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Identifying Syllable Templates of the Punjabi Language

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ABSTRACT

This paper aimed at identifying the syllable templates of the Punjabi language. Punjabi is an important language of sub-continent and is widely spoken in India and Pakistan especially in the Punjab region. The research is important because there is dearth of work on the theoretical aspect of Punjabi language and also because it is syllabic language. In order to conduct the present research, a sample of 1500 words was randomly chosen from a Punjabi dictionary to identify the syllable templates of Punjabi language. These words were syllabified in order to draw out the syllable templates. The study identified ten most frequent syllable templates in the Punjabi language by determining their frequencies also. The identified templates were V, CV, VC, CVC, CVCC, VV, CVV, VVC, CVVC, CVVCC. Some onset consonant cluster constraints were also identified. This research is implicative as it will help the readers understand the syllabic structure of Punjabi language as well as pave new avenues for research on indigenous languages in the region.

Keywords: Syllable, vowel consonants, syllable template

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Introduction

Punjabi is originated from Indo Aryan language. It is intercontinental language which is spread all over the world. It is the native language of Indian Punjab and Pakistani Punjab. In Pakistan Punjabi is written in Perso-Arabic script. This language has number of regional dialects i.e. Pothohari, Lehandi and Multani which are spoken in Pakistan. Punjabi has many distinctive features which vary from region to region because of which Pakistani Punjabi is much different than Indian Punjabi. This language is written from right to left direction.

Punjabi is the syllabic language because it has syllable structure which is composed of vowels and consonants. In the present era, syllable structure has gained a lot of attention because of which phonetics and phonology has become core area of interest and research. Syllable structure is considered important for the phonological formation of any language. So, this paper identifies the syllable templates of Pakistani Punjabi language by focusing on the syllabification process in the light of Nucleus Projection Method and Maximal Onset Principle, determining the permissible Punjabi syllable templates along with the frequency of occurrences of each syllable template and also highlights the different identified syllabification constraints in the Punjabi language. Hence, the main aim of this paper is to identify the possible numbers of syllable templates of Pakistani Punjabi language and also to mark the most frequent Punjabi syllable templates.

Research Questions

Punjabi is the mother tongue of Punjab and it is widely spoken at domestic level. Unfortunately, ample research has not been done on this language like many other local languages. Therefore, this research study is an attempt to develop deeper insight into the Punjabi language, thereby, directing the attention of linguists towards neglected local languages of Pakistan. It aims to study:

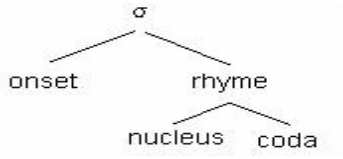
1. How many syllable templates exist in the Punjabi language and what is the frequency of occurrence of these templates on prosodic level?

2. How many maximum and minimum possible templates can a Punjabi word have and what are the longest and shortest templates of Punjabi language?

Literature review

Syllable: A syllable is a unit of sound composed of a central peak of sonority (usually a vowel) and consonants that cluster around this central peak (Hussain, 1997).

Syllable structure:



Syllable templates: There are different syllable templates existing in different languages. A syllable template can occur initially, medially or at the final position of word. Though, there are firm restrictions on these templates as some of templates are not allowed at the word boundaries whereas others are not acceptable medially.

CV is considered to be the most common and basic type of syllable. It exists in almost all languages and other types of syllables can be formed by changing this basic template (Ghazali, 2002). The process of syllabification works on certain principles and methods such as MOP, SSP and Nucelus projection method etc. Maximum Onset Principle (MOP) prefers onset to codas. It prefers onset wherever possible (Goldsmith, 1990). Sonority Sequencing Principle (SSP) states that sonority rises towards the nucleus from onset and falls moving away from the nucleus in coda (Kenstowicz, 1994).

Nucleus projection method for syllabification is described by Hussain and Abbasi (2012) as: Project the syllable from each vowel, then attach onset consonant to each vowel, and if there are two consonants on the onset, then attach second one to each vowel and then apply SSP then apply MOP if there is some ambiguity for the syllabification, finally attach the remaining coda consonants to the vowels concerned.

Empirical Research

Singh and Lehal (2010) investigated Punjbai language as a Gurmukhi script, which follows the one sound-one symbol principle. Punjabi language has thirty-eight consonants, ten non-nasal vowels and same numbers of nasal vowels. Vowels can appear alone in orthography (known as full vowels) however consonants can appear along with vowels only. In Punjabi seven types of syllables are recognized [2] – V, VC, CV, VCC, CVC, CVCC and CCVC (Singh, and Lehal, 2010).

In Pakistani context, a research on **syllabification rules in Punjabi** has been done by Hassan Kabir. It proves to be the most basic research of Punjabi in Pakistani context. The data was obtained from participants by reading out a list of Punjabi words. Total 11 templates were found out carrying out this research comprising complex onset as well as complex codas. Moreover, it also identified that like Urdu language last vowel is always a long vowel in a word (Kabir, 2000). As that research was based on spoken data, there was a need to conduct research on written corpus from a reliable dictionary. The present study aims to fulfill this gap and some results are different from the previously mentioned research thus not allowing complex onset at any place.

Nazar (2013) in his research found out that In Urdu the short vowels are denoted by diacritical marks and the long ones by special alphabets in script. Urdu language does not license a short vowel in word final position. A syllable lacking an onset i.e. V (V) (C) is least preferred, the most popular Urdu syllable template CV(V)(C) has clearly the influence of Arabic on Urdu. Pervez and Bokhari (2013) are of the view that the syllabification algorithms of Urdu language strictly follow the SSP in all cases. Though, in a few cases the extra-metricality may come at syllable boundaries. The syllable structure in Urdu is a simple one i.e. one onset consonant as well as complex one i.e. two coda consonants. Vocalic nucleus is always taken by Urdu. The idea of re-syllabification occurs in those Urdu cases where a vowel gets inserted or deleted. Usman (2003) claims that when English words are spoken in Urdu, then insertion, deletion and epenthesis take place on selected words and Urdu again syllabifies those words according to its

own rules and its own templates which cause the change in the number and structure of syllables of that word. These changes are not random but there are some governing rules which cause these changes to take place.

Methodology

The foremost step to identify the syllable templates is to analyze the words of that language. In this study, 1500 words were taken from a Punjabi Dictionary entitled *Punjabi Lughat* by *Irshad Ahmad*. The words were chosen in a way that covers all the letters from *Alif* to *Ye* so that most frequent and less frequent templates can be identified. The selection of words is random and several group of words were taken together in order to find out a pattern of template formation moving from short to long words.

The next step is to phonemically transcribe the words. Each word was transcribed following the phonemic inventory of Punjabi (Karamat, 2001). Then words were syllabified using Nucleus projection method. After the syllabification, syllable templates of each word were written in the form of CV wherein "C" stands for consonant and "V" for vowel. "VV" represented a long vowel because it is bi-moraic while single V represented short vowel because it is mono-moraic (Hussain, 1997). The detailed analysis of all words is presented in the results section.

After the analysis of words, frequency of each template was counted based on their occurrences at initial, medial as well as final position in the word. Furthermore, the instances of repetition in a single word were also counted for each template. Total frequency count of all the syllable templates has been provided in the results section.

Finally, syllable templates were analyzed in order to find out the restrictions on its usage at word initial, medial and final position. The restrictions within a syllable were also analyzed such as the possible combination of consonant cluster etc. The detailed analysis is given in the discussion part.

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Results

Table 1: Syllable Templates for Pakistani Punjabi Language

Permissible Syllable Templates	Frequencies
V	14
CV	400
VC	15
CVC	510
CVCC	41
VV	33
CVV	1026
VVC	9
CVVC	289
CVVCC	27

The computed results and frequencies in the form of bar charts are presented below:

Short Vowel Syllable templates of Pakistani Punjabi Language

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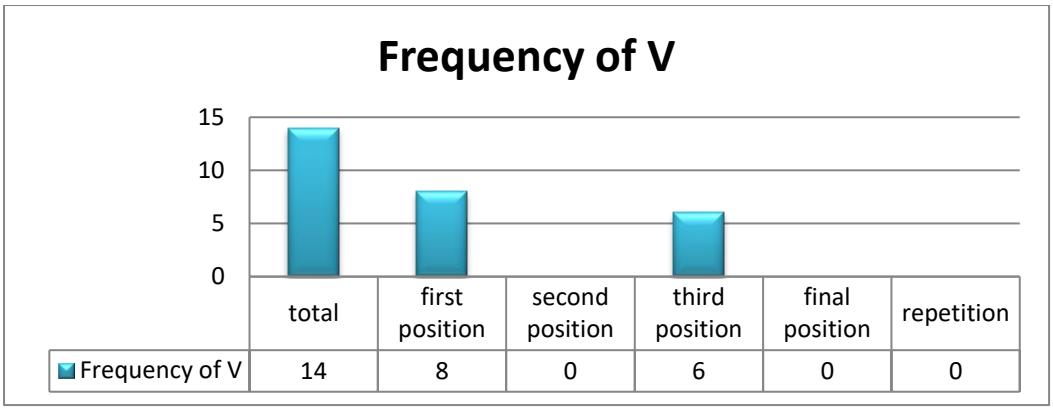

Table 2: Frequency of V

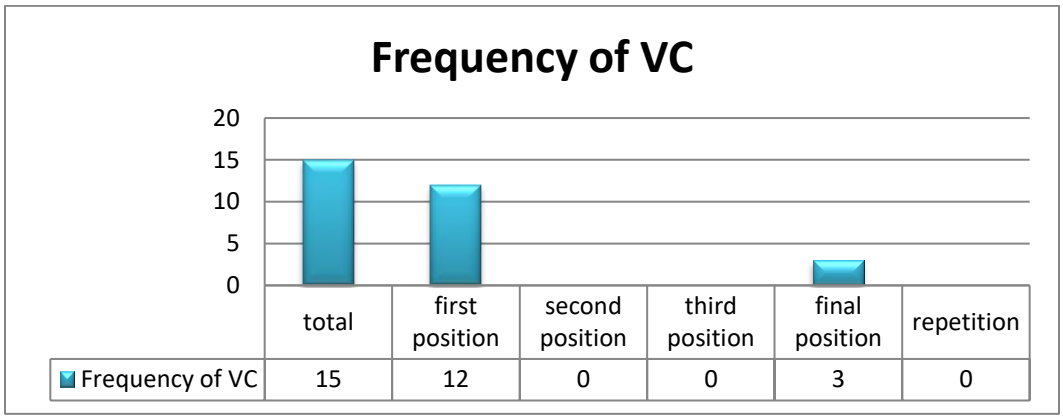

Table 3: Frequency of VC

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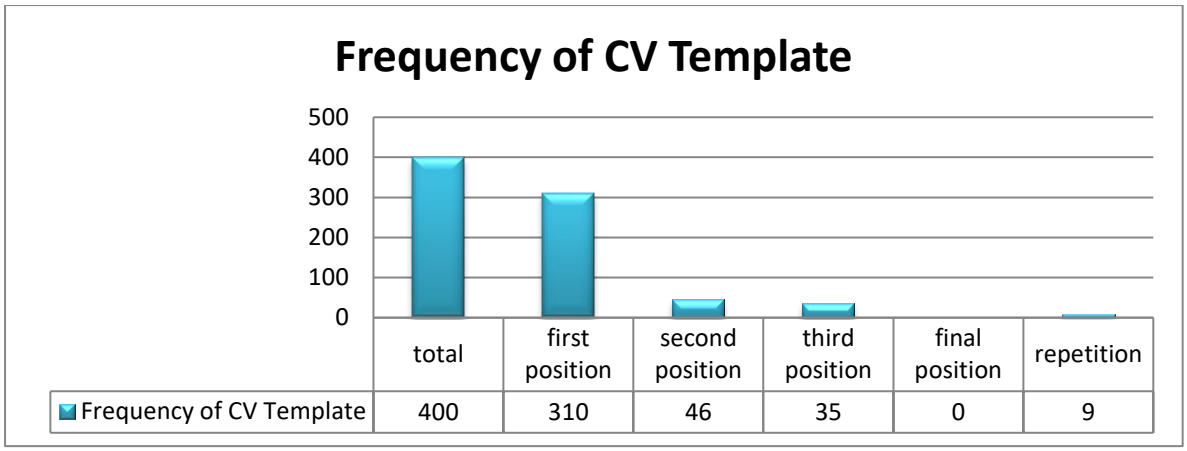

Table 4: Frequency of CV

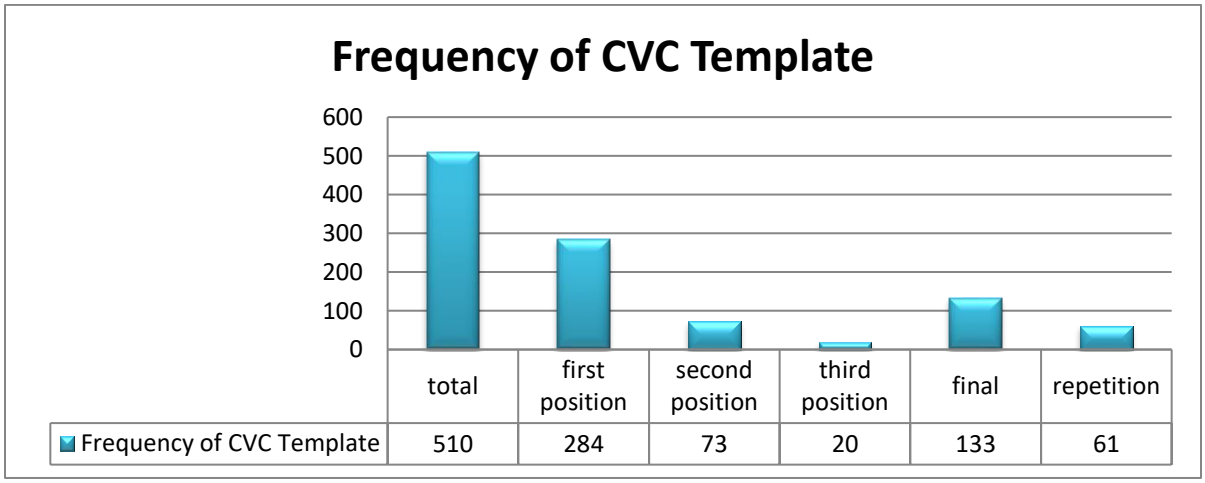

Table 5: Frequency of CVC

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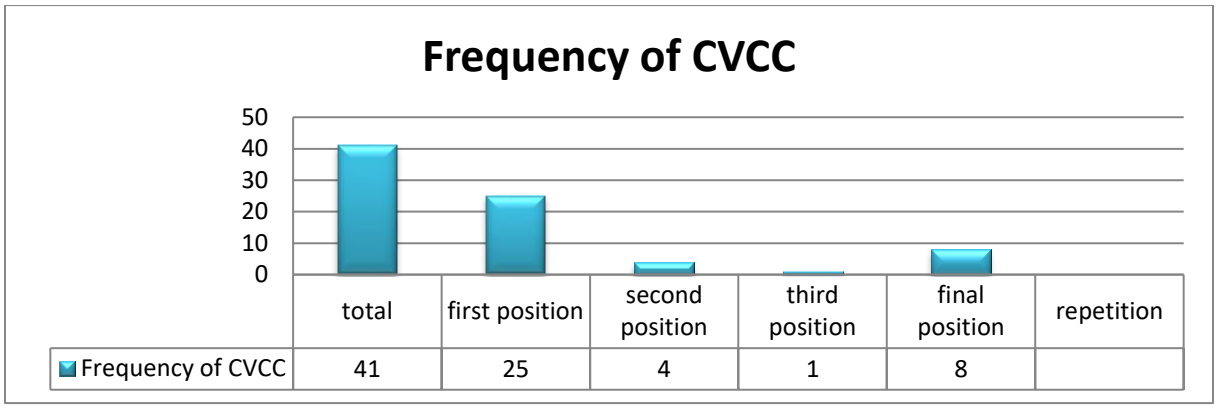

Table 6: Frequency of CVCC

Long Vowels Syllabification of Pakistani Punjabi Language

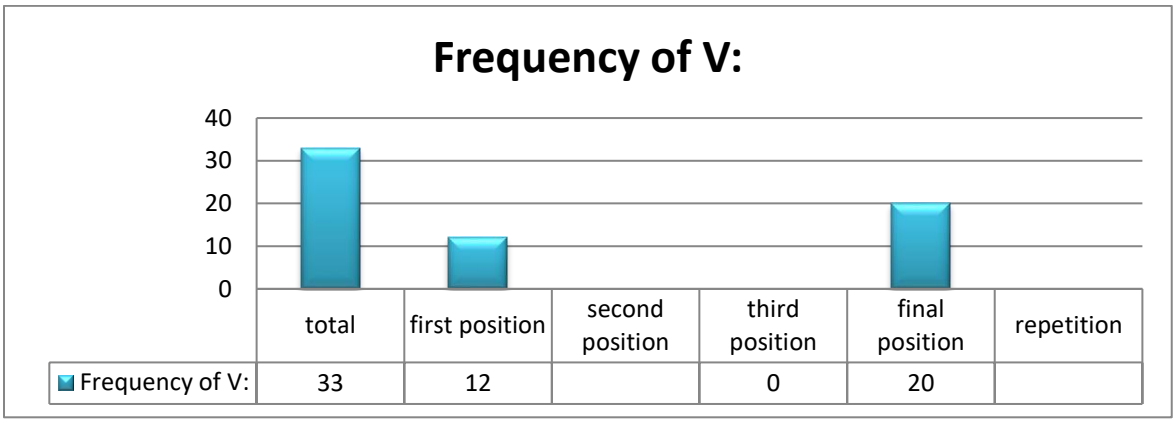

Table 7: Frequency of V

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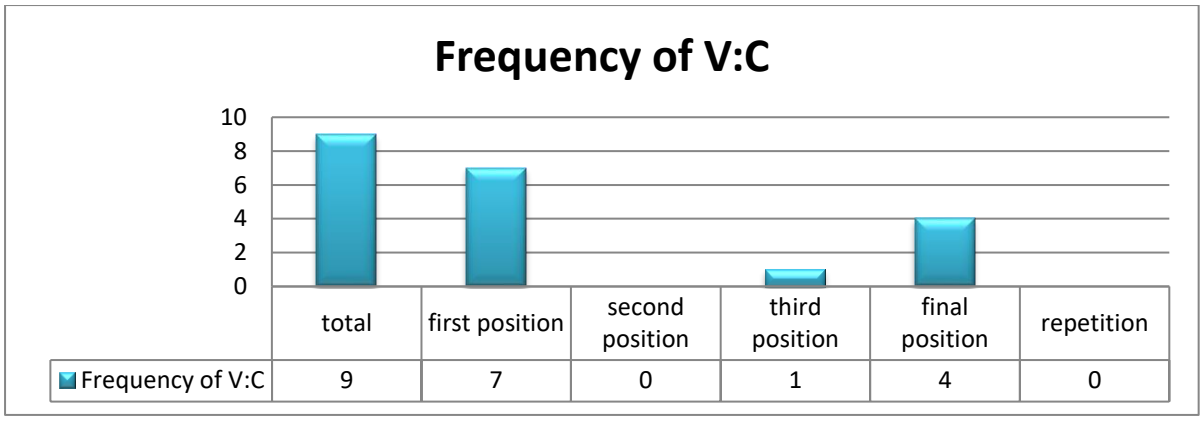

Table 8: Frequency of V:C

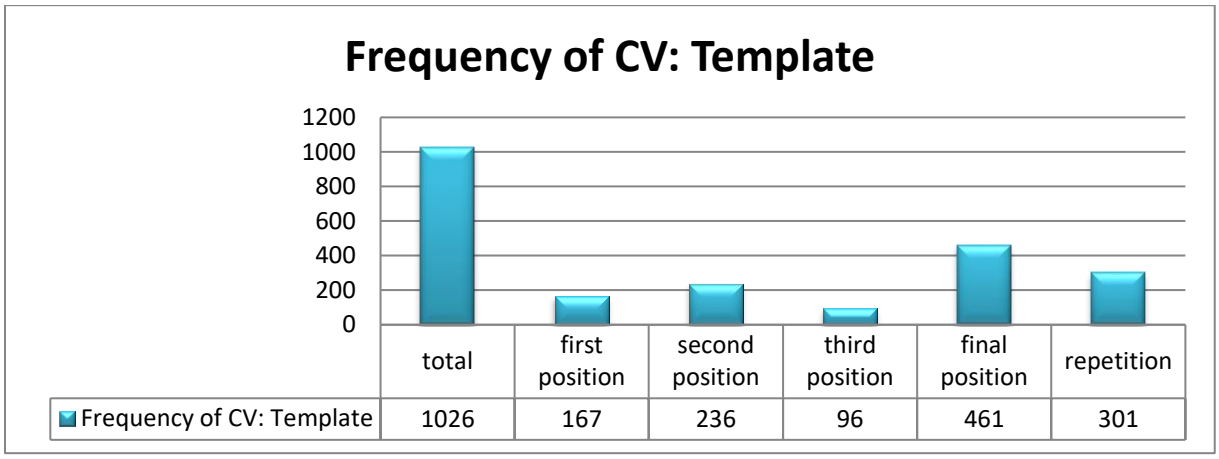

Table 9: Frequency of CV

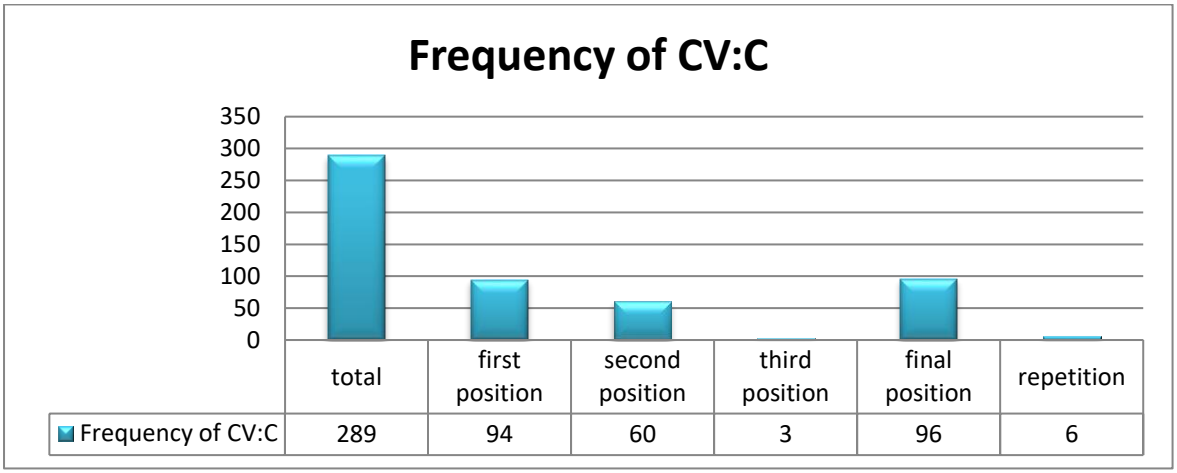

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Table 10: Frequency of CV:C

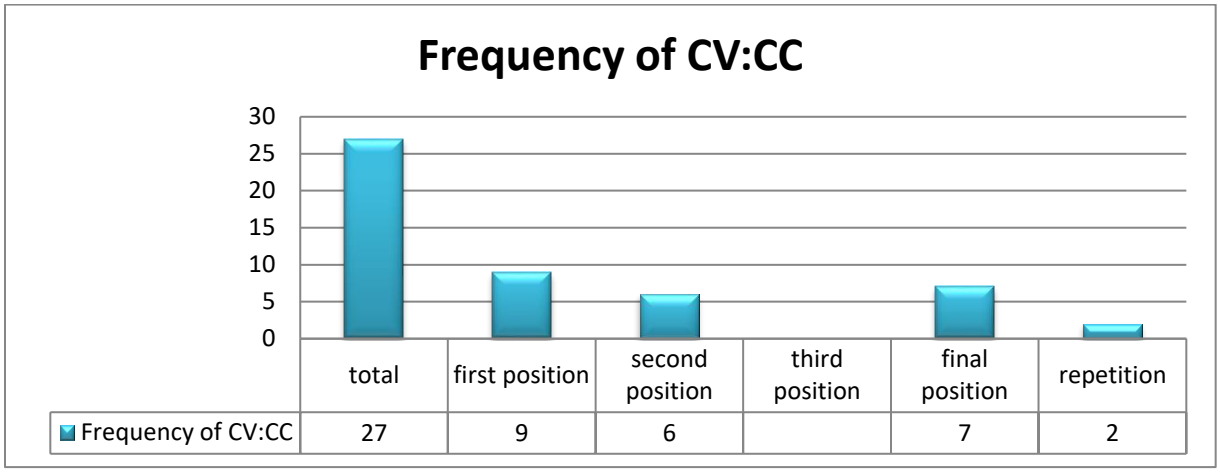

Table 11: Frequency of CV:CC

Discussion

As this research was conducted in order to identify possible syllable templates in Punjabi language, ten syllable templates i.e. V, CV, VC, CVC, CVCC, VV, CVV, VVC, CVVC, CVVCC were identified after computing the results. The analysis of each identified syllable is as follow:

1. **V**

This syllable template was the least frequent template (total occurrence 14 times out of 100 words) in the analyzed data. It was only found in the initial position (8 times) with *alif* functioning as the place holder for *zabar, zer* and *pesh* and with words starting with *aein*. For example:

Urdu word	**IPA Transcription**	**Syllables**
اتاولا	/ʊ.tɑ.və.la/	**V**.CVV.CV.CVV

عرض	/ə.rəz/	**V**.CVC
اگالدن	/ʊ.gɑl.d̪an/	**V**.CVVC.CVVC

2. CV

This template is one of the most frequent templates (total occurrence 400 times) found in the analyzed data. This template was also found in the Urdu language (Ghazali: Urdu syllable templates) and almost all other languages which confirms its nature of being core syllable template of any language. It was found in the initial (310 times), second (46 times) and third position (35 times) in a word, however, it did not occurr at the final position of any word. Examples on initial, second and third positions are:

	Words	**IPA Transcription**	**Syllable Templates**
Initial position	طہورن	tə.hu.rən	**CV**.CV.CVC
Second position	جاتکڑا	djat.kə.ɽɑ	CVVC.**CV**.CVV
Third position	ہٹتالیا	hət̪.tɑ.lɪ.jɑ	CVC.CVV.**CV**.CVV

3. VC

As its frequency count indicates, it was also the least frequent syllable template (total occurrence 15 times) being identified from the data. In the analyzed data, it only occurred in the initial position with words starting with ع or ا. Examples from the data are:

Words	**IPA transcription**	**Syllable Templates**

اج	ədj	**VC**
انهیری	ən.he.ri	**VC**.CV.CVV

4. CVC

CVC was also the most frequent template (total occurrence 510 times) in the analyzed data. It was found in the initial (284 times), middle (20 times) and final positions (133); therefore, irrespective of its position and consonants which it takes in the onset and coda, it depicts the random pattern of occurrence and repetition. Examples from the given data are:

	Words	**IPA Transcription**	**Syllable Templates**
Initial Position	حقیقی	hək.ki.ki	**CVC**.CVV.CVV
Second Position	خبردار	xə.bər.ɗɑr	CV.**CVC**.CVVC
Third position + Repetition	لمسلما	ləm.sə.ləm.mɑ	**CVC**.CV.**CVC**.CVV
Final Position	حاجت	hɑ.dʒəʈ	CVV.**CVC**

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5. CVCC

This was the second longest template (total occurrence 41 times) found in the data and certain patterns were also identified for the formation of consonant clusters in coda such as the first alveolar consonant in the coda is followed by dental, retroflex and palatal consonants. Similarly, first dental consonant is followed by labiodental and the consonant cluster of two bilabials was also found. This template did not occur frequently in the data (25 times occurred at initial position & 8 times occurred at final position) and also no repetition was identified. Some of the examples suggesting consonant cluster restrictions are as follow:

Word	**Syllable Template**	**Consonanat Clusters**
həd.ləŋgʰ	CVC.CVCC	Velar + velar
xəɾtʃ	CVCC	Alveolar + palatal
dʊmb	CVCC	Bilabial + Bilabial
no.kʰənd	CVV.CVCC	Alveolar + retroflex
pəndʒ	CVCC	Alveolar + Palatal
xəɾ.məsţ	CVC.CVCC	Alveolar + dental

6. VV

This was a rare template found in the analyzed data and occurred at word initial and final positions most of the time but also a few occurences were found at 2nd place of words. This template was common among the words starting or ending with *Alif, Alif with Mad, Ain, Hamza* etc. Hence, it is used for placeholder words as well as for Ain and words ending with (h) . For example:

Position	IPA transcription	Syllabification
Initial	**æ.bi**	vv.cvv
2nd	**kɑ.bu.õ.bɑ.hər**	cvv.cvv.vv.cvv.cvc
Final	**vɪ.dʰɑ.i**	cv.cvv.vv

7. VVC

This was a less frequent template in the data analyzed. Only 16 occurencs were found in 1500 words and amongst them, 12 times this template was at word initial position and 4 times at word final position. This template was also common among words starting or ending with *Alif, Alif with Mad, Ain, Hamza.* For example:

Position	IPA transcription	Syllabification
Initial	**ɑl.ʊ.bɑl** **æn.ki**	VVC.VV.CVVC VVC.CVV
2nd	**kʊr.ɑn**	CVVC.VVC
Final	**gʰ ə r.kɑ.on**	CVC.CVV.CVV

8. CVVC

This template was found at every position whether initial (90 times), medial (54 times) or final (92 times) without any restriction with the total count of 249 among 1500 dictionory words. The instances of its repetition in the same word were also recorded (about 6 times). For example:

Position	IPA transcription	Syllabification
Initial	**hoɽ** **dɑd.ke**	CVVC CVVC.CVV
2nd	**nə.vek.lɑ**	CV.CVVC.CVV
Final	**hə.meʃ**	CV.CVVC

9. CVV

This is the most frequent syllable template of the Punjabi language with 935 occurences in the analyzed data. It was found at any position in the word i.e initial, 2nd, 3rd and most commonly at final place. This template can be repeated in the word multiple times and there is no restriction on its usage of any kind. Any consonat can come in the onset of this template. For example:

Position	IPA transcription	Syllabification
Initial	**me.hər.bɑŋ.gi**	CVV.CVC.CVVC.CVV
2nd	**məl.ki.ʈi.jɑ**	CVC.CVV.CVV.CVV
Final	**mʊn.ʃɪ.jɑ.nɑ**	CVC.CV.CVV.CVV

10. CVVCC

This is the longest template of the Punjabi lanuage and there are certain patterns found for the formation of consonant clusters at coda such as alveolar sound is followed by glottal, dental, velar, palatal, retroflex sounds and vice versa. Combination of bilabial consonats is also found distinctively from other pattern. This is not a frequent tempelate and has not repeated in the same word among 1500 words. Total 30 occurences are found in the whole data at initial, 2nd and last positions. For example:

Word	**Syllable Template**	**Consonanat Clusters**
kenk.ɽɑ	CVVCC.CVV	alveolar + velar
kentʃ	CVVCC	Alveolar + palatal
kʰə.rond	CV.CVVCC	alveolar + alveolar
gahk	CVVCC	glottal + velar
kamb.ɽi	CVVCC.CVV	bilabial + bilabial
vɪ.kɑnʈ.ɽɑ	CV.CVCC.CVV	Alveolar + dental

Conclusion

As this research was conducted to identify the number of syllable templates in the Punjabi language, 10 templates were identified. The analysis revealed that V is the shortest syllable template and CVVCC is the longest template that exists in the Punjabi language. It is important to mention that the template with consonant cluster can come at any position which proves that it is not extrametrical, hence treating it as part of a word. Moreover, computed frequency results determine that CVV with 1026 frequency count is the most frequent syllable template whereas VVC with only 9 frequency counts is the least frequent syllable template in the Punjabi language. This research will be helpful in providing a base-line for future research in the Punjabi language with respect to syllable structure.

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