

## Binarity of Headedness Principle in Universal Grammar: A Comparative Analysis of Urdu and English Phrases

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### Abstract

*The binarity of parameters according to which languages differ in their structure is the subject of minimalist program proposed by Noam Chomsky. This article analyses the phrase structure of Urdu in light of the binarity of the headedness principle. 10 participants with equal competency in Urdu and English were distributed a questionnaire containing 3 questions with 2 options in each, with both Urdu and English version of the phrase structure. They were required to tick (✓) the correct options and cross (x) if they considered any of the options ungrammatical. The responses of the participants confirmed that Urdu conforms to the universal principle of binarity in terms of headedness of phrase structure. It also highlights that the change of position of the head-word in Urdu only causes variation in stress pattern while the phrase remains grammatical in both cases.*

### Key Words:

Binarity of Headedness,  
Phrase Structure,  
Universal Grammar, Urdu.

### Introduction

The study of structure in syntax is about how words form phrases, phrases form clauses which are then sequenced to form larger units. The ordering of the words, as Willis (2003: p. 69) remarks, "is not random". Sequencing of words, phrases and sentences in a language is possible only in a certain way rather than the other. In English, for example, "We ate chocolate" is a possible construction but "chocolate ate we" or "Ate we chocolate" is not possible. Similarly, the construction of phrases is also possible in a certain way.

Heads in syntax are keywords in grammar that determine the form and meaning of the phrase. According to Polinsky (2012, 01), heads in a phrase are "the constituents which determine the category of their phrase". For example, in the verb phrase "drink water", the drink is the head that constitutes the verb phrase, water being its complement, which, according to Coopman, Sportiche and Stabler (2013: 143), is "part of the meaning of the head", or the part without which meaning of the head would not be complete. Complements are selected by the head as the very meaning of the head implies their existence. Polinsky presents an example of the verb *surround*, which requires a complement in order to complete its meaning. The meaning of the head *surround* itself indicates that there has to be something which will be surrounded, hence, "*surround the fort*" would be a complete phrase, with '*the fort*' completing the meaning of the verb *surround*. On the other hand, if we say *surround the fort slowly*, the adverb *slowly* will not be considered a complement because its absence doesn't render the meaning of *surround* incomplete. No doubt actions are to be completed in some manner, but that is true for all actions, hence the Adverb *slowly* is an adjunct. Other examples of head are 'the *MAN* under the tree', and 'red-winged black *BIRD*' (p. 02).

Head directionality is the basis of the classification of language. It is a proposed parameter of the classification of language. The position of the head may vary within a phrase from one language to another. Thus there are head-initial languages such as English in which the head precedes the complement, and head-final languages such as Chinese in which the complement precedes the head. Although headedness is at times clear, such as in structural heads preceding or following their dependents, at other times it can be intriguing as there is disagreement as to what counts as the head. But even if there is agreement on what counts as head, "there is no requisite consistency in the way dependents and heads are ordered across different phrases within the same language" (Polinsky, 2012: p. 01). An example of this is presented at the end of the paragraph before this one.

The binarity of headedness is one of the parameters on the basis of which grammars of languages differ, as languages either seem to be head-initial or head-final in terms of their phrase structure. This article evaluates Urdu language with reference to the binarity of headedness in phrase structures. The Urdu phrase structure has been compared with the English phrase. A questionnaire consisting of 3 questions with 2 options in each case and with both Urdu and English version of phrase structure was administered to 10 participants who had equal competence in Urdu and English languages. *They were required to tick (✓) the correct options and cross (x) the option(s) that they found ungrammatical.* The outcome of the research shows that Urdu phrase structure complies with the universal elements i.e. binarity of headedness principle. However, a unique feature of the Urdu language has been found i.e. with the change of position and status of head-word only the stress pattern varies whereas the phrase remains grammatical.

### Research Problem

English and Urdu present difference in terms of binarity of headedness. We want to see how Urdu differs from English in its binarity of headedness, to explain to the students of linguistics the peculiarity of phrase structure in Urdu, and to lay bare the difference between English, which is the official language of the country and used for academic purposes in the schools and universities, and Urdu, which is the national language.

### Research Objective

This research was carried out with the following objectives in mind:

- To study the compliance or otherwise of binarity of operations proposed in minimalist program of UG in terms of phrase- structure of the Urdu language.

### Research Questions

The following are the research questions of this study:

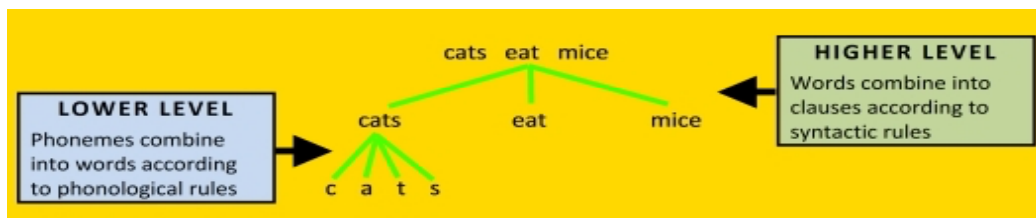
1. How far does the Urdu language comply with the universal element of binarity of operation in terms of the headedness principle proposed in the Minimalist Program of UG?
2. What kind of variation in Urdu language can be found in terms of the binarity principle?

### Delimitations

A language has multiple phrases with multiple heads initiating them. However, this study is delimited to the binarity of operations in terms of the headedness principle, and it takes into account the phrase structure of the Urdu language to see whether / how it complies to the universal principle of binarity in terms of headedness.

### Literature Review

All natural languages obey a set of combinatory rules which start playing at the level of word formation through phonemes i.e. 'smallest meaningful unit of sound' (Hockett, 1960) generally known as 'duality of patterning' (Hurford 2008, Martinet, 1949) or double articulation. To confirm a systematic formation of words through such rules if reverse order is applied, words can be broken down into smaller sound unit again. In other words, duality of patterning as mentioned earlier, is the only human language property that "enables combinatorial structure on two distinct levels: meaningless sounds can be combined into meaningful morphemes and words, which themselves could be combined further" (Williamson, 2014). This duality of patterning is not limited to word formation level i.e. 'phonemes combine into words according to phonological rules' only rather as per Graham Williamson this 'duality of patterning' or 'double articulation' can be seen and at a higher level i.e. 'words combine into clauses according to syntactic rules'. The diagram given below demonstrates the idea.



Adopted from Graham Williamson (2014). Retrieved from <https://www.slinfo.com/generativity-and-duality-of-patterning/>

The grammaticality of a sentence depends on the syntactic rules of that very language. However, it is also a known fact that these rules vary from language to language because such rules, according to Hurford (2002: 311) “are closely connected, naturally adapt to their circumstances, and often represent their speakers’ social identities”.

Fundamental universal structural characteristic is the feature of human language that has received a considerable attention of linguists (O’Grady, Dobrovolsky & Katamba, 1996). Universal Grammar i.e. “system of categories, mechanisms and constraints shared by all human languages and considered to be innate” (Chomsky, 1986, Chomsky, 2007, Pesetsky, 1999) not only seeks universals through principles in natural languages but also explains the variation between languages through its Principles and Parameters theory. The null-subject constituent is not an essential feature of English syntax alone, but also of Urdu syntax. As opposed to the English structure, “Urdu is pro-drop or null subject language within pre-set limit i.e. binary principle” (Hoeksema, 1992).

Similarly, one of the parametric variations across the languages is the head position parameter. Hoeksema (1992) observes that ‘many of the syntactic differences between languages are thought to derive from (in the typological tradition: to correlate with) the placement of head elements’.

It is also important to mention here that in phrase structure grammar the most important component of a phrase is a headword which is given projection by its complement. Radford (2009) explains this phenomenon in terms of the ‘Headedness Principle’ and explains that ‘Every nonterminal node in a syntactic structure is a projection of a head word’ (p. 42).

A digression is desirable here to explain this head position parameter. In head-first or head-initial languages the head precedes its complements, and in head-final languages, the head follows its complements (Cook & Newson, 1996). This head parameter “captures the way languages differ in the position of heads within phrases”. (Haegeman, 2008; Cook, 1988). Radford (2016) observes that it would seem that ‘there are only two different possibilities which the theory of UG allows for: a given type of structure in a given language must either be head-first (with the relevant heads positioned immediately before their complements) or head-last’ (p. 38).

Radford (2006) explains that “In English all heads (whether nouns, verbs, prepositions, or adjectives etc.) normally precede their complements” (p. 19) whereas Japanese, Persian, and Korean are not head initial but head-final languages. He compares English and Korean structure and observes that “In English, all heads (whether nouns, verbs, prepositions or adjectives etc.) immediately precede their complements; however, there are also languages like Korean in which all heads immediately follow their complements. In informal terms, we can say that English is a head-first language, whereas Korean is a head-last language.

As mentioned earlier, this research deals with the comparison of Urdu and English structure to find the variation in terms of parametric setting and whether or not it is in line with the headedness principle proposed in the recent work in UG. Urdu is a one of the languages of the Indo-Aryan group, which is a sub-group in Indo-European languages. It originated in the sub-continent and is closely related to Hindi, which is another language of the Indian subcontinent. Their base is Indo-Aryan and their phonology and grammar are so similar that they seem to be one language. The most distinct feature of these two languages is their writing systems. Urdu doesn't follow the SVO pattern of sentence construction unlike English. It rather uses SOV (Subject + Object + Verb). Urdu script is written from right to left, unlike English and it shall be read as such in this article to identify the SOV construction of sentences.

## Theoretical Framework

To bring clarity in terms of the domain it's important to mention the theoretical framework at this stage. The theoretical framework of this research the minimalist program proposed by Chomsky which is based upon theory of “principles and parameters” and, in particular, on principles of “economy of derivation and representation”. The minimalist program takes Universal Grammar as a unique computational system. Minimalism seeks those components of a linguistic theory that are “redundant, stipulative, and idiosyncratic”, in order to “eliminate or reformulate them in the form of parsimonious, well-grounded, and general principles” (Andreu & Gallego, 2009).

## Data Analysis

Analysis of the data in terms of the structure of the phrases (both English & Urdu) given in the questionnaire and the responses from the participants are presented in this part. There are three questions in the questionnaires with two parts in each case.

### Analysis of Options in Question 1 with Responses

- a) Wahaan Jao = There Go  
b) Jao Wahaan = Go there

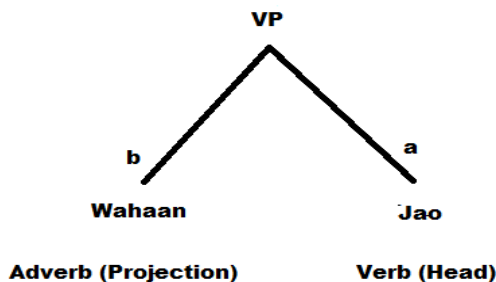


Diagram 1.

Direction of the Urdu script is from right to left, therefore, node 'a' representing the headword of the phrase is given towards the right side and the projection which is followed by the headword is given in node 'b' of tree diagram 1 given above. In other words, it is a VP with its headword, i.e. 'Jao' (an Urdu word for 'go') is a headword which is given projection by an adverb "wahaan". Analysis of its counterpart in English, i.e. English VP is Diagram-2 given below:

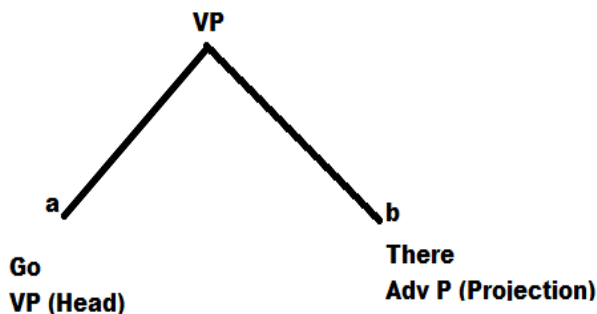


Diagram 2.

A verb phrase with 'Go' as a headword shown in node 'a' given projection by an adverb phrase 'there' in node 'b'. As the direction of English script is from left to right, therefore, node 'a' in the diagram is representing the headword position with its projection given on the right side.

The analysis of the responses shows that 100 percent of the participants considered both of the phrases, i.e. the phrase given in Diagram 1 & the one given in Diagram 2 as correct and meaningful.

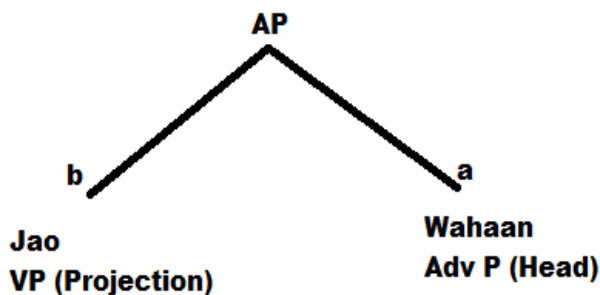


Diagram 3.

In this diagram adverb 'Wahaan' introduces the phrase and is given the status of a head word as shown in node 'a' and the verb 'Jao' is taken to node 'b' and assumes the role of a projection of the headword. As per responses of the participants there is no change in meaning as far as comparison of phrases in Diagram-1 & 3 is concerned, however, 100 percent considered the phrase in Diagram-1 a stressed one.

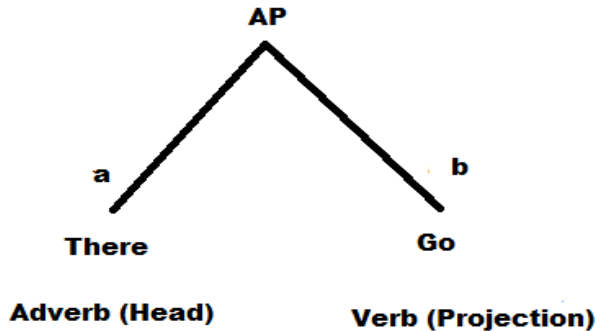


Diagram 4.

However, in this diagram the position and status of head word assigned in Diagram 2 given above is changed i.e. verb 'Go' becomes projection of Adverb 'There' shown in node 'a' and 'b' respectively. This change was made to see the English phrase structure in comparisons with Urdu phrase structure in Diagram 1 & 3. Whereas change in position and status of head word in Diagram 1 & 3 in case of Urdu phrase structure there is no change in meaning as per responses, change in Diagram 4 above left the sentence incorrect and meaningless as per the responses of the questionnaire respondents. It means that Urdu phrase complies with binarity principle in terms of headedness principle however with slight variation i.e. change in stress with acceptable syntactic structure.

For verification of the claim another similar type of pattern of option in the questionnaire. Its analysis is given below.

**Analysis of Options in Question 2 with Responses**

- a) kaam Apna Mokamal Karo = Your Work Complete
- b) karo Mokamal Kaam Apna = Complete your work

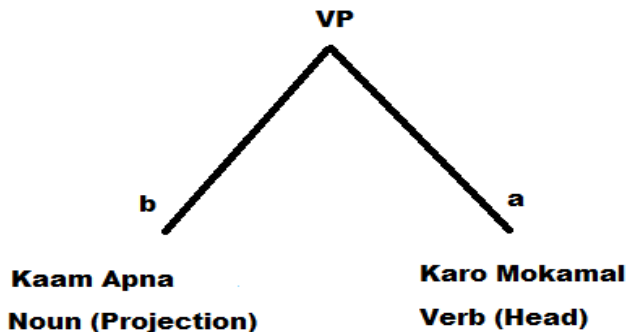
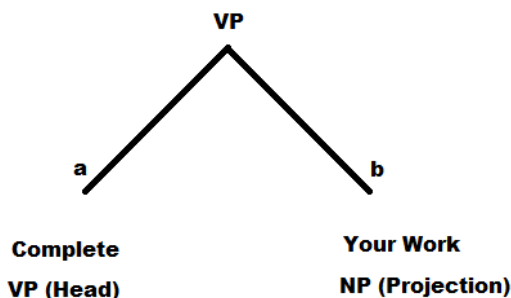


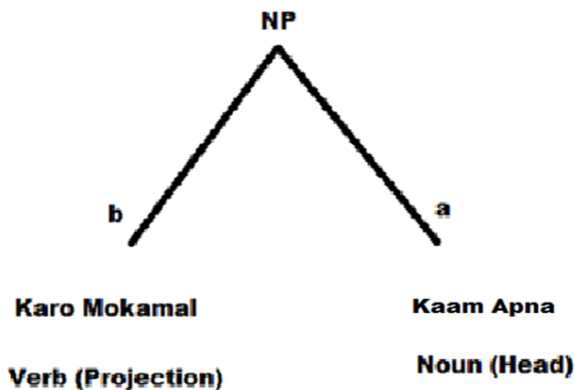
Diagram 5.

In this diagram the Urdu verb phrase i.e. ' Mokamal Karo' is show with node 'a' and Urdu noun phrase i.e. 'Apna Kaam' shown with node 'b' (both are written in the diagram from right to left, as written in Urdu script). In other words head word in node 'a' is given projection by the noun phrase given in node 'b'. Hundred percent of the participants considered it correct and little stressed on the part of the speaker.



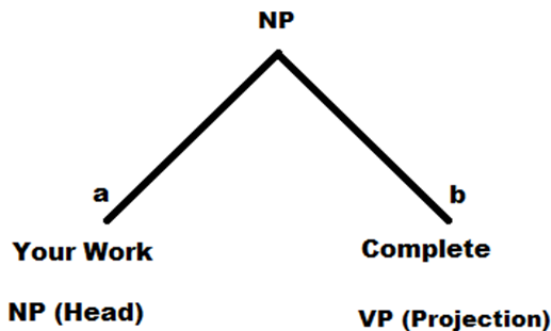
**Diagram 6.**

In this diagram English version of the phrase given in diagram 5 is presented. Headword of English verb phrase i.e. ‘Complete’ shown with node ‘a’ is given projection by the English noun phrase i.e. ‘Your Work’ given in node ‘b’. All the participants considered this phrase both correct and meaningful.



**Diagram 7.**

In this Diagram both position and status of headword of the phrase in Diagram 5 has been changed i.e. ‘Karo Mokamal’ headword of diagram 5 is taken to node ‘b’ and it becomes projection of NP i.e. ‘Kaam Apna’ given in node ‘a’. As per analysis of responses of the participants it’s a grammatical structure and although this change has changed the status of headword, there is no change in meaning. In this phenomenon a unique feature of Urdu phrase structure comes to the fore i.e. word order and head position and head status is changed but there is no change in meaning.



**Diagram 8.**

In this diagram headword of the phrase in Diagram 6 assumes the role of projection of NP i.e. ‘Your Work’ and the projection of the phrase in diagram 6 is given the role of headword. All the participants considered this change ungrammatical. But similar change in case of Urdu phrase structure in Diagram 5 and 7 had been considered grammatical. The participants also acknowledged that only stress pattern is different in 5 and 7.

**Analysis of Options in Question 3 with Responses**

- a) Ka Baari Apni Intizaar Karo = For Your Turn Wait
- b) Karo Intizaar Ka Baari Apni = Wait For Turn Your

For a counter check to see consistency of the phenomena a similar type of pair of phrases were also given to the participants. The analysis of the structures and outcome is given below

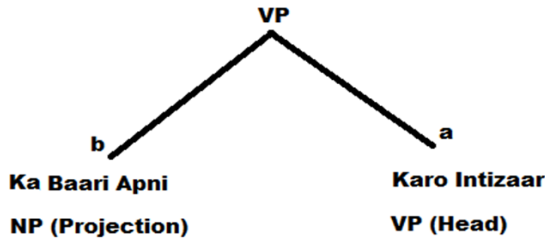


Diagram 9.

The Urdu verb phrase i.e. ‘Karo Intizaar’ is head of the phrase which is given in node ‘a’ and its projection by an Urdu noun phrase i.e. ‘Ka Baari Apni’ is given in node ‘b’ in the above given diagram. 100 percent of the participants considered it grammatical and meaningful structure.

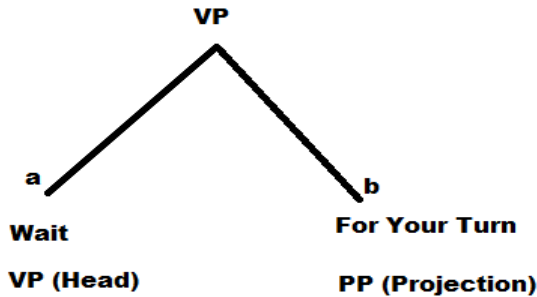


Diagram 10.

This diagram is based on the question 3 b in the research tool which is actually counterpart of Urdu verb phrase given in question 3 ‘a’ and shown in Diagram 9 above. Head of this phrase i.e. the verb ‘Wait’ is given in node ‘a’ and its projection i.e. a preposition phrase ‘For Your Turn’. The responses reveal the all both of the phrases i.e. Urdu verb phrase in diagram 9 and its counterpart in diagram 10, are grammatical and meaningful.

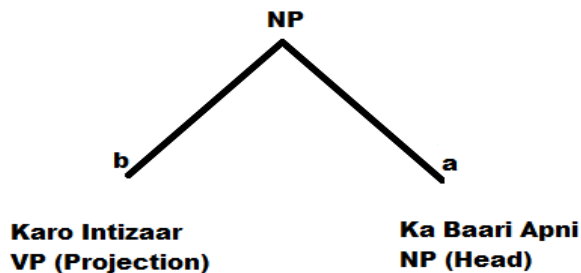
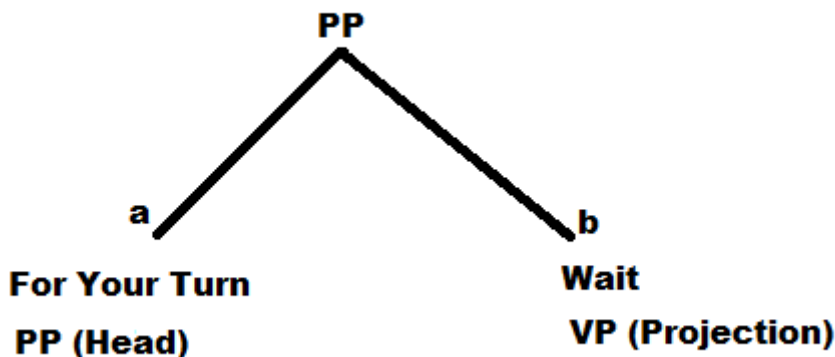


Diagram 11.

This diagram is based on the option 'b' of the question in the research tool. Moreover the grammatical classes of question 3 'a' has been changed in it. In other words headword of the phrase in Diagram 9 i.e. 'Karo Intizaar ' has been transformed into projection of the NP i.e 'ka Baari Apni'. 100 percent of the participants ticked it as a correct option. As per their responses the only difference between phrase in Diagram 9 and Diagram 11 is that the Diagram 9 shows a little emphasis on the part of the speaker, which is reflective of the speaker's mood.



**Diagram 12.**

The comparison of Urdu phrases with change in position and status of head words has been shown in the previous Diagram and it has been observed that there is no change in meaning and only stress pattern is different. Moreover, both of the phrases i.e. diagram 9 and 11 have been found grammatical.

The similar kind of treatment is given to English version of this phrase in diagram 12 which is basically option 'b' the question 3 in questionnaire administered for collection of the data. It has been found that unlike Urdu phrase in diagram 11 when headword of English phrase i.e. 'Wait' in node 'b' in this diagram is transformed into projection and prepositional phrase that is projection of the phrase in diagram 11 is transformed into headword in diagram 12 the structure of the phrase is considered ungrammatical by the participants. It means that phrase of Urdu language complies with the binarity of headedness principle like English language however with a unique feature i.e. unlike English language when order when position and status of the headword is changed the phrase remains grammatical and meaningful.

The analysis of the data collected through a questionnaire shows that all 100 percent of the participants considered option in 3a and 3b correct. Although it complies with the headedness principle and universal principle of binarity however unlike English meaning remain the same with change of the head. First it accepts both options and second there is a semantic difference i.e. stress pattern which shows the mood of the speaker as in 1<sup>st</sup> case it is normal but in 2<sup>nd</sup> case it is emphasized because of mood such as anger or surprise.

## **Findings & Recommendations**

### **Findings**

1. Urdu language complies with universal principle of binarity of operation proposed in minimalist program of UG in terms of headedness principle.
2. Like English language Urdu language is also a head first language as all the heads of phrase initiate the phrases.
3. A unique feature of Urdu language has been found i.e. with the change of position and status of headword only the stress pattern varies whereas the phrase remains grammatical.

### **Recommendations**

1. One of the features of a theory is that it assists learnability. As Urdu language complies with the universal principle of binarity in terms of headedness principle, learnability of Urdu language can be assisted by redesigning management of learning such as courses, teaching methods etc.
2. In this research binarity of operations in terms of headedness principle only has been studied, the binarity of options may be studied in other aspects of the language to see the consistent behavior of the Urdu language.



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