

**Insertion Transformational Rule (T-Rule):
A Study of Parametric Variation Across
English, Urdu and Punjabi**

pISSN: 2957-9015
eISSN: 2957-9007



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DOI: <https://doi.org/10.36755/ijll.v3i2.64>

Abstract:

The paper compares insertion t-rules across English, Urdu and Punjabi to explore the parametric variations prevalent among these languages. Insertion as a t-rule in the construction of interrogative, negative and passive sentences adds a constituent in the Deep-structure. This constituent apparently lacks in the Surface-structure of the sentence and whether with a combination of a movement or without it transforms a declarative into an interrogative, a negative or a passive sentence. In interrogation wh-movement is mandatory and with fixed wh-fronting in English and optional and wh-fronting, wh-in-situ and wh-final are present in Urdu and Punjabi posing semantic and pragmatic variations. Similarly, in negation, Urdu and Punjabi are multidimensional languages proposing various locations of insertion with semantic variance yet English has limited and fixed syntactic positions for insertion rules. Contrastively, in passivization, Urdu and Punjabi have postpositions (in contrast to prepositions of English) added with verb inflection for perfective tense marking. The exploration of parametric variation is core to second language learning and have pedagogical implications.

Keywords: *Transformational Rules, Parametric Variation, Insertion, Cross-linguistic, Grammar, Syntax*

1. INTRODUCTION

Prior to Chomsky, the Behaviorists like B. F Skinner believed in language learning through operant conditioning whether negative or/and positive reinforcement. However, Noam Chomsky's claim of innateness of language development refuted the existing theories of language learning. He postulated that language faculty is inherently inborn hardwired into the brain among all human beings. Children are born with linguistic faculty and despite the poor stimulus they are able to generate infinite number of utterances from finite rules. According to him, neither these rules of grammar are learnt from external sources or taught nor is the child brain a clean slate to be filled in by the external experiences rather these rules are innately present in the human mind which are universal to all languages. He further developed the concept of universal grammar commonly called as UG.

He further revisited his postulates of UG in Government and Binding Theory (Chomsky, 1981) which asserted principles and parameters, Deep and Surface Structure and Movement. Principles are general rules which are universally observable and common among natural languages whereas parameters are specific variations across languages. The present paper aims at reviewing these parametric variations among Germanic i.e English and Indo-Aryan i.e Urdu and Punjabi languages in terms of insertion t-rules based on transformational generative grammar (TGG). Principles are in-built abstract rules of language whereas parameters are specific markers that determine syntactic variability across languages. According to Chomskian perspective, children do not need to learn these universal principles rather they have parametric setting while acquiring language. If natural languages have universal grammar without parametric variations then learning of a new grammar would not have been required. Learning of lexical choices of languages would have been sufficient enough in acquiring a new language (Khan, Baloch, & Khan, 2018). But learning of a grammar is the difficult task when learning a new language.

Transformational rules are generative and resolve the inadequacies of phrase structure grammar to accommodate structural ambiguity.

1. Flying planes can be dangerous.
2. Mary saw the man with a telescope.

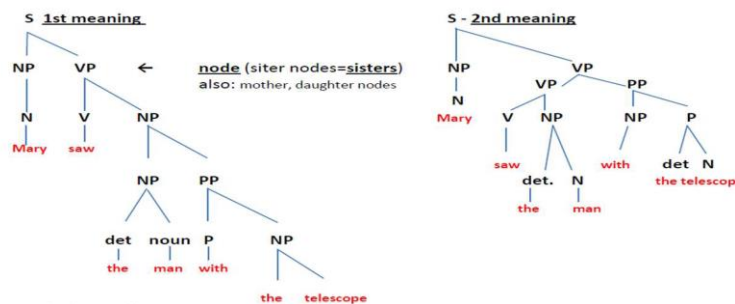
The above examples pose structural ambiguity in sentence 1, one surface structure may have two deep structures. The meanings can be whether flying is dangerous or planes are dangerous (sentence 1). Similarly, in sentence 2 there are two possibilities:

- Mary used a telescope to see the man. OR
- Mary saw the man holding a telescope.

Hence, this structural ambiguity is resolved through syntactic tree representation in the figure 1 illustrating both the meanings.

In the 1st meaning tree diagram represents Prepositional Phrase (PP) as a daughter node of NP whereas in the meaning 2, it is a daughter node of VP which elucidates the semantics whether Mary saw the man using a telescope or she saw the man holding a telescope.

Figure 1: Tree Diagrams Clarifying Structural Ambiguity

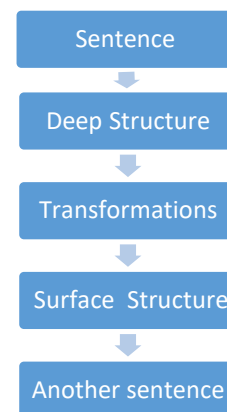


Hence, one S-Structure may possess multiple D-Structure or vice versa where one D-Structure may be represented through various S-Structures. For instance:

- Ali bought a book from Ahmad.
- Ahmad sold a book to Ali.
- The book was sold to Ali by Ahmad.

The core semantic relations of a sentence are demonstrated through D-structure and are mapped on to the S-Structure that follows the phonological form (PF) of a sentence via transformations. However, the S-structure is the construction of a well-formed phrase or sentence in a language, contrary to its original mental picture.

Transformational generative grammar refers to a set of grammatical operations and conditions which are employed while transforming simple sentences into complex or compound complex sentences to construct new sentences from the existing ones. There are four significant transformation rules: Substitution (also termed as merger), Inversion (also known as movement), Insertion, and Deletion. Insertion is one of the significant t-rules



that may happen alone or be a combination of insertion plus inversion or movement in one sentence. T-rules are principally evident in all natural languages yet parametric variations are obviously seen across languages.

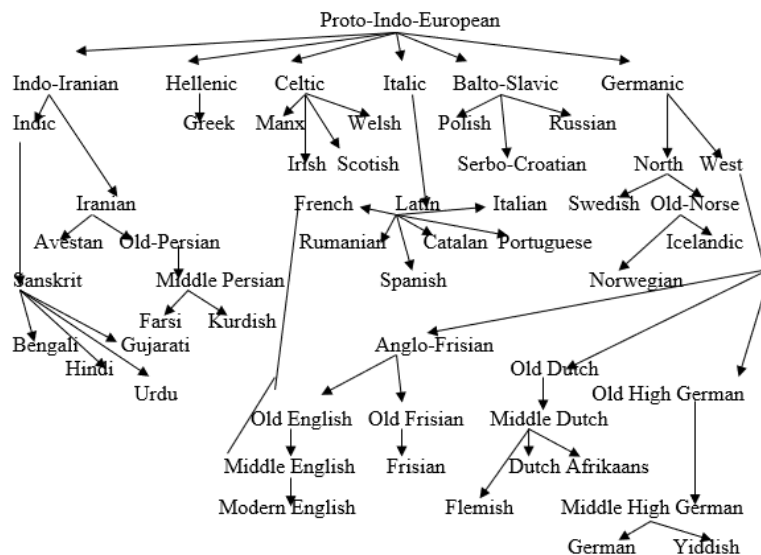
Previous researchers have focused on movement in terms of Wh-phrases in Urdu and English language. However, insertion, is not limited to wh-questions movement only. This syntactic feature is observed in interrogatives, negative sentences and passive voices as well. Insertion of T_{not} , T_{wh} , T_{aux} ($T_{do, be, have}$) are commonly found in English and similar additions are available in other languages. The scope of this present research lies in its broader spectrum of comparing parametric variation in insertion t-rule in three languages i.e English, Urdu and Punjabi.

It is pertinent to briefly review the origin and historical emergence of these languages before moving to their syntactic differences in insertion. Proto-Indo-European language family is further divided into six families, Indo-Iranian, Hellenic, Celtic, Italic, Balto-Slavic and Germanic. From Indic Indo-Iranian, Urdu originated from Sanskrit and have influence of Persian and Arabic in its morpho-syntactics. Whereas, English emerged from West Germanic and have influence of French and Latin grammar.

Jones (1786), a British judge and Sanskrit scholar in India proposed Indo-European hypothesis for the first time that most European languages and others have a common origin (cognates) from a no longer existing source the Proto-Indo-European language family. This language family diverged into various sub-families, Indo-Iranian, Balto-Salvic, Celtic, Helenic, Italic and Germanic. English belongs to Germanic branch of Indo-European language family.

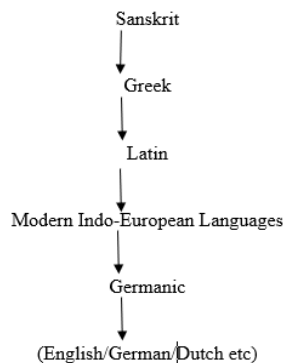
The family tree model, a convenient way of representing the relationships among varieties, developed in the nineteenth century, (figure 2) shows hierarchical relations how languages diverged into new varieties but this model does not show the convergence trends and one variety influencing another. According to this model, isoglosses should never intersect as the diagram shows sub classification but not cross-classification (Hudson, 2003). The West Germanic language diverged into three groups Anglo-Farisian, Old Dutch and Old High German. Likewise, Anglo-Farisian further divided into Old English and Old Farisian.

Figure 2: Indo-European tree (From Jack Lynch: <http://andromeda.rutgers.edu/~jlynch/language.html>)



This historical development of the English language from Sanskrit has been simplified in figure 3 by Kirkpatrick (2007). The lineage of English language follow Greek after Sanskrit and then Latin from there on Modern Indo-European languages developed and diverged into Germanic group which further divided into English, Dutch and German languages. This basic model provides synchronic progression but the question arises is this linear downward divergence into one further language sufficient enough to demonstrate the phenomenon of language change.

Figure 3: The English Language Family Tree (Kirkpatrick, 2007, p. 40)



Bailey (1930) traced the historical birth of Urdu language in Lahore in 1027 when Mahmud Ghaznvi annexed Panjab by formally settling his troops <https://journalsriuf.com/index.php/IJLL/index>

in the city. According to him, Old Panjabi is the parent language of Urdu and Persian soldiers communicated with Panjabis; hence, Urdu was born with lexical borrowings and pidginization.

Punjabi is also an ancient Indo-European language derived from Sanskrit written in various scripts depending upon the religious and regional affiliation of the speakers. In India Sikhs use Gurmukhi script, Hindus in Delhi use Devanagari and Muslims in Pakistan write Punjabi in modified Arabic known as Shahmukhi script.

Urdu is a multidimensional language (Butt & King, 2007) and its multidimensionality poses several parametric variations. Urdu syntax and grammar has less been explored and there are 33 grammatical rules used in the (Parallel Grammar Context) PraGram computational project and the smaller size of grammar rules does not mean lack of complexity in the language. This scarcity of grammar rules is due to the limited research exploration of Urdu syntax by grammarians. The researchers have ignored this area and inadequate investigation have resulted in less grammatical rules known for parallel grammatical context computational project. Hindi and Urdu are mutually intelligible languages and language historians like Rahman (2014) believed that Urdu originated from Hindi. However, Maldonado (2015) in her quantitative corpus based research have traced the origin of Urdu from Sanskrit and Prakrit. Her research positivistic investigation have determined that basic Urdu vocabulary is of Sanskrit and Prakrit origin and Arabic and Persian lexical elements were added later on. With the spread of Islam in Subcontinent, Hindus eliminated Arabic and Persian lexemes from their language and it turned out to be exclusively for Hindu identity; and similarly Muslims adopted various Persio-Arabic lexical choices to express their Muslim identity. Hence, Hindi and Urdu were separated into two sister languages owing to the cultural and religious differences and became a source of identity construction for these two nations.

Khan, Baloch, and Khan (2018) explored the parametric setting adjustment among children aged 24-36 months while learning Urdu language as a case. The researchers studied three parameters found in binarity; head position parameter, wh- subject parameter, and null subject parameter. The findings revealed that toddlers remain consistent in producing utterances with parametric settings adjusted to non-null subject, head last principle whereas wh fronting was infrequently witnessed in these utterances in acquiring their first language.

Maqsood, Aziz, Saleem, and Azam (2018) compared syntactic operation of Wh-Movement by which a Wh-phrase moves from its latent position in the D-Structure to its derived fronted position in S-Structure and this movement is mandatory and overt in English whereas this movement is optional and covert in Urdu.

Urdu syntax has been explored less and is more complicated as compared to English because of its complex predication, case marking and word order. English has SVO word order whereas Urdu has canonical word order SOV and its predicate complements and dative and ergative case marking for argumentation (Durrani, 2017). English has nominative, accusative, and genitive case marking. However, dative is sometimes present in indirect objects whereas Urdu has ergative and split ergative case marking along with instrumental and locative cases which make the language grammar different in terms of syntactic categories and role assigning get complicated in Urdu and Punjabi.

3. RESEARCH FRAMEWORK

This study draws its theoretical underpinning from Government and Binding Theory commonly known as Principles and Parameter Approach by Chomsky (1981) that defines the universal features of grammar as principles inherent to all natural languages and the specific operations that varies from language to language as parameters.

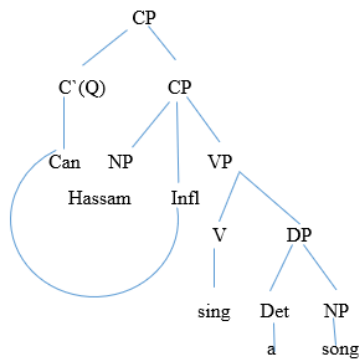
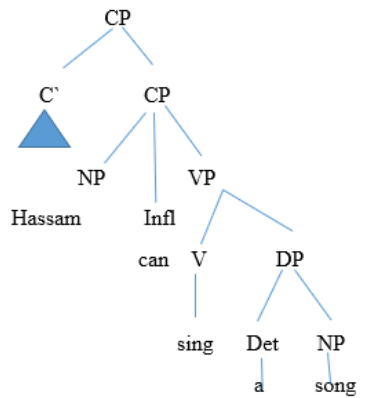
4. DATA ANALYSIS

4.1 Interrogative sentences and Do-Insertion (T_{do})

There are two types of questions, yes/no questions and information questions. Yes and no questions in English follow inversion and insertion of the auxiliary. Auxiliary moves from its position in the declarative sentence after the NP to the front at specifier position in order to form an interrogative sentence when there exists an auxiliary. For example:

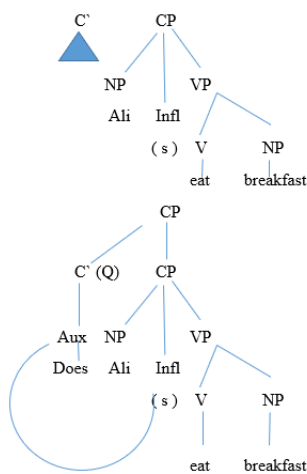
1. Hassam can sing a song.
2. Can Hassam sing a song?

In this instance, in English inversion of word order is applied for transformation. Modal auxiliary can is moved to the front specifier position in order to modify the structure into an interrogative sentence.



However, in the following instance, there is no auxiliary in the S-Structure which is inserted and moved to the front before the NP.

1. Ali eats breakfast.
2. Does Ali eat breakfast?



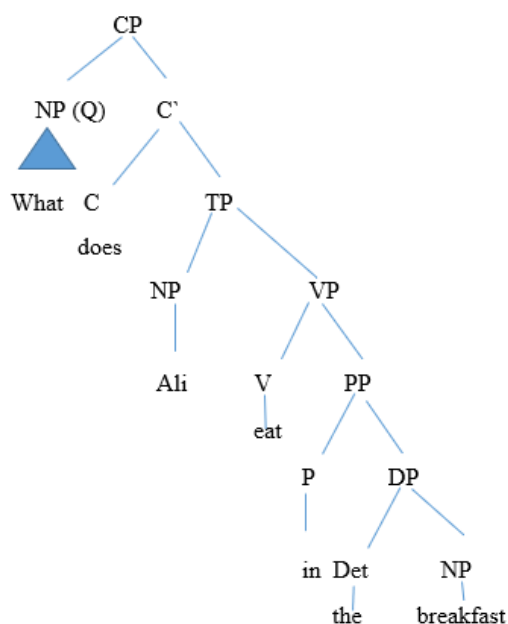
In simple present tense affirmative declarative sentences do not possess auxiliary verbs; therefore, an auxiliary is inserted in the front position to form a question. In sentence 3, does auxiliary inflection is added in the front specifier position for subject verb agreement in interrogative sentence construction.

However, in informational direct questions a Wh-expression or Wh-phrase is added in the front specifier position in English language. This Wh-phrase location is fixed and wh-movement is mandatory in English because wh-words (what, how, when, where and why) cannot form a direct question if added in any other position in a sentence. The relative clauses are constructed with a wh-word in the complement position in English or an in direct question can be formed with a wh-expression in the middle of the sentence. Nonetheless, a direct question can only be formed with a wh-fronting in English. The following sentences 5, 6, and 7 are examples of Wh-fronting in English interrogative sentences:

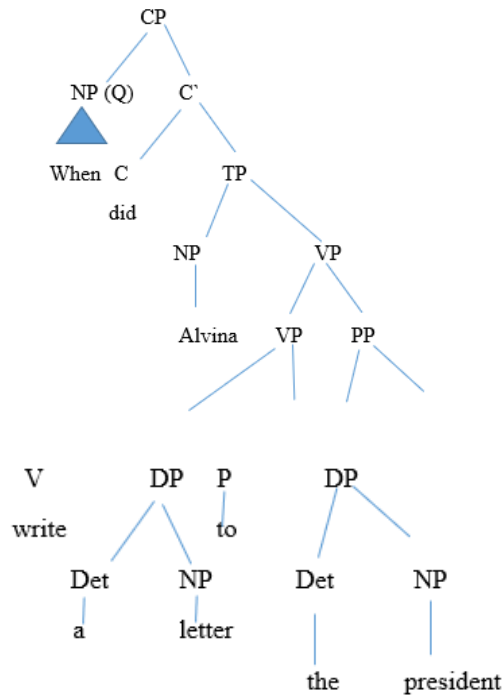
3. What does Ali eat in the breakfast?
4. When did Alvina write a letter to the president?
5. Where will Sara go tomorrow?

The tree diagram of the sentences can illustrate insertion of Wh-phrase at specifier position in these sentences.

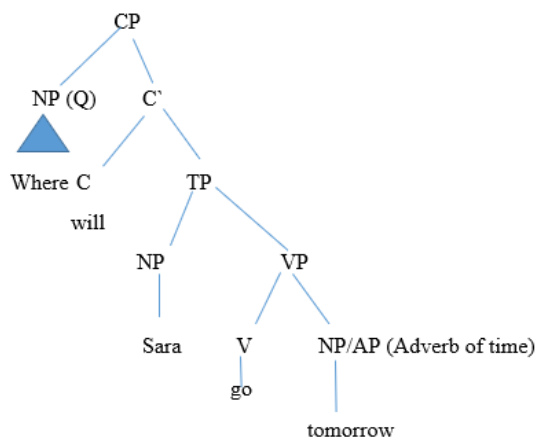
What does Ali eat in the breakfast?



When did Alvina write a letter to the president?



Where will Sara go tomorrow?



Wh-phrase movement or wh-fronting is mandatory in English and it has fixed position for location (Maqsood, Aziz, Saleem, & Azam, 2018). All the other positions of wh-phrase are ungrammatical in English in direct question transformation like:

*Did Alvina write a letter to the president when?

*Alvina did when write a letter to the president?

*Ali does eat what in the breakfast?

*Does Ali eat in the breakfast what?

*Does Ali eat what in the breakfast?

All these constructions are ungrammatical in English as English follows fixed and restricted wh-movement in interrogation at the specifier position only. However, Urdu and Punjabi have parametric variation in insertion when it comes to question transformation and wh-movement. In Urdu and Punjabi this wh-movement to the front is non-mandatory and optional as a question can be formed with a wh-in-situ, a phrase residing in the middle of the sentence or even with a wh-final positioning as well. However, there are semantic variations in these varying positions of wh-expressions like کیا، کب، کی، کدوں، کدے، کدھر، کیسے، کس لئی، etc in Urdu and کہاں، کیوں، کسے، کیسے، کس لئی etc in Punjabi language. For instance, following sentences can illustrate wh-insertion and movement in Urdu and Punjabi while making interrogative questions. As equivalent translations are not possible therefore some alternative utterances are written to view all the possible question forms in Urdu where tense is not only marked with the help of an auxiliary in the final position rather with a verb inflection is also employed for tense marking. The following instances elaborate the wh-insertion in the VP in sentence 8 and is fronted in sentence 9 and 10. However, in sentence 11 it is situated in the middle before the NP, and sentence 12 it is moved towards the final position and in sentence 13 it is situated in the middle with a different construction to inquire between the options provided whether paratha or bread and therefore it is before the NP. Hence, Urdu is a multidimensional language and it offers non-mandatory wh-movement and optional. It can be inserted at the specifier position in the front or wh-in-situ, or it can be present at the end. Nonetheless, in all these varying wh-expression positions, semantics can be different with a question in sentence 8, the focus is on what does he eat which shifts on to an inquiry of whether he eats breakfast or not in sentence 9. Similarly, sentence 12, is more of an exclamatory suspicious inquiry which seems to be an indirect question in Urdu.

۶. علی ناشتے میں کیا کھاتا ہے؟

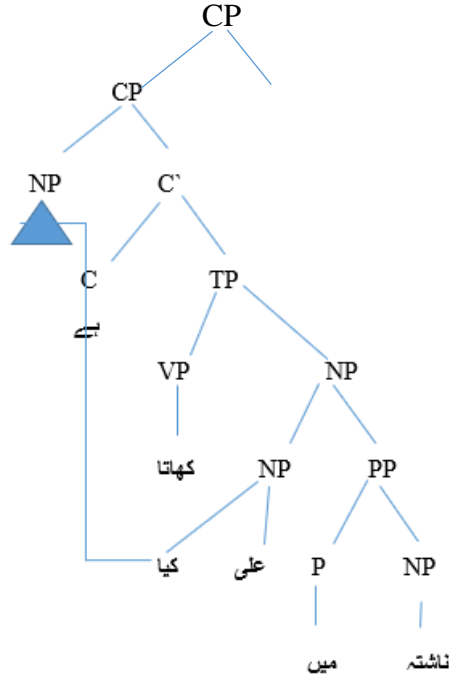
۷. کیا علی ناشتہ کرتا ہے؟

۸. کیا علی ناشتے میں پراٹھا کھاتا ہے؟

۹. علی ناشتے میں کیا پراٹھا کھاتا ہے؟

۱۰. علی ناشتے میں پراٹھا کھاتا ہے کیا!

۱۱. علی ناشتے میں کیا پراٹھا کھاتا ہے، یا بریڈ؟



Likewise, the following sentences 14-17 represent the insertion کب as a wh-expression to form questions in Urdu with a little variation in semantics shifting focus from a question to a disbelief as if it was someone else who wrote a letter than Alvina. It is fronted in sentence 15 and in-situ in sentence 14, 16 and 17 once in the VP phrase and once in the NP.

۱۲. علوی نے صدر کو کب خط لکھا؟
 ۱۳. کب علوی نے صدر کو خط لکھا تھا؟
 ۱۴. علوی نے کب صدر کو خط لکھا تھا!
 ۱۵. علوی نے صدر کو کب خط لکھا تھا؟

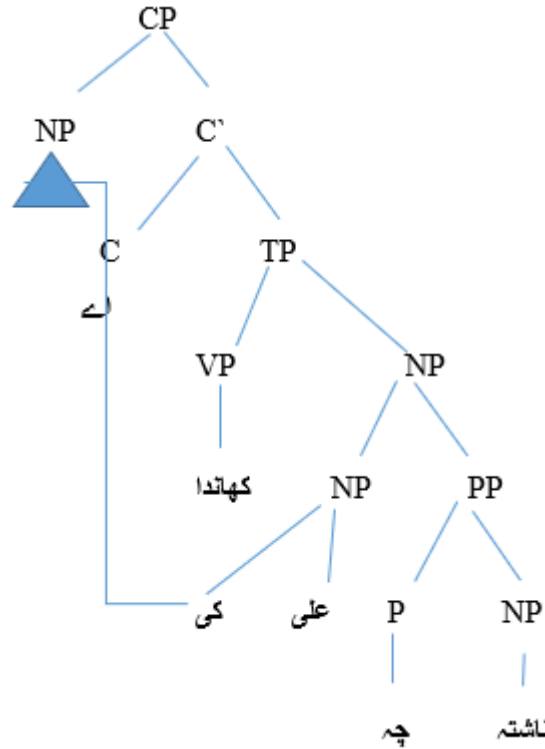
Urdu is believed to be originated from Punjabi and these languages have syntactic similarities in insertion while forming questions. Punjabi also offers optional wh-movement and this insertion is multidimensional with wh-fronting, in-situ and final positions. In Urdu and Punjabi, whole VP can be fronted with a wh-movement in question transformation.

۲۰. علی ناشتہ چہ کی کھاندا اے؟

۲۱. کی کھاندا اے ناشتہ چہ علی؟

۲۲. علی کی کھاندا اے ناشتہ چہ؟

۲۳. ناشتہ چہ علی کی کھاندا اے؟



Sentences 26-30 express similar parametric variation in Punjabi in wh-insertion and movement is optionally fronted.

۲۴. علوی نے صدر نوں کدوں خط لکھیا سی؟

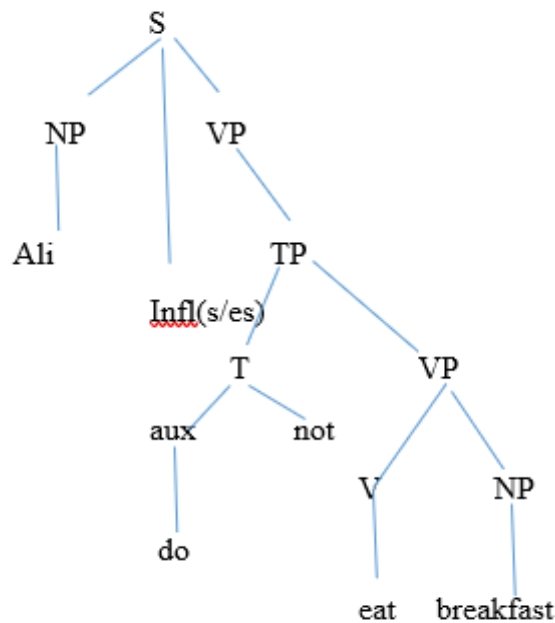
۲۵. کدوں خط لکھیا سی علوی نے صدر نوں؟

۲۶. علوی نے کدوں خط لکھیا سی صدر نوں؟

۲۷. علوی نے صدر نوں خط کدوں لکھیا؟

4.2 Insertion in Negation

1. Ali does not eat breakfast.
2. Does not Ali eat breakfast? (Interrogative)
3. Alvina did not write a letter to the president.
4. Did not Alvina write a letter to the president? (Interrogative)
5. Sara will not go tomorrow.
6. Won't Sara go tomorrow? (Interrogative)



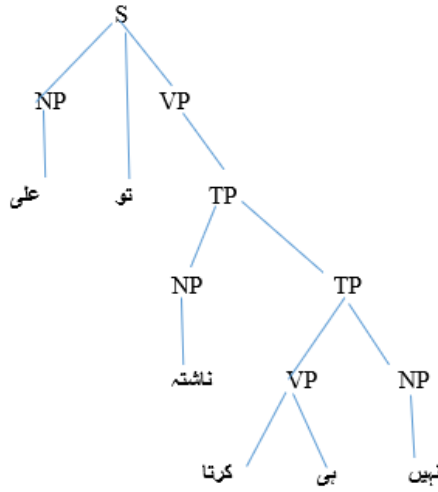
T_{not} or not insertion in t-rules in negation is restricted with a fixed location of insertion in English with tense marker auxiliary. If this auxiliary and not are moved to the front, it becomes a negative question. However, Urdu and Punjabi have difference of insertion T_{not} .

Not can be added at various locations in VP, in NP or at the final position in tou تو constructions. تو and کو sentences have different constructions in Urdu and Punjabi. Kachru (1970) have explored 'the syntax of ko sentences in Urdu and Hindi language' in her article studied the construction of sentences expresses experiences, feelings and suffering etc. in neither transitive nor intransitive verbs with ko formation like رام کو بھوک لگی etc.

Similarly, تو sentences need further description of their syntax in Urdu and Punjabi for better clarification of syntactic operations. In these sentences here another word is inserted than to which is ہی. So insertion not is not alone in all these constructions. Rather these are with addition of ہی and تو. The following

data set illustrates the parametric variation in Urdu and Punjabi in T-rules when making negative sentences.

۱. علی ناشتہ نہیں کرتا ہے۔
۲. علی نہیں کرتا ناشتہ۔
۳. علی کرتا ہی نہیں ناشتہ۔
۴. ناشتہ نہیں کرتا علی۔
۵. علی تو ناشتہ کرتا ہی نہیں۔
۶. ناشتہ تو کرتا ہی نہیں علی۔



۷. علویہ نے صدر کو خط نہیں لکھا تھا۔
۸. علویہ نے خط نہیں لکھا تھا صدر کو۔
۹. صدر کو خط علویہ نے نہیں لکھا تھا۔
۱۰. علویہ نے تو صدر کو خط نہیں لکھا تھا۔
۱۱. خط تو نہیں لکھا تھا علویہ نے صدر کو۔
۱۲. علویہ نے تو نہیں لکھا تھا صدر کو خط۔
۱۳. سارہ کل نہیں جائے گی۔
۱۴. کل نہیں جائے گی سارہ۔
۱۵. نہیں جائے گی کل سارہ۔

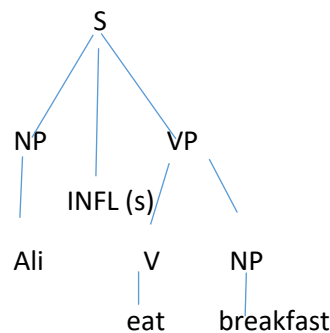
۱۶. کل سارہ نہیں جائے گی۔
۱۷. سارہ تو کل نہیں جائے گی۔
۱۸. کل تو سارہ نہیں جائے گی۔
۱۹. کل نہیں جائے گی سارہ تو۔
۲۰. علی ناشتہ فی کردا۔
۲۱. علی فی کردا ناشتہ۔
۲۲. علی کردا ای فی ناشتہ۔
۲۳. ناشتہ فی کردا علی۔
۲۴. ناشتہ تے کردا ای فی علی۔
۲۵. علی تے ناشتہ فی کردا۔
۲۶. علی تے فی کردا ناشتہ۔
۲۷. صدرنوں خط علویہ نے فی لکھیا۔
۲۸. علویہ نے صدرنوں خط فی لکھیا۔
۲۹. علویہ نے خط صدرنوں فی لکھیا۔
۳۰. علویہ نے تے صدرنوں خط لکھیا ای فی۔
۳۱. علویہ نے خط لکھیا ای فی صدرنوں۔
۳۲. صدرنوں تے خط علویہ نے لکھیا ای فی۔
۳۳. سارہ کل فی جاوے گی۔
۳۴. کل سارہ فی جاوے گی۔
۳۵. کل فی جاوے گی سارہ۔
۳۶. سارہ تے کل فی جاوے گی۔
۳۷. کل فی جاوے گی سارہ تے۔
۳۸. سارہ تے فی جاوے گی کل۔
۳۹. کل تے فی جاوے گی سارہ۔

4.3 Insertion in Passivization

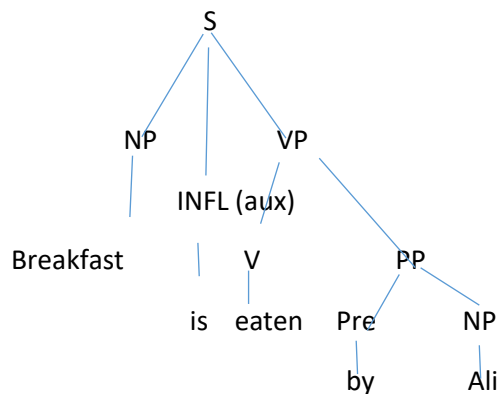
1. Ali eats breakfast.
 Breakfast is eaten by Ali.
2. Alvina wrote a letter to the president.
 A letter was written to the president by Alvina.

Here the third sentence with an intransitive verb ‘go’ cannot be transformed into a passive voice. In making passive constructions of the active sentences by is inserted and a past participle form of the main verb is used and subject object inversion happens. For instance:

1. Ali eats breakfast.



Breakfast is eaten by Ali.



However, in Urdu language passive constructions are formed in different fashions. There could be multiple ways of transforming the active sentences written above in English to be translated in Urdu as Urdu is a multidimensional language (Butt & King, 2007). In these passivizations, a postposition ہے is added in Urdu sentences as Urdu language has postpositions unlike English prepositions. Although the insertion of passive by

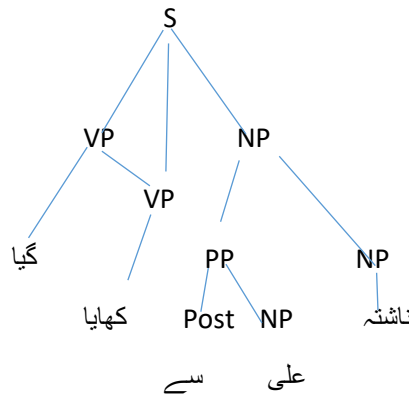
and سے in English and Urdu respectively are similar, yet these are prepositions in English but postpositions in Urdu. Urdu follows SOV sentence order therefore object comes after subject and verb is at the final position of the sentence.

۱. ناشتہ کھایا گیا۔

۲. علی سے ناشتہ کھایا گیا۔

۳. ناشتہ علی سے کھایا گیا۔

See the tree diagram:



۱. ناشتہ کھا دا گیا۔

۲. علی کو لو ناشتہ کھا دا گیا۔

۳. ناشتہ علی کو لو کھا دا گیا۔

Here Punjabi has lexical and inflectional changes from Urdu but not syntactic variations. So the tree diagrams of Punjabi will be same as those of Urdu.

5. CONCLUSION

Hence, all sentences are mainly divided into an NP and a VP and these are positioned a further divided into other constituents dependent upon the structure whether the language is from left to right or right to left and whether it has a preposition of post position. These structural constructions are recursive and universal but parametric variations are prevalent in transformational operations in generative grammar. The knowledge of these parametric variations have pedagogical implications in teaching and learning second language (Khan, Baloch, & Khan, 2018). To sum up the findings and evaluation of data of English, Urdu and Punjabi language reveals that transformation rules insertion is applicable in all these languages with some parametric variations. The syntactic structures of both languages have two

aspect i.e deep and surface structure. Urdu and Punjabi have similarities in transformation operations whereas English have more differences. In Urdu and Punjabi Wh-movement is covert and optionally fronted whereas in English this movement is mandatory and restricted with frontal location. Similarly, in negative and passive constructions this operation of insertion have more than one positions to situate and in English negative sentences also offer restricted insertion at a fixed location. In Urdu and Punjabi *تو اور ہی* sentences need further exploration to describe their syntax. This research was delimited to the direct questions and simple sentences. Metaphorical and idiomatic expression with complicated predication were out of the scope of this research.

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