

MULTILANGUAGE ORTHOGRAPHY FOR THE LANGUAGES OF NEPAL

BHIM NARAYAN REGMI

The earliest evidence of writing in Nepal is about 250 BC in Brahmi script and almost all the scripts used in present day Nepal—as many as fifteen—are the descendants of Brahmi which are built on the same formative principles of 'syllabic alphabet'. The existence of multilanguage orthographies as well as multiscripts has been the regular phenomenon in Nepal—independent to languages and language families. In the complexity of language-ethnicity and language-script relations, Nepali and the Devanagari script have been bearing the role of linking people in this country resulting from and resulted into a medium of education, media, and wider communication. Many scholars, following UNESCO 1951 report, have suggested for a standard orthography for the languages of Nepal, however, there are other views as well. In this background a Devanagari based multilanguage orthography have been proposed. This will fulfill the need of interoperable standard orthography in Nepal and benefit various types of users belonging to different language communities. The orthography will be shift from syllabic alphabet to alphabet as its systemic shift.

Keywords: Orthography, script, multilanguage, multiscriptal, Devanagari

1. Introduction

Orthography, a part of writing system, is a graphical representation of linguistic sounds. It is a collective concept which includes aspects of script, alphabet inventory, alphabet arrangement, and writing conventions as opposed to the spelling, which is applicable only at the word level writing in a particular language (Annamalai et al., 1986: 390). Orthography is language independent and there can exist one language many orthographies and one orthography many language situations. Nepal has 123 languages spoken/used by 125 caste/ethnic communities (CBS, 2012). These languages use more than 15 orthographies or more commonly known as scripts all of which are developed from Brahmi, at different times from 5th century to 21st century, except Latin and Arabic.

According to the population census 2011 report (CBS, 2012, CBS, 2013, Yadava, 2014), Indo-Aryan languages are spoken as mother tongue by 82.1% in Nepal. Among the languages, Nepali has the largest number of mother tongue speakers (44.64%) followed by Maithili (11.67%), Bhojpuri (5.98%), Tharu (5.77%), Bajjika (2.99%), Doteli (2.97%), Urdu (2.61%), Avadhi (1.89%), and Baitadeli (1.03%). Similarly, Sino-Tibetan languages are spoken as mother tongue by 17.3%. Among the languages, Tamang has the largest number of mother tongue speakers (5.11%), followed by Newar (3.20%), Magar (2.98%), Limbu (1.30%), and Gurung (1.23%). These 13 languages have at least 1% of the total population of Nepal and are spoken by 93.37% people. All the languages among these 13 use the scripts developed from Brahmi except Urdu, thus more than 90% of the total population's languages use the scripts of the same lineage. Eighty four languages among

Gipan 3:2.157-174.

the languages of Nepal are spoken as second languages. Nepali has the largest number of second language speaker (32.77%) of the total population of Nepal, followed by Hindi (4.62%). The remaining languages have less than 1% second language speakers. The total number of Nepali speakers who speak it either as mother tongue or as second language is 77.41% of the total population of Nepal. Literacy rate of Nepal is 65.9% (CBS, 2012: 4). As almost all the literacy programs run by government are based on Nepali language and Devanagari script, the population mentioned above is literate in Devanagari. These facts and figures are the sources which inspired the author to think on the Devanagari based multilanguage orthography which could be a standard functional writing system for all the languages of Nepal.

The following sections will discuss writings in Nepal including early writings, scripts in Nepal, multiscriptal situation, and lineage of Nepalese scripts followed by orthography in the scholarly discussion and publication in Nepal, orthography in Policy documents, issues related to orthography and the choice, efforts on orthography development or change, formative principle of Devanagari as background, especially in support of a multilanguage orthography. At the end a brief proposal for multilanguage orthography is presented. Then the paper is concluded.

2. Writing in Nepal

2.1 Early writings

The earliest evidence of epigraphy is the Ashokan pillar of about 250 BC in Lumbini which is in Prakrit language and Brahmi script (Malla, 1973: 101). Next was the King Mandeva's inscription of 463 AD at Changu Narayan in Kathmandu which is in the Sanskrit language and Gupta script (Malla, 1973: 101). The inscriptions found in Kathmandu are in the Sanskrit language in local variation of Gupta script. Nepal Government decided to name the script as Lichhavi in 2017BS (Regmi, 2060BS: 158). Malla (1973: 101) informs that the Lichhavi inscriptions between 5th to 9th century AD contain 80% of the place names which are non-Sanskrit and several of these are archaic form of Newari. He further notes that the Newari became the language of inscription in Kathmandu valley only after AD1207.

The written form of Nepali—then Khasa or Sinjali as it was the language of Khasa dynasty—dates back to 1151BS (AD 1094) with the inscription found in Dullu in the Dailekh District of Western Nepal known as 'Bāmu khāḍkāko abhilekh' (Khanal, 2068: 17, cited in Chalise, 2074BS: 323). The inscription is in Devanagari.

These evidences show that the history of writing in Nepal dates to 2267 years back. Pali was the first written language which is descendant of Sanskrit. However, Sanskrit is found in written form only after Pali.

2.2 Scripts in Nepal

Yadava and Shakya (2065BS: 61-62) present a list of scripts used in Nepal and the related languages as follows:

Table 1: Scripts and the languages which use those scripts

Scripts	Languages
Devanagari	Nepali, Maithili, Bhojpiuri, Avadhi, Newar, Rajbanshi, Magar, Tamang, Kirati Languages
Mithilakshar/Tirahuta	Maithili
Kaithi	Maithili
Sambota	Tibetan, Sherpa
Tamhig	Tamang
Ranjana	Newar
Sirijanja	Limbu
Rong	Lepcha
Akkha	Magar
Gurumukhi	Punjabi
Arabi	Urdu
Latin	Santhali, Gurung
Ol Chemet/Ol Chiki/ Ol	Santhali
Khema	Gurung
Bangla	Bengali

Source: Yadava and Shakya, 2065BS: 61-62

Maithili script was developed in 13th Century, before that local varieties of Nagari and Adibangala were used in Mithila (Regmi, 2060BS: 195). The script is known as Tirhuta or Mithilākṣar. However, written literature in Maithili dates back to 10th century (Yadav, 2011: 3).

Tibetan is used for Tibetan and the languages of Tibetan stock such as Sherpa, Tamang in Nepal, which is also related to Buddhism. It was developed by Thonmi Sambhota in 7th century (Yonjan-Tamang, 2073BS).

Rong or Lepcha script is used in Sikkim for Lepcha language which is supposed to be a descendant of Tibetan. Limbu has its root in Lepcha. Limbu script also known as Sirijanja after its developer King Sirijunga, which was supposed to be ruling in 9th century. However, it was revived by Sirijanga II and used widely only after 17th century (Kainla, 2073BS).

Tamhig—a Tibetan based orthography developed for Tamang language, and Wambule—a Sirijanga based orthography developed for Wambule language are recent developments which have hardly crossed three decades.

Ol or Olchiki which is used for Santhali in India is developed by Raghunath Murmu in 1925. The author is not much aware about its system or sources.

Akkha, as presented in Table 1, is, in fact, the Brahmi script. Thapa (Jhendi) Magar (2059BS: 47) claims that original name was "Akkha" and Brahmi is its name given by the

Brahmans later. Thapa (Jhendi) Magar (2059BS: 53) presents the 'Akkha' alphabet as the script of the Magar language used by ancient Magars. His claim is that the Lichhavis—rulers of the Ancient Nepal from Kathmandu valley as capital—are Magars. It is not the concern of the present discussion whether the Lichhavis are Magars or not, but a question is raised naturally why he did not name that script as Lichhavi—which Newar scholars have accepted as the lineage of Newari script—instead chose Brahmi as Akkha.

Other two scripts used in Nepal—Roman and Arabi—are of foreign origin and are designed not for Nepalese languages, thus have inherent different guiding principles of writing from those scripts which are either developed or localized in Nepal. As the focus of this paper is on the scripts of the same system, these two scripts are not the focus of discussion.

2.3 Multiscriptal situation

The above information on present situation of orthography shows the multiscriptal situation in Nepal. It is the situation where one language uses multiple scripts. Singh (1986: 407, citing Grierson (1908)) notes that there are two types of multiscriptal situation based on the cases of script use in Magahi language and Gujarati language. Horizontal multiscriptal situation is result of the spread of codified language across its original political and geographical boundaries and enters into another codified language's original political and geographical areas. For example, Magahi uses Kaithi in general and Devanagari occasionally whereas Eastern Magahi uses Bengali and Oriya scripts. Vertical multiscriptal situation is determined by the social classes. For example, Gujarati is general script for Gujarati language, however, *Nāgar Brāhmaṇas* use Devanagari, and *Vāniō* 'shopkeepers' and *Sarrāf* 'bankers' use Kaithi for the language. Yadav (2011) has published a Maithili text in Newari script written in 1713 AD. This attests that the multiscriptal situation is not a recent phenomenon.

There is one more factor in Nepal which leads to multiscriptal situation that is functional domain of the language. Devanagari and Tibetan have different functional domains in Tamang language where first one is used in normal daily works and relatively modern patterns of life where latter one is used in religious and cultural domain. Not only the scripts but also the varieties of the same script can have different functions. Newari has its three stylistic varieties Ranjana, Pachumol 'straight-top-character' and Bhujimol or Golmol 'hook-top-character' (Tamot, 2073BS). Among these varieties Ranjana is used for short, especially produced and socio-culturally important texts such as invitation cards, felicitations, acknowledgement letters, certificates of participation or contribution in a social function, notice boards, banners, etc. whereas other two varieties are used in more general functions.

2.4 Lineage of Nepalese scripts

Almost all the scripts used for the languages of Nepal are derived from the Brahmi script, the exceptions are Latin and Arabic. Figure 1 presents a comprehensive connection between the major scripts in South Asia.

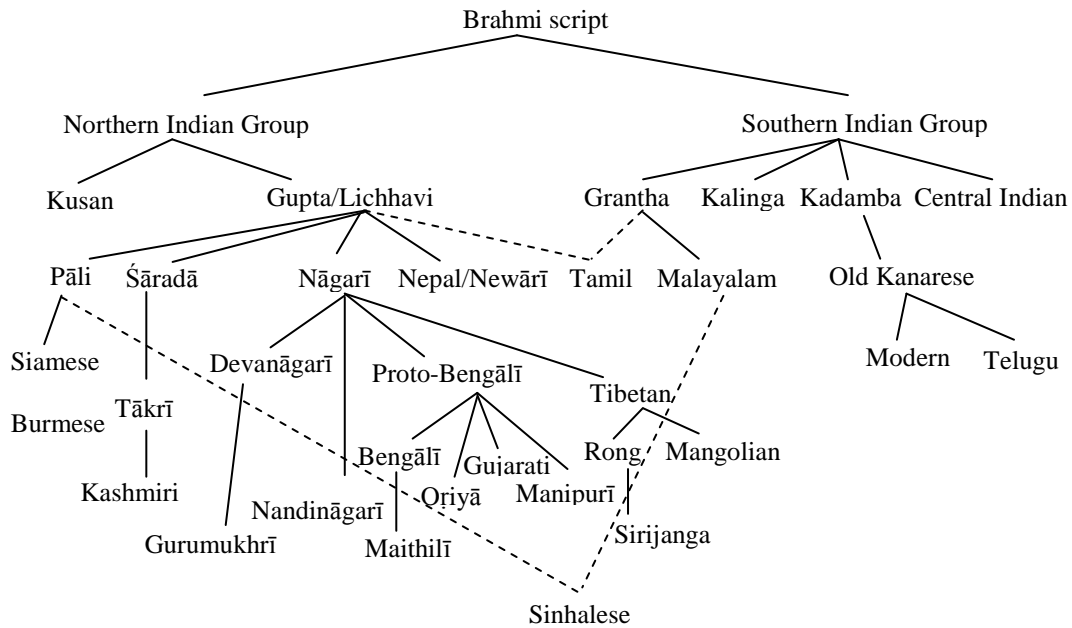


Figure 1: Scripts developed from Brahmi (adapted from Coulmas (ed.), 2003: 53), Nepal/Newārī, Rong, and Sirijanga are added.)

In its history, besides its natural changes from Brahmi to the present descendants, Devanagari has also been through conscious or deliberate development efforts. Some of the efforts have been discussed in section 6 in detail.

3. Orthography in the scholarly discussion and publication in Nepal

After the restoration of democracy in Nepal in 2046BS, following the constitutional provisions on the languages of Nepal, Language Planning Recommendation Commission (henceforth LPRC) was formed in 2050BS. There have been series of seminars, discussions, and scholarly publications on language policy and planning in Nepal in which issue of orthography is one of the central issues. The publications, include Pokharel (2050BS), Yadava (2050BS), Bandhu, (2050BS), Dahal and Regmi (2058BS), Watters and Rai (2005), Pokharel (2071BS), and Pokharel (2074BS) and the LPRC Report (LPRC, 2050BS) itself, seems to follow the recommendation of the Report of the UNESCO Meeting of Specialists, 1951 (UNESCO, 1953) regarding the issues on orthography which mentions:

where there are several major regional languages in one country or where more than one language has official status, it is of value to have relative uniformity in the way in which they are written. To the extent that they are similar, the learning of the additional language is facilitated (UNESCO, 1953:60-61).

The Report further specifies:

In so far as possible, unification between orthographies should be sought, especially among the languages within a country. If possible, the writing of a local language should agree with that of the regional, national or official language, so as to facilitate transition from one to the other. In general, care should be taken not to force distinctions in the local language because they exist in the second language (UNESCO, 1953:62).

These recommendations of the UNESCO are reflected in the LPRC Report. As the report mentions (LPRC, 2050BS: 16-17):

The following thoughts are relevant regarding the selection of the script:

- (1) To adopt Devanagari script for all languages of Nepal for maintaining consistency in language learning.
- (2) To adopt Devanagari script for all languages of Nepal but to preserve the conventional script of any language as a cultural heritage.
- (3) To adopt an indigenous script with some modification to make it more suitable.

There is a need of some modifications of alphabets [sic] based in Devanagari script as it will bring simplification for writing and pedagogical purpose. The alphabets are [sic] primarily based on the phonology of Sanskrit language which does not have one to one correlation with sound system observed in Nepalese languages, and thus can not fully represent phonological system of the languages of Nepal. It is therefore appropriate to modify the orthographic system according to the sound system of Nepalese languages. It is necessary to adopt two kinds of processes:

- (1) To use the letters which represent the sounds of a language.
- (2) To add new letters or appropriate diacritics to represent sounds when there is a lack of such letters or diacritics.

The points in these citations are: (i) unification in orthographies among the languages should be preferred in a multilingual country, (ii) writing of a local language should agree with that of a regional or official language, (iii) the unification will facilitate the transition from one to other, (iv) however, the features of the second (regional or national official language) should not impose if these are not present in the local language.

Consider the points (ii) and (iv). Point (ii) takes the process of unification as unidirectional where only local languages should agree with that of regional or national languages not the other way around, and point (iv) reminds not to impose the features of second language which are not in the local languages but forget to suggest adding those distinctive features which are present in the local languages in the unified orthography. However, the summary of the discussion on orthography addresses the issues in one or the other ways. The Report (UNESCO, 1953:62) summarizes the discussion in the following points of preference on orthographic issues and reminds considering the attitudes of the population toward their orthographic traditions:

- (1) Spelling in conformity with contemporary pronunciation.

- (2) Agreement with phonemes of the language.
- (3) Simplicity in typography (available types, limited numbers of characters, etc.)
- (4) Letters without diacritics (if equally satisfactory).
- (5) Digraphs in preference to new characters unless they cause ambiguity.
- (6) Derivation of new characters from prevailing scientific usage.
- (7) Agreement between different languages of the region or country, especially with the national or official language.

However, in the recommendation section of the report (LPRC, 2050BS: 34, recommendation numbers 3-5), the language is more abstract and the word "Devanagari" is not present there, thus less directly reflected as it is in the citation above.

Despite the elaborate discussion and recommendations, no serious attempt has been made from the government institutions or the scholars in power seems to carry out the orthography unification process, neither to develop the orthographies for individual languages of Nepal within the period of 24 years since the LPRC Report came out. Community's effort for Newari script is the only exception in this regard which is again not from any government institution.

However, one such attempt at individual level, at least as a scholarly discussion has been made by Regmi (2008) which tries to address the issues of unification bidirectionally, i.e. from both the points of view from Nepali, the official language and the all other languages of Nepal which is discussed in detail in section 6.

4. Orthography in Policy documents

Article 7(1) of the Constitution of Nepal, 2015 states "the Nepali language in the Devnagari script shall be the official language of Nepal."

According to the article 51(6) the policies of the State relating to social and cultural transformation is "to protect and develop languages, scripts, culture, literature, arts, motion pictures and heritages of various castes, tribes, and communities on the basis of equality and co-existence, while maintaining the cultural diversity of the country"

Suchanā tathā sanchār pravidhi nīti (Information and Communication Technology Policy), 2072BS has some provisions, though there is no direct mention of script, two of the strategies are related to orthography. Strategy 12.1.2 mentions:

Special programs will be formulated to encourage local and indigenous traditional content development in collaboration with the major stakeholders. In this regard, concept of local language computing will be promoted in order to expand the access to ICT service also through other language speakers in Nepal.

Strategy 12.2.3 is concerned on digital literacy and says "to make communities able in meaningful use of ICT a nationwide digital literacy program will be formulated and implemented."

One of the functions, duties and powers of the Language Commission as provided by the *Bhāṣā Āyog Ain 2074* (Language Commission Act, 2074BS) is related to orthography as it mentions "Carry research on the mother tongues spoken in Nepal in order to get them technology-friendly and recommend to the related agency to follow the appropriate measures"(Article 3(f)).

5. Issues related to orthography and the choice

Orthography has number of issues as it is the base of the graphic form of a language. Some of the issues are more technical and fundamental as well as concrete and the others more abstract and emotional. The issues attract peoples from the various disciplines such as linguists, technologists, education and literacy experts, sociologists, politicians, legal experts, and so on.

The issues are identity and prestige, literacy, education, power, administration, information and communication technology (ICT), human right, language preservation and promotion, relating to the other communities, phonological representation, and economy. When there is a need to choose or develop any orthography these issues come to the front and the situation becomes complicated.

Linguists working in the field in Nepal have analyzed the situation. Turin (2006: 67) observed the following situation regarding choice of orthography:

...Various scripts exist within Nepal, the two dominant ones being the Nepali, or Devanagari script, and the Tibetan script. Other languages with pre-existing and unique scripts include Newar, Limbu and Lepcha. Indigenous peoples speaking languages without a literate tradition generally choose between three options when developing a writing system: using the Devanagari script, using the Tibetan script, or devising a new script.

Glover (2002: 27-29) has discussed on the issues of script choice in Gurung language regarding choice between Roman, Devanagari, Tibetan and Khema scripts with elaborate list of advantages and disadvantages of each of them.

Linguists have also noticed the problems related to choice of orthography. Yadava and Shakya (2065BS: 62) have made following observations on the challenges regarding use of scripts in the languages of Nepal:(i) appropriate script could not be developed for many languages because of no sufficient study on their sound system, (ii) there is problem in many because Devanagari could not represent all the sounds in the language, and (iii) there is a debate in some languages such as Tamang, Gurung, etc. because of the use of multiple scripts.

These discussions are on the languages related to Tibeto-Burman family which are yet to be written or having writing system recently which is yet to be standardized. However, the languages such as Nepali, Newari, and Limbu which have already solved the question of script choice and standardization, also have been elaborated to new functions or the potential for that. Specially, Nepali has new challenges as there will be other languages

introduced to the official function. In this situation, Nepali has to develop at least some auxiliary codes in order to accommodate as an intermediate language among the official languages of Nepal. It needs to include the symbols which represent the sounds in other languages of Nepal but not present in Nepali. Similar kinds of challenges exist for the languages like Limbu, Newari, etc., however, at the context of rather smaller areas.

6. Efforts on orthography development or change with reference to Devanagari

Surya Bahadur Shrestha has published 3 booklets and an article on Navanagari (Shrestha, 2045BS – a booklet in Nepali which presents objectives, solutions and guidelines for the reform; Shrestha, 2048BS – a Nepali exercise book on Navanagari for learners; Shrestha, 1991 – a booklet in English which can be taken as English version of his Nepali booklet with minor differences in number of points of suggestions; and Shrestha 1992 – same English booklet published as an article). In these works he has observed the following problems in Devanagari: (i) Sirorekha 'the top line', (ii) inherent vowel schwa in the consonant letter, (iii) ligature, (iv) vowel diacritics on around all the directions, (v) three tier presentation of the letters, (vi) consonant letters without vertical line at the right (क, ख, ए, ऌ, ड, ढ, द, फ, र, ह), (vii) more letters than the sounds which the letters have to represent, and (viii) problem to include the vowel and consonant letter of other languages. He has solved the problems by changing the shapes of the letters, placements of the diacritics, and reducing the alternatives, except the last one which seems to be beyond his knowledge and interest.

The Navanagari—script resulted from the simplified, systematic and machine friendly Devanagari—is as he claims:

Navanagari system is purely on linear basis and proves to be fully phonetic. Basically it needs 33 letters and 11 vowel signs only. A few diacritical marks are required in it. The present Devanagari typewriter can easily be [sic] accommodated for Navanagari. As there will be no need to type more than two times for a complete letter, this system will be faster than Devanagari which needs to type up to four times and Navanagari can easily compete with Roman typing. Navanagari has all the phonetic quality of Devanagari and technical qualities of linear typing and typesetting of Roman (Shrestha, 1991: 11).

Regmi (2008) has discussed the issues in developing Devanagari based multilanguage orthography for Nepal in detail. He has presented the reason for choosing Devanagari over other scripts as base, listed the problems of Devanagari—inherent, with Nepali language, and with other languages of Nepal, the current practices of adapting Devanagari in the Tibeto-Burman languages of Nepal, and presented an alphabet which he claims that can be used for all the languages of Nepal.

He has given the following five reasons for choosing Devanagari as base for a multilanguage orthography over other scripts used in Nepal: (i) the languages spoken by 94.61% of the total population (based on 2001 Census data) of Nepal use Devanagari

either primarily or secondarily, (ii) more than 70 languages (a rough estimation) out of 92 languages are either not written yet all or are started writing recently and have only a few publications, and most of the languages which are started writing recently use modified Devanagari, (iii) because of the official status given to Nepali language and Devanagari as its orthography other linguistic communities had to learn and use Devanagari, (iv) Nepali is a compulsory subject in the national education system of Nepal from grade 1 up to Bachelors level as well as a medium of instruction, (v) Devanagari is the orthography for most of the print media published in Nepal.

He has listed three inherent problems of Devanagari—(i) inherent schwa with the consonant letters, (ii) use of short i (ि) before the consonant which is pronounced before it, and (iii) the alternative forms or systems such as many forms of r (र), half consonant and halanta (or virama) system, and simple concatenative forms of consonant clusters and ligatures—, two problems related to use of Devanagari in Nepali language—(i) more letters in the alphabet than the phonemic inventory of Nepali, and (ii) no one-to-one correspondence between grapheme and phoneme—, and the problems of Devanagari in using other languages of Nepal—(i) similar problems for the Indo-Aryan languages, (ii) no symbols to represent many segments and suprasegments of the languages of Nepal which include: Glottal stop (IPA symbol 'ʔ') found in Kirati languages, breathy vowels (IPA symbol '̤' at the bottom of the vowel symbol) found in Magar, Gurung, etc., breathy velar nasal (IPA symbol 'ŋ') found in Magar, Tamang, etc., long 'अ', 'आ', 'ए', and 'ओ' (IPA symbols: ʌ:, a:, e:, o: respectively) found in Kirati languages, implosives (IPA symbols ɓ, ɗ), found in Wambule (a Kirati language), tone (IPA symbols ̎, ̍, ̏, ̐, ̑, etc.), found in Sherpa, Thakali, etc., syllabic nasal (IPA symbol '̚' at the bottom of the vowel or consonant symbol) found in Kulung (a Kirati language), voiced alveolar fricative (IPA symbol 'z') found in Kaike, post-alveolar fricative (IPA symbols 'ʃ, ʒ') found in Sherpa, central, back unrounded and front rounded vowels (IPA symbols i, ə, u, y, œ etc.) found in Kirati languages, low-mid vowels (IPA symbols ε, ɔ) found in Kirati languages.

He has presented the current practices of adapting Devanagari in the Tibeto-Burman languages of Nepal which have seriously lack the interoperability as most of these use a diacritic—a dot beneath the consonant letter—to represent whatever new segment or suprasegment is there in that particular language. At the end he has presented an alphabet arranged in the system of Devanagari alphabet with many additional letters and diacritics to represent various segments and suprasegments which he mentioned include following properties: (i) based in Devanagari, (ii) provides the symbols for each contrastive sound in the Nepalese languages, (iii) diacritic for 'अ' is added, (iv) consonants without vowel is the basic form of a symbol, (v) consonants with vowel is same as current Devanagari (vi) all the vowel diacritics are placed after the consonant (it may occur at the top, at the bottom or at the right but not at the left), (vii) the shape of the new or modified symbol is not much different from the original one, (ix) consistency is maintained in representing

the features, (x) provision to write tones, (xi) no provision of alternative writing like simple/cluster, half/*halanta*, etc.

There have been many attempts of modifying Devanagari for individual languages. Noonan (2005) has carried a comprehensive survey on the use of Devanagari with adaptation among the six Tibeto-Burman languages Chantyal, Gurung, Limbu, Sherpa Tamang, Thangmi. These individual works have been summarized in Regmi (2008), however, without mentioning individual languages as reference.

Both of these attempts (Shrestha and Regmi) have many common issues and try to address them, however, the orientation is clearly different as Shrestha's main aim is to simplify but Regmi's main aim is to create a common orthography. Both of these attempts lack the insight to the formative principle of Devanagari, thus count and list the problems without penetrating into its underlying system.

7. The formative principle of the scripts of Nepal

Despite the fact that the shapes are different in Tibetan or Sambota, Sirijanga or Limbu, Newa and Devanagari basic system in which the script is built on is the same. All the scripts have following features in common (See Yonjan-Tamang (2073BS), Kainla (2073BS), Tamot (2073BS) and Pokharel (2073BS) for the features in particular language):

- (a) There are vowel and consonant symbols, and vowel symbols have two forms basic and diacritic.
- (b) Close syllable is marked—by (i) dot at the right shoulder of the final consonant in Tibetan, (ii) with horizontal line beneath the final consonant in Limbu, (iii) virama or halanta (a slanted short line moving downwards) at the bottom right of the final consonant, half consonant symbol, and ligature which carries the final consonant of the preceding syllable in Nepali, and (iv) Newa utilizes ligature which carries the final consonant of the preceding syllable.
- (c) There are ligatures to represent the consonant clusters.
- (d) There is no provision to represent tone.

These are the inherent features of the writing systems developed from Brahmi. Thus Tirhuta, Gurumukhi, Rong, Tamhig and other scripts developed within the same framework have differences only in the number of letters/symbols, shape of the letters/signs, and the placement of the diacritics not in the system.

Of course there are some innovations such as addition of low mid vowel letters, glottal stop, and vowel length marker in Limbu, vowel length marker and breathy stop marker in Tibetan, and length marker, low mid front vowel letter, and breathiness marker in sonorant consonants as per the need of the sound system of the particular language which uses that script. The puzzling question is why Tibetan does not have tone marking system in it though there is tone in the language.

The concern of this paper at this point is on the question of formative principle of the source of the most of the scripts used in Nepal. Regarding the formative principle there

are two references available—Coulmas (1999, 2003) and Rogers (2005)—which have alternative views.

Rogers (2005) uses the term 'abugida' to characterize formative principle of Brahmi whereas Coulmas (1999, 2003) prefers the term 'syllabic alphabet'. The basic difference is that Rogers (2005) lists the features of Brahmi, Devanagari and other scripts—inherent schwa, both independent and dependent vowel letters, ligature and concatenations, etc. Hall et al. (2014) and Pokharel (2073BS) agree with this view and call Devanagari abugida system of writing. This view perfectly captures the structure of the symbols in Devanagari (and Brahmi including its descendants), however, lacks to capture the basic unit where these structures operate, i.e., the functional unit.

Coulmas (1999, 2003) separates the functional unit and the analytical structure, and assigns Brahmi (and the descendants) to syllabic writing in terms of its basic functional unit and to alphabetic writing in terms of its analytical structure. The basis of functional unit helps us to understand why short *i* 'ि' is placed before the consonant, why there are ligatures, why there are vowel diacritics at the top and bottom of the consonant letters, why schwa is inherent in the consonant symbols, and why there are various forms of 'ः'—especially, one as hook at the top right of the consonant letter and another slightly upward curved horizontal line between the consonant symbol—which have exactly the same pronunciation but different syllable structure.

Coulmas (1999: 229-230) has made this clear in the following statement:

The mode of vowel indication defines Indian writing systems as syllabic alphabets. They are syllabic in that the unit of coding is a syllable, and they are alphabetic in that the unit of the underlying analysis is a segment. Each syllable, no matter whether it consists of a single V or a CV, CCV, CVC or VC group, is written as a graphic unit. Yet these units, except for those of syllabic Vs, display internal structure reflecting a segmental analysis. C graphemes are coded with an inherent neutral vowel, usually transliterated as a. Independent V graphemes are used in initial position; otherwise Vs are marked by diacritics known as mātrās grouped around the C graphemes. There is no need to mark an [a] or [ə] following a consonant, since this vowel inheres the C letters and hence has no mātrā. This assumption has the following structural consequences for the combination of letters. Mātrās supersede the inherent a. Consonant clusters are generally represented by compound ligatures, conjunct C letters which, excepting the last of the sequence, lose the inherent a. Another device for suppressing the inherent a is a subscript diacritic known as virāma in Sanskrit. The virāma indicates the absence of a vowel. Its use is generally restricted to mark final consonants, although more extensive use could substantially reduce the number of necessary ligatures. Ligatures are often formed by combining elements of two C letters, but these graphic compositions are rarely transparent and thus have to be learned separately.

It needs to be clear that the syllable of writing and the syllable of speech do not correspond in one-to-one fashion as they have their own structures.

8. The proposal for multilanguage orthography

With the discussion above as background, the aim of this paper is to propose an inter-operable Devanagari-based multilanguage orthography for the languages of Nepal.

8.1 Objectives

The objectives of the orthography are:

- (a) To establish theoretical base or formative principles for the multilanguage orthography
- (b) To provide separate symbols—either independent or in the form of diacritic—for every contrastive segmental and suprasegmental sounds exist in all the Nepalese languages
- (c) To provide a single standard for writing all the languages of Nepal. It will be useful in preparing multilingual databases, dictionaries, and comparative linguistic studies apart from the means of literacy, education and communication of the language communities
- (d) To provide means of reading and writing other's languages without using separate writing system which will be supporting harmonious multilingual society

8.2 Scope

The scope of the proposed orthography covers all the languages of Nepal including any kind of language function accomplished through its written form. However, it will not substitute the established orthographies such as Tibetan, Sirijanga, Newa, etc. instead it will complement those scripts as intermediate script.

8.3 Process

The information regarding the number of total contrastive sounds—segmental and suprasegmental—are collected, in an estimation we need about 85 separate symbols (see Regmi et al. (2012) for the phonemic inventories of 38 languages of Nepal) to represent all the sounds of the languages of Nepal.

The symbols available in the present Devanagari alphabet are taken, which will be about half of the needed number.

The system will be changed to 'alphabetic' from 'syllabic alphabetic', this will give the freedom to change shape of the consonants letters and placement of the diacritics which do not fit in the alphabetic system, i.e., to establish one-to-one grapheme-phoneme correspondence.

All the consonant symbols are converted to their half form so that the consonant symbols do not inhere any vowel. However, together with vowel the shape of the letters will not be very different from the present Devanagari writing.

The additional vowel—along with their diacritic—and consonant letters will be created or borrowed from any other scripts in Nepal to represent those sounds exist in the languages of Nepal but no symbol in present Devanagari alphabet to represent them.

The alphabet will be prepared with the help of the calligraphers.

The standard codes (unicode) will be developed for the newly developed alphabet along with the input and rendering systems.

Language specific keyboards will also be customized, thus every language does not need all the symbols in the keyboard.

8.4 Expected outcome

- (a) There will be a standard orthography functional to all the languages of Nepal.
- (b) No language will be left behind because of orthography, thus literacy and educational material development program can be begun.
- (c) Documentation and comparative study programs can be begun among the languages so that the standard forms of the languages be developed.
- (d) Any languages which are assigned the official function can be used without obstacle which will otherwise be created because of the orthography.
- (e) Means of databases and official records will be ready.

8.5 Beneficiaries

The unwritten languages will be benefitted as these languages will have means to write.

The languages which have begun writing based on Devanagari will have standard orthography.

The languages which have their own writing system will have alternative system which will support the speakers, especially those who have migrated from the main land or had inter-caste marriage, and are in foreign employment, in learning and maintaining their language.

The languages which have their own writing system and ready to be used in official function will have support in developing auxiliary codes and intermediate orthography to transliterate their documents into other languages of Nepal.

The government will have means of record—electronic or print—, and transfer into many official languages.

Nepali speakers will have their language upgraded to the functional language which can unify—respecting the diversity—all the linguistic groups through the writing system.

All the Nepalese people will benefit from the reduced cost on digitizing, maintaining, updating, upgrading, and elaborating for the various fields of use and applications in the digital world because of the single standard orthography nationwide.

The other scripts will also be benefitted from the convertability, and technology transfer from the multilanguage orthography.

This will support in language revival and maintenance as well as in elaboration of the functions.

9. Conclusion

In the period of about 2300 hundred years since the first writing in Nepal, there have been various kinds of developments in writing. Most interesting among these are the multilanguage orthographies as well as multiscriptal situations existed through the history in Nepal which is independent of languages and language families, and the various scripts developed or adapted in Nepal are descendants of Brahmi thus share the same formative principle. In spite of these facts, many languages of Nepal lack standard functional orthography. Even Devanagari, as it has been assigned official function along with the Nepali language, is not free with the limitations, especially for this function regarding the various auxiliary codes and record keeping functions, let alone the issues related to other languages of Nepal. This phenomenon, though always noticed by the linguists and mentioned in their documents, was not handled properly. The present attempt, as based on the arguments with detailed background presented in various sections above, is to develop a common interoperable functional orthography which can handle the complexity of language-ethnicity and language-script relations in present Nepal. As Nepali language and the Devanagari script have been bearing the role of linking people in this country resulting from and resulted into a medium of education, media, and wider communication, it will be easier to realize a multilanguage orthography where all the scripts—being the descendants of the same ancestor Brahmi—share the same formative principle of 'syllabic alphabet'. It is hoped that the systemic shift in the script in order to accommodate all the segmental and suprasegmental sounds in the languages of Nepal along with the changes in shapes and placements will realize such an orthography and will benefit each and every person in Nepal through a standard means of graphic expression.

References

- Anju Saxena and Lars Borin (ed.) 2006. *Lesser-known languages of South Asia : Status and policies, case studies and applications of information technology. Trends in linguistics. Studies and monographs, 175*. Berlin: Mouton de Gruyter.
- Annamalai, E., B. M. Dahal, G. C. Ahuja, D. N. Koul, P. Madhubala Devi, and J. C. Sharma. 1986. "Creating and changing a writing system: Social, economic, pedagogical and linguistic criteria for choice." In Annamalai, E., Björn H. Jernudd and Joan Rubin (ed.) 1986. 390-404.
- Annamalai, E., Björn H. Jernudd and Joan Rubin. 1986. *Language planning: Proceeding of institute*. Mysore: Central Institute of Indian Languages.
- Bandhu, Chura Mani. 2050BS. "Nepālkā sandarbhamā bhāṣā yojanā" (Language planning in the context of Nepal). *Prajña*, 79. 73-105.
- Bhāṣā Āyog Ain 2074* (Language Commission Act 2074). 2074BS. Kathmandu: Nepal Government.

- CBS (Central Bureau of Statistics). 2012. *National population and housing census 2011: National report*. Kathmandu: CBS.
- CBS. 2013. *National population and housing census 2011: Second language*. Kathmandu: CBS
- Chalise, Bidur. 2074BS. "Abhilekhiya Nepali vyakaranko itihās." In Pokharel, Madhav Prasad, Chura Mani Bandhu and Daya Ram Shrestha (ed.) 2074BS. 305-549.
- Constitution of Nepal*. 2015/2074BS. Kathmandu: Kanun Kitab Vyavastha Samitee. Government of Nepal.
- Coulmas, Florian. 1999. *The Blackwell encyclopedia of writing systems*. Malden: Blackwell Publishing.
- Coulmas, Florian. 2003. *Writing Systems: An introduction to their linguistic analysis*. Cambridge: Cambridge University Press.
- Dahal, Ballabh Mani and Bhim Narayan Regmi. 2058BS. "Rāṣṭrabhāṣā ra rāṣṭriya bhāṣāharuko sahayātrā evam vikāskā apekṣāharu" (Co-march of the National language and the Languages of the nationalities and expectations of their development). *Prajñā*, 95. 9-34.
- Glover, Warren W. 2002. "Choosing a Gurung orthography for a new dictionary." *Gīpan: TU Papers in Linguistics*, vol. 2. 25-38.
- Grierson, G. A. 1908 [1968]. *Linguistic survey of India*, vol. IX, part 2. Delhi: Motilal Banarasidass.
- Grierson, G. A. 1908 [1968]. *Linguistic survey of India*, vol. V, part 2. Delhi: Motilal Banarasidass.
- Hall, Pat, Bal Krishna Bal, Sagun Dhakhwa and Bhim Narayan Regmi. 2014. "Issues in encoding the writing of Nepal's Languages." In Alexander Gelbukh (ed.) *Computational linguistics and intelligent text processing, 15th International Conference, CICLing 2014, Kathmandu Nepal, April 6-12, 2014 Proceedings, Part I. LNCS 8403*. Verlag : Berlin : Heidelberg: Springer. 52-67.
- Kainla, Bairagi. 2073BS. "Sirijangā Limbū lipimālā: Vigat, vartamān ra ājako chunauti" (Sirijanga script: Past, present and the challenges today). Paper presented at *Rāṣṭriya Akṣar Goṣṭhi*, 2073 Jeth 13, Nepal Academy, Kathmandu.
- Khanal, Mohan Prasad. 2068BS. *Nepālī bhāṣākā hajār varṣa* (Thousand years of the Nepali language). Kathmandu: Rhino Publication.
- LPRC. 2050BS. *The report of the language policy recommendation commission 1994(2050VS)*. Kathmandu: National Language Policy Recommendation Commission.
- Malla, Kamal P. 1973. "Language." In Pashupati Shumshere Rana and Kamal P. Malla (ed.) *Nepal in perspectives*. Kathmandu: The Centre for Economic Development and Administration. 101-118.
- Noonan, Michael. 2005. "Recent adaptations of the Devanagari Script for the Tibeto-Burman Languages of Nepal." In Peri Bhaskararao (ed.) *Indic scripts: Past and future*. Tokyo: Tokyo University of Foreign Studies. http://crossasia-repository.ub.uni-heidelberg.de/202/1/Recent_Adaptions_of_Devanagari_Script.pdf [Accessed on 2017-11-05].

- Pokharel, Madhav Prasad. 2050BS. "Nepālle angikār garnuparne bhāṣik niti ra bhāṣik yojanā" (Language Policy and planning to be followed by Nepal). *Prajñā*, 79. 31-55.
- Pokharel, Madhav Prasad. 2073BS. "Devanāgarī lipi: Nepālmā yasko sthiti, samasyā ra sambhāvanā" (Devanagari script: Its situation, problems and possibilities in Nepal). Paper presented at Rastriya Akṣar Gosthi, 2073 Jeth 13, Nepal Academy, Kathmandu.
- Pokharel, Madhav Prasad, Chura Mani Bandhu and Daya Ram Shrestha (ed.) 2074BS. *Jagadambā Nepālī sāhityako brihat itihās pahilo thelī: Bhāṣā, vyākaraṇ ra abhilekh* (Jagadamba Comprehensive history of Nepali literature first volume: Language, grammar and inscription). Lalitpur: Kamal Mani Prakashan.
- Pokharel, Shailaja. 2071BS. "Nepālkā lāgi ādarsha bhāṣā nīti" (Ideal language policy for Nepal). *Prajñā*, 110. 21-31.
- Pokharel, Shailaja. 2074BS. "Nepali bhāṣāko sāmājīk itihās." In Pokharel, Madhav Prasad, Chura Mani Bandhu and Daya Ram Shrestha (ed.) 2074BS. 1-126.
- Regmi, Bhim Narayan, Dan Raj Regmi, Manju Acharya, Hari Narayan Mahato and Balram Lamichhane. 2012. "Nepālkā Bhāṣāharuko prakāraparak adhyayan" (Typological Study of the Languages of Nepal). A report submitted to the University Grants Commission, Sanothimi, Bhaktapur.
- Regmi, Bhim Narayan. 2008. "Developing a Devanagari-based multi-language orthography for Nepalese languages." Paper presented at Second International Conference on Language Development, Language Revitalization and Multilingual Education in Ethnolinguistic Communities, 1-3 July 2008, Twin Towers Hotel, Bangkok, Thailand.
- Regmi, Dinesh Chandra. 2060BS. *Puralekhan ra abhilekh* (Epigraphy and inscriptions). Kathmandu: Himalaya Book Stall.
- Rogers, Henry. 2005. *Writing systems: A linguistic approach*. Malden: Blackwell Publishing.
- Shrestha, S. B. 1992. "Script for the New Age: Navanagari." *Nepalese linguistics* 9. 56-65.
- Shrestha, Surya Bahadur. 1991. *Script for the new age: Navanagari*. Navanāgarī Prakāshan 3. Taulihawa: Navanagari Kendra.
- Shrestha, Surya Bahadur. 2045BS. *Devanāgarī lipiko sudhār rupamā Navanāgarī* (Navanagari as reform of Devanagari). Taulihawa: Navanagari Kendra.
- Shrestha, Surya Bahadur. 2048BS. *Navanāgarī parichaya* (Introduction to Navanagari). *Navanagari Prakāshan* 2. Taulihawa: Navanagari Kendra.
- Singh, Udaya Narayan. 1986. "Scriptal choice and spelling reform in Bengali: An attitudinal survey." In Annamalai, E., Björn H. Jernudd and Joan Rubin (ed.) 1986. 405-417.
- Suchana tatha sanchar pravidhi niti* (Information and communication technology policy) 2072BS. Kathmandu: Nepal Government.
- Tamot, Kashi Nath. 2073BS. "Newā lipi: Sthiti, samasyā ra sambhāvanā" (Newa script: Situation, problems and possibilities). Paper presented at Rastriya Akṣar Gosthi, 2073 Jeth 13, Nepal Academy, Kathmandu.

- Thapa (Jhendi) Magar, M. S. 2059BS. *Prachīn Magar ra Akkhā lipi* (Ancient Magar and the Akkha script), 2nd edn. Lalitpur: Brijī Prakashan.
- Turin, Mark. 2006. "Minority language policies and politics in Nepal." In Saxena, Anju and Lars Borin (ed.) 2006. 61-71.
- UNESCO. 1953. *The use of vernacular languages in education. Monographs on fundamental education*. Paris: UNESCO.
- Watters, David E. and Novel Kishore Rai. 2005. "The indigenous languages of Nepal (ILN): Policy, planning and recommendation." In Yadava, Yogendra P. and Pradeep L. Bajracharya (ed.) *The indigenous languages of Nepal (ILN): Situation, policy planning and coordination*. Lalitpur: National Foundation for Development of Indigenous Nationalities (NFDIN). 55-63.
- Yadav, Ramawatar. 2011. *A fascimile edition of a Maithili play: Bhūpatīndramalla's Parśurāmopākhyāna-nāṭaka*. Kathmandu: B.P. Koirala India-Nepal Foundation. Kathmandu.
- Yadava, Yogendra P, Rajendra Thokar, Gopal Thakur, and Sulochana Sapkota. 2008. "Linguistic diversity in Nepal: Situation and policy planning, SIRF report", SNV Secretariat.
- Yadava, Yogendra P. 2014. "Language use in Nepal." *Population monograph of Nepal, volume II (Social demography)*. Kathmandu: CBS.51-72.
- Yadava, Yogendra Prasad and Purna Man Shakya. 2065BS. "Samakālīn Nepālmā dekhā parekā bhāśik muddaharu tathā samābeshī bhāshā nīti." 49-90. In *Rājya Punah samrachanāko sandharbhamā Nepālko vartamān bhāshik sthiti ra samābeshī bhāshā nīti: Seminār prativedan 2065 Māgh*. Kathmandu: Centre for Nepal and Asian Studies and Social Inclusion Research Fund, SNV.
- Yadava, Yogendra Prasad. 2050BS. "Nepālko sandarbhamā bhāṣā vikās" (Language development in the context of Nepal). *Prajña*, 79. 63-72.
- Yonjan-Tamang, Amrit. 2073BS. "Sambhotā lipi: Nepālma yasko sthiti, samasyā ra sambhāvanā" (Sambota script: Its situation, problems and possibilities in Nepal). Paper presented at *Rastriya Akshar Gosthi*, 2073 Jeth 13, Nepal Academy, Kathmandu.