NPs in head-last languages, particularly focusing on languages spoken in Pakistan. Previous studies on languages like Pashto, Urdu, and Punjabi are reviewed, highlighting the methodologies employed and the key findings regarding the internal structure of noun phrases. Moreover, this chapter critically evaluates the existing literature, identifying gaps and limitations of previous studies.

Chapter 3

This chapter of the study provides the theoretical framework, research design, data collection methods, and procedure for data analysis. It establishes the theoretical basis, outlines the study's approach, describes how the data is collected, and explains the methods used for data analysis.

Chapter 4

This chapter presents a thorough analysis of noun phrases in Urdu, Pashto, and Punjabi, utilizing X-bar theory to unveil both syntactic principles and parameters governing their structure. The application of X-bar theory within head-last languages is scrutinized to assess its effectiveness and adaptability.

Chapter 5

This chapter provides a concise summary of the research findings regarding NP structure in head-last languages of Pakistan. It concludes by highlighting the significance of theoretical frameworks such as X-bar theory in understanding syntactic patterns and offers recommendations for future research directions.

Chapter 2
Literature Review

This chapter highlights the need to analyze the structure of a sentence. It highlights several arguments related to the analysis of the sentence structure. Moreover, it explains how different and distinct word categories are combined in the structure of the sentence to convey some meaning. It describes various theories that deal with the analysis of a phrase and the short-comings of the phrase structure rules that were later compensated by X-bar rules. Additionally, the literature review also highlights the gaps that have been identified in the previous studies pertaining to the analysis of noun phrases. The gaps observed so far in the previous studies have been taken into consideration in this chapter and the questions aroused related to the application of X-bar theory to the noun phrases in the head-last languages of Pakistan have also been considered.

2.1 Why is Syntax important?

Syntax is the study of the principles and rules for constructing sentences in natural languages. It concerns how words are combined to form phrases and sentences, and how the structure of a sentence influences its meaning. When a sentence is dealt with, the prior consideration is that, it must be rule-governed. This stance becomes more clear if the acquisition of language by a child is considered for a while. In the beginning, children are exposed to the outer environment, where they hear the speech of their family members and playmates around them. The children gradually learn to extract sentences from the respective structures lying behind them. When they are fully stocked with the knowledge of the structure, they can later on produce such sentences, which they have never received earlier. This is termed as the generative aspect of the syntax. When children are above the age of six and seven, they have a stock of words and a set comprising of the patterns of sentence, which the children have heard at the earlier ages of their lives. By combining the lexicon, and the sentence pattern, the children can make countless number of utterances in the form of sentences. Every sentence bears a well-formed structure, which follows the rules for the construction of the sentence in the respective language (Chomsky, 1965).

According to Chomsky (1957), human beings are blessed with the innate faculty of language, which is the component of their biological set up, and that makes them able to quickly acquire their native languages' grammar efficiently without any guidance. Human brain possesses this language faculty but their consciousness does not have any access to it. It is composed of, what has been systematically termed as universal grammar, which is the

specification of those rules and structures that are possible in the language of humans. The language faculty, during the early stages of childhood combines with the linguistic data to which children are exposed in their surroundings, in order to provide the mental grammar of the respective language a subset of universal grammar bearing the specific settings for particular parameters. The mental grammar which is constructed at the earlier stages of childhood constitutes our native language's unconscious knowledge, that is carried by us throughout our life span. It is the knowledge, used by us during speech.

2.2 Research in Syntax

The three main aims to consider while analyzing sentence structure are as follows:

1. To unveil the hierarchical arrangement of elements

2. To describe the vagueness apparent at the surface level

3. To demonstrate how certain sentences are related (Chomsky, 1957; Jackendoff, 2002).

These aims align closely with the goals of syntactic analysis in linguistics, as emphasized by Noam Chomsky, who developed Transformational-Generative Grammar (TGG), and his follower, Ray Jackendoff. Chomsky's work, particularly in "Syntactic Structures" (1957), laid the foundation for understanding the hierarchical structure of language. Jackendoff contributions, such as his work on the hierarchical organization of language and its relation to meaning (Jackendoff, 2002), have furthered our understanding in this area.

For this, the syntacticians have come up with the set of tools, which provide the visible structure that is assumed to appear behind sentences. The procedure for analyzing the structure of sentences varies from one model of syntax to the next, and it might face many shifts at the time of its development. This is especially correct about generative grammar, that has been stressed as the detailed topic, ever since the seminal study 'Syntactic Structures' have been published by Noam Chomsky in 1957.

In linguistic studies, no matter how sentences are represented, the main aim of the method is to uncover the structure inside them. This helps explain why words are placed in certain orders in sentences of a language. Consequently, syntacticians normally differentiate between the invisible structure, that is broadly termed as 'deep structure' and the other level which actually forms the spoken or written aspect of sentence, which is broadly called the surface level of the sentence. The major relations of the syntax such as: subject, object and predicate are chosen specifically at the deep level of structure, and the smaller issues, like as: the active

and the passive statements are presumed to generate the surface level structure. When deep and surface level structures are talked about, it becomes mandatory, not to think that such expressions are only considered in semantics. The 'deep structure' refers to the stage, where the meaning of the sentence structure is clear, where one can find basic sentence structures not undergone through alterations, i.e. undergone through various transformations (movement rules), and deletions. The deep structure is found to be valid due to its ability that it disambiguates sentences and shows relatedness between such types of sentences, that are not obvious on surface level (Lakoff,1971).

Hickey (2010) suggests that the acquisition of syntax in children occurs through the abstraction of structures from the linguistic input present in their immediate environment. Accordingly, it is reasonable to surmise that the procedural framework delineated below for the production of sentences is pertinent to all native speakers within their respective linguistic domains.

1. Choose a sentence structure (an empty template)
2. Fill the slots in with words (lexical insertion)
3. Utter the actual sentence.

Sentences comprise words that can be categorized in diverse manners, with an initial and sensible differentiation between form and function. In terms of form, words can be assigned to specific lexical classes; for instance, "umbrella" is classified as a noun. Conversely, in accordance with function, a noun may commonly assume roles such as subject or object within a sentence, as exemplified by distinctions between "The umbrella fell off the stand" and "He bought the umbrella."

2.2.1 Lexical Categories

According to the syntacticians (Chomsky, 1957; Jackendoff, 1977), in syntactic analysis, the lexical categories related to the noun phrase (NP) typically include:

1. Nouns: Nouns are words that represent people, places, things, or ideas. They serve as the head of the noun phrase and can be modified by other elements within the phrase.
2. Determiners: Determiners are words that precede and modify nouns to provide information such as definiteness. Determiners is a large class which includes: Articles: (a, an, the), numerals: (some, many, two), possessive pronouns: (my, their, his, your, our), ordinals: (first, second, third, fourth), cardinals: (one, two, three, four), demonstratives, (this, that, these, those).

3. Adjectives: Adjectives are words that modify nouns by describing their qualities or attributes, e.g., "beautiful," "red," "tall".

4. Pronouns: Pronouns are words that can function as substitutes for nouns, representing specific entities without specifying them explicitly, e.g., "he," "she," "it".

5. Prepositional Phrases: Prepositional phrases consist of a preposition followed by a noun phrase and function as modifiers within the noun phrase, e.g., "in the park," "on the table".

The lexical categories furthermore constitute phrases, that is the word's group, in which the head word or a specific lexical word occupies dominant position. The head word of the phrase always dominates it. For example, the phrase, 'the big bottle' is a noun phrase, with the head word 'bottle' and the modifier 'big'. It is not necessary for the head word to be the first element of the phrase. In an English phrase, particularly, the modifiers, that co-occur with the head word may come before or after the head word. In some languages, for example, Irish, the modifiers follow the head word (Huddleston & Pullum, 2002).

In syntax, a variety of models offer diagrams in order to reveal the actual structure of the sentences. Such representations are talked about a lot by the linguists, whether they bear any psychological reality or not. As it is obvious, that human beings possess their native language's mental grammar, without which, the comprehension of speech and even the production of speech that is comprehensible would not have been able to be done. The tree diagrams, drawn by the linguists, bear no mental existence, but their certain abstract properties, which are embodied by them, could be considered to have subjective reality. For example, some constituents of the sentence in diagrams are placed before other elements and this is relative to the temporal precedence related to the production of the sentence. By drawing the tree structure of the sentence, "Ahmed has eaten the meal," Ahmed would occupy the left place, and "eaten the meal" would occupy the right place and the auxiliary which is 'has' will come in between. Such order of elements represents the relation of precedence (Chomsky, 1965).

2.2.2 Early Model of Generative Grammar

The first and prior concern of the school of transformational generative grammar was Syntax. It started with the Chomsky's *Syntactic Structures (*1957) and set off an unparalleled interest of linguists towards syntax. It states that sentence generation is a procedure based on stored formats and a group of words. Adding to this, it also states that, the process of transformation helps in relating various sentences to each other. For instance, with the help of

the transformation process, active sentences help in the derivation of passive sentences. This stance is sometimes subject to controversy because sometimes the actual active sentences are more fundamental than passive sentences. Moreover, during the sentence production it assumes, that transformation is applied to a basic type of a sentence, taken at first. Although there is no strong evidence to substantiate this evidence, however, indirect evidence has been offered in large amount, such as: native speaker's intuitions, tongue slips and the certain types of semantic equivalence (Smith, 1995).

Chomsky, initially proposed a theory which he termed as 'Standard Theory' (1965) and then later on, he presented the subsequent theory which he called 'Extended Standard Theory' in his book *Aspects of the theory of Syntax*. In the late 1970s, the extended standard theory was revised by Chomsky. Both of the theories state that when an infant is born, he bears in his mind a 'format' with the possible grammar. This format with the possible grammar helps the child to lay foundation of his first language. When that child is exposed to the outer environment of the language, he makes sentences through that grammar on the basis of his inborn qualities. The mind of a child makes the number of possible sentences on the basis of the linguistic data to which he is exposed. The child chooses the grammar based on the few rules or primitives that he has in mind. He even tries to make sentences of other languages also through the format that is present in his mind, but it is also without a shadow of doubt that there are differences in the patterns of certain languages, so the child is not able to construct sentences of those languages which have changes in their structures (Chomsky,1965; 1976).

2.2.3 The Standard Theory

Generative Grammar has witnessed a large number of revisions, since it was initially introduced in the later part of 1950s. The phrase 'Standard Theory' has been in use to touch on the generative grammar's model as proposed in *Aspects of the theory of Syntax,* a book by Chomsky published in 1965. The concept of the generation of sentence presented in this book can be laid out diagrammatically as following:

In the generative grammar's term, the real sentences or the terminal strings represent the surface structure of a sentence and the deep structure corresponds to the structure of assumption, where real sentences are underlain by it.

SYNTAX

Phrase-structure rules

```
Lexicon

Filters



Deep Structure                    →  Semantics

Transformations

Surface Structure                 →  Phonology.
```
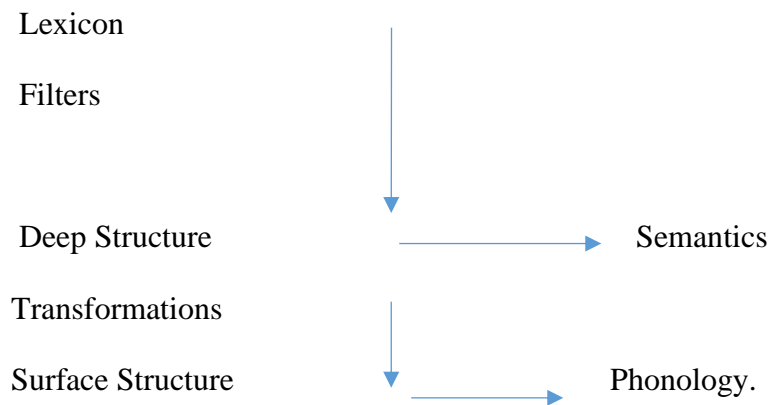
At very first, the details related to grammar were presumed to be set out at the syntactic stage of the language. Nevertheless, there is a substantial proof, that in many cases the details related to syntax are set down in the group of words. Consider the verbs that allow dative movement. This is the movement of the position of the indirect object to the place before the direct object with the elimination of the previous position by the indirect object.

Ahmad gave his book to Ali. + dative movement → Ahmad gave Ali his book.

However, a number of verbs, being ditransitive do not permit such movements as mentioned in the example:

The ministers solved the problem for us.

*The ministers solved us the problem.

Taking into account the syntactic behaviour of verbs, such examples have made linguists to presume that lexicon is a container for provisions. After this, the various verb properties, specifically called, subcategorization restrictions were then properly taken in the field of lexicon.

2.2.4 Phrase Structure Rules

Phrase structure grammar is the basis for such branches which is the kind of grammar, that tends to display the form, which appears at the behind level of the sentence and which breaks it down into its constituents. The necessary procedure for it involves writing again such rules that breaks the larger unit, beginning itself with the sentence, into the smaller units containing until one reaches the lower level of sentence, where the individual levels of the sentence are formed, 'the terminal string' (Harris, 1951).

A sentence is usually composed of a NP and VP. The VP bears verb followed by a noun phrase and auxiliary. The NP has the projection of determiner and noun and the determiner

might be an article, possessive pronoun, numeral and a demonstrative pronoun. The phrase structure grammar was used by earlier grammarians. Phrase structure grammar rules can be implemented for the explanation of the existing structure of the sentence but they do not take into account how the production of sentences takes place. 'Generative Grammar' termed as the new grammatical model developed at the late fifties had its expressed objectives to go beyond this level and to describe how sentences are produced. Due to this, the adjective generative is normally tagged with the syntactic views, which takes on this stance that by adoption of skeletal structure and its filling with lexicon, the speakers form various sentences. It also believes in the view of infinite production of the sentences. Nevertheless, the phrase 'generative' must not be taken in the simplest sense of making sentences in the brain of one before speech, rather it must be taken more in a technical sense of 'exhaustive description' and explicit interpretation of procedural steps (Chomsky, 1957).

If it is considered that the surface structure is generated from the deep structure, then it is implied that using the deep structure and considering it as an input, the derivation of surface structure with the help of procedural steps is made possible, in the absence of an obvious assertion to their mental reality; even though, the deep structure, according to the proponents of generative grammar may imprecise to a plot of mental structures of linguistics. As generative grammar takes into account the ways of the production of sentences, it must not only cope with real, actual sentences; rather it should not take into account such sentences that are not formed well, which usually are not accepted by our native speakers (Chomsky, 1965).

2.2.5 Extended Standard Theory

Extended Standard Theory is the syntactic model used for the generative grammar. It developed in the earlier phases of 1970s and had its advancement from the so called 'Standard Theory,' as presented in the *Aspects of the theory of Syntax.* The prime cause of the advancement and extension is the escalation inside the range of semantic rules, some of which are presented by Chomsky for the application on surface level structure. The traits which are considered for application on surface level structure include: Stress, intonation and quantification aspects. Moreover, the other features of semantics, dealing on at the surface level are the focus of a sentence and implication of presuppositions in the sentence. It remained no longer a matter that the semantic representation of a sentence was determined by the surface structure in its totality. This made the linguists to completely avoid the concept of deep structure (Smith,1972).

2.2.6 Revised Standard Extended Theory

The unpredictability of the nature of the semantic representation further gave on to the revision of the extended standard theory, called the 'revised extended standard theory,' where the idea of the shallow structure was discussed. In revised standard extended theory, the transformation rules were reduced in a large number and there was an increase in the movement rules' questions, (wh' movement, as Sara is dancing. What is Sara doing?) By adopting the method of trace convention, that states, constituents leave a trace at their former position, after they are removed through transformation (Johnson, 1980).

2.2.7 X-bar Theory

X-bar theory is the extended standard theory which has been the developed form of the standard theory. As Standard theory operates through phrase structure rules which fail on the basis of two main grounds. Phrase structure rules do not take into the consideration all the functions that the words play in a phrase. The second reason is that, phrase structure rules provide a flat structure of the phrase in linear form which does not tell us which element is obligatory and which is optional in the phrase.

According to Carnie (2008), head is the obligatory element in every phrase; it is the head which projects the phrase and all the other words are built around the head. Besides the head and complement of the head, all the other elements in a phrase are optional. Phrase structure rules do not help us in identifying that which word of the phrase is obligatory and which is optional. For example, in a noun phrase. The big bottle of water with a blue cap, the phrase structure rule, which we make for it is:

NP → (D) (AdjP+) N (PP+)

As from the structure it can be seen that it is the flat structure in which all the elements of the phrase are placed in a flat hierarchy. All the elements in the phrase are at same level hierarchically. There is no relation and difference between them in terms of dominance and c-commanding. Additionally, all the elements go flat with the head word bottle. So, such arrangement of elements makes this structure a complicated structure in terms of constituency and one cannot differentiate between the obligatory and the optional elements. Therefore, it becomes very difficult to deal such structure with standard theory. It needs to be dealt with another theory that can tell us, which element in the phrase is obligatory and which one is

optional. The hierarchy in the structure is also mandatory, through which, it can be easily identified which element in the phrase is obligatory and which is optional.

Phrase structure rules represent a flat structure that lacks hierarchical organization, thereby failing to illustrate shared properties among phrases. This deficiency complicates the identification of necessary and optional elements within phrases and hinders the recognition of consistent structural patterns among phrases. Consequently, syntacticians sought improved theoretical frameworks. Chomsky responded by revising his theory, introducing the X-bar theory, also known as extended standard theory, to address these shortcomings (Smith, 2000). According to Chomsky (1970), X-bar theory captures the insight that all the phrases share some essential structural properties. These properties can be represented as: XP – Specifier X'- adjunct X'- X complement. It can be shown through the diagram as:
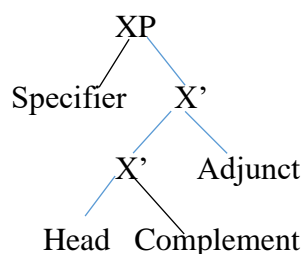
Here XP stands for a type of phrase such as Noun phrase, Verb phrase, Preposition phrase and the X shows the category, the word belongs to, it can be noun, verb, preposition, adjective and adverb.

X-bar theory offers a comprehensive account of phrase and sentence structure, emphasizing constituency. It posits a hierarchical structure with distinct levels of constituents and projections. The three levels of projections within X-bar theory have specific names: maximal projection or phrase level projection, intermediate projection, and minimal projection. This framework underscores the binary nature of projection, where two branches emerge simultaneously, except in cases of conjunction, which introduces three branches to conjoin constituents (Johnson, 2012).

Constituents within the structure play crucial roles and emerge at different levels. Specifiers, heads, complements, and adjuncts are key constituents. Specifiers, functioning as determiners, emerge at the top phrase level of projection, preceding other constituents. Adjuncts, providing additional information, primarily emerge from the single bar level. Heads and complements, essential for completing the meaning, emerge from the last level of projection, with complement always appearing adjacent to the head. While the position of

adjuncts is flexible, the positions of head and complement remain fixed (Brown & Miller, 2015).

The distinction between adjuncts and complements is pivotal. Adjuncts, such as prepositions, adverbs, or adjectives, enhance the meaning but are not obligatory. Complements, on the other hand, are indispensable for the meaning completion. A head may have multiple complements, conjoined by conjunctions, but only one complement directly complements the head. The number of adjuncts in a structure may vary, while complements typically adhere to a fixed form (Taylor, 2018).

According to Carnie (2008), the X-bar theory can be applied to any type of phrase and the same rules of projection will be observed. These phrases may be NP, VP, AP, AdvP, PP, TP and CP. For each of these phrases, there different x-bar rules according to their structures. These rules are explained as below:

NP → (D) N'

N' → (AdjP) N' or N' (PP)

N' → N (PP)

VP → V'

V'→ V' (PP) or V' (AdvP)

V' → V (NP)

AdvP → Adv'

Adv' → (AdvP) Adv'

Adv' → Adv' (PP)

AdjP → Adj'

Adj' → (AdvP) Adj'

Adj' → Adj (PP)

PP → P'

P' → P' (PP)

P' → P (NP)

Some other rules are following:

CP → (C) TP

TP → NP VP

XP → XP conj XP

X' → X' conj X'

X → X conj X

S' → (C) S

S → DP (T) VP

Advanced form of rules

CP → C'	CP stands for Complementiser Phrase
C' → C TP	TP stands for Tense Phrase
TP → DP T'	
T' → T VP	T denotes tense inflection or auxiliary verb
DP → D'	DP stands for Determiner Phrase where D is the head of the phrase
D' → D (NP)	

General X-bar theoretic rules for specifiers, adjuncts and complements are given as under;

Specifier Rule: XP → (YP) X' *or* XP → X' (YP)

Adjunct Rule: X' → X' (ZP) *or* X' → (ZP) X'

Complement Rule: X' → X (WP) *or* X → (WP) X.

These rules have been developed for English language and also here applied to it but there are languages in the world which have different sentence structures and there these rules can also be applied but in reverse form. Here, the idea of principles and parameters comes that some languages are head-first and some are head-final in the world. The parameters of word order of English are different from the parameters of word order of Pashto, Urdu, Punjabi and Turkish because English is head-initial language because here, head precedes its complement whereas Pashto, Urdu and Turkish are head-final languages because their complements precede their heads. This concept is shown in the following examples;

English: Ahmed <u>read</u> *the book*.

Pashto: Ahmed *kitab* <u>wayalo</u>.

Urdu: Hassan ne *kitab* <u>parhi</u>.

Turkish: Ahmed *kitab-i* <u>oku-du</u>.

In the above examples, the underlined words are the heads of the phrases and the italicized are the complements of the heads. As it can be seen, in English head precedes the complement whereas in other three languages heads appear after the complements. In English specifier always comes before head and complement appears after the head and adjuncts are flexible that is they can come either before head or after head whereas in case of other languages these rules are opposite. As it is seen in the above examples of Pashto, Urdu and Turkish there, complements precede head, so the complement rule of English does not account for these languages. So according to Chomsky (1981), all the rules specifier, complement and head need modification as already shown above will now look like,

Specifier Rule*:*   XP → (YP) X' *or* XP → X' (YP)

Adjunct Rule: X' → X' (ZP) *or* X' → (ZP) X'

Complement Rule*:*   X' → X (WP) *or* X → (WP) X.

These rules now seem to be applicable to any language of the world.

2.2.8 Government and Binding Theory

In the late 1970's, Chomsky took into account all the problems related to the different patterns of languages and during his lectures on Government and Binding in 1981, he discussed those patterns with topic principles and parameters. According to Chomsky, principles are the universals that can be found into all the languages of the world; while parameters are the variables on the basis of which, languages come up with changes from each other. Without any doubt, the word order of the languages is changed but it is also universally acceptable that in every language, the sentence has a subject, object and predicate.

According to Chomsky (1981), all languages have phrases such as noun, verb, adjective and the prepositional phrases. These common similarities among the languages constitute Universal Grammar. Universal Grammar is the grammar which is shared by all the languages of the world. Every child is born with some innate universal grammar. Therefore, these linguistic universal or structural features that are common to all the languages of the world, they are the part of child's native endowment. The rules that are present in mind are limited in number by the help of which, a child can generate infinite number of sentences. These set of rules are also called generative grammar. Parameters, on the other hand are variations, that exist in the linguistic structure of the languages. For example, some languages in the world are head initial and some are head-final. English is a head-initial language in which head comes before the complement and Urdu, Pashto and Punjabi are head-final languages in which the head comes after the complement. For example, English: The book on the table. Here in this underlined noun phrase, book is the head and on the table is complement. Pashto: Pa maiz bandy kitab. The same phrase in the Pashto comes up with the complement at its initial position and the head at its final position. Urdu: Maiz par kitab. The Urdu noun phrase has also the same structure, i.e. in Urdu also, the complement proceeds while the head precedes. So such variations are parameters that exist between the languages across the world. The principles are the same in a sense that all the three phrases have head and complement but their order in the phrases and sentences varies.

2.2.9 Terms in Government and Binding

2.2.9.1 Principles.

Principles are the fundamental rules governing language structure. They are considered innate and universal, guiding the formation of sentences across languages (Radford, 2004).

2.2.9.2 Parameters.

These are the variation types across all the languages. They carry constraints on the range of structural variations. They can be more correctly adjusted on the minimal linguistic input basis. By combination with the preceding terminology, the phrase, 'Principles and Parameters' refers to this grammatical theory (Hickey,2010).

2.2.9.3 Language Universals.

This property is considered to hold true for all the languages across the globe. There are two types of language universals: Formal universals, which are the necessary ones, and they bear such conditions that are applied on grammar's setup for the purpose of their operation and they include the features like, transformations, ordering restrictions. The other type is Substantive Universals, which refers to the old constituents of a certain grammar that have the requirement in the data analysis. Universals can be a part of various grammar's components, (e.g.), syntax, phonology and semantics (Greenberg, 1963).

Amin and Ullah (2019) conducted a comparative study on the English and the Pashto NPs. In both English and Pashto, there are subjects, verbs and objects but their order in the structure of a sentence is different from one another. Only the subject position remains the same in both the languages and in case object and verb, in English verb precedes object whereas in Pashto object precedes verb. This can be clearly understood from the following examples:

English: He   eats   an apple.

           Subject   Verb   Object

Pashto: Hagha   sib   khori.

           Subject   Object   Verb

Moreover, there is also difference the structure of the phrases of both the languages because English is a head-first language where head precedes the complement and Pashto is a head-final language where complement precedes the head. For example,

English: The   book   of stories

           Specifier   Head   Complement

Pashto: <u>Da qiso</u>   <u>kitab</u>

                 Complement   Head

Now, X-bar rules are applied to the above structures of the phrases

Figure. X   Figure. Y

English tree:

English: NP
- Spec NP / N'
- The
- N^0 / PP
- Head / Complement
- book / of poems

(Specifier, Head, Complement)

Pashto: NP
- N'
- PP / N^0
- qiso wala / kitab
- Complement / Head

(Complement, Head)
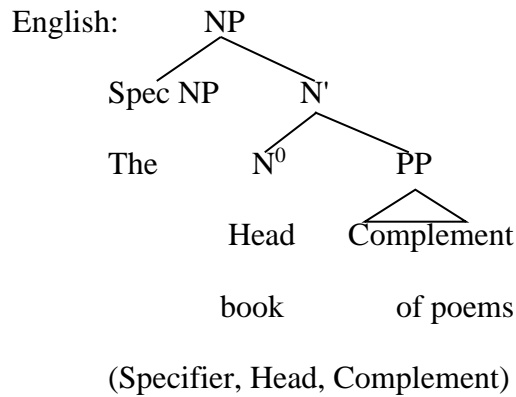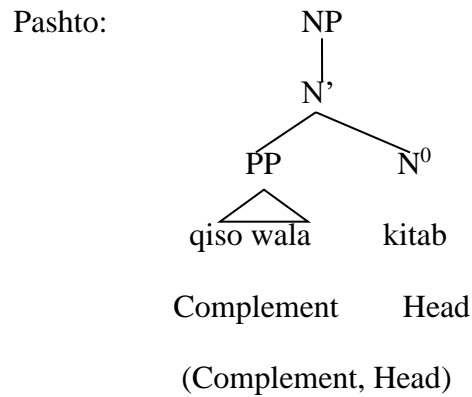
English: The book (NP) on the table. (PP)

Pashto: Pa maiz bandy (PP) kitab. (NP)

Ali (2016) observed that in Urdu, NPs can be as short as a single word or as complex as a string of phrases. These NPs can include various word types like pronouns, adjectives, nouns, and quantifiers. Understanding the rules governing NP formation in Urdu is crucial for both grasping the language's grammar and developing computational language models. Using Lexical Functional Grammar (LFG) as a framework, this study investigated how NPs are structured in Urdu. The researcher found that even though theoretically infinite substantive nouns can be part of an NP, there are certain rules dictating how they fit together. The term "substantive noun", introduced by Platts (1909) is more specific than just "noun" and encompasses both common and proper nouns.

Siddiqui (1971) offered a thorough classification of nouns, organizing them based on their structure, nature, and other characteristics. First classification which concerned the structure of nouns is given below:

a. Primitive Nouns: These are nouns that are not derived from any other word and cannot be further broken down. They are further categorized into proper nouns (names of specific entities like people, places, or organizations) and common nouns (names of general entities like states or groups). Proper nouns are divided into titles, attributive names, and kinship terms, while common nouns include state and collective nouns.

b. Verbal Nouns: These are nouns derived from verbs, often in their infinitive or gerund form, and are used as nouns in sentences. The derivational nouns discussed below stem from verbal nouns.

c. Derivational Nouns: These are further derivations from verbal nouns and are categorized into subject nouns, object nouns, present participle nouns, deverbal nouns (nouns derived from verbs to indicate payment for a particular action), locative nouns (indicating location in time or space), and instrumental nouns (indicating the means by which an action is performed).

Second classification concerned the nature of nouns according to which nouns are classified as substantive (referring to tangible or abstract entities), quality nouns (denoting characteristics or attributes), and pronouns (substituting for nouns in a sentence).

Additionally, Siddiqui (1971) described other classes of nouns, which included: sound nouns (words that imitate sounds), comparative nouns (denoting comparison between entities), numeral nouns (indicating quantity or order), interrogative nouns (used to pose questions), relative nouns (connecting clauses or phrases), indefinite nouns (referring to unspecified entities), and exaggerative nouns (used for emphasis or exaggeration).This comprehensive classification system offered insight into the diverse forms and functions of nouns within a language.

Javed (1981) categorized nouns into five types: common, proper, collective, abstract, and mass (also called material nouns). In contrast, Platts (1909) categorized nouns based on morphological behavior into abstract nouns, nouns of agency, nouns of place, diminutive nouns, and compounds.

Uzair et al. (2020) investigated the parametric distinctions between English and Urdu concerning null subject parameters, elucidating the disparities in subject parameter settings between the two languages. Their study delineates that in English, the subject position, serving as the specifier of inflection, is overtly and morphologically realized, exemplified by constructions such as "He works hard." Conversely, attempts to present such derivations with a null specifier of inflection render them ungrammatical and unacceptable to native or proficient English speakers, as in "works hard." In English sentence structure, the presence of a subject is typically indispensable, to the extent that a dummy subject is occasionally necessitated, as in "It is raining." Nonetheless, subjects are commonly omitted from imperative sentences (e.g., "Listen!") and may be ellipted in informal contexts (e.g., "See you

soon") (Nordquist, 2019). In contrast, Urdu functions as a pro-drop language, where sentences lacking explicit subject pronouns remain both meaningful and grammatically sound. This characteristic suggests that Urdu operates as a null subject language, with subject-drop alongside a finite verb representing a prevalent phenomenon in the language.

Batra (2010) introduces a rule-based method for machine translation of noun phrases from Punjabi to English, focusing specifically on the conversion process. Unlike direct translation methods that mainly translate words, Batra's approach, using transfer architecture within Machine Translation, considers not only lexical but also syntactic and sometimes semantic aspects. The transfer method begins by parsing the source language sentence and then applies rules stored in a database to map the grammatical components of the source sentence into the target language representation. These rules handle structural transformations and help address ambiguity. In the indirect approach, the process involves dividing a phrase into words, assigning tags to each word using a morphological database, resolving any ambiguity, translating each word using a bilingual dictionary, and then combining the translated words based on English language rules.

Kainat and Khan (2020) conducted a study on the syntactic structure of English and Pashto prepositions. In their study, they took the example of 'The child is in the Rome' and talked about the preposition 'in' in this sentence. In English, the preposition 'in' is used for enclosure of the object in space which may be full or not. While in Pashto, the same concept is conveyed through the ambiposition 'Puh-ke'. 'Puh' is preposition while 'ke' is postposition.

Jackson (1982) delineates the structure of noun phrases (NPs) in English, wherein post-modification occurs through three distinct categories: single word post-modifiers, word group/phrasal post-modifiers, and clause post-modifiers. Single word post-modifiers encompass adverbs or adjectives, with examples such as "the room before us" and "the man before this one" illustrating adverbs as post-modifiers. Adjectives serve as post-modifiers typically in conjunction with indefinite pronouns, as evidenced by constructions like "somebody brave" and "something strange," thereby precluding the possibility of adjectives serving as pre-modifiers. Phrasal post-modifiers manifest as prepositional phrases (PPs), comprising a preposition followed by a noun phrase, thereby furnishing locational or descriptive information about the headword. Instances include "the pen on the table," "the building in front of my house," and "the man with glasses," where the italicized portions denote PPs functioning as post-modifiers.

Relative clauses, as another form of post-modification, are finite clauses constrained by attributes such as person, number, or tense. Examples such as "The teacher who teaches me English," "The clothes which are in the bucket," and "The man that gave you an invitation yesterday" exemplify this phenomenon. Non-finite clauses, conversely, lack such constraints, operating independently of person, number, or tense.

Ayuningsih (2007) undertook an investigation into NP construction prevalent in report genres within first-year senior high school students' textbooks. The study revealed the ubiquitous presence of three primary types of NP construction across all analyzed textbooks: Pre-modifier + head, Head + post-modifier, and Pre-modifier + head + post-modifier. Notably, the most prevalent NP construction type observed across the three textbooks was Pre-modifier + head.

Suhendro (2013) employed the X-bar approach to conduct a syntactic analysis of NPs in George Bernard Shaw's play "Arms and the Man." Employing a descriptive qualitative methodology, the researcher examined sentences and phrases containing NP constructions extracted from the drama script. The analysis revealed thirty-five distinct NP constructions, with the pre-modifier + noun (head) structure emerging as the predominant pattern.

Hum and Ali (2023) conducted a study focusing on the analysis of Urdu nominal phrases through the lens of X-bar theory. Their research underscored significant disparities between Urdu and English in terms of syntax, transcription, and grammar. Drawing from the text "Ghalib Letter to Aalaodin Alai," as featured in the 10th-grade Urdu textbook published by the Khyber Pakhtunkhwa Textbook Board Peshawar, the researchers selected a sample comprising seven nominal phrases. These phrases consistently adhered to a structural schema denoted as "MH," where 'M' denoted a modifier and 'H' signified the head or core word of the phrase.

Khalid et al. (2018) delved into the intricacies of NP structure and its pivotal role within language syntax. They expounded upon the progression of NP structure, ranging from singular words to elaborate clusters of lexical units, while also exploring the sequential organization of these constituents and their semantic implications (Sharhan & Al-Abedi, 2018).

Rabbi et al. (2008) conducted a study on the analysis of Pashto phrases for the creation of parser. The study theoretically analyzed different phrases of Pashto language in order to create Pashto language parser. While addressing the NP of Pashto in their study, they classified

it "on the basis of meaning" and "on the basis of formation." The first category of noun phrases explains the meaning of one noun with the other noun. For Example,

Pashto: Da Masharano Jirga

Gloss: of   Elders   The Jirga

English Translation: The Jirga of elders.

While the latter category shows noun phrase according to its formation; its different variations are: the attachment of two singular nouns, when the first noun is singular and the second noun is plural, when the first noun is plural and the other is singular, when both nouns are plural, when the first noun is singular and the second one is adjective and when the first noun is singular/plural and the other behaves like noun.

Ali and Hussain (2020) conducted a s study on a hybrid approach to Urdu VP's chunking. In their study they said that minimally, an Urdu verb phrase is represented by a single verb. However, a typical verb phrase contains a verb followed by one or more auxiliaries and a verb tense marker. Each is represented by a separate word. Furthermore, their study explains the different types of verb phrases in the Urdu language which are: Simple verb phrase and complex predicate verb phrase.

All of the above-mentioned researches have studied the structure of NP in one head-last language exploring it in one way or another but no comparative study of two or more than two head-last languages has been conducted so far regarding the structure of noun phrase. Furthermore, X-bar theory has not been applied to the structure of NP of any head-last language so far. Applying X-bar theory may not only help in analyzing the structure of NP in any of head-last languages comprehensively but may also help in locating various principles and parameters found among the NPs of head-last languages. In addition, in the structure of the NP of any head-last language, the position of its constituents in comparison to the constituents of English NP has not been discussed

Chapter 3
Research Methodology

Three head-last languages of Pakistan are selected for this study, namely: Urdu, Punjabi and Pushto, each having its own structural peculiarities. X-bar theory comes up with a generic structure of phrase that is assumed to be the same for all the phrases across all the languages other than the head-position parameter. For English phrases and sentences, the structure of phrase proposed by X-bar theory has long been established, but it has not been applied to the structure of phrases, pertaining to the head-last languages of Pakistan and neither such applicability of X-bar theory has been established so far.

Keeping in view the nature of research issue, objectives and research questions, the study adopts qualitative research design as it is descriptive and exploratory in nature. Chomsky's (1981) Principles and Parameters theory is used as the theoretical framework for the study that serves as a roadmap for developing the arguments used in the research. X-bar theory provides the analytical framework for this study that will help in highlighting the principles and parameters found in the noun phrases of the target head-last languages. The rationale for using X-bar theory as an analytical framework is that this theory follows the hierarchical structure facilitating the syntacticians and researchers to know about the obligatory and optional elements in the phrase structure of any language. Secondly, it also helps to understand the concept of dominance and C-command pertaining to the structure of a phrase.

The study is delimited to the structure of NP in the three selected head-last languages of Pakistan. The data for this research is collected from the grammar books of the selected head-last languages. The data gathered from the grammar books at the initial level is untested. It will be analyzed through content analysis method using X-bar theory and final results would be drawn.

3.1 Theoretical Framework

According to Chomsky (1986), Universal Grammar is defined as the system of categories, mechanisms and constraints shared by all human languages that are considered to be innate. Generally, these are thought to contain formal universals, for example principles, i.e. the statements that focuses on the grammar's constraints of the languages of humans and parameters, which set down the alternatives or choices for the verities of grammar between the languages. Moreover, it also includes substantial universals, for example lexical categories and their features.

Chomsky (1986) explains Universal Grammar as a complex and highly restrained structure that includes different subsystems of principles. It contains X-bar theory, binding theory, theta theory and so on, each counting on the definite principles along with the certain parameters to limited degrees. Moreover, there are few Principles called overriding principles that include projection principle, full interpretation and the licensing principle. Universal Grammar also includes several concepts, such as the domain concept and c-commanding.

Chomsky's (1981) P&P theory brings to light a number of linguistic concepts and parameters, as has already been mentioned. In line with this scheme, speakers know about a set of universally shared similarities and specific characteristics that make languages to differ from one another within predetermined bounds. According to Chomsky's P&P theory, all language users possess these universal principles that are shared by all human languages. In Chomsky's universal grammar, structure dependency is crucial (Black, 1999). According to structure dependency, sentences are made up of phrases. Sentences have phrase structure because phrases are linguistic structures that group words together. Every sentence is divided into noun and verb phrases. Both of the primary phrases further divide into a number of sub-groups. For instance: All languages include phrase structures, which are shared by all human languages, although the pattern in which phrases are arranged in sentences may vary from one language to another. All languages possess nouns, verbs, and other phenomenon pertaining structure in a similar way, albeit not necessarily arranged in the same manner. For instance, the following phrase form is used in an English positive sentence. The young child is reading an intriguing book. (NP + VP + NP).

According to Thomas (2004), Chomsky's statement that "All languages are arranged in same order" shows that language is structured so that it depends on its structural arrangement. There is not a single language that is arranged on the basis of linear relationship rather all languages are organized on the relationship of structure. For instance: "He will eat meal" is a sentence that can become a question by altering the position of phrases. "Will he eat meal?" One would believe that this modification is made by merely relocating the second word. But it is not accurate. The following example can be used to demonstrate this idea: "The boy will like it". It is a sentence that is transformed into a question by bringing the auxiliary verb forward. "Will the boy like it?" In contrast, if it is tried to put the next coming word in the first place, the result will be 'Boy the will like it?' and it will be illogical. So, it becomes obvious that language is not organized linearly but rather by structural groupings. Active-passive also supports the notion of structure dependency. For example:

She ate an apple. (Active)

 An apple was eaten by her. (Passive)

The shift from active to passive is accomplished by moving a few phrase components. A few more structural modifications result from moving the first sentence's subject, "an apple," to the beginning of the passive sentence. In addition to 'wh' inquiries and subject-verb agreement, there are various other components that could be used to explain structure dependency. All of these arguments support the idea of universal grammar theory by Chomsky. The ability of using complex structures like those displayed above demonstrates that humans bear inferred knowledge regardless of training, exposure, or further external circumstances.

All languages rely on their structure's based relationship, not linear relationships. A question cannot be formed by moving every random lexical category in a language. It can be inferred from the nature of language that structure-dependency is a fundamental component of natural languages. Another essential linguistic aspect is recursion that allows people to create a large number of new sentences. Recursion is the process of lengthening a sentence by enclosing one or more phrases or sentences within another. A sentence can be extended without altering its fundamental structure (Smith, 2023). For instance:

a) He helped her.
b) He informed me that he helped her.
c) His friends know that he said to me that he helped her.
d) I am sure that his friends know that he informed me that he helped her.
e) Dependent upon the speaker's creativity, the statement can be lengthened. Besides, a single phrase can be a combination of more than one phrases, for instance:
f) He is playing on a wooden bat.
g) He is playing on a wooden bat in the ground.
h) He is playing on a wooden bat under the light in the ground.

In the same manner, recursion enables speakers to produce a countless number of statements. This characteristic is universally acknowledged. In Universal Grammar theory, phrase structure is a significant phenomenon whose principles reveal such syntactic orders within a phrase that can be both possible and impossible. The fundamentals of phrase structure rules are shared by all languages.

According to Chomsky (1981), syntactic norms are intrinsic and cannot be learned. The difficulties inside the syntactic formats and the human's understanding of those formats,

regardless the factors of environment are bit of an evidence that sentence structure must have a mental representation in mind that is innate. The classical norms of phrase construction have been developed into the X-bar theory. The X-bar theory looks for syntactic traits that are universal across the natural languages. The X-bar theory demonstrates altogether the certain fundamental structural similarities across phrases such Noun, Verb, Adjective, and Prepositional Phrase. From the point of view of X-bar theory, all linguistic sentences share some structural characteristics. To keep the description rules generic, the letter 'X' is utilized to designate the head of the phrases (X in NP is a noun; X in VP is a verb). Every phrase bears a head that conveys the phrase's primary meaning, in relation to the x-bar principle. Therefore, in a NP, the head of the phrase is noun, in a VP, the head is always verb, and in an AdjP, adjective appears to be the head. The lexical category of the head phrase is utilized to name these phrases. Another important phenomenon in the notion of universal grammar is the head parameter. This idea holds that everyone understands the position of the head parameter related to the phrases. English is a head-first language, as everybody who speaks it is aware. For Example:

1. The teacher of our college (NP)
2. taught us a lesson (Verb Phrase)
3. from the English book (Prepositional Phrase)
4. In the same manner, a speaker of Pashto language knows that Pashto language is head-last. Example:
5. Zmung College Ustaz (The teacher of our college)
6. mungta sabak okhaodo (taught us a lesson)
7. da angrezay kitab na (from the book of English)

In light of this, describing the head's position just once in a language is sufficient for all of its expressions. X-bar theory uses the projection principle to connect syntax and lexicon. The human brain's internal mental dictionary, or lexicon, provides knowledge about syntactic, phonological and semantic elements along with the phrasal category i.e. NP, VP, AdjP and PP.

Additionally, the theta (θ) criterion is a key component of the universal grammar by Chomsky. According to Cook and Newson (1996), Theta theory describes the function of semantic roles (roles) which are: agent, theme, and goal related to the elements of a sentence. The NPs in a sentence are given - roles according to the theta hypothesis. The verb in a sentence is called the "predicate," while NPs connected with the help of predicate are referred to as "arguments." In this view, different arguments play different theta roles. A predicate's doer

(activity or condition) is referred to as the "agent," and the argument of agent is referred to as the "patient." 'Goal' is the name of the patient's receiver. Theta responsibilities are given to the structure components of a sentence that interact with the projection principle and X-bar theory, as stated in Cook and Newson (1996).

Agreement is one another element of the binding theory. When the subject is singular, the verb is inflected; when the subject is plural, it is not. As a result, there is consensus as to whether the topic represents singularity or plurality. For instance: They drive a car, and he drives a car. Carnie (2007) lays out three binding ideas in detail in his book *Syntax*. According to him, anaphors must be bound in accordance with Binding Principle A. A noun phrase that borrows the semantic sense of another Np in the same sentence is called an anaphor. For Instance: The girl completed the assignment herself. The girl as a noun phrase controls the reflexive pronoun in the sentence because "herself" refers to the girl. The antecedent "the boy" and the anaphor "himself" appear in the same clause. However, according to Binding Principle B, a pronoun must be free in its binding domain, which means that pronouns inside the same phrase cannot be bound by any antecedents. Example:

- Aamir wished him good luck for exams.

'Aamir' and 'him' in the previous sentence do not refer to the same individual. • Asim helped him. 'Asim' and 'him' are not the same people. According to the Binding Principle C, an R-expression must be free. Referring expressions are also unrestricted and in sentences they are not limited to a single place. The real world provides the context for R-expressions. Therefore, understanding of the subject of these phrases extends beyond the knowledge provided at the syntactic stage to the real context. The universal grammar has its foundation on the claim that all language users share some fundamental norms that are inherent to the languages altogether worldwide. Chomsky explains these fundamental aspects of all languages in clear terms and the 'principles' refer to the shared characteristics in the universal grammar theory by him. The universal grammar theory also explains the characteristics that distinguish different languages, which are referred to as "parameters."

According to Chomsky (1981), the head-position parameter is a component of universal grammar. This feature demonstrates how varied languages are on the surface level. Heads can appear in a phrase in either of two locations: first or last. Every sentence in a specific language has that position, whether the head comes first or last. For instance, Tamil, Chinese, and Japanese are languages with their phrases' heads at last position. While English, Arabic, and

Italian are head-first languages. This universal grammatical characteristic serves a separatist purpose across languages, it also clearly divides the many languages that are spoken over the world into two major groups. Another occurrence in universal grammar is the pro-drop parameter. Alternatively called the null-subject parameter. Other languages, like English, do not permit null subjects in sentences, but some languages, like Italian do. Depending on the pro-drop or non-pro-drop feature of a language, an equivalent sentence in multiple languages can go from being grammatically correct to improper. Similar to head-parameter, understanding the pro-drop parameter phenomena lets the speaker arrange the switch to match their language by reducing the available options to a reasonable quantity. The universal grammar theory asserts that either pro-drop or anti-prodrop should be selected as the switch setting. Later, the children switch to pro- or non-pro-drop based on the types of sentences they hear. The following English example demonstrates how the word "it" is used in the subject position without any semantic significance in order to create a phrase that is grammatically valid:

a. It is raining.
b. It is getting dark.

Similar to this, "there" as a dummy subject also appears in statements in English for grammatical reasons, even though the lexical category does not convey its semantic meaning:

 • Once upon a time there lived a prince.

Additionally, unlike English, several languages, including Spanish and Italian, occasionally permit the translation of verbs into subjects. For declarative phrases in English, the tight word order of subject-verb and verb-subject is maintained. Despite being a common grammatical parameter, the pro-drop phenomena generalize human languages. Despite the fact that universal grammar concentrates on first language learning, understanding the concept of principles and parameters helps a lot in the acquisition of second language by naturally looking at similarities and variations (O'Grady et al., 1996).

Following postulates of the X-bar theory by Chomsky (1970) have been used in the study:

Headedness Principle: Every phrase consists of a head and an obligatory part.

Binary Principle: A Phrase branches in two nodes.

According to the X-bar Schema, a phrase (XP) consists of the following components:

Specifier: It is the pre-modifier of the head (X) that modifies or specifies the meaning of the phrase. It may or may not be a part of the phrase.

Head: (Obligatory) It occupies the core of a phrase. This is the presiding part of a phrase that determines its form, characteristics and structure.

Complement: It is a post modifier argument that adds to the meaning of the head.

Adjunct: It is an optional modifier for a head that comments on the head.

3.2 Research Design

The current study is an effort to apply X-bar rules to the NPs of three of the head-last languages spoken in Pakistan. The proposed study focuses on the three languages, out of which one is the national language of Pakistan, i.e., Urdu, also known as the national "lingua franca" and the remaining two are the regional languages of Pakistan which are the Pashto and Punjabi. The researcher wants to explore the rules of X-bar in the NPs of above-mentioned languages in order to know whether they work in the same way or not as they work for the noun phrase of English language. So, the current study is descriptive and exploratory in nature and it falls under the type of 'Qualitative Research.'

3.3 Data Collection

The data for this research is collected from the grammar books of the target head-last languages respectively. The Urdu NPs are collected from the book, which is: Urdu: An Essential Grammar by Ruth Laila Schmidt. The NPs of Punjabi are collected from the book, Punjabi Grammar by Tej K. Bhatia and the "Pashto" NPs are collected from the book, A Reference Grammar of Pashto by Tegey, Habibullah, Robson and Barbara. Thirty-nine NPs from all the three target head- last languages are collected and six NPs are collected from the English language, and analyzed with x-bar theory to draw the final conclusions.

3.4 Rationale for Selecting Urdu, Pashto, and Punjabi for this Study

Urdu, Pashto, and Punjabi are well-supported by a range of linguistic resources. Each language has substantial resources such as grammars, dictionaries, and linguistic descriptions, which are essential for conducting a comprehensive syntactic analysis. All three languages have been documented extensively, making it easier to access detailed information about their syntactic structures. For instance:

Urdu has extensive documentation, such as Tariq Rahman's *"Urdu Grammar and Syntax"* (2008), which provides detailed insights into Urdu syntactic structures, including noun phrases. This resource is instrumental in understanding the complexities of Urdu syntax and provides a solid foundation for your analysis. Pashto is supported by a range of linguistic resources, including modern grammars and descriptive studies that offer valuable information on its syntax. Punjabi also benefits from substantial documentation, with resources such as grammars and language surveys that provide detailed descriptions of its syntactic features. The availability of large corpora and text collections for these languages facilitates the collection of empirical data. These resources are crucial for analyzing and verifying syntactic patterns in real language use.

For these languages, it is relatively straightforward to find native speakers who can offer valuable linguistic input and feedback. This accessibility helps ensure the accuracy and authenticity of syntactic data.

Urdu, Pashto, and Punjabi are commonly taught and studied, resulting in the availability of a variety of educational materials. Textbooks and learning resources often include structured examples and analyses that can be useful for understanding and analyzing noun phrases.

Many educational and linguistic institutions in Pakistan and abroad focus on these languages. This institutional focus provides additional resources, including expert knowledge and support, which can enhance the depth and quality of this study.

3.5 Procedure

NPs of the three head-last languages are taken from the respective grammar books and their structures are described in the light of P&P theory in order to know about the various principles and parameters among them. The phrases are analyzed with X-bar theory as it will not only account for the parameter of head position, which is common across the NP structure of the three head-last languages but will also help in finding out the other principles and parameters across them. Few of them are shown as examples after drawing their cross-linguistic comparison:

The phrase, "The book on the table" is translated in the standard dialectic version of the three head-last languages and then its structure is drawn with the help of X-bar theory in all of the three languages, respectively. In addition, the syntactic gloss is used to make the selected NPs intelligible to those readers who may be unfamiliar with Pakistani languages.

In Pashto: Pa Maiz bandy kitab

Gloss: on table   book

English Translation: The book on table

NP
  |
  N'
 / \
PP   N
Pa maiz bandy   Kitab
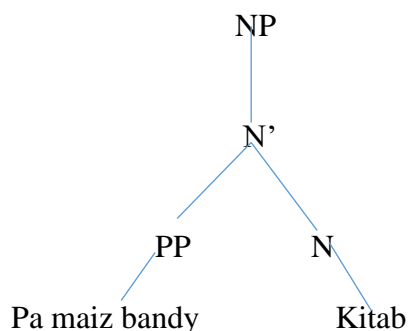
In Urdu: Maiz par kitab

Gloss: on table book

NP
 |
 N'
/ \
PP   N
Maiz per   Kitab
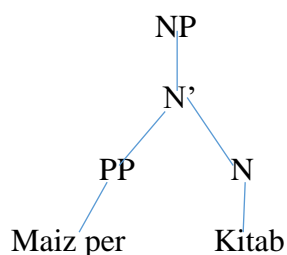
In Punjabi: 'Maiz tey kitab.'

NP
 |
 N'
/ \
PP   N
Maiz tey   Kitab
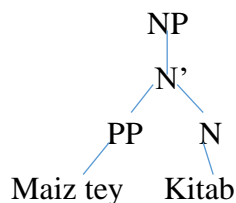
After drawing the structures, one similarity other than the principle of headedness has been found across the NP structure of the three selected head-last languages as all the three head-last languages are 'article-less' and do not come up with the definite article at the beginning of the phrase. Besides, one parameter has been found out between the NP of Pashto language and both the NP of Punjabi and Urdu languages that in Pashto language, the noun in the complement phrase is sandwiched between the pre and postposition which can be seen

clearly in the above example of Pashto NP where in the PP, the noun 'maiz' is sandwiched between the preposition (Pa) and the postposition (bandy). While in the NP of rest head-last languages, there is only postposition in the complement.

3.6 Data Analysis

The data gathered from the above-mentioned books is untested. It is analyzed through the content analysis method. X-bar theory is applied to the NPs taken from the above-mentioned books and then the results are drawn. Later, the results are discussed in detail in the light of P&P theory. The data analysis primarily focuses on all the principles and parameters found among the simple as well as complex noun phrase structures of the target head-last languages. The analysis is taken into account, whether other than the parameter of head position, are there any other parameters/principles found in the structure of NPs across the three head-last languages of Pakistan or not? In order to highlight the possible principles and parameters, the presence and absence of different obligatory and optional elements in the structure of the noun phrases are considered. Moreover, the position of adjuncts in the respective structure of the phrases is also described in the light of principles and parameters theory. Similarly; it is also considered that how does the structure of noun phrase in each specific language conform/ not conform to the generic structure proposed by x-bar theory.

Chapter 4
Data Analysis

This chapter focuses on the analysis, results and discussion of the NPs of the target head-last languages in order to find the answers related to the questions of the study. As it has been discussed earlier that the word-order of the three languages is same. All the three languages follow the SOV order. In all of the targeted languages of the study, there is subject, verb and an object put in the same structure in the order of a sentence. Likewise, in all of the three head-last languages, the object precedes the verb. This can be clearly understood from the following example:

Urdu: Wo [He] aam [mango] khata ha. [eats]

Pashto: Hagha aam khori

Punjabi: O aam khadaa.

In 1970, Chomsky revised his theory and introduced a new theory called X-bar theory or extended standard theory. This theory covers all the cons that can be found in the standard theory. This theory captures the insight that all the phrases share some essential structural properties. These properties can be represented as: XP – Specifier X'- adjunct X'- X complement. It can be shown through the diagram as follows:
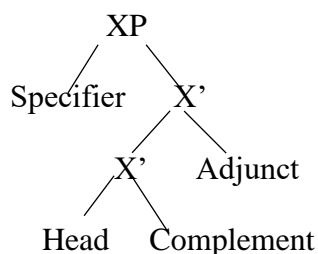
```
            XP
           /  \
    Specifier   X'
               /  \
              X'    Adjunct
             /  \
          Head   Complement
```

Here XP stands for a type of phrase such as NP, VP, PP and the X shows the category, the word belongs to, it can be noun, verb, preposition, adjective and adverb. According to Chomsky (1970), in the above diagram, there is a three level projection: Phrase level, intermediate level and final level. At the final level projection, there is only head of a phrase followed by a complement. Nothing comes in between them. This study analyzes the noun phrases of all the three selected head-last languages with the help of the generic structure proposed by X-bar theory given above. Moreover, this analysis shows to what extent the structure of noun phrase in all the three selected head-last languages conforms/ not conforms to the above structure proposed by this theory.

The similarity in the structure of the noun phrases of the three selected languages, Urdu, Punjabi and Pashto as head-final, where in the phrase the complement precedes the head has been shown below. For example:

Pashto: <u>Da Qiso</u>   kitab   (The book of stories)

Gloss: of Stories   book

                    Complement   Head

 Urdu: Kahanion wali kitab

Punjabi   Kaanian di kitab

Below, X-bar rules have been applied to the NPs in the three selected head-last languages:

Figure 1

Syntax

Pashto:
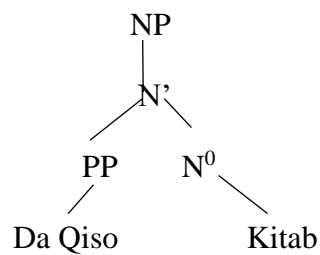
Figure 2

Urdu:
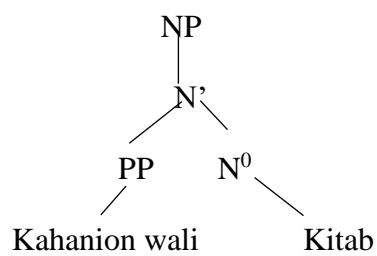
Figure 3

Punjabi:
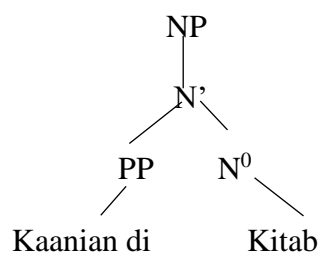
Besides the principle of headedness, the other principles and parameters found are discussed below.

4.1 Incorporation of Syntactic Gloss

In the East Asia, the glosses system was developed to help in the reading of Literary Sinitic texts in the local vernacular (Whitman et al. 2010). Syntactic glosses also known as construe marks revolve around two categories. The first category is that of sequential glossing and the other category is that of symbol glosses. The Leipzig's (2015) Glossing Rules developed jointly by the Department of Linguistics of the Max Planck Institute for Evolutionary Anthropology (Bernard Comrie, Martin Haspelmath) and by the Department of Linguistics of the University of Leipzig (Balthasar Bickel) have been used for the study. They consist of ten rules for the "syntax" and "semantics" of interlinear glosses, and an appendix with a proposed "lexicon" of abbreviated category labels (William, 2003). Here for this study, rule first, *word by word alignment* gloss has been used.

4.2 Modifiers in Noun Phrase

4.2.1 The Position of Adjuncts

The analysis of the phrases with X-bar rules regarding the position of adjunct has been provided below.

Urdu: Maiz par Urdu ki kitab

Gloss: Table on Urdu of book

English Translation: Book of Urdu on table.

By drawing its structural analysis, we get:

Figure 4

Urdu:
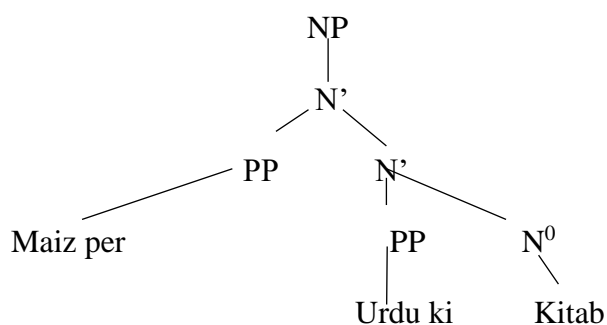
Pashto: Pa maiz bande da   Urdu   kitab:

Gloss: on table   of   Urdu   book

English Translation: Book of Urdu on table.

Figure 5

Pashto:

```
                              NP
                               |
                              N'
                          ___/  \___
                        PP          N'
                       /          __/  \__
                                PP        N⁰
                               /            \
   Pa maiz bande            da Urdu        kitab
```
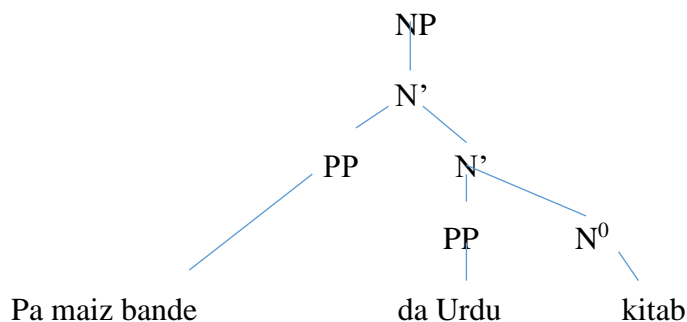
Punjabi: Maiz   tey   Urdu   di   kitab

Gloss: table   on   Urdu   of   book

English translation: Book of Urdu on table.

Figure 6:

Punjabi

```
                          NP
                           |
                          N'
                      ___/  \___
                    PP          N'
                   /          __/  \__
       Maiz tey              PP        N⁰
                            /            \
                         Urdu di        Kitab
```
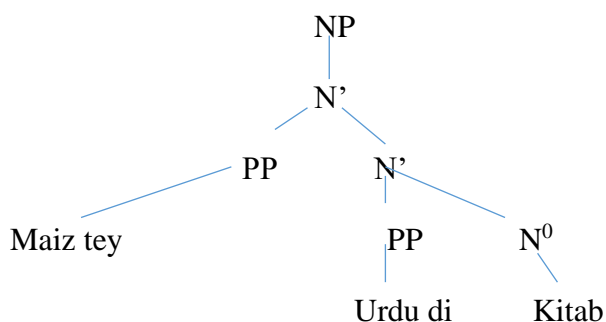
In the NPs of all the three head-last languages, the position of adjuncts is fixed. According to the phrase structure proposed by the standard grammar of all the three languages, the adjunct in the phrases always appear before the head as it sounds well, if it is put after head-word, it sounds odd. While in English NP, the position of adjunct is not fixed. The adjuncts

may come both before and after the head noun. For example: The intelligent student of University in Islamabad.

Figure 7

English:

```
                    NP
                   /  \
                  D     N'
                /      /  \
             The    AdjP    N'
                    /      /  \
              intelligent N'    PP
                         /  \     \
                       N⁰    PP   in Islamabad.
                       |    /  \
                   Student of University
```
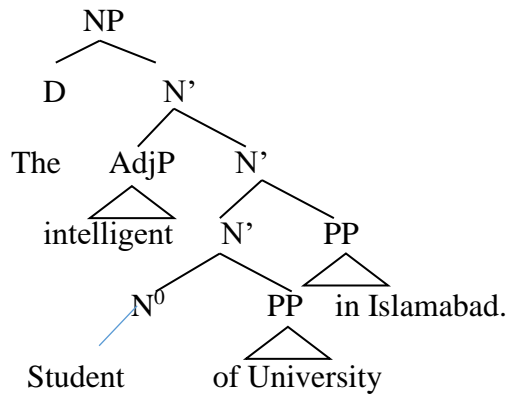
Another example of English is following:

The big book of poems in the library

Figure 8

English:

```
                  NP
                 /  \
                D     N'
              /      /  \
           The    AdjP    N'
                  /      /  \
                big    N'     PP
                      /  \      \
                    N⁰    PP   in the library.
                    |    /  \
                  book  of poems
```
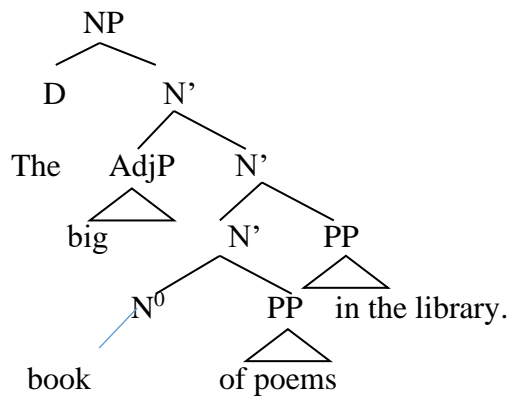
4.2.2 Determiners in a Noun Phrase

The following analysis of the NPs of the three selected head-last languages show the position of determiners in the possessive construction respectively:

Examples: 1(a) Punjabi: Raam   di   changi dukaan.

Gloss: Raam of   good   shop

English Translation: Good shop of Raam

Figure 9

Punjabi:

```
                        NP
                         |
                        N'
                   /          \
                 PP            N'
                             /     \
            Raam di       AdjP      N⁰
                            |        |
                         Changi    Dukaan
```
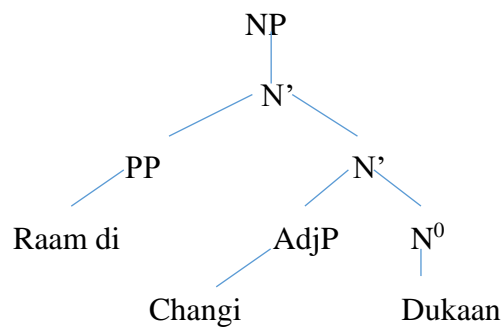
Urdu: Jaameya   ka   Shareef   mutaalim.

Gloss: University of   noble   student.

English Translation: Noble student of University

Figure 10

Urdu:

```
                        NP
                         |
                        N'
                   /          \
                 PP            N'
                            /      \
          Jaameya ka      AdjP      N⁰
                            |        |
                        Shareef    Mutaalim
```
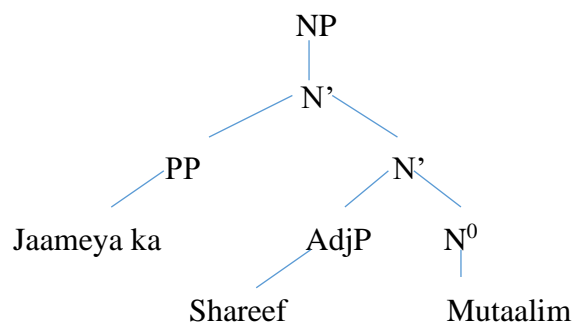
Pashto: Da   nawalo   khkuly   kitab.

Gloss: of   novels   beautiful   book

English Translation: Beautiful book of novels

Figure 11

Pashto:

```
                    NP
                     |
                    N'
                   /  \
                 PP    N'
                      /   \
        Da Nawalo   AdjP   N⁰
                      |      |
                  Khkuly   Kitab.
```
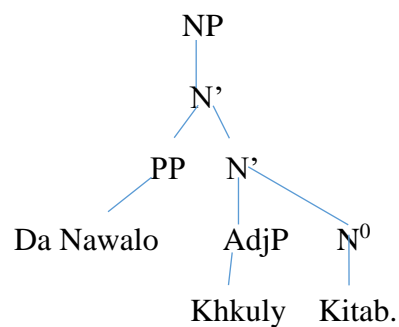
Pashto: Da seend loye   ghara

Gloss :   of river   huge   bank

English Translation: The huge bank of river

Figure 12

Pashto:

```
                              NP
                               |
                              N'
                             /  \
                          PP     N'
                         /      /  \
                    Da seend  AdjP   N⁰
                               |      |
                              loye  ghara
```
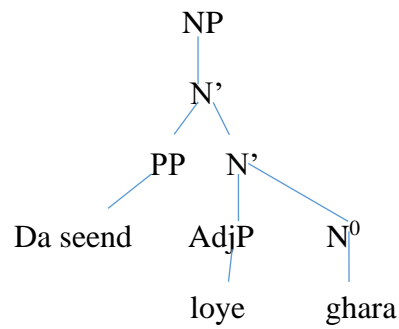
I(b) Examples:

Punjabi: Os dii   Sonii   karamat.

Gloss: His   beautiful   trick

Figure 13

Punjabi:

```
                    NP
                   /  \
                Spec    N'
                /      /  \
            Os di   AdjP    N⁰
                     |       |
                   sonii   karamat
```
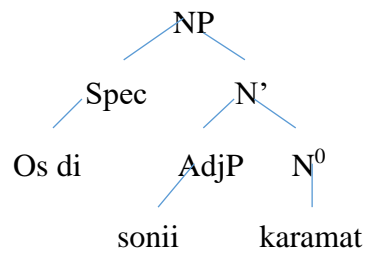
Urdu: Mera   Khubsurat ghar.

Gloss: My   beautiful   house

Figure 14

Urdu:

```
                    NP
                   /  \
                Spec    N'
                /      /  \
            Mera    AdjP    N⁰
                     |       |
                 Khubsurat  ghar
```
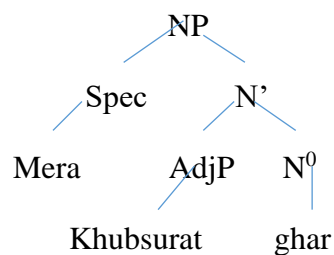
Pashto: Zama   khkuly   motor.   (My beautiful car)

 Gloss: My   beautiful   Car

Figure 15

Pashto:

```
                    NP
                  /    \
               Spec     N'
               /       /   \
            Zama     AdjP    N⁰
                     /        |
                  Khkuly    motor
```
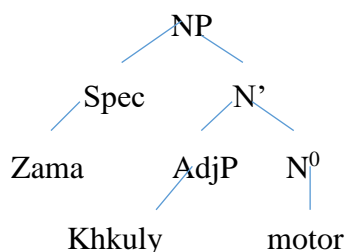
Pashto: Zama nawe   kor

Gloss: My   new   home

Figure 16

Pashto:

```
                    NP
                  /    \
               Spec     N'
               /       /   \
            Zama     AdjP    N⁰
                     /        |
                   nawe      Kor
```
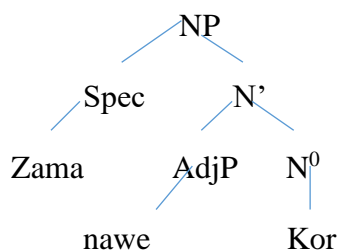
In the NPs of the Panjabi, Urdu and Pashto languages, determiners precede the head noun as modifiers with the variants of the genitive case, either explicitly present as in 1(a); or incorporated in the adjectival form as in 1(b)

In the examples, 1(a) the modifiers: (di), (Ka) and the (da) have been used respectively while in those of 1(b), they are incorporated in adjectival forms: (meeri), (mera) and (zama) respectively.

On the other hand, the syntactic structure of possessive construction in the English NP can be shown in two ways. One way of showing possession is with the help of "'s/s'' as shown below in the phrase: John's car.

Figure 17

English:

```
                DP
          Det        D'
         John    poss.   NP'
                  S'      N'
                          N⁰
                          Car.
```
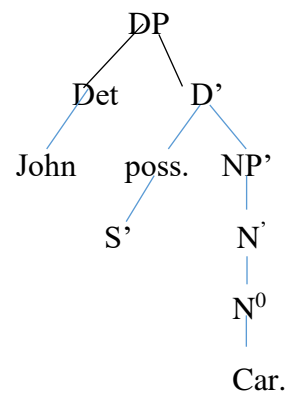
In the other way, possession is shown with the help of "of". For Example:

The car of John.

Figure 18

English:

```
             NP
        Det       N'
       The    N⁰      PP
              car   of John
```
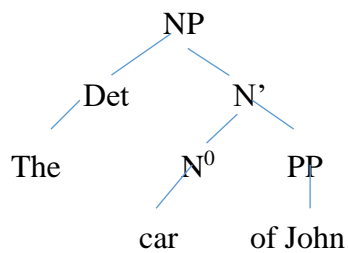
Moreover, the possessive construction in the English NP can also be made in the same way as in the noun phrases of the selected head-last languages, shown in the examples 1(b).

4.2.3 The Case of Articles and Demonstratives

Below is the analysis of the NPs of the three selected head-last languages with respect to articles and demonstratives:

Punjabi: Asim   di   ik   karamat.

Gloss: Asim   of   a   magical trick

English Translation: A magical trick of Asim

Figure 19

Punjabi:

```
                    NP
                     |
                     N'
                    / \
                  PP   N'
                   |   / \
              Asim di AdjP N⁰
                       |    |
                       Ik  karamat
```
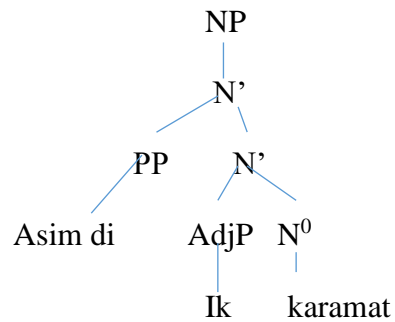
In Punjabi, there is no distinct category of articles. The concept of indefiniteness is expressed in an indirect way by numerals. In the above example, the adjective phrase, (ik) as numeral is filling the gap of indefinite article.

Example 2: O   biibi   Kurri.

Gloss: that   nice   girl.

English Translation: That nice girl

Figure 20

Punjabi:

```
                 Np
                /  \
              Det    N'
               |    / \
               O  AdjP  N⁰
                    |    |
                  Biibi  kurii
```
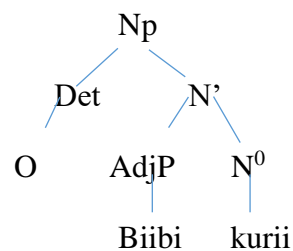
The gap of the definite article is filled by the demonstrative pronoun. In the above example, the determiner (O) as demonstrative pronoun is filling the gap of definiteness. Moreover, the gap of definiteness in Punjabi is also filled by (ae) demonstrative pronoun. For Example:

Punjabi Ae   Sunni   kurii

Gloss: this beautiful girl

Figure 21

Punjabi:

```
                    Np
              Det        N'
          O        AdjP     N⁰
                   Biibi    kurii
```
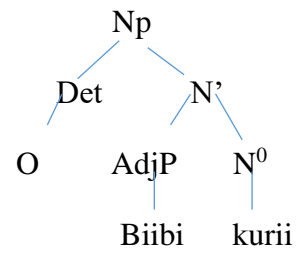
Urdu

Example 1:   Sheher mein   aik   khoobsurat ghar.

Gloss: City   in   a   beautiful   house

English Translation: A beautiful house in city

Figure 22

Urdu

```
                    NP
                     N'
             PP           N'
       Sheher mein    Det      N'
                    Aik    AdjP    N⁰
                        Khoobsurat    ghar.
```
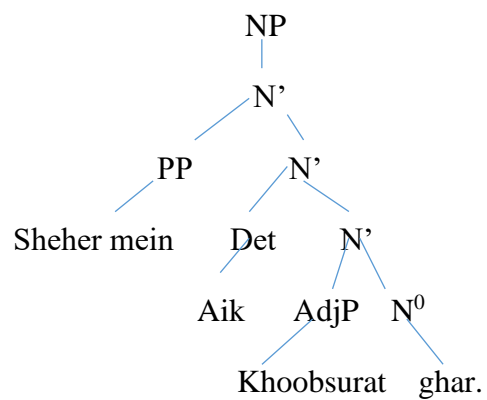
Example No 2: Jumaat   ka   wo   zaheen   mutaalim.

Gloss: Class   of   that   intelligent   student

English Translation: That intelligent student of class

Figure 23

Urdu:

```
              NP
         Det       N'
       The      N⁰      PP
             book      on the table
```
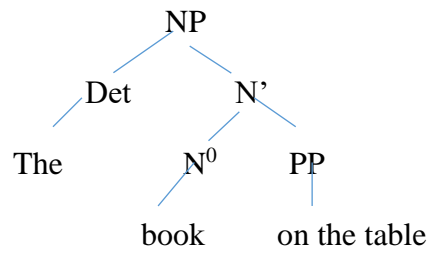
Example 2:

The student of the university

Figure 26

English:
```
              NP
         Det       N'
       The      N⁰      PP
             student      of the university
```
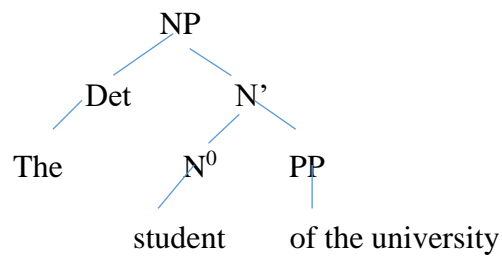
Pashto

Example1: Pa Palang bandy ywa   khkuly   Kambala.

Gloss;   on bed   a   beautiful   blanket

English translation: A beautiful blanket on bed

Figure 27

Pashto:

```
                    NP
                    N'
              PP         N'
      Pa Palang bandy   Det    N'
                      ywa   AdjP   N⁰
                          khkuly    kambala
```
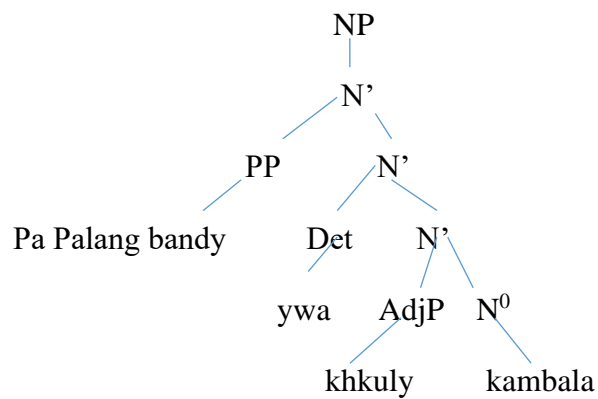
Example No 2:

Da   qiso   yow   drond   kitab

Gloss: of   stories   a   heavy   book

English translation: A heavy book of stories

Figure 28

Pashto:

```
                        NP
                         |
                        N'
                      /     \
                  PP         N'
                 /          /   \
           Da Qiso       Det     N'
                          |      /  \
                        Yow   AdjP   N⁰
                               |      \
                             drond    kitab.
```
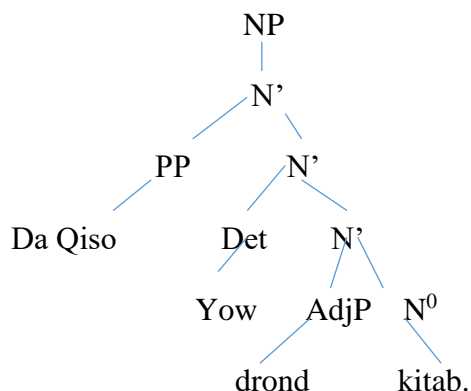
Example 3:

Pa   maiz   bandy da Pukhto kitab.

Gloss: on   table   of Pashto book

English Translation: Book of Pashto on table

Figure 29

Pashto:

```
                        NP
                         |
                        N'
                      /     \
                  PP         N'
                 /          /   \
         Pa maiz bandy    Det     N'
                          |      /  \
                        Hagha   PP   N⁰
                               /      \
                         da Pukhto   kitab
```
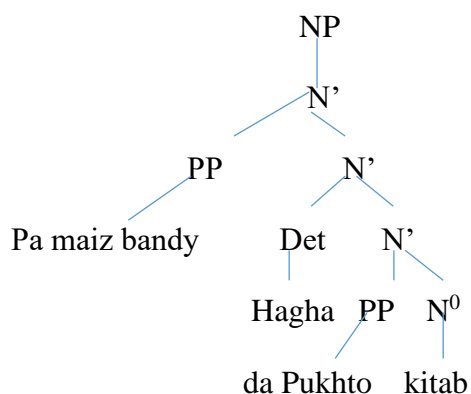
The case of Pashto is also the same one. In Pashto, the indefiniteness is shown by the numeral (yow) or (ywa) and the definiteness is shown by the demonstrative pronoun (Hagha). On the other hand, the English NP has distinct category of articles. Unlike the NP of all the three head-last languages, the definiteness in English Np is shown by 'The.' For instance:

The famous player of cricket in Multan.

Figure 30

English:
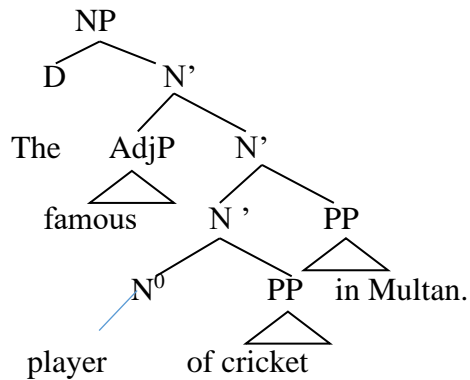
Example No 2: The beautiful ground of cricket in Australia

Figure 31

English:
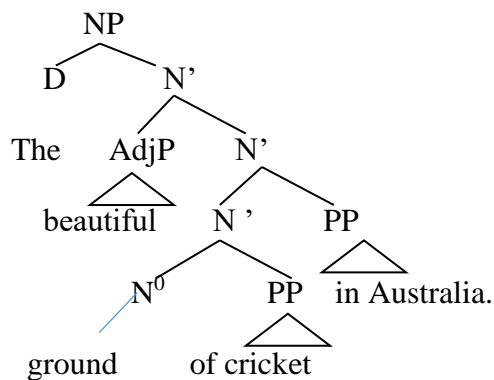
4.2.4 Intervention of Determiners and Adjectives as Adjuncts between the Complement and Head of the Phrase

Rules for NP

The rules for NP are following.

NP → (D) N'

N' → (AdjP) N' or N' (PP)

N' → N (PP)

Examples:

English: The intelligent student of the university in Islamabad

Now, by applying above rules, we get:

English:

Figure. 32
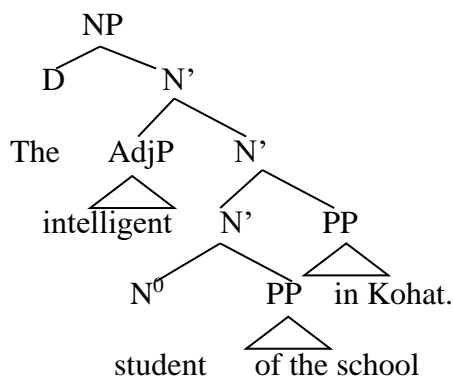
Pashto: Pa Kohat ke da maktab   zaheen   mutaalim

Gloss: in Kohat   of school intelligent   student.

English Translation: Intelligent student of school in Kohat

Figure 33

Pashto:
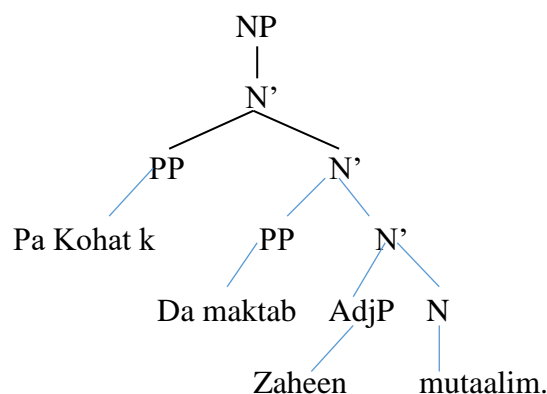
As it can be seen in Figure. 32 and Figure.33, there is difference in the positions of complements in the sentences of both the languages. In English, it is said that the complement must be sister to the head and there should be nothing in between head and complement. In Pashto, this case is totally opposite. In Fig. 33, in the NP of Pashto, the complement PP is not the sister of the head word *student* because there is one another element that is adjective that intervenes between head and complement. So, the x-bar rule of head and complement does not work here. Now, let us consider another example,

Pashto: Pa almaray k da qiso   hagha drond kitab.

Gloss: in cupboard   of stories that   heavy book.

English Translation: That heavy book of stories in cupboard

Figure 34

Pashto:
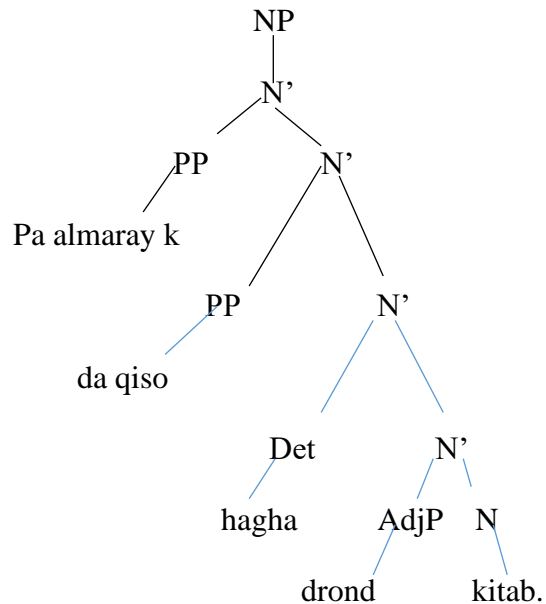
In the above figure.34, it is clear that the head word kitab is not the sister with its complement (da qiso) because there are other elements that come in between them. These intervening elements are determiner هغه and adjective درون. They do not allow the PP to be the sister with head. So, it shows that in case of NP in which there is an adjective and PP, the X-bar rules do not work there exactly as they work in English language.

Urdu: Skardu mein wo khubsoorat jheel

Gloss: Skardu   in   that beautiful   lake

English Translation: That beautiful lake in Skardu

Now analyzing it through X-bar rules, we get:

Figure 35

Urdu:

The tree diagram shows:
NP
 N'
  PP — Skardu mein
  N
   PP — Siyahon k Lye
   N'
    Det — Wo
    N'
     AdjP — Khubsoorat
     N — Jheel.
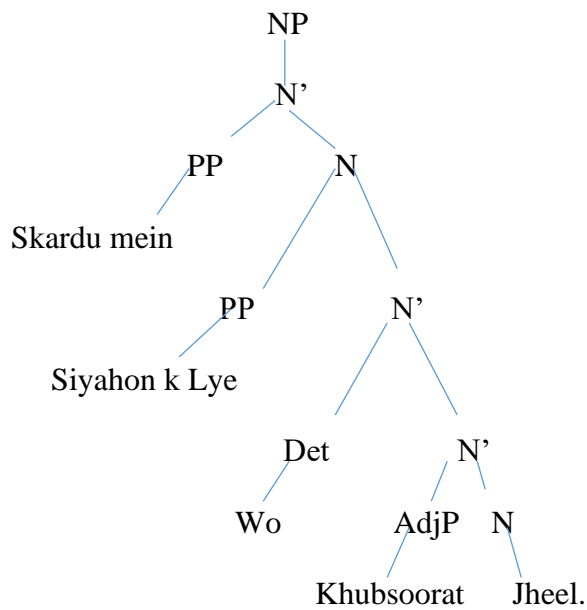
The case of Urdu NPs is also same as that of Pashto NPs. In the above example, it can be clearly seen that the determiner (wo) and the adjective phrase Khubsoorat intervene between the head word (jheel) and the complement (khubsoorat) thus not allowing the prepositional phrase (Siyahon k lye) be sister to the head word which is a noun phrase (jheel)

Another example for the same language is:

Urdu: Gaon   mein   Aamir   ki   aik Umdah   dukaan.

Gloss: Village in   Aamir   of   a   nice   shop

English Translation: A nice shop of Aamir in village.

Now by drawing its phrasal analysis through X-bar rules, we get

Figure 36

Urdu:

```
                              NP
                               |
                              N'
                             /  \
                          PP     N'
                         /      /  \
                  Gaon mein   PP     N'
                            /       /  \
                      Aamir ki   Det    N'
                               /       /  \
                            Aik     AdjP   N
                                   /        \
                               Umdah       dukaan.
```
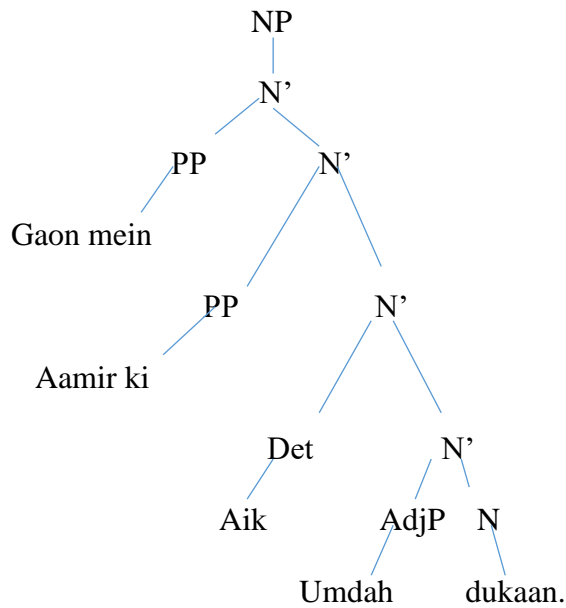
In the above example, the determiner (aik) and the adjective phrase Umdah has intervened between the head word 'dukaan' and the complement 'Aamir ki', thus making it crystal clear that the prepositional phrase in the noun phrases of Urdu cannot be the head word's sister, when there are adjuncts and determiners added to it. Moreover, it is seen that the space of determiner is filled by numerals in case of indefiniteness, while the same is filled by demonstrative pronouns in the case of definiteness.

Now analyzing the NPs of Punjabi language with the help of X-bar rules, we get:

Punjabi: Bahawalpur wich Raam da   o   Sonaa   kar.

Gloss: Bahawalpur in Raam of that wonderful   house

 English Translation: That beautiful house of Raam in Bahawalpur.

Figure 37

Punjabi:

```
                              NP
                              |
                             N'
                           /    \
                        PP       N'
                        /      /    \
            Bahawalpur wich   PP      N'
                             /      /    \
                      Raam da     Det      N'
                                  /      /    \
                                 O     AdjP    N
                                       /        \
                                    sonaa        kar.
```
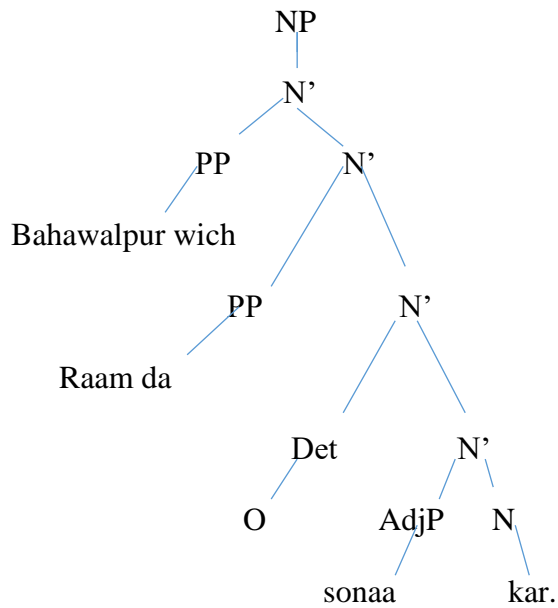
Likewise, in the Punjabi language, all the modifiers in the NPs precede the head word (noun) thus making it impossible for the complement be sister to the head word. In the above example, it can be clearly seen that the determiner (O) and the adjective phrase (parhiya) as an adjunct come between the complement (Raam da) and the head (kar) thus making it difficult for the complement to remain sister to the head.

Punjabi: Pind   wich   Raam di   O   Changi Dukaan.
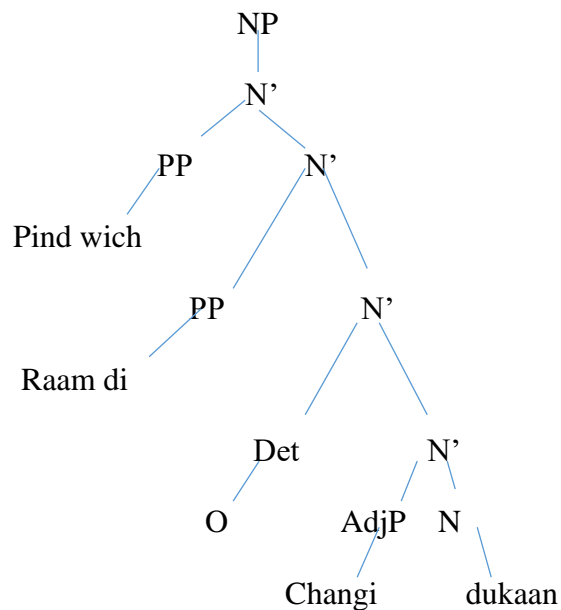
Gloss: village in   Raam of   that   nice   shop

English Translation: That nice shop of Raam in village,

Figure 38

Punjabi:

```
                          NP
                           |
                          N'
                       /      \
                     PP        N'
                      |      /    \
                 Pind wich PP      N'
                           |     /    \
                       Raam di  PP      N'
                                |    /     \
                              Det     N'
                             / \    /    \
                            O    AdjP   N
                                  |      \
                               Changi   dukaan
```

In the above example, it can be observed again that the determiner and the adjective phrase intervention have not let the PP to remain sister to the head at the final level projection, thus not allowing the generic phrase structure rules proposed by X-bar theory to conform to the structure of the NP, pertaining to the head-last languages.

Punjabi: Karan di   sat   changi gaadian.

Gloss: Karan of   seven   nice   cars

English Seven nice cars of karan

Figure 39

Punjabi:
```
                          NP
                           |
                          N'
                       /     \
                     PP       N'
                      |     /    \
                 karan di  Det     N'
                           |    /    \
                          Sat  AdjP   N⁰
                                |       \
                             Changi   gaadian.
```
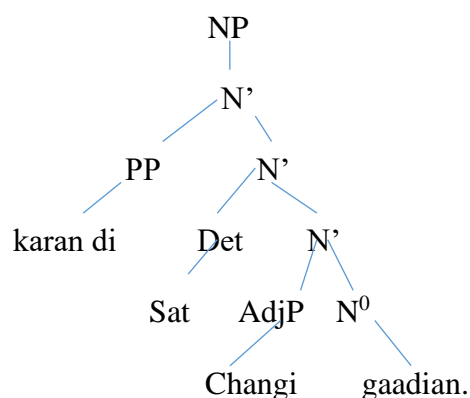
Similarly, in the case of indefiniteness, the determiner's position in Punjabi language is occupied by numerals, similar to those of Urdu and Pashto NPs. In the above example, it is seen that the place of indefinite article is filled by the numeral as the determiner and it along with the adjective phrase come between the complement and the head word of the phrase.

4.3 The Case of Pre- and Post-Positions

Below is the analysis of the PP in the complement position inside the Pashto NP.

English: Book   on   table

Gloss: Pa maiz   bandy   kitab

Figure 40

Pashto:
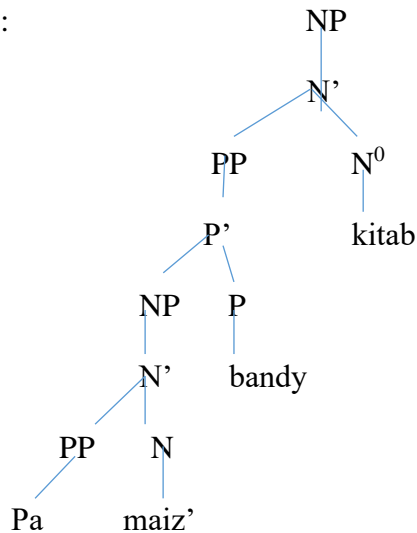
While analyzing the Pashto NPs through x-bar rules, it has been seen that at the final level projection, the NP is sandwiched between the pre and postpositions. The complement to the head-word has one preposition while one post-position. Above, it is seen that the PP at the place of complement has one preposition before the noun and the other one is postposition after the noun. Taking into account another example, same results have been achieved.

Pashto: Pa almary keh kapry

Gloss: in cupboard clothes

English translation: Clothes in cupboard

Figure 41

Pashto:

```
                        NP
                         |
                         N'
                        /  \
                    PP        N⁰
                     |         |
                     P'       kapry
                    /  \
                 NP     P
                  |     |
                  N'   keh
                 /  \
               PP    N
                |     |
               Pa   almaray
```
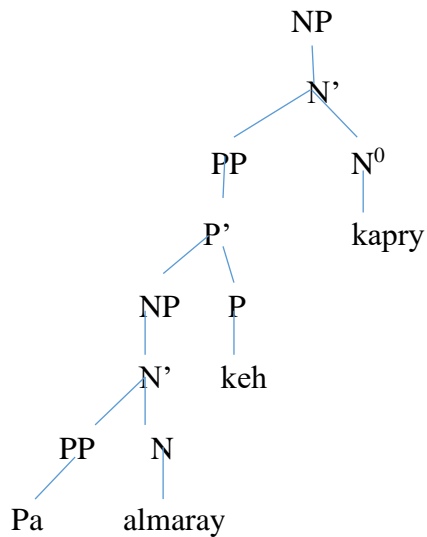
Likewise, here in this phrase, the NP (almary) has sandwiched between the (Pa) which is preposition and (keh) which is the postposition. The case of Urdu and Punjabi NPs is different. Now analyzing the Urdu and Punjabi noun phrases with respect to the complement,
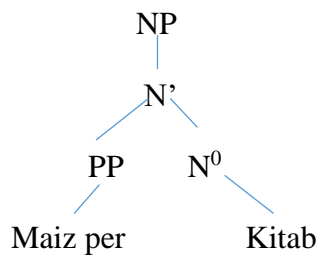
Urdu: Maiz per kitab

Gloss: Table on book

English Translation: Book on table

Figure 42

Urdu:

```
              NP
               |
               N'
              /  \
           PP     N⁰
            |      |
        Maiz per  Kitab
```
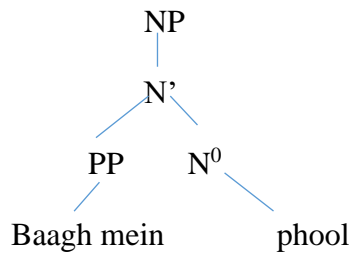
Urdu: Baagh mein phool

Gloss: garden in   flowers

English Translation: Flowers in garden

Figure 43

Urdu:

```
                NP
                │
                N'
              ╱   ╲
          PP        N⁰
         ╱           ╲
   Baagh mein          phool
```

Punjabi: Kaanian di kitab

Gloss: Stories   of book

 English Translation: Book of stories

Figure 44

Punjabi:

```
                NP
                │
                N'
              ╱   ╲
          PP        N⁰
         ╱           ╲
   Kahanian di          Kitab
```
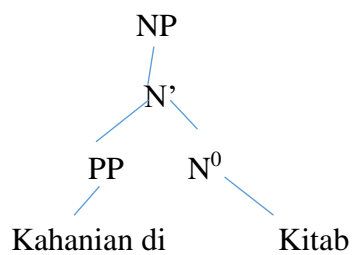
Punjabi: Deli   wala   Mundaa

Gloss: Dehli   from   Boy

English Translation: Boy from Dehli

Figure 45

Punjabi:

```
                NP
                │
                N'
              ╱   ╲
          PP        N⁰
         ╱           ╲
    Deli wala          munda
```
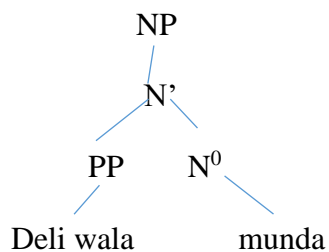
The case of Urdu and Punjabi NPs is different. In the NPs of Urdu and Punjabi, at the final level of X-bar theory's projection, the noun is only accompanied by the postposition. In

the above NPs of Urdu and Punjabi, it is clearly seen that at the complement place, the preposition only follows the noun. It does not come before noun.

4.4 Results

After the analysis has been done, this section deals with the discussion of results found and has tried to answer the questions of the study. The following principles and parameters have been found out among the noun phrases of the three head-last languages.

4.4.1 Principles

The first principle is that in the NPs of all the three languages related to the study, the position of adjuncts is fixed. The adjuncts as an adjective phrase always comes before the head noun; as before the head noun, they sound well and after the head noun, they sound odd. It is evident from the examples in the analysis section under the heading 4.2.1 (The Position of Adjuncts).

The second principle among the NPs of all the three head-last languages is about the case of modifiers in a way that in noun phrases of all the three head-last languages, modifiers precede the head word with the variants of the genitive case, either explicitly present as in 1(a) or incorporated in the adjectival form as in 1(b). (The examples analyzed with the help of X-bar rules can be seen back in the analysis section under the heading: 4.2.2).

The third principle is related to the definiteness and indefiniteness. In the NPs of all the three selected head-last languages, there is no distinct category of articles. The concept of definiteness and indefiniteness is expressed in an indirect way by pronouns and numerals respectively. It can be seen from the analysis of the noun phrases of all the three head-last languages under the heading: (4.2.3).

The fourth principle is about the intervention of determiners and adjectives as adjuncts between the complement and head noun. In the NPs of all the three head-last languages, the adjectives as adjuncts and the determiners intervene between the complement and head noun unlike the English language's NP where nothing intervenes between the complement and the head word. (See examples under the heading (4.2.4).

4.4.2 Parameters

The parameters found across the noun phrases of the languages are divided into the following two sections:

4.4.2.1 Variations among the Noun Phrase of the Three Head-last Languages.

After the Principles have been discussed, one variation has been found between the Pashto NP and both the NPs of Urdu and Punjabi languages. While analyzing the Pashto NPs through x-bar rules, it has been seen that at the final level projection, the NP is sandwiched between the pre and postpositions. The complement to the head-word has one preposition and one post-position. The case of Urdu and Punjabi language NPs is different. In the NPs of Urdu and Punjabi, at the final level of X-bar's theory projection, the noun is only accompanied by the postposition. (see examples under the heading 4.3 in the analysis section).

4.4.2.2 Variations across the English Noun Phrase and the Noun Phrase of the Three Head-Last Languages

The following variations have been found across the English NP and those of the NPs of the target head-last languages:

1. In English NP, the position of adjuncts is not fixed, while in the NPs of the target head-last languages, the position of adjuncts is fixed (See 4.2.1).
2. In English NP, nothing intervenes between the head and the complement while in the NPs of the target head-last languages, adjectives as adjuncts and determiners intervene between the head and the complement (See 4.2.4).
3. In English NP, there is the distinct category of the definite article 'The' while the NPs of the target head-last languages do not have the distinct category of the definite article (See 4.2.3).

4.4.3 Conformity/ Non-Conformity of NPs of the Selected Head-Last Languages to X-bar Theory

Next to look for the specific ways in which the structure of the NP of the three selected head-last languages conforms/not conforms to the generic structure of the phrase proposed by X-bar theory; it can be seen that in simple NPs of Urdu, Pashto and Punjabi languages, the structure conforms to generic structure proposed by X-bar theory, while in the case of the addition of determiners and adjuncts to the NP, the structure NP in all the three head-last languages does not conform to the generic structure of the phrase proposed by X-bar theory.

4.4.4 Explanation of the Observed Principles and Parameters on the Basis of X-bar Theory

The observed principles and parameters could be explained on the basis of P&P theory in a way that Chomsky, while discussing the topic of principles and parameters in his lectures on government and binding, only discussed the parameter of head position between the head-initial and head-final languages. Rest he did not heed the issue of parameters related to the position of adjunct in head-last languages. Chomsky proposed the order for the structure of NP as:

NP → (D) N'

N' → (AdjP) N' or N' (PP)

N' → N (PP)

In the above mentioned NP structure, it can be seen clearly that at the final level projection nothing comes in between the head and the complement but dealing with the structure of the NP of head-last languages, the intervention of the determiners and adjuncts have been found out that come in between the head and complement at the final level projection by not allowing the complement to be sister to the head. Finally, the parameter of the pre and postposition in head-last languages have also been not taken into consideration while proposing the generic structure of the noun phrase on X-bar rules.

4.5 Discussion

After reporting the results, the discussion on the findings of the study has been provided below. The purpose of this discussion is to ascertain the contribution of this study.

Amin and Ullah (2019) conducted a study on the analysis of the Pashto language phrases and sentences. In their study, they analyzed the NP of Pashto language and compared it with the NP of English language. In their study, they came up with the parameter of head position only. While this study explains the case of ambiposition in the complement of NP where at final level projection, NP is sandwiched between a pre and a postposition. Moreover, this study explains the position of determiners in the syntactic structure of the possessive construction in the NPs of the three selected head-last languages.

Uzair et al. (2020) conducted a study on the parametric difference between English and Urdu in terms of null subject parameters, where they found that the English overall is not a null-subject language as compared to Urdu, which is a null subject while this study found out that the head-last languages, including Urdu also do not have the definite article in their NP structure unlike the English NP. For Example:

English: The intelligent student of the University.

Urdu: Jaameya ka zaheen Mutaalim.

Gloss: University of intelligent Student.

      In the example above, it can be seen that in English NP, the determiner place is filled by the definite article (The) while in Urdu, there is no definite article. Moreover, this study also explains that the case of indefiniteness in Punjabi and Pashto NPs.

      Javed (1981) divided the nouns flatly into five types, common, proper, collective, abstract and mass (also referred to as material noun) using the Lexical Functional Grammar approach but he did not analyze the structure of the NP with x-bar rules to show the obligatory and optional elements in NP. This study not only explains the generic structure proposed by X-bar theory in 1970 but also analyzes different constituents of the NP in the target head-last languages with the help of it.

      In his study, Javed (1981) did not talk about the position of adjuncts in the NP of head-last languages, which is always fixed as the adjuncts precede the head noun in them. (See 4.2.1) Similarly, the case of Articles and Demonstratives is not entertained in his study (See 4.2.3). In addition, Javed did not talk about the NP with respect to the AdjP in it (See 4.2.4).

      Kainat and Khan (2020) conducted a study on the syntactic structure of English and Pashto prepositions. In their study, they took the example of 'The child is in the Rome' and talked about the preposition 'in' in this sentence. In English, the preposition 'in' is used for enclosure of the object in space which may be full or not. They stated that in English, there is no concept of postposition. While this study explains the concept of ambiposition with the preposition "puh" and the postpositions "Keh" where at the complement position in the PP, how NP is sandwiched between the two. Moreover, this study also explains that the rest of the two head-last languages, i.e., Urdu and Punjabi also do not have the ambiposition like English.

      Naeem and Khan (2005) conducted a study on the various derivations of Pashto nouns from the adjectives. Their study addressed the question of how words change their class from adjective to noun? The study also presented the ways to develop and improve word class of Pashto. On the other hand, this study has NPs that have been formed on the basis of two major classifications: Classification on the basis of meaning and classification on the basis of formation.

      Ali (2019) conducted a comparative study of Pashto and Dari adjectives. He identified similarities and variations in the adjectives of both languages. His study has a significant contribution to the grammar of both languages. On the contrary, this study explains the possibility of the attributive adjectives only that come up before the head word in a NP as

Pashto according to its head-last structure do not take predicative adjectives in its NP. Moreover, this study explains how adjective as an adjunct come between the head and the complement in a NP.

Hum and Ali (2023) conducted a study on the analysis of Urdu nominal phrases. Their study took into account the nominal phrase of the Urdu language. Their study stated that the Urdu language is very different from the English language in its syntax, transcription and grammar. The researchers took a sample of seven "nominal phrases" extracted from the text of "Ghalib Letter to Aalaodin Alai" which is published in the 10th-class Urdu book published by Khyber Pakhtunkhwa textbook Board Peshawar. All the phrases taken for the study by the researchers follow a general structure of "MH" where M is a modifier and H is the head or core word of the phrase. Likewise, the findings of this study are also based upon the "MH" structure in all of the three head-last languages. Additionally, from the analysis section of this study, it is found that the English NP on the contrary, follows the "MHM" structure.

Suhendro (2013) employed the X-bar approach to conduct a syntactic analysis of NPs in George Bernard Shaw's play "Arms and the Man." Employing a descriptive qualitative methodology, the researcher examined sentences and phrases containing NP constructions extracted from the drama script. The analysis revealed thirty-five distinct NP constructions, with the pre-modifier + noun (head) structure emerging as the predominant pattern. While this study found out that the dominant construction of NP in all of the three head-last languages lies only within pre-modifier + noun construction. There is no other construction of the NP in all of the three head-last languages.

Rabbi et al. (2008) conducted a study on the theoretical analysis of Pashto phrases for the creation of parser. The study theoretically analyzed different phrases of Pashto language in order to create Pashto language parser. While addressing the NP of Pashto in their study, they classified it "on the basis of meaning" and "on the basis of formation." The first category of NPs explains the meaning of one noun with the other noun. For Example,

Pashto: Da Masharano Jirga

Gloss:　of　Elders　　The Jirga

English Translation: The Jirga of elders.

While the latter category shows noun phrase according to its formation. On the other hand, this study took into account both the classification of nouns and analyzed those with the

help of x-bar rules in comparison to Urdu and Punjabi NPs. Besides this, the study came up with the various principles found among the NPs of all the three selected head-last languages.

Siddiqui (1971) provided a comprehensive classification scheme for nouns, categorizing them based on their structure, nature, and other characteristics. Structurally, nouns are divided into three main types:

a. Primitive Nouns: These are nouns that are neither derived nor derivable. They are further subdivided into proper nouns, which include titles, attributive names, and kinship terms, and common nouns, which consist of state and collective nouns.

b. Verbal Nouns: These are nouns derived from verbs and typically take the form of infinitives and gerunds. Derivational nouns are derived from verbal nouns.

c. Derivational Nouns: This category includes nouns derived from various sources, such as subjects, objects, present participles, deverbal nouns (which denote payment derived from work names), locatives (including temporal and spatial locatives), and instrumental nouns. In terms of nature, nouns are classified as substantive, quality nouns, and pronouns. While describing the structure of Urdu noun, Siddique (1971) did not explain the concept of definiteness. On the other hand, this study explained the structure of Urdu NP in relation to definiteness and indefiniteness.

Ali and Hussain (2020) conducted a study on a hybrid approach to Urdu VP chunking. In their study they said that minimally, an Urdu VP is represented by a single verb. However, a typical VP contains a verb followed by one or more auxiliaries and a verb tense marker. Each is represented by a separate word. Furthermore, their study explains the different types of VPs in the Urdu language which are: Simple verb phrase and complex predicate verb phrase while this study explains the structure of NP in the Urdu language and explains the positions of various constituents found in its structure.

The present study found out that in the NPs of the three selected head-last languages, the position of adjuncts is fixed. All the adjuncts appear before the head word as before the head word, they convey proper meaning while after the head word, they sound odd. On the other hand, in the NP of English, the adjuncts may come before as well as after the head word. Additionally, the determiners in the NPs of the three selected head-last languages precede the head noun as modifiers with the variants of the genitive case either explicitly present or incorporated in the adjectival form. Moreover, the distinct category of articles is missing in the NP of all the three head-last languages. In the NPs of all the three head-last languages, the gap

of indefiniteness is filled by numerals while the gap of definiteness is filled by demonstrative adjectives. Furthermore, in the NPs of the three head-last languages, adjectives as adjuncts intervene between the head and the complement while in the English NPs, nothing comes between the head and the complement. Finally, there is the case of pre and postpositions in the NP of Pashto language while the other two languages have only postpositions in their NPs. Additionally, this study explains that the simple structure of the NP in each selected head-last language conforms to the generic structure of the phrase proposed by x-bar theory while the NP with the adjuncts as pre modifiers in each selected head-last language does not conform to the generic structure of the phrase proposed by X-bar theory.

The present study delves into the structural intricacies of NPs in head-last languages, offering insights into how these languages organize information within sentences. By demonstrating how languages like Urdu, Pashto, and Punjabi employ P&P theory and X-bar theory to structure their noun phrases, this study illuminates the universal principles that underlie language construction. This, in turn, enhances the understanding of the fundamental principles governing English syntax, showcasing both the commonalities and variations across languages.

Through the investigation of the structure of NP in the three selected head-last languages of Pakistan, this study contributes to the ongoing development and refinement of linguistic theory. By applying an established analytical framework X-bar theory, to diverse language types, including those with different word order patterns from English, the research enriches the theoretical understanding of syntax. The understanding offered by this study of the structure of NP in the selected head-last languages can lead to more nuanced theories of language structure, benefiting not only the study of head-last languages but also shedding light on the structure of English NPs from a comparative perspective.

The insights gleaned from this study hold implications for language teaching and learning, particularly in English language education. By elucidating the structural features of NPs in head-last languages, the study provides educators with valuable tools and perspectives for addressing the needs of English language learners from diverse linguistic backgrounds. Understanding the syntactic patterns and theoretical underpinnings of these languages can inform instructional strategies aimed at facilitating the acquisition of English syntax, thereby enhancing language proficiency among learners.

The present study fosters cross-cultural understanding by facilitating comparisons between English and head-last languages spoken in Pakistan. By highlighting both the similarities and differences in NP structures across these languages, the study promotes a deeper appreciation for linguistic diversity and variation. This comparative approach not only enriches our understanding of English but also fosters cultural exchange and mutual respect among speakers of different languages.

Insights gained from this study can have practical applications in natural language processing (NLP) and computational linguistics, particularly in the development of algorithms and models for machine translation and language processing tasks. Understanding the structural nuances of NPs in head-last languages informs the design of more robust and accurate NLP systems, benefiting both research and industry applications in the realm of English language technology.

In essence, this study contributes to advancing the understanding of English syntax, linguistic theory, language pedagogy, cross-cultural communication, and practical applications in language processing, thereby enriching both academic discourse and real-world contexts.

Chapter 5
Conclusion

This study aimed to apply the rules of X-bar theory to the NPs of the three head-last languages of Pakistan which are Urdu, Punjabi and Pashto. It was observed that a number of studies had been carried out on the English phrases and sentences with regard to the X-bar theory but its function had not been observed in the regional head-last languages of Pakistan in order to know, whether the structure of their NPs conforms/does not conform to the generic structure of the phrase proposed by X-bar theory. In addition to that, this work pondered over the structural similarities and differences in the NPs of the three selected languages and compared and contrasted them with the structure of English NP and also tried to explain the similarities and differences in the light of P&P theory proposed by Chomsky in 1981.

In the head-last languages, specifically: Urdu, Pashto and Punjabi, a number of studies were carried out separately regarding various parts of speech including noun but a comparative study of the NP regarding the application of X-bar theory in order to find various Principles and Parameters was not observed so far. The present study analyzed the structure of NP in all of the above mentioned head-last languages in order to look for various similarities and differences among them and with English NP. P&P theory was used as theoretical framework for the study while X-bar theory was used as analytical framework.

The study was delimited to the three head-last languages of Pakistan, which are: Urdu, Punjabi and Pashto, and it only dealt with the structure of NP of the three selected languages.

The data was collected from the standard version grammar books of the three languages and the rationale behind it was that the grammar books of the three respective languages were composed by renowned grammarians in the respective languages, thus assuring the credibility and authenticity of the collected data. The proposed design for the study was qualitative in nature.

The collected data was analyzed with the help of X-bar theory to answer the research questions of the study. In order to make the selected noun phrases from the three head-last languages (Urdu, Punjabi and Pushto) comprehensible to those unfamiliar with these languages, syntactic gloss was incorporated. The study tried to find answers to the following research questions:

1. What structural similarities or differences are there in the noun phrase of the three selected languages?

2. How does the structure of noun phrase in each selected language align with or diverge from the generic structure of the phrase proposed by X-bar theory?

3. How does the Principles and Parameters theory address the similarities or differences in the structure of the noun phrase in the three selected languages?

As far as the answer to the first question is concerned, the following structural similarities and differences have been observed in the structure of the NPs of the three selected languages:

The first similarity is that in the NPs of all the three head-last languages, the position of adjunct is fixed. The adjunct as an adjective phrase always comes before the head noun as before the head noun, it sounds well and after the head noun, it sounds odd as mentioned in the examples above under the heading 4.2.1 in the analysis section.

The second similarity in the NPs of all the three head-last languages is about the case of modifiers in a way that in NPs of all the three head-last languages, modifiers precede the head noun with the variants of the genitive case, either explicitly present as in 1(a) or incorporated in the adjectival form as in 1(b)

Examples 1 (a). Punjabi: Raam di changi dukaan.   (The good shop of Raam)

 Urdu: Jaameya ka Shareef mutaalim.   (The noble student of the university)

 Pashto: Da nawalo khkuly kitab.   (The beautiful book of novels)

I(b) Examples:

Punjabi: Meeri caangi dukaan.   (My good shop)

Urdu: Mera Khubsurat ghar.   (My beautiful house)

Pashto: Zama khkuly motor.   (My beautiful car)

In the examples, 1(a) the modifiers: (di), (Ka) and (Da) have been used respectively while in those of 1(b), they are incorporated in adjectival forms: (meeri), (mera) and (zama) respectively. (Examples analyzed in the analysis section under the heading 4.2.3)

The third similarity is related to the definiteness and indefiniteness, like in Punjabi NPs, there is no distinct category of articles. The concept of definiteness and indefiniteness is expressed in an indirect way by pronouns and numerals respectively. It is evident from the analysis of the NPs of the three target languages back in the analysis section under the heading (4.2.4).

The fourth similarity is about the intervention of determiners and adjectives as adjuncts between the complement and head noun in NPs which can be seen back in the analysis section under the heading (4.2.5) that how the determiners and demonstrative adjectives intervene between the complement and the head noun in the NP of the three target head-last languages.

Apart from the similarities discussed above, one difference has been found in the Pashto NP and both the NPs of Urdu and Punjabi languages. While analyzing the Pashto NPs through x-bar rules, it has been seen that at the final level projection, the NP is sandwiched between the pre and postpositions. The complement to the head-word has one preposition and one post-position. The case of Urdu and Punjabi language NPs is different. In the NPs of Urdu and Punjabi, at the final level of X-bar's theory projection, the noun is only accompanied by the postposition. While the following parameters have been found out between the NP of English and the NPs of the three selected head-last languages:

1. In English NP, the position of adjuncts is not fixed, while in the NPs of the target head-last languages, the position of adjuncts is fixed (See 4.2.1).
2. In English NP, nothing intervenes between the head and the complement while in the NPs of the target head-last languages, adjectives as adjuncts and determiners intervene between the head and the complement (See 4.2.4).
3. In English NP, there is the distinct category of the definite article 'The' while the NP of the target head-last languages do not have the distinct category of the definite article (See 4.2.3).

The second research question looked for the specific ways in which the structure of the NP related to the three languages conforms/not conforms to the generic structure of the phrase proposed by X-bar theory. So, the answer for this is that in simple NPs of Urdu, Pashto and Punjabi languages, the structure conforms to generic structure proposed by X-bar theory, while in the case of the addition of determiners and adjuncts to the NP, the structure of NP does not conform to the generic structure of the phrase proposed by X-bar theory (See 4.3.3).

As far as the answer to the third research question is concerned, the observed structural similarities and differences can be explained on the basis of P&P theory by Chomsky in 1981. While discussing the topic of principles and parameters in his lectures on Government and Binding, Chomsky only discussed the parameter of head position between the head-initial and head-final languages. He did not take into account the issue of parametric variation related to

the position of adjuncts between the head-initial and head-final languages. Moreover, Chomsky proposed order for the structure of NP in the following way:

NP → (D) N'

N' → (AdjP) N' or N' (PP)

N' → N (PP)

In the above mentioned structure of the NP, it can be clearly seen that at the final level projection, no element occurs between the head and the complement. On the other hand, while dealing with the structure of NP of head-last languages, adjuncts and determiners intervene between the complement and head. Finally, in the prepositional phrase as a complement/modifier of the head noun, a peculiar irregularity is observed in the case of pre- and post-positions in the prepositional phrase of Pashto language while the other two languages (Urdu and Punjabi) have only post-positions. This aspect was additionally disregarded by Chomsky.

The study is significant in a way that it adds significantly to the domain of Syntax. It is seen that syntactic theories have been widely applied on English language as compared to head-final languages in general and Pakistani languages in particular. All the previous studies carried out so far on head-last languages have considered a single language at a time, including Urdu, Punjabi, Balti, Pashto and Sindhi. This study is unique in a way that it carries out a comparative analysis of three head-last languages and that too with the help of X-bar theory. In earlier works, the application of X-bar theory has also not been observed whether it works the same way or not in the head-last languages as it works in the head-initial languages.

The study brings to light several similarities and variations in the NPs of the selected head-last languages and analyzes their respective Noun Phrase structures by the help of X-bar theory. Moreover, it highlights that one of the head-last languages, 'Pashto' differs from the rest of the two languages as it has both pre and postpositions in its NP.

5.1 Practical Implications of this Study:

Language Teaching and Learning:

This study can directly benefit language educators and learners by providing a deeper understanding of the syntactic structures specific to Urdu, Pashto, and Punjabi. Teachers can use this knowledge to design more effective curricula that cater to the unique grammar and syntax of these languages. For example, understanding how noun phrases are structured in

these languages can help in developing targeted lessons on sentence construction, word order, and syntactic dependencies.

Translation and Interpretation:

Translators and interpreters rely on accurate understanding of grammar and syntax to produce high-quality translations and interpretations. The present study can provide insights into how noun phrases are formed and organized in head-last languages, which can improve the accuracy and naturalness of translations between these languages and others. This is particularly important in legal, medical, and diplomatic contexts where precision in language use is critical.

Linguistic Typology:

By applying Principles and Parameters theory and X-bar theory to Urdu, Pashto, and Punjabi, this study contributes to linguistic typology—the study of language structures and their classification. This comparative analysis helps linguists identify universal principles of grammar while also appreciating the unique syntactic features that distinguish head-last languages from others. Such insights are valuable for understanding how languages vary in their syntactic organization and how these variations reflect different cultural and historical contexts.

Cognitive and Neurolinguistic Research:

Understanding the syntactic structures of head-last languages can inform cognitive and neurolinguistic research. Researchers can investigate how speakers of these languages process and comprehend sentences, how syntactic structures are represented in the brain, and whether there are cognitive advantages or challenges associated with head-last syntax. This study can contribute to broader theories of language processing and cognitive development.

Policy and Planning:

Governments and policymakers in regions where Urdu, Pashto, and Punjabi are spoken may use this study to make informed decisions about language policies and planning. For example, understanding the syntactic complexities of these languages can guide decisions on education policies, literacy programs, and efforts to preserve linguistic diversity. It can also inform strategies for promoting bilingual education and proficiency in these languages alongside other languages spoken in the region.

Computational Linguistics:

In the field of computational linguistics, the findings of this study can enhance the development of natural language processing (NLP) systems for Urdu, Pashto, and Punjabi. NLP systems rely on accurate syntactic parsing and generation to perform tasks such as machine translation, text summarization, and sentiment analysis. Improved understanding of noun phrase structures in head-last languages can lead to more sophisticated algorithms and tools that better handle the specific linguistic characteristics of these languages.

Cross-cultural Communication:

Knowledge of the syntactic structures in Urdu, Pashto, and Punjabi can facilitate effective cross-cultural communication and understanding. It allows for clearer communication between speakers of these languages and speakers of other languages, fostering better interpersonal and intercultural relations. This is particularly important in multicultural societies where these languages are spoken alongside others.

By considering these practical implications, this study not only contributes to academic knowledge but also has the potential to impact various real-world applications across education, translation, policy-making, technology, and intercultural communication. It bridges the gap between theoretical linguistics and practical applications in diverse fields, making your study highly relevant and impactful.

5.2 Recommendations for Further Research

In the light of the findings of this study, the following topics are suggested for further research:

1. Further research can be conducted on the comparative structure of PPs in head-last languages spoken in Pakistan, as a peculiar difference in Pushto PP has been observed by this study.
2. Future Scholars can also work on the AdjP in head-last languages spoken in Pakistan which may help scholars in coming up with significant findings.
3. Focusing on VPs, a study can also compare the argument structures of verbs in the head-last languages of Pakistan.

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