

# Designing a Writing System: Phonological, Socio-linguistic and Practical Considerations

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## *Making a Choice*

In the design and choice of the "best" writing system there are various factors which need to be considered. They may be summarized under 3 points:

- *Phonology*: What is the sound system of the language?
- *Socio-linguistics* and *Psycho-linguistics*: What are the habits, preferences, and expectations of the readers?
- *Practice*: What kind of symbols are commonly available for writing, typing and printing?

The choice of a writing system may look "OK" as far as the "phonology" is concerned, but at the same time it may be a very bad choice as far as the other factors are concerned - or the other way round.

A simple table can remind us that the chances for making the "best" choice are seven againts one.

**TABLE: CHOICES**

-	(1) considering the sound system	(2) considering the user's context	(3) considering the printing practice
Choice A	not OK	not OK	not OK
Choice B	not OK	not OK	OK
Choice C	not OK	OK	not OK
Choice D	not OK	OK	OK
Choice E	OK	not OK	not OK
Choice F	OK	not OK	OK
Choice G	OK	OK	not OK
Choice H	OK	OK	OK

In many languages it has not been possible to do better than Choice "D" (like English) or "G" (like Czech). An ideal choice would, of course, be "H" (like Spanish).

## *Principles for Choosing a Writing System*

The choice of a good writing system can be guided by "principles" which have been derived from the experience with writing systems of other languages.

These principles are based on the studies of reading and writing in different kinds of languages, different kinds of writing systems, and different historical settings.

The principles can be summarized under three headings:

### **(1) The Phonological Principle "One Sound One Symbol"**

*"Use the same symbol for the same sound."*

Why? Because this does justice to the sound system of the language, and it agrees with the internal knowledge of the speakers.

Stated negatively, the principle says

***"Do not choose different letters for the same sound" and "Do not choose the same letters for different sounds."***

To take an example: The words "see, sea" use different letters "ee/ea" for the same sound [i], and the words "be, bet" use the same letter "e" for different sounds [i/e].

## **(2) The Socio-Linguistic Principle of "Acceptability" and "Harmonization"**

***"Use symbols which are acceptable to the people and common to the neighbouring languages."***

Why? Because the best writing system is the writing system (a) which the people like, and (b) which allows for a smooth "transition" into other languages. For the people, the transition into a "major language" may be of great importance.

Stated negatively, this principle says

***"Do not choose letters which are unpopular or which make it difficult to switch languages."***

To take an example: If neighbouring languages already write [ʃ] as "sh", then don't choose "š" but choose "sh" for the same sound. If the letters are kept the same, people do not need to "un-learn" or "re-learn" when they have to switch languages.

If many people (not only a few intellectuals) have expressed strong feelings about certain letters, then these feelings must be respected. So if people say they prefer "sh" (not "š"), then "sh" should be chosen.

## **(3) The Economic Principle of "Being Practical"**

***"Use letters which are practical - technically, economically, and pedagogically."***

- *Technically and economically "practical"*: Such letters should be chosen which are readily available and easy to use.

Why? It can be expensive and frustrating if special letters are not available in common typewriters, keyboards or printing presses. To be really "practical", a good writing system will also use the simplest letters for the most frequent sounds.

To take an example: The symbol "sh" is easier to write, to type, and to print than "ʃ" or "š", and no special software needs to be bought. Letters with extra dots or lines must be avoided.

- *Pedagogically "practical"*: Such letters should be chosen which allow for clear teaching without complicated rules.

To take an example: In the Saho language, rules were established for writing "rh" and "dh" (variants of the sound [ɖ]). The teachers found them difficult to teach, children were frustrated, and the result was an error rate of 50%.

### ***The Choices***

Thus, with regard to the three principles above, the choice of an alphabet should be based on (1) a careful analysis of the "sound system", (2) a good survey of the reader's concerns, and (3) a consideration of what is "practical" in schools and offices and printing presses.

### **The Sound System**

According to publications available, Beja uses 19 consonants and 5 vowels as distinctive sounds or "phonemes" (i.e. sounds which help to distinguish the meanings of words).

(The two sounds "j" and "x" have been included, even though they do not have the same status as other Beja sounds: Mohammed Adarob has shown that "j" is a late addition to the system, and Mohammed Magzub has shown that "x" is only found in loan words.

**TABLE: SOUND SYSTEM**

<b>Consonants</b>	lips	teeth	alveoli and - velum	glottis
<b>short, long</b>			palate	
plosion		t, tt	special T, TT	k, kk
	b, bb	d, dd	special D, DD	g, gg
friction	f, ff	s, ss	š (sh), šš	h
			j*	
nasal	m, mm	n, nn		(x*)
rolled		r, rr		
lateral		l, ll		
<b>Half-Vowels</b>	w, ww		y, yy	
<b>Vowels</b>	front	mid	back	
<b>short, long</b>				
high	i, ii		u, uu	
mid	- ee		- oo	
low		a, aa		

In addition to the 24 sounds, the "length" of consonants and vowels, and the "stress" of syllables are also used to distinguish meanings. These two features "length" and "stress" also establish meaningful contrasts between words just as the consonants and vowels do.

In the linguistic publications, "evidence" has been presented for such contrasts - with the exception of "e/ee" and "o/oo". The work of Mohammed Adaroob has shown that there is in fact no contrast between "e, o" and "ee, oo". No data with short "e, o" are found in the dialect of the Port Sudan area - the dialect which may serve as the basis of discussion.

### **Relations of the Sound System to the Writing System**

The Beja sound system is part of the "internalized knowledge" of every Beja speaker, and there is evidence that the same "underlying" system is valid for all dialects. (On the "surface", the long vowels may be pronounced longer or shorter in some areas - but the contrast between long and short sounds is valid for each Beja dialect.)

Thus, whatever writing system is chosen, it should clearly represent this "underlying" "internal" system in the best way possible: According to the 1st principle "*One Sound One Symbol*" (see above), a writing system should present each sound by exactly one symbol.

Theoretically - if we disregard socio-linguistic and practical factors - this "symbol" could be any kind of sign. So the sound "j" could be written "\*" or "\$" or "zhdzh" or "☛" or "X" or "j"

Theoretically, there is an endless list of signs to choose from!

### **Practical Considerations**

When it comes to the actual practice, however, the choice of letters is limited very much: In actual practice, there are only very few choices which can be considered "practical".

The choice of scripts is obviously limited to Arabic and/or Latin. (Historically and sociologically it would be out of place to use Ge'ez or Old Egyptian.) *In Sudan and Egypt*, the Arabic script is widely used, and for most literates it is the only script they know. *In Eritrea*, several years ago it has been decided to use Latin letters for all non-Semitic languages.

## The Scripts in Actual Use

How are these two scripts actually used in everyday life?

<i>The Arabic script, in actual practice,</i>	<i>The Latin alphabet, in actual practice,</i>
<i>excludes</i> symbols for short vowels, shadda or sukun, or additional dots	<i>excludes</i> most modifications like š or ä or "ñ"
<i>includes</i> ligatures and a few special modifications like aliph maqsuura, final yaa' (ligatures cannot be counted, because they do not represent additional sounds)	<i>includes</i> capital letters and many combinations like "sh" or "sc" (capital letters cannot be counted, because they do not represent additional sounds)
So there is a choice between a few dozen signs.	So here is a choice between a few hundred signs.

How does this fit the sound system of Beja?

Since "fatha, kasra, dhamma" and "sukun" are avoided, and since signs with additional dots are not available on every keyboard, the actual choice of signs is limited to about 25 consonants plus 3 long vowel signs (alif, waaw, and yaa').	With a view to the teaching of international languages, certain combinations of letters should be avoided, because they might create problems for those who read English. - Likewise, the use of "diacritics" should be avoided, because they are known to create problems for school kids and typists.
For Beja this means: The 19 Beja consonants can be represented adequately - but for the "doubled" sounds and for the 8 vowels there are problems.	For Beja this means: The 19 Beja consonants, the "doubled" sounds, and the 8 vowels can be represented without problems.
However, if it would be acceptable to use fatha, kasra and dhamma as well as shadda consistently, then the full Beja sound system could be represented in writing (the only exception would be "oo" and "ee" and maybe "stress"). - The Arabic writing system inherently reflects the syllable structures of Beja words, which is an advantage.	However, the Latin letters need to be chosen in such a way that they reflect the syllable patterns of the Beja language. Readers who are used to the Arabic script expect to find a consonant at the beginning of every syllable. - Unstructured sequences (iaee) should be avoided. Syllables should start with consonants ('iyayee). This allows for a good transition to and from the Arabic writing system.
Concerning "stress" this can be said: - The Arabic traditionally does not lend itself to writing stress or tone. Usually they have not been written - cf. Hausa, Mandinka, Somali, Swahili. - For Beja, stress is less prominent than stress or tone is in those other languages. Writing stress certainly is less important than writing all vowels and all "doubled" consonants.	Concerning "stress" this can be said: - The Latin script, since a few decades, has been using accented letters to represent stress or tone - cf. Italian, Spanish, W. Afr. or S. Am. languages. - In a Latin writing system for Beja, stress could be included - but probably it should be left unwritten, since there will be enough redundancy in any Latin transcription.

What does this mean, taking all factors together?

Considering the socio-linguistic environment, especially the fact that presently more Beja readers know the Arabic script, Arabic seems the better choice.	Considering the phonological factor alone, especially the fact that the Latin script easily represents the sounds of the language, Latin seems the better choice.
However, there will be reading problems if the Arabic script is not adapted to the rich vowel system of the Beja language.	However, a Latin writing system for Beja must be designed in such a way that it meets the expectations of readers used to the Arabic script. (See above.)
For the countries of Egypt and Sudan, the choice of a script still is open - but the general climate seems to favour a choice of the Arabic script very strongly.	For the country of Eritrea, the Latin script will be used. For the near future, there are MoE plans to produce school textbooks for all subjects of grades 1-5, including a reference grammar, a school dictionary and supplementary reading materials like poems, songs, traditional stories etc.

### Correspondences

If Beja is split into different scripts - here Arabic, there Latin - this might confuse the readers, discourage the writers, turn away the publishers and seriously *weaken* the development of a Beja literature.

But the availability of two writing systems could also be a *strength*. It could be a strength if both systems would be kept close to the "heart" of the language. Keeping the writing systems close to the "underlying" sound system would "automatically" keep the two writing systems close to each other.

If this would truly be the case, then Beja literature could be adapted and exchanged freely - from Arabic to Latin or from Latin to Arabic - and this would just be a matter of replacing the letters.

To allow for such exchange, clear "correspondences" would have to be established on the basis of the Beja sound system. This could easily be accomplished by developing a table such as sketched here below.

**TABLE: CORRESPONDENCES**

Note: The sounds are written in "IPA" symbols ("International Phonetic Association"). The IPA letters are not designed for everyday writing, but only for linguistic research.

Sound - IPA	Latin	Arabic - choice 1	- choice 2	- choice 3	Sound - IPA	Latin	Arabic - choice 1	- choice 2	- choice 3
ʔ	'				mm	mm			
a	a				n	n			
aa	aa				nn	nn			
b	b				oo	oo			
bb	bb				r	r			
d	d				rr	rr			
dd	dd				s	s			
d̥	dh				ss	ss			
d̥d̥	dhdh ?				ʃ	sh			
ee	ee				ʃʃ	shsh ?			
f	f				t	t			
ff	ff				tt	tt			
g	g				t̥	th			
gg	gg				t̥t̥	thth ?			
h	h				u	u			
i	i				uu	uu			
ii	ii				w	w			
j	j				ww	ww			
jj	jj				y	y			
k	k				yy	yy			
kk	kk				...				
l	l								
ll	ll								
m	m								