

OLD TURKIC SCRIPT OR ORKHON-YENISEY SCRIPT

Abdugafur Rahimov¹ and Vamik Kadimov²

Tashkent Institute of Railways and Engineering, Tashkent, Uzbekistan
Karadeniz Technical University, Trabzon, Turkey
¹gafur_rakhimov@yahoo.com, ²rakhimov@ktu.edu.tr

The Orkhono-Yenisei inscriptions, the most ancient writings, monuments of the Turkic people. In 1696-1722 years these inscriptions are opened by Russian scientists S.Remezov, F.Stralenberg, D.Messerschmid in top of the current of the Yenisei. In 1889, on the rivers Orkhons (Mongolia) by H.M.Jadrintsev is opened. In 1893, these inscriptions are decoded by the Danish linguist V.Tomsen. And for the first time are read by Russian linguist V.V.Radlov (1894). The Orkhono-yenisei inscriptions concern by 7-11 centuries. Seven groups the Orkhono-Yenisei inscriptions are known: Baikal, Yenisei, Mongolian, Altai, East Turkistan, Central Asian, and East European. Accordingly they belong to the breeding the union of the Kurgan, the empire of the Kirghiz, the empire of the East Turkic, the empire of the West Turkic, the empire of the Uigur (in Mongolia), the state of the Uigur (in East Turkistan), Khazars (Chazars) and Pechenegs. On a genre accessory are allocated: historically-biographic stone-letters texts of Mongolia; lyrics of texts of Yenisei; legal documents, magic and religious texts (on a paper) from East Turkistan; memorable inscriptions on rocks, stones and structures; labels on household subjects. The inscriptions of Mongolia stating history 2nd East Turkic and the empire of the Uigur have the greatest historical value.

It is known, that (La)TeX use only the fonts which have specially been written by Donald Knut in the language of the MetaFont Program. In the present time, in (La)TeX we can to write texts practically in any language even on Arabian and the Chinese scripts. But, in (La)TeX there is not the Old Turkic fonts. In this connection, using MetaFont we have written the program which allows to use old Turkic fonts in (La)TeX. This program is put in the Internet. We have put all necessary files and fonts in the CTAN-web-page:

<http://www.ctan.org/tex-archive/fonts/orkhun>

Here, there are "pk" files which it is necessary to copy corresponding folders in your (La)TeX program:

```
..\TEXMF\fonts\pk  
..\TEXMF\fonts\tfm
```

It is easy see, that these files make such sizes of fonts as 10pt, 11pt, 14pt, 16pt, 20pt and 25pt. But, using the .mf file and setting the necessary values variable "u" (in the .mf file) you can create the necessary sizes of fonts (i.e. .gf, .pk, .tfm files you can to create, also, using .mf file). In this case, of course, you should compile your .mf file (with new parametre of "u") on the MetaFont program:

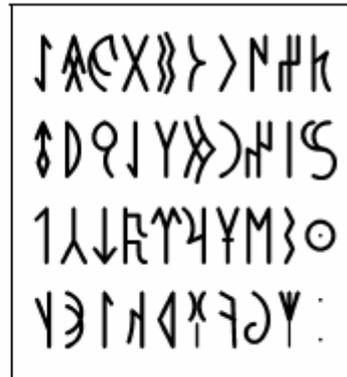
```
..\BIN\win32\mf \mode=ljfour; mode_setup; input orhun.mf  
..\BIN\win32\gftodvi orhun.600gf  
..\BIN\win32\gftopk orhun.600gf  
..\BIN\win32\dvips orhun.dvi
```

Then, the necessary font to appear in expansions .gf, .pk, .tfm. Moreover, these files can be copied in the catalogue (directory) in which you work. Let's remind, that this program (i.e. the Old Turkic fonts) can be used only freely.

Now, as use this font? To write the text in old Turkic language you should use the TeX-command: \font .

For example,

```
\font\letteror=orhun
{\letteror ABGdDOUoZt}
{\letteror TYyLLMnNsS}
{\letteror PCkKrRvmcQ}
{\letteror zVeawgibI:}
```



So the following historical text is written **The monument of the TONYUKUK** (The second stone, northern a part)

3) 8 JCYIAA#N#A : YIYIKYD : 4S#)X#H :)XHIYKYI
 YIYKYD#A : 4S#)X#H : JJ
 J#Q)##) : J#Q)##) : Jk#Y#Q :)##)YIIRY#K :)X#)X1H
 : IKYI#KYD IXI : J#QI I#Q :
 N#K :)X#)X1H : #AN#Q#H : JJ3)8JCYIAA :)XHIYKYI
)#I#Y#D :)##)YIIRY
 NY#I : X)##)##X : X)##)YIIRY#K :)X#H : JCYIA#R#K
 4)4J)

To write the text in Orkhon script, certainly, we should know Old Turkic alphabet.

In the following table this alphabet is given

O-Y	sound	O-Y	sound	O-Y	sound
↓	a, e	⌈	k (with a)	ʏ	r (with thick vowels)
⌈	b (with thin vowels)	⌋	k (with hard i)	ʏ	r (with thin vowels)
⌋	b (with thick vowels)	↓	L (with thick vowels)	Ϛ	s (with thick vowels)
λ	-ch (j) (in the end a word)	ʏ	L (with thin vowels)	l	s (with thin vowels)
ʏ	ich, ic	⌈	-it (in the end a word)	ʏ	-sh (in the end a word)
Ϛ	d (with thick vowels)	⌋	-m (in the end a word)	⌈	t (with thick vowels)
λ	d (with thin vowels)	)	n (with thick vowels)	⌋	t (with thin vowels)
Ϛ	g (with thin vowels)	⌈	n (with thin vowels)	ʏ	o, u
λ	g (with thick vowels)	ʏ	-ng (in the end a word)	)	o, u
l	i, the closed e	⌋	-ny (in the end a word)	⌈	o', the soft u
⌋	k (e, with i)	ʏ	-nch(j) (in the end a word)	⌋	y (with thick vowels)
⌈	k (o', with the soft u)	⊙	-nt(d) (in the end a word)	Ϛ	y (with thin vowels)
↓	k (with o, u)	l	-p (in the end a word)	⌈	-z (in the end a word)

Moreover, to write the text in the old Turkic fonts, we should know still, in which touch of the keyboard is these fonts. In the keyboard the Orkhon script are typed as follows

Q	⊙	W	E	R	ʏ	T	⌈	Y	⌋	U	)	I	ʏ	O	ʏ	P	l
q		w	e	r	ʏ	t	⌋	y	Ϛ	u		i	⌋	o	⌈	p	
A	⌈	S	Ϛ	D	⌋	F		G	Ϛ	H		J		K	⌈	L	ʏ
a	⌈	s	l	d	λ	f		g	ʏ	h		j		k	↓	l	↓
Z	⌈	X		C	λ	V	⌋	B	⌈	N	⌈	M	⌋				
z	ʏ	x		c	ʏ	v	ʏ	b	⌋	n	)	m	⌈				

Conclusion.

Further we plan to write a orkhun-package which will allow to work more conveniently with these fonts and will expand possibilities use of fonts.

Acknowledgements.

We would like to thank the members of the Mathematical Department of the Karadeniz Technical University, for hospitality while this work was being done. In particular we are grateful to our friend to assistant professor Orhan Kesemen for helpful conversations.