

# Notes on Vigesimal Number System in Gilgiti-Shina

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## 要旨

シナー語はパキスタン北部とインドの一部で話されている言語である。その文法は未だ基本的な情報しか記述されておらず、英語による文献は限られている。本稿はシナー語ギルギット方言 (Gilgiti-Shina) で用いられる 20 進法 (vigesimal) について報告する。シナー語の命数法はサンプルが Bailey (1924), Biddulph (1971), および Schmidt and Kohistānī (2008) に掲載されているが、シナー語の中心地であるギルギット方言の実態についてははっきりとは記されていない。また、シナー語はウルドゥー語や英語の影響を受けて急速に変化しつつある。本稿では 2025 年時点におけるシナー語ギルギット方言による 1 から 100 までの基数詞が規則的に 20 進法で表現されていることを報告する。

シナー語は口頭言語であり、2025 年 3 月時点のパキスタンにおいて定められた表記法がない。本稿のデータは 2025 年 3 月にギルギット市 (Gilgit) 近郊に所在するミナワー村およびサクワー村で行ったフィールドワークで得たものである。ラテン文字による表記はシナー語話者によって提供されたものである。音声の録音は付録のリンク先を参照のこと。

**Keywords:** *Shina, Gilgit, vigesimal*

## 1. Introduction

Shina is a language spoken in northern Pakistan and parts of India. Its grammar has been described only in basic terms, and the English-language literature on it is extremely limited. Its numeral system has been documented in several papers, including Bailey (1924), Biddulph (1971), and Schmidt and Kohistānī (2008). However, these studies provide limited data and do not clearly describe the Gilgit dialect, which is the central variety

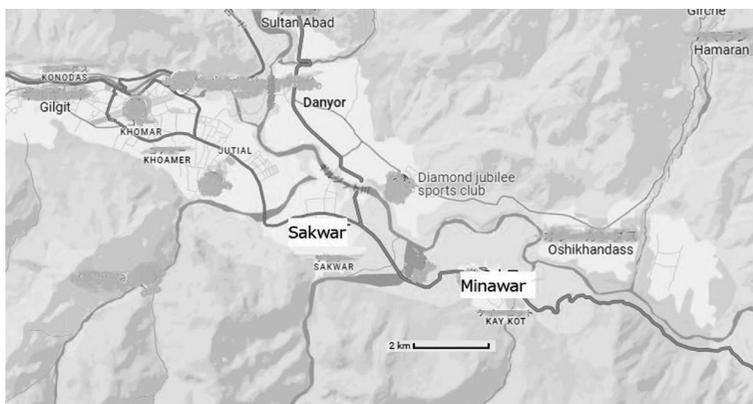


Figure 1 Map of Minawar and Sakwar (Source: Google (n.d.), modified by the author)

of Shina. Furthermore, Shina is undergoing rapid changes under the influence of Urdu and English. This paper presents data as of 2025 and shows that the cardinal numbers from one to one hundred in Gilgiti-Shina follow a strictly vigesimal system (base 20).

The remainder of this paper is organized as follows: Section 2 provides general information of Gilgiti-Shina and the fieldwork methodology. Section 3 reviews previous research on the number system in Shina. Section 4 presents cardinal numbers of Gilgiti-Shina and some observations regarding regional variations. Section 5 provides concluding remarks.

This study is part of research on the syntax and semantics of degree constructions in Shina. Readers who are interested in the phonological aspects of Shina can refer to sound recordings of the data given in this study. A link for the audio recordings is provided in the appendix.

## 2. General information and fieldwork methodology

Shina is a Dardic language belonging to the Indo-Aryan language family. It is spoken in ethnic communities, but is not taught in schools. According to Eberhard, Simons, and Fennig (2023), the number of L1 speakers in Shina could be one million, which is considered vigorous (status 6a). Shina has many dialects, and Gilgiti-Shina is generally considered its standard dialect.

The data in this study were collected in March 2025 from Minawar and Sakwar villages, located near the town of Gilgit in the Gilgit-Baltistan region (Figure 1). The local people speak Gilgiti-Shina as their home language. They learn Urdu, the national language



Figure 2 Interview with language consultants  
(Photograph by an informant, March 2025)



Figure 3 Interview at a secondary school  
(Photograph by author, March 2025)

and primary education medium, in schools. People with college diplomas speak fluent English as most of the higher education in Pakistan is conducted in English. Although Shina is a spoken language, speakers of Gilgiti-Shina can somehow write it using Urdu or Latin alphabets. However, individual variations are common.

Regarding the fieldwork methodology, the author mainly used translation tasks for elicitation and worked with several consultants in their 30s and 40s (Figure 2), as well as a group of secondary school students, about 15 of them who were in their mid-teens (Figure 3), to obtain the data. They were born and raised in the Minawar and Sakwar areas. English was used as the medium of communication during the interviews.

### 3. Previous studies on the number system in Shina

Limited description of the number system in Shina is available (Bailey, 1924; Biddulph, 1971; Schmidt and Kohistānī, 2008). The following list is from Biddulph (1980). For details on phonological representations, see the explanatory note on p. ii of the appendices in Biddulph (1980).

(1) 1	ek	16	shoiṅ
2	doo	17	sutaiṅ
3	ché	18	áshtaiṅ
4	chár	19	kúnî
5	poin	20	bî
6	shâ	21	bî gah ek
7	sut	30	bî gah daiy

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8	átsh	40	doo bî	
9	now	50	doo bî	gah daiy
10	daiy	60	ché bî	
11	ekaiy	70	ché bî	gah daiy
12	baiy	80	chár bî	
13	tchoiṇ	90	chár bî	gah daiy
14	tchowndaïy	100	shul	
15	punzaiy	1000	sâṇs	Biddulph (1880: lxiv)

Bailey (1924) provides similar data. However, it contains alternative expression for 30, namely *çî*.

(2) 30 *çî* or *bi gě dai*

“It should be remarked that the word *çî*, 30, is not employed in 31, 32, 33, etc. For these, 20 and 11, 20 and 12, 20 and 13, etc., must be used, as *bi gě akai*.”

(Bailey 1924: 244)

Schmidt and Kohistānī (2008: XI) cite more recent data which was collected from the Kohistani region that includes places such as Dass and Besham, which are to the south of Gilgit, the target region of this study. For the details of phonological properties of the data, see Schmidt and Kohistānī (2008) pp. 15–39.

(3)

1	ek	6	şa
2	dúu	7	sat
3	çée	8	āş
4	cáar	9	nāō
5	poş	10	dáai
11	akáai	16	şóōī
12	báai	17	sattáāī
13	çóoi	18	aştáāī
14	cahúdee	19	ukaníí
15	panzílee	20	bií

21 bhyo ek	30 bhyo dáai
22 bhyo dúu	31 bhyo akáai
23 bhyo çée	32 bhyo báai
etc.	etc.
40 díbu	50 díbu-ga dáai
41 díbu-ga ek	51 díbu-ga akáai
42 díbu-ga dúu	52 díbu-ga báai
etc.	etc.
60 çobyó	80 cárbyo
61 çobyó-ga ek	81 cárbyo-ga ek
62 çobyó-ga dúu	82 cárbyo-ga dúu
100 šal	1,000 zir
120 şabyo	
121 şabyo-ga ek	

(Schmidt and Kohistānī 2008: 109–110)

In northern Pakistan, vigesimal number systems are not unique to Shina. Munshi and Piar (2016) and Pereltsvaig (2021) mention that the Burushaski language spoken in northern Pakistan also adopts a vigesimal number system.

#### 4. Number system in Gilgiti-Shina

Sample data in Biddulph (1880) and Schmidt and Kohistānī (2008) given in (1) and (3) suggest that the number system in Shina is vigesimal. Nevertheless, presenting a complete list of 1–00 in Gilgiti-Shina is noteworthy for several reasons. First, Shina is known for its rich dialectal variations. Second, Shina has been changing rapidly due to the influence of other languages, mainly Urdu and English. Data as of 2025 will be useful for investigating possible language changes.

##### 4.1 Cardinal Numbers from One to One Hundred

The following lists show that numbers from one to one hundred in Gilgiti-Shina are

expressed in a systematic vigesimal system with no exception. For instance, 30 and 50 are expressed as *bi-ga-dai* ‘twenty-GA-ten’ and *dibo-GA-dai* ‘forty-ga-ten’, respectively. The forms in single quotation marks illustrate the morphological composition of the numbers. The spellings were provided by informants who were fluent in Shina, Urdu, and English. The numbers in square brackets correspond to the identification numbers of the sound recordings, which can be accessed via the link listed in the appendix.

(4)	1	aik	11	akai	[1]
	2	dou	12	bai	
	3	che	13	choi	
	4	char	14	chondai	
	5	posh	15	panzai	
	6	sha	16	shoi	
	7	saath	17	sathai	
	8	ash	18	ashtai	
	9	now	19	kuni	
	10	dai	20	bi	

(5)	21	bi-ga-aik	31	bi-ga-akai	[2]
		‘twenty-GA-one’		‘twenty-GA-eleven’	
	22	bi-ga-dou	32	bi-ga-bai	
		‘twenty-GA-two’		‘twenty-GA-twelve’	
	23	bi-ga-che	33	bi-ga-choi	
		‘twenty-GA-three’		‘twenty-GA-thirteen’	
	24	bi-ga-char	34	bi-ga-chondai	
		‘twenty-GA-four’		‘twenty-GA-fourteen’	
	25	bi-ga-posh	35	bi-ga-panzai	
		‘twenty-GA-five’		‘twenty-GA-fifteen’	
	26	bi-ga-sha	36	bi-ga-shoi	
		‘twenty-GA-six’		‘twenty-GA-sixteen’	
	27	bi-ga-saath	37	bi-ga-sathai	
		‘twenty-GA-seven’		‘twenty-GA-seventeen’	
	28	bi-ga-ash	38	bi-ga-ashtai	
		‘twenty-GA-eight’		‘twenty-GA-eighteen’	

29	bi-ga-now 'twenty-GA-nine'	39	bi-ga-kuni 'twenty-GA-nineteen'	
30	bi-ga-dai 'twenty-GA-ten'	40	dibo 'forty'	
(6) 41	dibo-ga-aik 'forty-GA-one'	51	dibo-ga-akai 'forty-GA-eleven'	[3]
42	dibo-ga-dou 'forty-GA-two'	52	dibo-ga-bai 'forty-GA-twelve'	
43	dibo-ga-che 'forty-GA-three'	53	dibo-ga-choi 'forty-GA-thirteen'	
44	dibo-ga-char 'forty-GA-four'	54	dibo-ga-chondai 'forty-GA-fourteen'	
45	dobog-ga-posh 'forty-GA-five'	55	dobog-ga-panzai 'forty-GA-fifteen'	
46	dibo-ga-sha 'forty-GA-six'	56	dibo-ga-shoi 'forty-GA-sixteen'	
47	dibo-ga-saath 'forty-GA-seven'	57	dibo-ga-sathai 'forty-GA-seventeen'	
48	dibo-ga-ash 'forty-GA-eight'	58	dibo-ga-ashtai 'forty-GA-eighteen'	
49	dibo-ga-now 'forty-GA-nine'	59	dibo-ga-kuni 'forty-GA-nineteen'	
50	dibo-ga-dai 'forty-GA-ten'	60	chabo 'sixty'	
(7) 61	chabo-ga-aik 'sixty-GA-one'	71	chabo-ga-akai 'sixty-GA-eleven'	[4]
62	chabo-ga-dou 'sixty-GA-two'	72	chabo-ga-bai 'sixty-GA-twelve'	
63	chabo-ga-che 'sixty-GA-three'	73	chabo-ga-choi 'sixty-GA-thirteen'	
64	chabo-ga-char 'sixty-GA-four'	74	chabo-ga-chondai 'sixty-GA-fourteen'	

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65	chabo-ga-posh	75	chabo-ga-panzai	
	'sixty-GA-five'		'sixty-GA-fifteen'	
66	chabo-ga-sha	76	chabo-ga-shoi	
	'sixty-GA-six'		'sixty-GA-sixteen'	
67	chabo-ga-saath	77	chabo-ga-sathai	
	'sixty-GA-seven'		'sixty-GA-seventeen'	
68	chabo-ga-ash	78	chabo-ga-ashtai	
	'sixty-GA-eight'		'sixty-GA-eighteen'	
69	chabo-ga-now	79	chabo-ga-kuni	
	'sixty-GA-nine'		'sixty-GA-nineteen'	
70	chabo-ga-dai	80	charibo	
	'sixty-GA-ten'		'eighty'	
(8)	81 charibo-ga-aik	91	charibo-ga-akai	[5]
	'eighty-GA-one'		'eighty-GA-eleven'	
	82 charibo-ga-dou	92	charibo-ga-bai	
	'eighty-GA-two'		'eighty-GA-twelve'	
	83 charibo-ga-che	93	charibo-ga-choi	
	'eighty-GA-three'		'eighty-GA-thirteen'	
	84 charibo-ga-char	94	charibo-ga-chondai	
	'eighty-GA-four'		'eighty-GA-fourteen'	
	85 charibo-ga-posh	95	charibo-ga-panzai	
	'eighty-GA-five'		'eighty-GA-fifteen'	
	86 charibo-ga-sha	96	charibo-ga-shoi	
	'eighty-GA-six'		'eighty-GA-sixteen'	
	87 charibo-ga-saath	97	charibo-ga-sathai	
	'eighty-GA-seven'		'eighty-GA-seventeen'	
	88 charibo-ga-ash	98	charibo-ga-ashtai	
	'eighty-GA-eight'		'eighty-GA-eighteen'	
	89 charibo-ga-now	99	charibo-ga-kuni	
	'eighty-GA-nine'		'eighty-GA-nineteen'	
	90 charibo-ga-dai	100	shal	
	'eighty-GA-ten'		'hundred'	

#### 4.2 Sample cardinal numbers greater than one hundred

Numbers that are greater than one hundred are also systematically composed.

- (9) 111 (aik)-shal-ga-akai [6]  
 '(one)-hundred-GA-eleven'  
 112 (aik)-shal-ga-bai  
 '(one)-hundred-GA-twelve'  
 211 dou-shal-ga-akai  
 'two-hundred-GA-eleven'  
 212 dou-shal-ga-bai  
 'two-hundred-GA-twelve'
- (10) 100 (aik)-shal [7]  
 '(one)-hundred'  
 200 dou-shal  
 'two-hundred'  
 300 che-shal  
 'three-hundred'  
 400 char-shal  
 'four-hundred'  
 500 posh-shal  
 'five-hundred'  
 600 sha-shal  
 'six-hundred'  
 700 saath-shal  
 'seven-hundred'  
 800 ash-shal  
 'eight-hundred'  
 900 now-shal  
 'nine-hundred'
- 1,000 dai-shal or hazar  
 'ten-hundred' 'thousand'
- 1,100 akai-shal or aik-hazar-ga-aik-shal  
 'eleven-hundred' 'one-thousand-GA-one-hundred'



served in Gilgiti-Shina. *şabyo* '120' and *şabyo-ga-ek* '121' are not available in Gilgiti-Shina, and these numbers are expressed as (*aik*)-*shal-ga-bi* '(one)-hundred-GA-twenty' and (*aik*)-*shal-ga-bi-ga-aik* '(one)-hundred-GA-twenty-GA-one' in Gilgiti-Shina.

(14) Expressions not found in Gilgiti-Shina, repeated from (3):

21	bhyo ek	30	bhyo dáai
22	bhyo dúu	31	bhyo akáai
23	bhyo çée	32	bhyo báai
	etc.		etc.
1,000	zir		
120	şabyo		
121	şabyo-ga ek		

(Selected from Schmidt and Kohistānī 2008: 109–110)

Informants reported that speakers of Gilgiti-Shina use Shina to count small numbers in daily life, for example, to count cows. As numbers increase, they tend to switch to Urdu. Urdu is dominant when discussing prices. When referring to modern concepts such as phone numbers, English is preferred.

## 5. Conclusion

This study presented the vigesimal number system in Gilgiti-Shina. Numbers from one to one hundred are expressed in a systematic vigesimal system with no exception. For larger numbers, Urdu terms are often adopted.

Though all the informants in this study are exposed to Urdu, which has a decimal (base-10) system, they maintain a vigesimal number system in Gilgiti-Shina, including young school students, as of March 2025 in Minawar and Sakwar. Nevertheless, this study shares the concern of Shammim Ara Shams et al. (2020) that “Shina might become an endangered language in future if it is not properly documented” (p. 1092). Therefore, the contribution of this study is to document, even if only partially, the number system of Gilgiti-Shina as of 2025, which is experiencing the wave of modernization and language contact.

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### Appendix

Sound recordings of the data [1] – [8] are available from the following link:

File name: Oda, Toshiko. 2025. Sound recordings of Gilgiti-Shina, numbers

[https://drive.google.com/drive/folders/1\\_BU4CeCZEv5WvpT6SFMyyrygDTV8d-TW?usp=sharing](https://drive.google.com/drive/folders/1_BU4CeCZEv5WvpT6SFMyyrygDTV8d-TW?usp=sharing)



(QR code for the link)

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