Beinecke MS 408

A Transcription Based on a Revised Version of Takeshi Takahashi's Transliteration

Alexander Max Bauer

Contents

1 Introduction 3

2 Transcription 4

3 Analysis 93
  3.1 Glyph Frequencies 93
  3.2 Entropy 95

1 Introduction

In Section 2, mainly to promote easier readability and comparability, a transcription of *Beinecke MS 408* is currently being developed, based on a transliteration by Takahashi (1999). To achieve this, Takahashi's transliteration is obtained in an automatically capitalized version of the *European* or *Extensible Voynich Alphabet* (EVA), using the *Interlinear Transcription Archive Extractor* by Schwerdtfeger (2004).[1] It is then converted back into glyphs using a font by Bettencourt (2019).

Using the manuscript's reproduction in Clemens (2016) and the scans provided by Yale University's Beinecke Rare Book and Manuscript Library (2004), Takahashi's transliteration is compared with what I am able to make out of the manuscript. In total, I made changes in 367 places of Takahashi's transliteration. Changes to Takahashi's reading are highlighted in orange:

- Glyphs that I interpret in another way than Takahashi or that I add to the corpus are printed in orange, showing my interpretation.
- When a glyph has been deleted by me without replacement, this is indicated by $\cancel{x}$.
- Removed spaces are marked with $\frown$ and added spaces are indicated by $\smile$.
- Added paragraphs are represented by ¶.

Especially the recognition of spaces in running text is, as Takahashi has already noted, sometimes very difficult. Therefore, my adjustments in this—just as in any other—regard should be taken with a certain amount of caution. Note that places where the writing is interrupted by illustrations are marked by em dashes (—).

Each line of the transcription is preceded by a locator in square brackets, informing about the element a line is part of (i.e., paragraph, title, or label) and assigning the line a number. For example, a line located at [P2, 9] is part of the page's second paragraph (P2) and is counted as the overall ninth line (9) on this page.

Additionally, in Section 3, some basic analyses are presented. First, in Section 3.1, glyph frequencies are counted. In Section 3.2, then, entropy is calculated.

---

[1] Schwerdtfeger (2004) builds on an online archive of Voynich transcriptions maintained by Jorge Stolfi (1998). For a general overview of transcription efforts, see Zandbergen (2023).

2 Transcription

Folio 1, Recto

[P1, 1]
fachys ykal ar ataiin shol shory cthres y kor sholdy
[P1, 2]
sory ckhar or y kair chtaiin shar are cthar cthar dan
[P1, 3]
syaiir sheky or ykaiin shod cthoary cthes daraiin sy
[P1, 4]
doiin oteey oteos roloty cthiar daiin okaiin or okan
[P1, 5]
dair⁀y chear cthaiin cphar cfhaiin
[T1, 6]
ydaraishy

[P2, 7]
ɣ odar ƈ⁀y shol cphoy oydar sh*⁀s cfhoaiin shodary
[P2, 8]
yshey shody okchoy otchol chocthy oschy dain chor kos
[P2, 9]
daiin shos cfhol shody
[T2, 10]
dain os teody

[P3, 11]
ɣ ydain cphesaiin ol⁀s cphey ytain shoshy cphodales
[P3, 12]
oksho kshoy otairin oteol okan shodain sckhey daiin
[P3, 13]
shoy ckhey kodaiin cphy cphodaiils cthey she oldaiin d
[P3, 14]
dain oiin chol odaiin chodain chdy okain dan cthy kod
[P3, 15]
daiin shckhey ckhor chor shey kol chol chol kor chal
[P3, 16]
sho chol shodan kshy kchy dor chodaiin sho kchom
[P3, 17]
ycho tchey chekain sheo pshol dydyd cthy daicthy
[P3, 18]
yto shol she kodshey cphealy dasain dain cthyds
[P3, 19]
dchar shcthaiin okaiir⁀chey rchy potol cthols daocta
[P3, 20]
shok chor chey dain cthey
[T3, 21]
otol daiiin

[P4, 22]
cpho shaiin shokcheey chol tshodeesy shey pydeey chy ro dar
[P4, 23]
*doin chol dain cthal dar shear kaiin dar shey cthar
[P4, 24]
cho*o kaiin shoaiin okol daiin far cthol daiin ctholdar
[P4, 25]
ycheey okay oky daiin okcheey kokaiin ofchol kadchy dal
[P4, 26]
dcheo shody koshey cthy okchey keey keey dal chtor
[P4, 27]
cho chol chok choty chotey
[T4, 28]
dchaiin

Folio 1, Verso

[P1, 1]
kchsy chadaiin ol — oltchey char cfhar am
[P1, 2]
yteey char or ochy — dcho lkody okodar chody
[P1, 3]
do ckhy ckho ckhy shy — dksheey cthy kotchody dal
[P1, 4]
dol chokeo dair dam — sochey chokody

[P2, 5]
potoy shol dair cphoal — dar chey tody otoaiin shoshy
[P2, 6]
choky chol cthol shol okal — dolchey chodo lol chy cthy
[P2, 7]
po ol choees cheol dol cthey — ykol dol dolo ykol do lchody
[P2, 8]
okol⁀shol kol kechy chol ky — chol cthol chody chol daiin
[P2, 9]
shor okol chol dol ky dar — shol dchor otcho dar shody
[P2, 10]
taor chotchey dal chody — schody pol chodar

Folio 2, Recto

[P1, 1]
kydainy ypchol daiin otchal — ypchaiin ckholsy
[P1, 2]
dorchory — chkar s — shor cthy cth
[P1, 3]
qotaiin — cthey y — chor chy ydy — chaiin
[P1, 4]
chaindy — chtod dy — cphy dals — chokaiin d
[P1, 5]
otochor al — shodaiin — chol dan — ytchaiin dan
[P1, 6]
saiin daind — dkol sor — ytoldy — dchol dchy cthy
[P1, 7]
shor ckhy daiiny — chol dan

[L1, 8]
ytoaile*
[L2, 9]
***an

[P2, 10]
kydain shaiin qoy s shol fodan — yksh olsheey daiildy
[P2, 11]
dlssho kol sheey qokey ykody so — chol yky dain daiirol
[P2, 12]
qoky cholaiin shol sheky daiin — cthey keol saiin saiin
[P2, 13]
ychain dal chy dalor shan dan — olsaiin sheey cthor
[P2, 14]
okol chy chor cthor yor an chan — saiin chety chyky sal
[P2, 15]
sho ykeey chey daiin chcthy

Folio 2, Verso

[P1, 1]
kooiin cheo pchor otaiin o dain chor — dair shty
[P1, 2]
kcho kchy sho shol qotcho loeees qoty — chor daiin
[P1, 3]
otchy chor lshy chol chody chodain — chcthy daiin
[P1, 4]
sho cholo cheor chodaiin

[P2, 5]
kchor shy daiiin chckhoy — s shey dor chol daiin
[P2, 6]
dor chol chor chol keol chy chty — daiin otchor chan
[P2, 7]
daiin chotchey qoteeey chokeos — chees chr cheaiin
[P2, 8]
chokoishe chor cheol chol dolody

Folio 3, Recto

[P1, 1]
tsheos qopal chol cthol daimm
[P1, 2]
ycheor chor dam qotcham cham
[P1, 3]
ochor qocheor chol daiin cthy
[P1, 4]
schey chor chal cham cham cho
[P1, 5]
qokol chololy s cham cthol
[P1, 6]
ychtaiin chor cthom okal⁀dam
[P1, 7]
otchol qodaiin chom shom damo
[P1, 8]
ysheor chor chol oky damo
[P1, 9]
sho *or sheoldam otchody ol
[P1, 10]
ydas chol cthom

[P2, 11]
pcheol shol sols sheol shey
[P2, 12]
okadaiin qokchor qoschodam octhy
[P2, 13]
qokeey qot sheey qokody qoksheey cheody
[P2, 14]
chor qodair okeey qokeey

[P3, 15]
tsheoarom shor or chor olchsy chom otchom — oporar
[P3, 16]
oteol chol s cheol ckshy qokeom qokol daiin — soleed
[P3, 17]
soeom okeom yteody qokeeo⁀dal sam

[P4, 18]
pcheoldom shodaiin qopchor qopol opchol qoty — otolom
[P4, 19]
otchor ol cheor qoeor dair qoteol qosaiin — chor cthy
[P4, 20]
ycheor chol odaiin chol s aiin okolor am

Folio 3, Verso

[P1, 1]
koaiin cphor qotoy sha ckhol ykoaiin s oly
[P1, 2]
daiidy qotchol okchor okor olytol dol dar
[P1, 3]
okom chol shol seees chom cheeykam okai
[P1, 4]
qodar chs chy kcheol okal do⌒r chear een
[P1, 5]
ychear otchal chor char ckhy
[P1, 6]
or cheor kor chodaly chom

[P2, 7]
tchor otcham chor cpham s
[P2, 8]
ykchy kchom chor chckhol oka
[P2, 9]
ytcheear okeol cphodoaly chor cphy
[P2, 10]
ochor daiin qokshol daiim chol okary
[P2, 11]
sho shockho ckhy tchor chodaiin chom
[P2, 12]
osh chodair ytchy tchor kcham s
[P2, 13]
shar shkaiin qokchy yty cphal chky
[P2, 14]
dain sheam yteam

Folio 4, Recto

[P1, 1]
kodalchy chpady sheol ol sheey qotey — doiin chos ytoy
[P1, 2]
dchos chol shol cthol shtchy chaiin *r — chosaiin chom
[P1, 3]
otchol chol chy chaiin qotaiin — daiin shain
[P1, 4]
qotchol chy yty daiin okaiin cthy

[P2, 5]
pydaiin qotchy dy tydy
[P2, 6]
chos shytchy dy tcheey
[P2, 7]
qotaiin cthol daiin cthom
[P2, 8]
shos shol shol cthy cpholdy
[P2, 9]
daiin cthochy tchy kosaiin
[P2, 10]
odal shos shyshol cphaiin
[P2, 11]
qotchoiin sheys qoty
[P2, 12]
roiin chaiin chaiin
[P2, 13]
daiin cthey

Folio 4, Verso

[P1, 1]
pchooiin ksheo kchoy chopchy dolds — dlod
[P1, 2]
ol chey chy cthy shkchor sheo cheory — choldy
[P1, 3]
sho sho chaiin shaiin daiin qodaiin — o ar am
[P1, 4]
qokshy qocthy choteol daiin cthey — choaiin
[P1, 5]
shor sheey cto otoiin shey qotchoiin — chodain
[P1, 6]
ytchoy shokchy cphody

[P2, 7]
torchy sheeor chor shokchy cphydy
[P2, 8]
olaen chor cthol sho otor cthory
[P2, 9]
qooko iiincheom chcthy shoky daiin
[P2, 10]
otaiin sheo okeody chol chokeody
[P2, 11]
sho kcheor shody shtaiin qotol daiin
[P2, 12]
qokoy sho okeol s keey shar char ody
[P2, 13]
shody s cheor chokody shodaiin qoty
[P2, 14]
ochody chykey chtody

Folio 5, Recto

[P1, 1]
kshody fchoy chkoy oaiin oar olsy chody dkshy dy

[P1, 2]
ochey okey qokaiin sho ckhoy cthey chey oka*or otol

[P1, 3]
qoaiin otan chy daiin oteeen cho cthy otchy qotcho dy

[P1, 4]
otain sheody chan s cheor chocthy

[P2, 5]
tshy shody qoaiin cholols sho qotcheo daiin shodaiin

[P2, 6]
sho cheor chey qoeeey qoykeeey qoeor cthy shotshy dy

[P2, 7]
qotoeey keey cheo kchy shody

Folio 5, Verso

[P1, 1]
kocheor chor ytchey pshod chols chodaiin ytoiiin daiin
[P1, 2]
dchol sy chol otaiin dain cthor chots ychopordg
[P1, 3]
qotcho ytor daiin daiin otchor daiin qo darchor do
[P1, 4]
qotor shees otol ykoiin shol daiin cthor okchy taiin
[P1, 5]
shokeeol chor cheotol otchol daiin dal chol chotaiin
[P1, 6]
otol chol dairodg

Folio 6, Recto

[P1, 1]
foar y shol cholor cthol chor chckh — chopchol otcham

[P1, 2]
daiin chckhy chor chor kar cthy — cthor chotols

[P1, 3]
poeear kshor choky os cheoeees — ykeor ytaiin dar

[P1, 4]
dar cho s sheor chocthy otcham — yair chy

[P1, 5]
tar okoiin shees ytaly cthaiin — odam

[P1, 6]
or al daiin ckham okom cthaiin — ydaiin

[P1, 7]
daiin qodaiin cho s chol okaiin s

[P1, 8]
ychol ckhor pchar sheo ckhaiin

[P1, 9]
dar sheol skaiiodar otaiin chory

[P1, 10]
tchor ctheod chy shor odshe od

[P1, 11]
ychar olchad ol chokaiin

[P1, 12]
or shol cthom chor cthy

[P1, 13]
qocthol yodaiin cthy

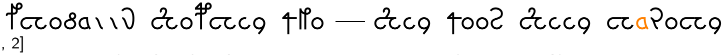
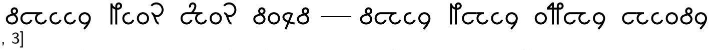
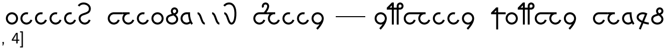
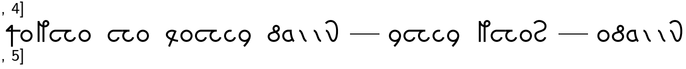
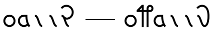
[P1, 14]
ysho taiin y kaiim

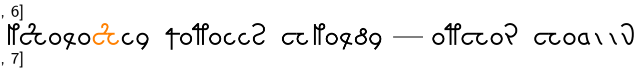
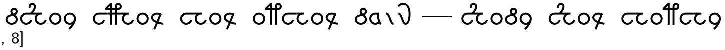
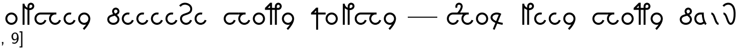
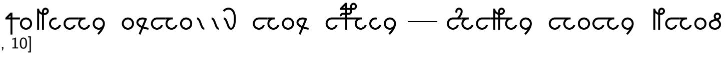
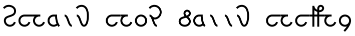
Folio 6, Verso

[P1, 1]
koar y sar cheekar qoar shor chapchy s chear char otchy
[P1, 2]
oees chor chckhy qoekchar cheas odaiiin kchey chor chaiin
[P1, 3]
qoair ckhy chol oochockhy chekchoy ckhy okol rychos
[P1, 4]
y shckhy ytchoy sos y⌒dady dchy dey okody — ytody
[P1, 5]
dair sha chodam dam okor oty doldom

[P2, 6]
tchody shocthol chocthey s
[P2, 7]
ychos ychol daiin cthol dol
[P2, 8]
ychor chor okchey qokom
[P2, 9]
oeeo dal chor cthom s
[P2, 10]
qokchod ychear kchdy
[P2, 11]
lor char otam cthom dy
[P2, 12]
ytchos shy qokam cthy
[P2, 13]
yodaiin cthy s chor oees or
[P2, 14]
qokor chol cthol tchalody
[P2, 15]
chockhy s os chy sain or
[P2, 16]
ochy cthar cthar cthy
[P2, 17]
y chaiir ckhal cthodam dy
[P2, 18]
ytcho⌒cthol ches cthor
[P2, 19]
ocholy kchos chy dor
[P2, 20]
dchor choldar okol daiin
[P2, 21]
ycheor chor octham

Folio 7, Recto

[P1, 1]

[P1, 2]

[P1, 3]

[P1, 4]

[P1, 5]


[P2, 6]

[P2, 7]

[P2, 8]

[P2, 9]

[P2, 10]


Folio 7, Verso

[P1, 1]
polyshy shey tchody qopchy otshol dy⌒daiin tshodody
[P1, 2]
chochy cthy daiin qoky chcphey daiin cthol cthy cthd
[P1, 3]
qokchy dykchy chkeey kshy ky ty dor cheey ol⌒cheol⌒dy
[P1, 4]
choteeen oeear choschy dain sho⌒kshy shol deees⌒dol
[P1, 5]
dchodaiin qotchy cheey tcheey

[P2, 6]
kchor sheod sheodaiin shodaiin oksho⌒lshol dair qos
[P2, 7]
oksho⌒deeen chor⌒cheor odaiin shotch* — dol dol dor aiin
[P2, 8]
qoteeeo rcho⌒cheeody qotcheey tey — okchor daiin
[P2, 9]
sho keeo daiir chokchy dor deol dy — dol daiin

Folio 8, Recto

[P1, 1]
pshol chor otshal chopy — cphol chody shy cphodar shor
[P1, 2]
tchty sh kcheals sho — okche do dchy dain al
[P1, 3]
chodar shy ry — chodaiin shokchy chor dy
[P1, 4]
qotor chor chor sheey — dchol shesed chofchy dam
[P1, 5]
okchey do r cheeey dy ky — scho chky ekooaiin cho taiin
[P1, 6]
tosh ekcheey koltoldy — shy choety cheeody sol
[P1, 7]
choto kchoan choor dain
[T1, 8]
dcho daiin

[P2, 9]
tchoep sho pcheey pchey — ofchey dsheey shol⁀daiin shor
[P2, 10]
daiin cheey teeodan dy — cheocthy oksheo dol dairg
[P2, 11]
shol cheodaiin daiin do — ytchody chot choty otariin
[P2, 12]
qochodaiin shotokody — chotol
[T2, 13]
okokchodg

[P3, 14]
ctho cthey shol chofydy — sho chey kshey lody cholal
[P3, 15]
dchey cthol chol chey kchs — chy etodaiin dol daiiirchy cthy
[P3, 16]
ychey kchokchy chsey kchy — scheaiin cthaichar cthy dar
[P3, 17]
chol dchy qokar chl — aiin chean eky char chaiin
[P3, 18]
okar cphaiin chaiin el — daiin chor cha rchealcham
[P3, 19]
sair cheain cphol dar — shol kaiin shol kaiin daikam
[P3, 20]
or chokesey shey okal — chal
[T3, 21]
schol sair

Folio 8, Verso

[P1, 1]
cthod soocth — sol shol okol chol opcheaiin opydaiin saiin
[P1, 2]
shecthal sar — chor sheaiin shor chykchy otaiin cty
[P1, 3]
fody cheal sy — chory — chear shol chaiin shaiin dolar
[P1, 4]
dshol shol dal chean cthar shealy daiin chary
[P1, 5]
chol chol dar — otchar ctaiin cthol dar
[P1, 6]
daiin cthan — ytchy chey kaiin dain ar
[P1, 7]
sho kchol — dar shey cthar chotain ry
[P1, 8]
okchol ksh — chol chol chol cthaiin dain
[P1, 9]
shol orchl — chokchy chol cthor chaiin
[P1, 10]
scharchy — oeesody kchey pchy cpharom
[P1, 11]
sorain

[P2, 12]
pchar cho rol dal — shear chchotaiin chal daiin
[P2, 13]
kchor otchar oky — chokain keoky otorchy satar
[P2, 14]
shor okol lokaiin — shol kol char cthey tchy ctham
[P2, 15]
or chol cheen chcky — chor chean char checky chor ry
[P2, 16]
chor chear chear — oteey dchor chodey cho raiin
[P2, 17]
dain chear daiin

Folio 9, Recto

[P1, 1]
tydlo choly cthor orchey s shy odaiin sary — shor cthy
[P1, 2]
oykeey chol ytaiin okchody toeoky okoiin dy — or chaiin
[P1, 3]
toiin cphy qotod otaiin cthy okor chey — cthod ram
[P1, 4]
yshy chokcho chcthod shor shaiin otar dor — ytol dayty
[P1, 5]
daiin chor sor cthy chokoiin shol dsholdy — otchol ot dy

[P2, 6]
pshoain cthyaiin okaiir cfhodoral shar — sy — shydal chdy
[P2, 7]
or chol chytchy tchol ytor qotol chyky — chodar aiin
[P2, 8]
qotcho qokchy cthey koraiin okain⁀d — dal — s — olsho cthy
[P2, 9]
ocho cthy choetoy chodykchy saiin dchy — daiin
[T1, 10]
ytchas oraiin chkor

Folio 9, Verso

[P1, 1]
fochor oporody opy shor daiin qopchypcho qofol shol cphol daiin
[P1, 2]
dchor qoaiin chkaiin cthor chol chor cphol dy — oty qokaiin dy
[P1, 3]
ykey chor ykaiin daiin cthey otaiin oky — oeees daiin
[P1, 4]
ytey tchy kaiin cthor otol oty toldy

[P2, 5]
pchor ypcheey qotor ypchy olcfholy te — ar — chty daiiin
[P2, 6]
odol choy ksheody chody — dain — otchy — cthod — yko
[P2, 7]
qochol chol cthchy daiin — otal — dor — daim
[P2, 8]
soiin daiin qokcho rokyd — daly
[P2, 9]
daiin chy tor chyty dary — ytoldy
[P2, 10]
oty kchol chol chy kyty
[P2, 11]
ychor chshoty oky kaiin
[P2, 12]
chkaiin cthey chor

Folio 10, Recto

[P1, 1]
pchocthy shor octhody chorchy pchodol chopchal ypch kom
[P1, 2]
dchey cthoor char chky os chair okykchol oky daiin ekyd
[P1, 3]
qotor otchy daiin chocthy qotchy chol or yty dy dy
[P1, 4]
sor chaiin chcthy ctho cthy or aiin chtchor doiir ody
[P1, 5]
qokchy qotchol chol cthy

[P2, 6]
ychsor cthy chor cthaiin qoctholy dy — chy taiin shy
[P2, 7]
dchy qokchol ykchaiin yty daiin cth — dain dair am
[P2, 8]
qotchor chor otol chol cholor — chol daiin dar
[P2, 9]
oykchor shor chor chy kaiiin dy — chodaiin
[P2, 10]
oqotor otor cfhy cthor osain — ykoiin
[P2, 11]
rotcho shor qoty qotor cthy d — otar
[P2, 12]
rodaiin daiin qotchy qotor

Folio 10, Verso

[P1, 1]
paiin daiin sheo pcheey qoty daiin cthor okydy sain
[P1, 2]
dain daiin ckhy chcthor choiin qot chodaiin cthy daiin
[P1, 3]
dsho ytey kchol olty chol dy

[P2, 4]
qotchytor shoiin daiin qotchey shctheey ytor dain
[P2, 5]
sho ykeey daiin qotchy qotor chol daiin qokchyky
[P2, 6]
shoiin chor shcthy qoty qotoiin qokol choraiin
[P2, 7]
qokol chyky chol cheky daiin dain chcthan

Folio 11, Recto

[P1, 1]
tshol schoal cphy shtydaiin cphy shey tchody shoyty
[P1, 2]
socphody qodor y kshy daiin ytchy ytchoky kchol daiin
[P1, 3]
qoty chol cphy dor ykychy choty dain chaiin daiin ded
[P1, 4]
dchol chy kchy dy daiin

[P2, 5]
tchol shor shor dky scphy daiin cphy dy chodl daiin
[P2, 6]
odl ds y otol chaiin ykchor dair chody cphy s daiin
[P2, 7]
qotchy okchol cphy dy

Folio 11, Verso

[P1, 1]
poldchody shcphy shordy qoty — shol cphar dan y

[P1, 2]
shol dy chckhy shcthy daiin dam — ykchy dain dchy

[P1, 3]
otchor dy kchy tchy dar qokchd — oky chol dy dy

[P1, 4]
qokchor chololer chyky dchy qoky — ctho tchey tan

[P1, 5]
soydy qoteey qot‿chor dy ddy — cthor shy arm

[P1, 6]
ycheor ksho dor cthey schold

Folio 12

Folio 12 is missing from the manuscript.

Folio 13, Recto

[P1, 1]
torshor opchy shol dy qopchy shol opchor dypchy dchg
[P1, 2]
dchol chol dol shkchy ydal shy ykchy qot‿ey daiin s y
[P1, 3]
s y dchor shaiin oeees ykor chor ytshy ykchy kchy dar
[P1, 4]
qodchy ytchy otchor

[P2, 5]
shorodo shy tshy kchol dpchy qopchy otchol cfhol dy
[P2, 6]
tchor dor daiin qotchol okchy okchor oiin chcthy d
[P2, 7]
dchy qoky chol dy qokey d oldy — okchor doaiin
[P2, 8]
shochy qokchy torchy keety — s okchey daiin
[P2, 9]
oldy shey chol doiin ykoly — okchal daldy
[P2, 10]
sotchy kchy okorory

Folio 13, Verso

[P1, 1]
koair chtoiin otchy kchod otol otchy octhos
[P1, 2]
oko qokol chodal otchol cphol choty
[P1, 3]
qokchy qokod chy otchy cthody
[P1, 4]
ols chey okos oaiin okshy qockhy
[P1, 5]
qoky daiin

[P2, 6]
poldaiin olcphy shol dy — oty shor qotyd — dairo d
[P2, 7]
dain okal chy qokchory — dchy koky daiin — shon
[P2, 8]
otchy daiin y dain ykol — okchy okald — d ytaiin
[P2, 9]
tchtod otal cthor ytal — y cho tol — sho qocthy
[P2, 10]
y ol chy kchey kchor dal

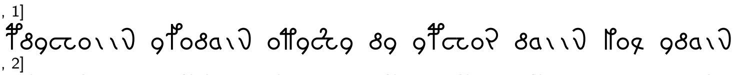
Folio 14, Recto

[P1, 1]
pchodaiin chopol shoiin daiin dain
[P1, 2]
o ykeey soiiin chok qokchy da okol
[P1, 3]
ydaiin olchy kchor daiin olol
[P1, 4]
ochkchor kol shy daiin dorody
[P1, 5]
qokchol dar dalo qotolo
[P1, 6]
ychol oir okor choor octhy
[P1, 7]
otcho dain chcthy

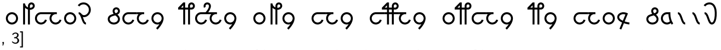
[P2, 8]
soshy fchol shor cheor ykaiin s
[P2, 9]
sody chody otchody qotchy koiin sy — shoty dy
[P2, 10]
qotchor chod shoty chody dol dy dy — okchy dy
[P2, 11]
dcholkchy schol dy shey dar qoty — ykeey ky
[P2, 12]
oeeen chey keor chey tchy ky — chodalg
[P2, 13]
sodaiin chy kchy kchy ykeody

Folio 14, Verso

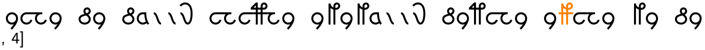
[P1, 1]



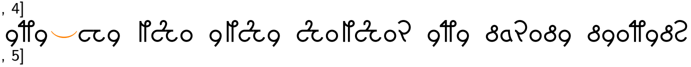
[P1, 2]



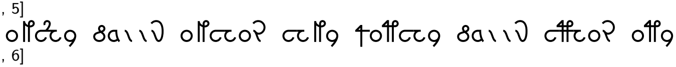
[P1, 3]



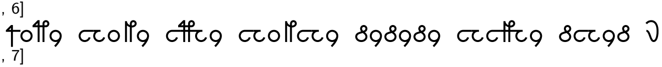
[P1, 4]



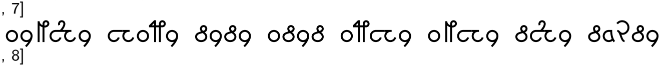
[P1, 5]



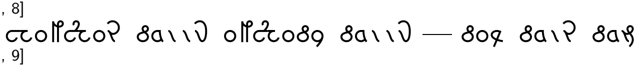
[P1, 6]



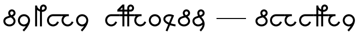
[P1, 7]



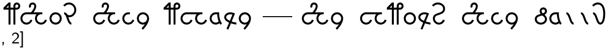
[P1, 8]

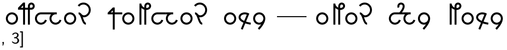


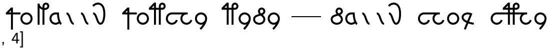
[P1, 9]

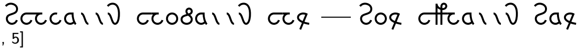


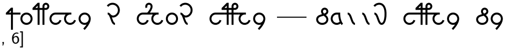
Folio 15, Recto

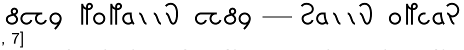
[P1, 1]


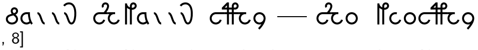
[P1, 2]


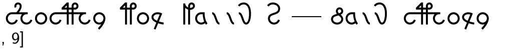
[P1, 3]


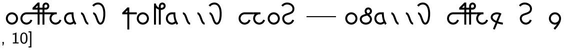
[P1, 4]


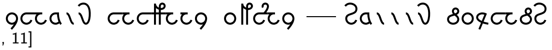
[P1, 5]


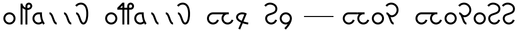
[P1, 6]


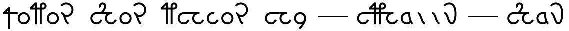
[P1, 7]


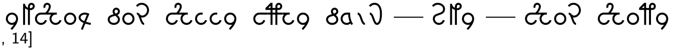
[P1, 8]


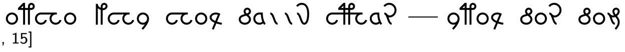
[P1, 9]


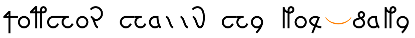
[P1, 10]


[P1, 11]


[P1, 12]


[P1, 13]


[P1, 14]


[P1, 15]


Folio 15, Verso

[P1, 1]
poror orshy choiin dtchan opchor dy
[P1, 2]
*chor or oro r aiin cthy tain dar
[P1, 3]
cthor daiin qokor okeor okaiin
[P1, 4]
doiin choky shol qoky qotchod
[P1, 5]
otchor chor chor ytchor cthy s
[P1, 6]
qotchey choty kaiin otchy r aiin
[P1, 7]
eoy choiin sho s chy s chy tor ols
[P1, 8]
ytchor chor ol oiin oty shol daiin
[P1, 9]
otcholocthol chol chol chody kan
[P1, 10]
sor chor cthoiin cthy qokaiin
[P1, 11]
soloiin cheor chol daiin cthy
[P1, 12]
daiin cthor chol chor

Folio 16, Recto

[P1, 1]
pocheody qopchey sykaiin opchy dor ychy daiin dy — chor orom
[P1, 2]
ychykchy otly kol shor ody otody qoy — oeesordy
[P1, 3]
ydor sheal okchy qoy koiin choky ykair
[T1, 4]
dainod ychealod

[P2, 5]
tchor chor chs ykch shocthy opchy ty ky
[P2, 6]
oshaiin dyky oeees deeeod aiin dtoaiin
[P2, 7]
daiin dalchy dyky schy saiin doal qoky
[P2, 8]
shotchy ydain yky shody otol daiin
[P2, 9]
saiin ytaiin

[P3, 10]
toror dalydal opchy fchol ypchocfhy okal
[P3, 11]
sokchy qokol choty‿okchy cthy chy kchy
[P3, 12]
dychokchy shcthy shtshy sho tchokyd
[P3, 13]
qokchor dl dy shey

Folio 16, Verso

[P1, 1]
pchraiin otchor chpchol chpchey s pchocty
[P1, 2]
ytchor y ky chokchy fokchocthor shory
[P1, 3]
ykchy dy choy foty chy kchy koshct
[P1, 4]
dchol chcthody cphod chotol dal
[P1, 5]
ytchy chyty chor chol ytchy dan
[P1, 6]
sor chkor oty chkor chol dairin

[P2, 7]
pchocthy chypchy fotchy chcfhey sy
[P2, 8]
daiin chol y daiin chcthy fotchar chor sholo
[P2, 9]
dshy okaiin okaiin chol chor cthor ty chody
[P2, 10]
fokchy chydy ykchy chcthy otain cthor cthy
[P2, 11]
okytaiin chkchy saiin
[P2, 12]
daiin yky otor chody
[P2, 13]
sokar oaorar

Folio 17, Recto

[P1, 1]
tshody daram ydarchom opydy ypod chop okchy dody oldckhy
[P1, 2]
ydair choky okshy qodar ckhody dor okchol qodcfhy ods
[P1, 3]
chol or chy qodam okor chor okchom

[P2, 4]
fchom shol qokol qor olaiin opydm — som ypchy ypaim
[P2, 5]
ychekchy cfhy chor shor cphor cphaldy — dair cfhey qody
[P2, 6]
fsho qotcho qokcheor chckhy

[P3, 7]
ksheo qokchy choldshy *epchy — dshe — opchordy
[P3, 8]
dchchy dychear schar ykchy
[P3, 9]
soy chcfho o dar chypcham
[P3, 10]
dar chear dsheor dain y mol
[P3, 11]
ofchol cfhar okaiin chol daiiin
[P3, 12]
ychody chofom

Folio 17, Verso

[P1, 1]
pchodol chor fchy opydaiin odaldy
[P1, 2]
ycheey keeor cthodal okol odaiin okal
[P1, 3]
oldaim odaiin okal oldaiin chockhol olol
[P1, 4]
kchor fchol cphol olcheol okeeey
[P1, 5]
ychol chol dolcheey tchol dar ckhy
[P1, 6]
oekor or okaiin or otaiin d
[P1, 7]
sor chkeey poiis cheor os s aiin
[P1, 8]
qokeey kchar ol dy choldaiin sy
[P1, 9]
ycheol shol kchol choltaiin ol
[P1, 10]
oytor okeor okar okol doiiram
[P1, 11]
qokcheo qokoiir ctheol chol
[P1, 12]
oy choy koaiin chckhey ol chor
[P1, 13]
ykeor chol chol cthol chkor sheol
[P1, 14]
olo r okeeol chodaiin okeol tchory
[P1, 15]
ychor cthy cheeky cheo otor oteol
[P1, 16]
okcheol chol okeol cthol otcheolom
[P1, 17]
qoain sar she dol qopchaiin cthor
[P1, 18]
otor cheeor ol chol dor chr or eees
[P1, 19]
dain chey qoaiin cthor chol chom
[P1, 20]
ykeey okeey cheor chol sho ydaiin
[P1, 21]
oal sheor sholor or shecthy cpheor daiin
[P1, 22]
qokeee dar chey keeor cheeol ctheey cthy
[P1, 23]
chkeey okeor shar okeom

Folio 18, Recto

[P1, 1]
pdrairdy darodcf yoar ykchol dar o m chckhy — ockhor dal
[P1, 2]
otshol qokchol chykchy okchal daiin dy — chol diiin
[P1, 3]
qokchor chor chckhy orchey qokchol dy — ytchar m
[P1, 4]
chor cthor okeor ykchol okain

[P2, 5]
tchor shor cthaiin cthol chlol chom
[P2, 6]
ychy kchor dair ytol chcthy dar dar dal
[P2, 7]
oshor shaiin cthy sholdy doldy — doldaiin
[P2, 8]
qokchor cthol olody okaldy — dary
[P2, 9]
chol chcthal okshal chykald
[P2, 10]
dar shor qokchol ol ydaiin
[P2, 11]
sotchaiin chokchy chcthol chor m
[P2, 12]
ychair cthol daiin qokchy cthy
[P2, 13]
or shaiin cthar cthal okal dar
[T1, 14]
ychekchy kchaiin

Folio 18, Verso

[P1, 1]
told shor ytshy otchdal dchal dchy ytdm

[P1, 2]
qoeees or oaiin shy* okshy qokchy qokchy s g

[P1, 3]
or shy qoky qoky chkchy qokshy qokam

[P1, 4]
qotchy qokay qokchy ykcho ydl dar

[P1, 5]
x ⌒ychoees ykchy qol kchy qotchol daiir om

[P1, 6]
qotor chor otchy qokeees chy s ar ykar

[P1, 7]
ychol dor chod qokol daiin qokol dar dy

[P1, 8]
tolol sh cthoy daror ddy ytor ykam

[P1, 9]
okchor qotchy qokchy ytol doky dy

[P1, 10]
yko dshy dair ykol dom

Folio 19, Recto

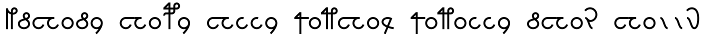
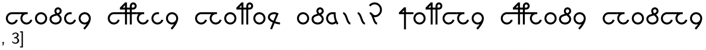
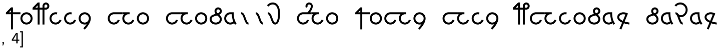
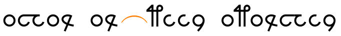
[P1, 1]
pchor qodchy qotshy dy tchy qotchy qoky daiin dchydy
[P1, 2]
dshy chor y tchy chol dytchy chordy daiin dyty s choy
[P1, 3]
oscheor shy tdaiin chol dor yky
[P1, 4]
qokorar daiin chckhy shy kchor
[P1, 5]
otchy tchy qoky daiin r
[P1, 6]
y shor shy daiin otytchy daiin
[P1, 7]
qokcho ky cfhar dor chan dar
[P1, 8]
or chor daky dal chor dorl shy
[P1, 9]
qotchor dy dor y tchykchy shdaiin
[P1, 10]
daiin cphor chol ykchor chordy
[P1, 11]
qotchy qolody choldy cphyd
[P1, 12]
ykchor chor daiin daiinol
[P1, 13]
osocphor ytchor

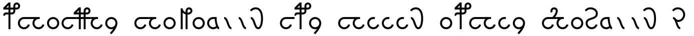
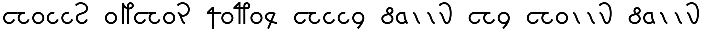
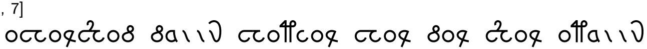
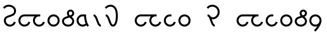
Folio 19, Verso

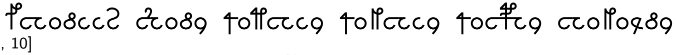
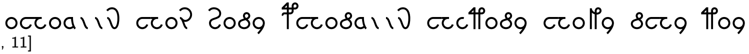
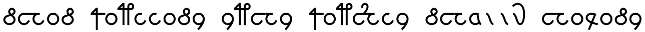
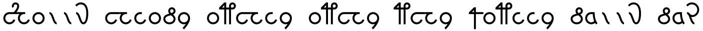
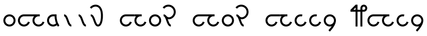
[P1, 1]
pochaiin cthor chpcheos opchey py kchy
[P1, 2]
qokchy kchol sor qokchor ykchy darom
[P1, 3]
otchy chol daiin qotol ytol daiiin
[P1, 4]
ytch chcthy qotol daiin daiin
[P1, 5]
qotchy qoteey daiin doty qot
[P1, 6]
ychoy kchor cthol chocthy s
[P1, 7]
ycho r chaiin cthor

[P2, 8]
toy tchey qo dchol qokchs dom
[P2, 9]
ychor oky chor ytol chol oky ddor
[P2, 10]
daiin chor daiin yokor y okchan
[P2, 11]
qotol dor okchor daiin cthor otam
[P2, 12]
otch okchodshy daiin or otaiin dair
[P2, 13]
yees ykchol oty ytor ytar ytchor ytaiin
[T1, 14]
otcholcheaiin cthol

Folio 20, Recto

[P1, 1]

[P1, 2]

[P1, 3]

[P1, 4]


[P2, 5]

[P2, 6]

[P2, 7]

[P2, 8]


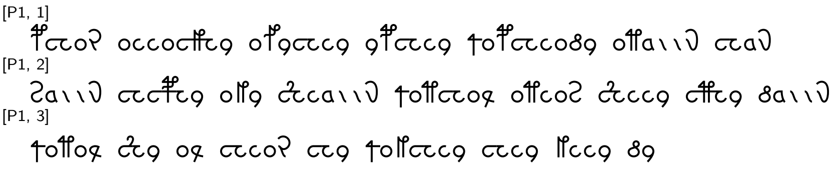
[P3, 9]

[P3, 10]

[P3, 11]

[P3, 12]

[P3, 13]


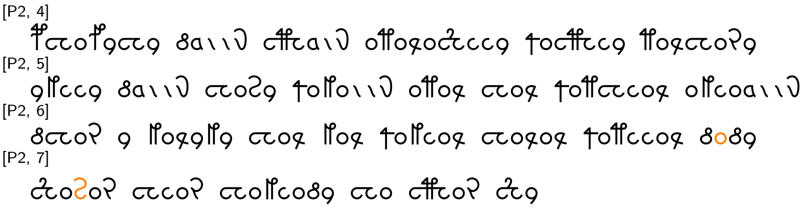
Folio 20, Verso

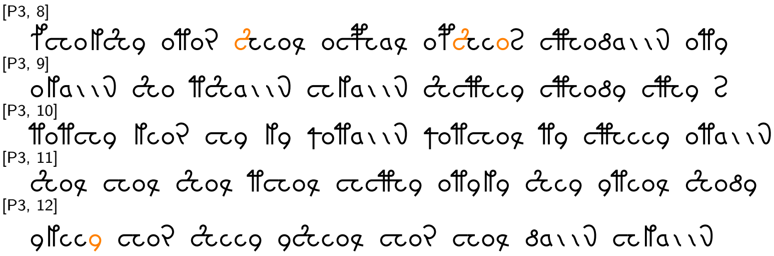
[P1, 1]
paiis ar okoy shy fopochey ofchy qofy choldy ofydy cfhy
[P1, 2]
sos ykoiiin cheol chol choiiin checthy okol chol chodaiin oty
[P1, 3]
okchy sho kchol shol chcthy qoty chy tol⁀shy qotchy
[P1, 4]
sho or aiin shol daiin

[P2, 5]
tshol polchol otor shol shos pshodchy okchy chcfhy dy
[P2, 6]
doiiin chockhy dar cheockhy shos cheos char cthaiin
[P2, 7]
shocthy sho cthy daiin sheoy tey s — soaiin
[P2, 8]
shain choraly sho ar chy daiin d s
[P2, 9]
ykchy keody cho cthy chol shd qoty d yro
[P2, 10]
shokaiin chocthy chol daiin chy chor cky
[P2, 11]
okoiiin chey cthol chor y

Folio 21, Recto


[P1, 1]
[P1, 2]
[P1, 3]

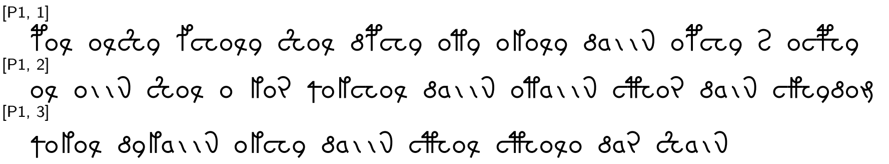

[P2, 4]
[P2, 5]
[P2, 6]
[P2, 7]

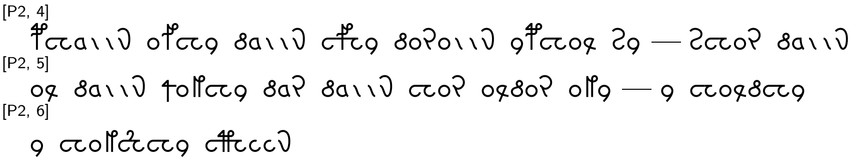

[P3, 8]
[P3, 9]
[P3, 10]
[P3, 11]
[P3, 12]

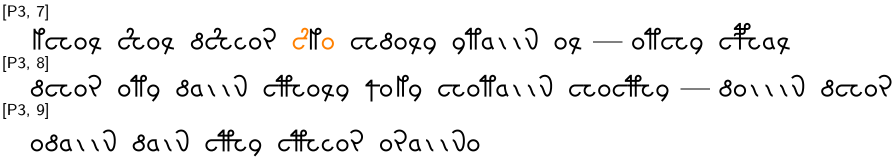
Folio 21, Verso

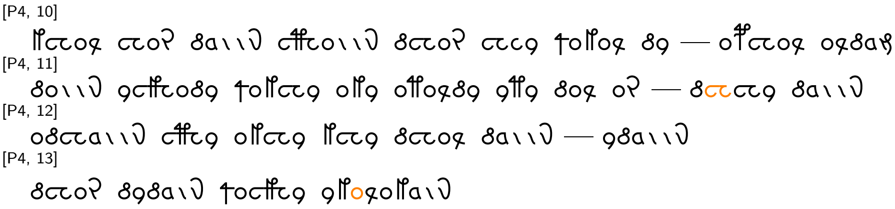
[P1, 1]
toldshy chofchy qofshey shcthol odaiin shey ctholy
[P1, 2]
oeeesoy qokchy chody qotchy qokchy choty tchol daiin
[P1, 3]
qotol keeeees chotchy tcho choty chor qotol daiin dal
[P1, 4]
sho chodaiin choty chol daiin daiin chty chtol
[P1, 5]
osho deey ctho l sho cthy daiin dait oky
[P1, 6]
sho tsho chotshol chol todaiin daiin
[P1, 7]
ykcho lchol cholchaiin otchy s sheaiin
[P1, 8]
cho l kchochaiin

Folio 22, Recto








[P4, 10]
[P4, 11]
[P4, 12]
[P4, 13]

Folio 22, Verso

[P1, 1]
pysaiinor ofchar oky tchy otdy — sor shy qod
[P1, 2]
daiin ykaiin qotchy kchy ytchyd — dshor ychy
[P1, 3]
qoky kchorl otchy cthy otchyky — ytchol otam
[P1, 4]
otchaiin shoty qoky — saiin — odaiin ytaiin
[P1, 5]
dor ykcheor daiin

[P2, 6]
fshor shy tchor otaiin
[P2, 7]
ychor chor qokchol chory
[P2, 8]
qotchy cthy qokol daiin dam
[P2, 9]
okshor shody chol tchol otaiin daiin
[P2, 10]
qokchy daiin s — or ytal
[P2, 11]
sokaiin oty dy
[P2, 12]
ychky daiin cthy
[P2, 13]
okchain chkoldy shotoly
[P2, 14]
qotchy olshly shol daiin
[P2, 15]
sho cthy chocthy qokchy dory
[T1, 16]
saiinchy daldalol

Folio 23, Recto

[P1, 1]
fydchdom chy tcholdy opy opchol shy ofyoiin y ytchy daiin ololdy dal
[P1, 2]
po ar chor daiin chkdain opchy lolchor daiin dam okchol daing
[P1, 3]
dchar ykor ykaiin daiin cpho g

[P2, 4]
qokoldy okaiir ykaiil g qokeey otchol dain ytchor oltchor opchald
[P2, 5]
ychor qokchol ypom chol dair chol ar ol ol dol dain

[P3, 6]
pshol ykor qokaiin yky dar okol dchey daiidal dam ykcho ldals
[P3, 7]
okar olchar shaiin qokchol dar qokchol dairo r ol daiin alg
[P3, 8]
qokshy char daiir qokaiin olol qoaiin ykchy s — diil okchy
[P3, 9]
okol ok shy qokol dy — dol dshe qokeees y oly — daiin dal
[P3, 10]
qok okaiin chkchy s — ypeair odal chal dy — dar ykain
[P3, 11]
ykyko dalory

Folio 23, Verso

[P1, 1]
podairol odaiiily shoaldy opchol otol ol chcphy qotchar s
[P1, 2]
qoteotor chy okchaldy qokchey dol — otchol chal otchg
[P1, 3]
ycho okaiin okeol eees oldaiin okeeor — daiin qotcholg
[P1, 4]
okchey dair sholol oldal — otchor dar
[P1, 5]
dor chear shor dol oaldary

[P2, 6]
tshol shor shkshy okol daiin — otshor olsar
[P2, 7]
otor oiin sho shol qokol daiin — sol daiin ylg
[P2, 8]
qokaiin dain qokor okal g dam — chor olol dam
[P2, 9]
otshy dal dar oldar ar or — qoto l chees g
[P2, 10]
dor chy kshol chol cthol — otol oloiir
[P2, 11]
y okaiin doroiin olols oiin — ol cheen ols
[P2, 12]
olaiior oloro eeeoly

Folio 24, Recto

[P1, 1]
porory chor opchar she cheol daiin or
[P1, 2]
qotaiin char odain okaickhal oky
[P1, 3]
y cthar cthal okol qotar cthy
[P1, 4]
or chcthaly cthar eeor chees da
[P1, 5]
qdar cho r chey cthy ctheekeom
[P1, 6]
oeeeos cthor otal qocthol qoky
[P1, 7]
q*kar chtar s cheeor cthol qodol
[P1, 8]
ychor s om qoear daiin qokeol
[P1, 9]
odaiin ctham qodaicthy dol dal
[P1, 10]
q*or cfhar chor s am chotaiin dy
[P1, 11]
sar cheoiees okeer cheeor qokain
[P1, 12]
qokchy qotchy tol tod cthy
[P1, 13]
oees ol s chey chcth sar
[P1, 14]
qor cheey qod char cthal
[P1, 15]
octhoees oeees ol dal s
[P1, 16]
sham okeal dal dam dal
[P1, 17]
ssheey otam sham cthom oky
[P1, 18]
y cheol chol daiin chol s
[P1, 19]
yol kol chol shom otacphy
[T1, 20]
samchorly

Folio 24, Verso

[P1, 1]
tchodar chocfhey opom shod chcphy opshody ocphoraiin okokom
[P1, 2]
ydals ckhor shy cho dchor otol otair otchos okchom okcho
[P1, 3]
octhol odcheees oesearees okam chcth
[P1, 4]
ydal sh okol okaiin odaiin dlos
[P1, 5]
oeor oroiin tchar oro

[P2, 6]
tochol chor cfarasr
[P2, 7]
ycheol daid dar olom
[P2, 8]
kochky chcthy shol sain
[P2, 9]
ychol chol or chorom
[P2, 10]
okoeor ckheod choy keol
[P2, 11]
ydaiin cheor qodom okodaiin
[P2, 12]
ksho foar ctho sho qokch ok‿okchal
[P2, 13]
oeeey cheol chol odor sho do otolodal
[P2, 14]
doiir cheeeodam sho sho dy
[P2, 15]
dchey kchod dchol ochdy
[P2, 16]
otchol odaiim

Folio 25, Recto

[P1, 1]
fcholdy soshy daiin cky shody daiin ocholdy ctholdy sy
[P1, 2]
otor chor chrky chotchy shair qod sho chy kchy chekain
[P1, 3]
qotchy qotshy cheesees sheear s chain daiin chain dein
[P1, 4]
dchcthy shocthy ytchey cthor s chan chaiin qotchain
[P1, 5]
qotcheaiin dchain cthain daiin daiin cthain qotaiin
[P1, 6]
okal chotaiin
[T1, 7]
dair otaiir otosy

Folio 25, Verso

[P1, 1]
poeeaiin qoky shy daiin qopcheey otcheey qofchor sos
[P1, 2]
dchor cthor chor daiin s okeeaiin daiin cthey daiin
[P1, 3]
orcho kchor chol daiin shcfhor daiin dshey daiity
[P1, 4]
qokoiin qokcho shol daiin ckhear ckhol daiin chkear
[P1, 5]
dar chokeey dshor dshey qochol dol cho daiin daiin
[P1, 6]
qokcho r ochy qotchy qokoral — cho* chain deeaiir s
[P1, 7]
oso chkey daiiol daiin shckhx — orchaiin

Folio 26, Recto

[P1, 1]
psheoky odaiir qoy — ofshod chypchey ypchedy ain — chofochcphdy
[P1, 2]
dchey daiin adeeody — ykecthey chedy ytedy dy — checthedy lr
[P1, 3]
oaiin shcthy cthedy oloy — ykeedy olchedy dal — y sheey saiin s
[P1, 4]
qokedy cheos ytedy qokedy — ytedy chekedy — daiin odam s aldy
[P1, 5]
*aiin shedy chdy chdy schy — daiin cthedy — qokeedy qokedy cthey
[P1, 6]
rchedy qokedy

[P2, 7]
pcho qokedy dar sheo ypchsedys s — aiin — shapchedyfchy dalchedy sar
[P2, 8]
daiin shedy qokeedy qoteedar s — ok — ol — ytedy qokchdy qokedy
[P2, 9]
tcheo⌒shy dchdy okedy chcthy s — dy — dy — ykeechy okeedy cheky
[P2, 10]
shese aiin sheos cheody — otal

Folio 26, Verso

[P1, 1] pchedar qodary d*iiin pcheety sair shedy ypcheedy ypchdy qopy shdy

[P1, 2] saraiir chekedy qokedy otedy sar y etedy qokedy or ashe alys chedy

[P1, 3] pchdar opar dar cheeol ofchdy otedy ckhdy odar chedy ytedy okchdy g

[P1, 4] yckheody qokedy deey saldy okedor or cheos orain okeo chekaiin

[P1, 5] deeol cheody qoteedy qokody qotedy qotedy opchedy ofchy chs ar

[P1, 6] toeedy keody shedy dar chedy sches or cheeky dar chey cheky ytchdy

[P1, 7] pchedy dar cheoet chy sair chees odaiiin chkeeey ykey sheey

[P1, 8] tchedy okeeos cheeos ysaiin okcheey keody saiin cheeos qokes ory

[P1, 9] yshey okeshy shodypshey todydy

Folio 27, Recto

[P1, 1]
ksor shey shoteo chforaiin shy — shod chary
[P1, 2]
dy eoain shol dain dar shokyd — dchol cthey ds
[P1, 3]
chol shy keol chol chy shol chy — daiin chey dam
[P1, 4]
qokey chor char chy dchy keey — chos cthody
[P1, 5]
dor chees ctho shy cphary — daiin dair
[P1, 6]
chy tchols chor chol chaiin — shy kchaldy

[P2, 7]
kchey chey kcheol pchy schey ly — chals cham
[P2, 8]
ytchy chy tchol dy tchey dain — chol dal
[P2, 9]
dchey keeod sho⁀tchey chol oty — chy tolg
[P2, 10]
qotchey shes s y chy tchey dy
[P2, 11]
chol daiiin chees chos cthy dan
[P2, 12]
dain cheokeey chey cthey otal
[T1, 13]
okchodeey

Folio 27, Verso

[P1, 1]
pochop chop cho sho soly shol ytchor opchory kchorchor

[P1, 2]
dchy chkar otchy shy shy dchy dshy kchy cheo da\dy dchy

[P1, 3]
kchey kchy dchokchy dsho dear chodchy etcheody shld

[P1, 4]
okcho chy kcheed chl chol kod — o oksho docheesd

[P1, 5]
foky shkeeo schodar shkol — chotchy cthodol

[P1, 6]
dsho kchrrr okeedy — dchschy — sotchdy

[P1, 7]
sho sho ykcho shdy — dchd — chschsy — otchdy

[P1, 8]
okshes okcho kshy

Folio 28, Recto

[P1, 1]
pchodar shod chocphy opchol daiin — otchol chyqo ldy
[P1, 2]
otchor otchor cthol cty ctheol dy — dchar chakod dly
[P1, 3]
qotchaiin shor cthol cthol shor — chotchy tchodar
[P1, 4]
choty chtol otol chotchy cthol — otol choky qoty
[P1, 5]
oksho otor chy kchosor chodaiin — sho cthody okoy
[P1, 6]
qokchol qodaiin otcholchy daiin — cho qokol okam
[P1, 7]
sho otor shockhy shocthy otoldy — dshor dol dar
[P1, 8]
oschotshl daiin okchey kol daiin — shol dsho otaiin
[P1, 9]
ytchol deey yteol deaiin

Folio 28, Verso

[P1, 1]
kshol qooiiin shor pshoiiin shepchy qoty dy shory
[P1, 2]
ykcholy qoty chy dy qokchol chor tchy qokchody cheor o
[P1, 3]
chor chol chy choiin

[P2, 4]
tshoiin cheor chor o chty qotol sheol shor daiin qoty
[P2, 5]
otol chol daiin chkaiin shoiin qotchey qotshey daiiin
[T1, 6]
daiin chkaiin

[P3, 7]
pchol oiir chol tsho daiin sho — teo — chy chtshy dair am
[P3, 8]
okain chan chain cthor dain — yk — chy — daiin cthol
[P3, 9]
sor chear chl s sholy dar

Folio 29, Recto

[P1, 1]
posaiin she aiin chep oty chy qotchy qoty checthy
[P1, 2]
dshe ykchy choty oky chol chchoty choky chy ty dy
[P1, 3]
qokchy qoty kchaiin shear cthor — dchor choly
[P1, 4]
chocthy qoos chos

[P2, 5]
kcheol cheor sheos sheey teey doe — shos oety
[P2, 6]
chokshy shocthy shor shor daiin — qokaiiin
[P2, 7]
qokchy chol shokchy qokaiin choeky — choty kaiin
[P2, 8]
shor chor sho sheky shy qoty kody — daiin cthy
[P2, 9]
qokshe qor chey kor cheod ychog

Folio 29, Verso

[P1, 1]
kooiin shor chetchy olals shytchy cth y shy — cho shy daiin
[P1, 2]
qotcheaiin schol chol cthy chey cthold — ytchor dary
[P1, 3]
chol chol kor shey odaiin qotchy taiin — d she otey sy
[P1, 4]
ysho otshy okaiin cthy oltchy ctos — shot sho okaiin

[P2, 5]
tochon chain shan shoty — chshy — shy
[P2, 6]
dchor chol chaiin shaiin cthod — dar — chs — shody
[P2, 7]
qotcho kchor daiin ykaiin dy — shdy — cho cthy sheky
[P2, 8]
otol sho,tchos cholody dain — chcth — chy cthody dol
[P2, 9]
sho chokor chor chy ydaiin cho — ykeen — oaiin

[P3, 10]
qokoiin okaiin cho — cth — chyd — chykar
[P3, 11]
daiin chteor octhy — dar — chyt — otody
[P3, 12]
qekeochor otchey d y

Folio 30, Recto

[P1, 1]
okchesy chey shorchey pcheody shey tchy cher d o shey
[P1, 2]
ychody chey chkeey ksho keeor cheor shey she keeodol sy
[P1, 3]
chodaiin chory chey doiin sa~~x~~in chorain cheey keem
[P1, 4]
qokechy qoko qotchar soin chan qotchaiin
[P1, 5]
choko qokochy deeey dkeeor cheoldain chory
[P1, 6]
dchorol sho chor cho ro raiin dor chseeor dy
[P1, 7]
qor chain cthorchy

[P2, 8]
otchol ol chesey scheo rchey okeal — dcheo rchey
[P2, 9]
dchey qochar chol keeaiin chcthey — chor cheky
[P2, 10]
chokchaiin dchor chkchean qotchy — chctho rchody
[P2, 11]
qotchor cheor chey cheor chey soeen — ydey — sor daiin
[P2, 12]
dcheey cthey cthey daiin chkeaiin dar — chor — ychdain
[P2, 13]
chodaiin chtchey chear shy keey

Folio 30, Verso

[P1, 1]
cthscthain shosaiin chocthey sho chcfhey shor sheaiin
[P1, 2]
qotchor chy she kchor chory keor ol chy daiin ctholdy
[P1, 3]
chotchol daiin cthol doiin daiin chokeor dal chtocthy
[P1, 4]
otcheey daiin chor checkhy qotchod daiin
[P1, 5]
dain shoty chkol ytor cheoldy
[P1, 6]
qokeeor chokol chokeody dairy
[P1, 7]
chokchy sho kcho tcho ctho sos
[P1, 8]
oyshy cheotol cfhoaiin cfhey
[P1, 9]
qotchor chor sheey cheol sos
[P1, 10]
sho sheoldy otcheor daiin
[P1, 11]
sol chokcheey daiin kchody

Folio 31, Recto

[P1, 1]
keedey qopchedy shees aiin qokeepey chefakeo
[P1, 2]
dcheey daiin okeedy qokees s aiin shekeey qep
[P1, 3]
qokeey chey daiin qokeey rair chekey saiin dey
[P1, 4]
qotar chy dar lo⁀r ar cheey keeol chedy qokey
[P1, 5]
daiin sheoody qokeor

[P2, 6]
tshokeody qokedy qotedy chefar chedy r aiin dal
[P2, 7]
ykeedar saiin checthey sheol qokedy ykeedy chedy ldy
[P2, 8]
shedy qokedy cheol cheod qokeody cheol checthy
[P2, 9]
dair sheeo shecthy okeol

[P3, 10]
tol shso okedy okedy qokedy qokeedy dar shedshey
[P3, 11]
olsheol qokchy dal chey deey kchy keey okaiiin ykeey
[P3, 12]
qoaiin yches okedy sheey chedaiin dar
[P3, 13]
olsheor qoekedy okedy ykedy dals
[P3, 14]
saiis or chedy daiin okeedy
[P3, 15]
yshedair sheol⁀cheky okedam
[T1, 16]
oteor aiicthy

Folio 31, Verso

[P1, 1]
podair sheedy otedy oteedy qotolcheo s arar oteey dkarar als
[P1, 2]
ytchos ockhey okeeos cheody okeey keeody daiin cheody keedy
[P1, 3]
ykeeo daiin shedol okedy okey keody okchey sair okchs o lkedy
[P1, 4]
dair cthedy qokedy okeody chedar oked al octhedy okeedy otad
[P1, 5]
ykeos cheeoy ar aiin

[P2, 6]
pcheeody qop chedal checfhy chefchol or cheef alaiin opal sheo otar
[P2, 7]
olkeedam ches chol keeol checkhy okeol okal oky cheokar okor ary
[P2, 8]
yk aiin chee⌒ksheey ychek⌒eeor cheor or checthy okcheoked lchey okam
[P2, 9]
ytecheol sheoeky okeos aiin acthedy chkaiin chetchey ctheey okear
[P2, 10]
dar choar al kar oeeeos cheos aiin o ckhey okeo kor okeol ain
[P2, 11]
saiin ar ckheos chedy okeey qoear oraiin cheom

Folio 32, Recto

[P1, 1]
fchoiin shykeody daiiody dain — sho kchy oty qopy
[P1, 2]
okor okchor sheor ckhy dal — dshodar qokchol
[P1, 3]
qokchor chor cthol chol dol — dcheodain daiin
[P1, 4]
schor dshor ytsho dain — daiin choddal
[P1, 5]
qokchy qokchy daiin

[P2, 6]
fcho tchey chedy
[P2, 7]
otol dol ol dair
[P2, 8]
qoar daiin dam
[P2, 9]
dytchor dary
[P2, 10]
dchor ctho daiin
[P2, 11]
shos chckhol n
[P2, 12]
shodaiin ctol
[P2, 13]
otcho⁀r⁀ol dain daiin cthy
[P2, 14]
schey qot shey daiin cthes
[P2, 15]
qokchy qotol doiir ol
[P2, 16]
otchol chey soty
[P2, 17]
chokeol dchoty
[P2, 18]
doiin sho shy
[P2, 19]
dol dchol dan

Folio 32, Verso

[P1, 1]
kcheodaiin chol kechy qotaiin daiioam — o cheofcheody
[P1, 2]
daiin odar chy daiin chey tcho ldy — dain teor
[P1, 3]
shor daiin chckhy dsho dain daiin s — shokey ka
[P1, 4]
or chr chor dor chaiin qotcho r chy — dcho daiin
[P1, 5]
chokchy daiin shy chor qo kaiin dain — dchol dorm
[P1, 6]
okchan chol⁀shal dchcthy

[P2, 7]
ksho cphor she sheaiin otshchor daii — shcthy s odan
[P2, 8]
otchol daiin daiin ctho daiin qotaiin — otchy d shar
[P2, 9]
qotchy cfhy skey chocthy daiin cthaiin — daiin
[P2, 10]
sho keol chor chol daiin cphol cthol da — ar
[P2, 11]
ol sho chy

Folio 33, Recto

[P1, 1]
tshdar shdor shepchdy cphody yfoldy qofockhdy otchedy lfchdy daiin
[P1, 1]
ytchedy qokar cheky okaldy qokaldy otor oldor qotar otar otardam
[P1, 1]
loiin y cheky qokedy shedy chdal chechdaiin qokchy ody chekeedy ykam
[P1, 1]
taiin chekey or alaiiin saiin okaiin dar cheedy chkeey far aiin s
[P1, 1]
pair or aiin otaiin ol kor aiin okal otal chdal shekal qokar otam
[P1, 1]
yteey shody kchedydy chekar okaiin okaiin daiin okal
[P1, 1]
dar chos aiin or aiin cheekaiin okain ar okeeey

Folio 33, Verso

[P1, 1]
tar ar daiin — ydain cthey dols — sheky ar aiin es
[P1, 2]
kchdy dam dy — oky — okal dain chdy — ytam otam cham
[P1, 3]
dar chcthy dy — dyky — cthdy oky dam — okardy komdy
[P1, 4]
tokar shdy dal — fokar shd — otody chedy — ykedy dodl dain
[P1, 5]
tchdy chody okaiin — chcthy dor arl — cthy dy ty dy — ykar cheky dy
[P1, 6]
ycheo dor olaiin okar chdy chdy oldy — okar chdy

[P2, 7]
tshdy shepchdy shcthdy oltedy daiin oky — cheol orain — chdyshdy porar
[P2, 8]
darar sheey keedy okchy okar okedy chy — daiin dy dy — dar aiin okary
[P2, 9]
sar or aiin chor or shkair shol or chcthy — ar aiin — okain dal dy
[P2, 10]
lchoar or chey lodaiin oor okeedy okaly
[P2, 11]
tar al keey oram

Folio 34, Recto

[P1, 1]
pcheocphey olar yl — yfody okedody shod ololdy dar ytey
[P1, 2]
ytar sheody olam — octhedy otedy chdain oltey kchy ty
[P1, 3]
qotedy chyty chdaly — dar chd otedy qotol okedy dody ody kam
[P1, 4]
ytedy daiin chey aiin — shy chckhy ¶

[P2, 5]
qoteedy sheedy sheedy ol — okes ar — oltchedy otedy dam checthy
[P2, 6]
otedl chckhy chcthy oll — chesy — ykeedl chedy otey okaiin
[P2, 7]
qokedy dal chdy — olchy — ykchxg — daiin cheky fas air amg
[P2, 8]
shotchy qoky — olk — checkhy — ykedy qokchdy s ar oldam
[P2, 9]
ykchdy qod — ar — chet — ackhy — ysair air chodar tam
[T1, 10]
orlchey todaly okaiin dardy

[P3, 11]
tcheo olchckhy oly — otchdy chefalas
[P3, 12]
qokeey sh kaldaiin — cheky cthdaly otchedy chty saiin
[P3, 13]
char aiin okor ar tol — qokar chckhy chdal ked qokar ar daiin dam
[P3, 14]
ykeo lor ochey oly — okaly kechdy qokchdy chor ar aiiin daly
[P3, 15]
or ar y kar ol al oky — chody qokal chedy chcthedy cheky daram
[P3, 16]
sair chekar cheky shek — cholchedy qokedy yk cheolchcthy

Folio 34, Verso

[P1, 1]
kschdy chdy chcfhy shdy pofchdy shdydy chdalchdy yfchdy chcthdy sfaiin
[P1, 2]
tol pokchy dychedy okchy chckhdy chdaiin ckhy qoees ykar aiin oldam
[P1, 3]
ytal shor chdal olchdy char or ol kedaiiin chcthy okchdy chckhy daram
[P1, 4]
tchdaiin chekal shedy pokedar chdaiin oldar poldar chedy daiin otam
[P1, 5]
qshaiir orair shedy chechey dykey kair chedy pokar chekaly cholky

[P2, 6]
fchedar shear pokchdy pokees cheol yfchdaiin chedy lr ar chedain
[P2, 7]
olchdaiin chedy chey keedy chy kedy dy pokedy okey sair chkain otain
[P2, 8]
ysheos otar or choraiin cheky olchdaiin or oldar chdar okam
[P2, 9]
qsheody cthy pokeey keedy kchdy chedy pokedy chdy kal shs oldaiin
[P2, 10]
daiin chdy tedy kchdy okeedy chckhy chdy kain cheor or okedy okam
[P2, 11]
yshos ody s aiin okoy okal shedy

Folio 35, Recto

[P1, 1]
cthoo r choly cthy choty char dy
[P1, 2]
qokeeaiin chokaiin qotchy daiin
[P1, 3]
dchaiin cthey qotchey taiin cthory
[P1, 4]
qotchy shetchy ckhol cheey daiin dainl
[P1, 5]
otchor sho tcheey scheey daiin dainor
[P1, 6]
schaiin char chan daiin
[P1, 7]
shosaiin tchor choky
[P1, 8]
qokeey ky kaiin daiin

[P2, 9]
paiin chear aiin chear shor⌒chaiin ~~x~~ ~~x~~
[P2, 10]
o aiin chaiin ckhy r chl s chochy daiin
[P2, 11]
shcheaiin chol cthaiin lchaiin lchal dal — dair aldy n
[P2, 12]
olor chy chaiin chy taiin kchey koldy — chetchaiin
[P2, 13]
qokoiin chaiin qokchaiin lshy lodaly — oteey taiin
[P2, 14]
cthol chol aiin qotchy otchor daiin — shol qotaiin
[P2, 15]
ochor s chiin daiin ytain

Folio 35, Verso

[P1, 1]
par chor chocthy roaiin ar
[P1, 2]
qotchy otcheey kchor yty
[P1, 3]
dchor choty chyty daiin
[P1, 4]
ytchy qotchy dchy cthy
[P1, 5]
dchokchy chocthy chcthor
[P1, 6]
shol tcheey chkcheeen chcthaiin
[P1, 7]
tchotchor shol sho eo kol daiin
[P1, 8]
oaiin tchor cho chotchy dchol d
[P1, 9]
qokchaiin cho ksho l choiin
[P1, 10]
okcheey chosar shory
[P1, 11]
qotcheeaiin chodaiin
[P1, 12]
dchaiin daiin daiin dal s
[P1, 13]
ol char od ar chear
[P1, 14]
tcheain shy tar dain
[P1, 15]
ykol cheol okchy tch
[P1, 16]
ydaiin okeey daiin
[P1, 17]
daiin dain chkaly choly
[P1, 18]
daiin qokeeen chokeeo r
[P1, 19]
schokey ykeol chol daiin
[P1, 20]
sodaiin shy dchy cthy dan
[P1, 21]
doiin chor chor

Folio 36, Recto

[P1, 1]
pchafdan qorain chcfhal soiin cthor shaiin cphy dair
[P1, 2]
oral shor ytaiin qotaiin qooldy chty chol dy tor
[P1, 3]
qotchy tchy daiin daiin dolsain

[P2, 4]
podaiir cphy qoypchol sog — shy chy dchy fchog dar
[P2, 5]
daiin qor chol ctholy s — o — r — chy sy — chytaroiin
[P2, 6]
okaiin cthor ykaiiin s — dain an — dan
[P2, 7]
qotol cthol okol dy okchy — ytorory — sold
[P2, 8]
ytchor cthol chaiin yd
[P2, 9]
ytodaly daiin otaro

Folio 36, Verso

[P1, 1]
pcharasy qoporom shoaiin kchey chckhey okaiin cthar daiin
[P1, 2]
qokar chol daiin okaiin qokor ykar ochor chckhy ckhor dom
[P1, 3]
dchykchy ykor s — okaiin qopchor okar okchaiin s
[P1, 4]
qokchor yky ty dy — daiin ckhor

[P2, 5]
kchor ckhoiin daiin cthchar
[P2, 6]
daiin cthor daiin dal dys
[P2, 7]
qoky keol okchor os cho shan
[P2, 8]
ykshy ytchy dol ytody yky
[P2, 9]
okaiin ykcholqod chory
[P2, 10]
ykchotchy daiin daild
[P2, 11]
oty chcthy ytoryd
[P2, 12]
ytol kchy oty chd
[P2, 13]
oky she cthol oty
[P2, 14]
soiin chtain

Folio 37, Recto

[P1, 1]
tocphol shaiin qotor ofchor oty chory daiin otod or
[P1, 2]
ykoiin cthor okaiin qotchy ytody qokaiin sho ytaiin
[P1, 3]
qoshy qokaiin cthol dy cthor oky dy

[P2, 4]
pchotchy daiin cphol dar chol daiin — yd
[P2, 5]
yky qokchy qotchor chkol otoly
[P2, 6]
shor shol qokchy qotogody — dchol daiin
[P2, 7]
sor chey kor qokor daiin

[P3, 8]
koiin chorody qokaiin shory otal — shor sheor dar
[P3, 9]
ykchody qotchy ykaiin chy qotor⁀dy — otcho lol daiin
[P3, 10]
qoto okchochor dchor chy shy daiin — ychey kol dair
[P3, 11]
okchor daiin cthy dain daiin

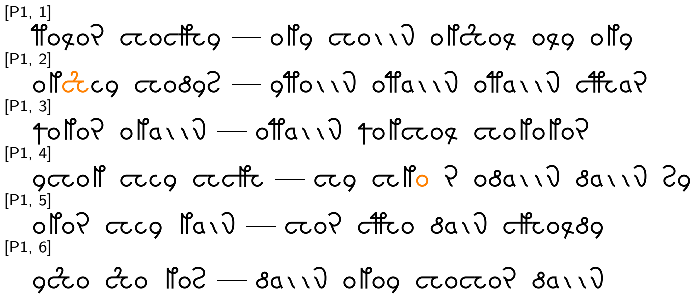
Folio 37, Verso

[P1, 1]
kshody qocthy qotoldy chopdaiin sol
[P1, 2]
dor chol cthor orcho chor daiin
[P1, 3]
qokchon shy chon daiin dy
[P1, 4]
dshor dytory dshor daiin
[P1, 5]
dchor qotol ykchon dain
[P1, 6]
yokor ytchor saiin oty
[P1, 7]
qotchor daiin

[P2, 8]
qotor choiin chcthhy daiin
[P2, 9]
dor chor sho daiiiin daiin
[P2, 10]
soiin shey okoiin chey tog
[P2, 11]
qotoiin choror cthol daiin
[P2, 12]
chor sholy sheaiin dotody
[P2, 13]
sotoiiin

[P3, 14]
todain cphaiin cphorods
[P3, 15]
soiiin cheoky daiin dain
[P3, 16]
qotor daiin chotaiin
[P3, 17]
sokchor qokoiiin ykeeols
[P3, 18]
oyteey daiin daiin ody
[P3, 19]
daiin qkoiin qotal daiin
[P3, 20]
ychockahy ykol daiin s
[P3, 21]
oshctho do daiin cthols
[P3, 22]
qotol ytoiin chocthhy
[P3, 23]
yto chol daiin

Folio 38, Recto


[P1, 1]
[P1, 2]
[P1, 3]
[P1, 4]
[P1, 5]
[P1, 6]

Folio 38, Verso

[P1, 1]
okchop chol shotol otol okeey s — chor d aiin d
[P1, 2]
choiin shey keo sho oiin s chol ldy — okeaiin okog
[P1, 3]
qokeey keor daiin okey keey daiin — dair daiin s
[P1, 4]
okeey d‿aiin qokeey chotoy tody — oky aiiin d
[P1, 5]
qoty daiin chol oteeol dody — cheod chody
[P1, 6]
sho keeey key tey daiin daiiin — dain dain
[P1, 7]
daiin qol chy dain * or daiin — dain daldy
[P1, 8]
o aiin char chshol cholkaiin

Folio 39, Recto

[P1, 1]
tedo chshd ctheofy chdain shey fshy dy orain cheepaiin ofy shey koly dy
[P1, 2]
olchey cheky qokedy shekshey qolain chckshy chdy dair shckhey dold
[P1, 3]
qokalchdy chekaiin checkhy dar shed qokeedar chedy dar or cheey dy ckhey
[P1, 4]
toeedy chdy olaiin chedy shckhdchy chol or ordy chees aly okalchem
[P1, 5]
dchdy chdy ykaiin

[P2, 6]
pchdaiin she dam qofchedy shedy kchdy dydy opchekaiin shockhxey shdalo ry
[P2, 7]
dchdar chedy cholal qokedar chdy chckhdy dar ar al ydy chesaiin
[P2, 8]
lchedy shedy qokaiin chkeey fchedy okam chcfhey saiin chckhy dairom
[P2, 9]
tchedy shol odal qokaiin shdaiin

[P3, 10]
pchdar shedy ar aiir okair ykeols shedy qockhdy laiin syky
[P3, 11]
dshdy ar aiin y yker chdy ykal olkaiin qokaldar cheol dar aiin
[P3, 12]
tolchdaiin chckhy saiin olor chls aiin oky ches aiin dal
[P3, 13]
ytor chdar shey qokaiin chor kar sheolkedy otedy tedy saiin
[P3, 14]
daiin shckhy chekl ol daiin chedy ykeey daiin otal chdam qokam
[P3, 15]
qolkain olcheol daiin dar ol dld or ador aiin ofcheefar
[T1, 16]
okeol cholkal qokal dar ykdy

Folio 39, Verso

[P1, 1]
pdair chdy fdykain or air sheykaiiin ofchy kar or aiin dol ky oshdy
[P1, 2]
sor shy kor chol qoty kchdy olky dor chdy ykar olkedaiin ody dy
[P1, 3]
daiin chor okain okaiifchody saiin or aiin qokaiin ytodaiin okom
[P1, 4]
y okeey chody cheor aiin okody chodal ykedy qokedy dal or aiin shky
[P1, 5]
ytedykor or sheky kain otar or aiin okaiin ckhol ol kor otor opchy
[P1, 6]
lkedy okchey shor‿qoy⁀kam cho ckhcfhey or aly shody

[P2, 7]
pardy shedy qokar sheedy oraly — olaiir okar ar
[P2, 8]
ockar aiin olkaiin olky dar ald — shek chek qokchy dar ain
[P2, 9]
tar aiin dal ar ain cheor ydam — shody okal shdy kshy or
[P2, 10]
dar ar ykar or yky chdy fchor — qokain ar sheedy olchef
[P2, 11]
sarol chedy shekam qokar chl — ykeedy chckhy dalor dy
[P2, 12]
paiin alaiin otal chd okar am — okar cheodal ockhy
[P2, 13]
dain ockhedy otedy — okedy lchdy okaiin daiiiny
[P2, 14]
tar aiin okaiin cholody

Folio 40, Recto

[P1, 1]
pchey keodar aldydy — qoky okal shdy olkedy opches ar ordaiin
[P1, 2]
qokar okar okedy dar — ykchey kaiin okos chedy okar aralos
[P1, 3]
shy qokal chdy chckhd — otor ais oky okolchy qokar okam
[P1, 4]
or aiin chekody das — qokol okaiin okar oky okoldy ol
[P1, 5]
lokar qokar okar — okol ol chedy qokchd ar ar or dam
[P1, 6]
tor or ar shokor om — olshedy qokam chdy kar oraiin
[P1, 7]
yaiin chekaiin oky — ycheey

[P2, 8]
ksheo kchey dar aim — kcheo cfhdy orain chefal daiin dm
[P2, 9]
taiin ol olaiin or — dain okaiin okaiin okaiin daram
[P2, 10]
saiin olcheey chdy — ychey karar oky ykedy okair ody
[P2, 11]
toar ykaiin ory dal

Folio 40, Verso

[P1, 1]
pchedain chefaiin oldy
[P1, 2]
todar qokaiin ol aram
[P1, 3]
s air ain okaiin okam
[P1, 4]
taraiin okaiin chck*y
[P1, 5]
solaiin okar oly chckhy
[P1, 6]
qoeed aiin ol chedy daiin
[P1, 7]
shody qokol chedy s ar
[P1, 8]
chodaiin chkal ykedy okal
[P1, 9]
tchy pchody pchdy kar ol
[P1, 10]
tchkaiin tchedy qokaiin oraiin
[P1, 11]
schedy qokol chedy dalor acthy
[P1, 12]
ycheekeey daiin okaiin

[P2, 13]
toees chedy kedy olpchedy qokedy — daiin chefain
[P2, 14]
saiin o lchey kchedy okar qokchdy dy — qokees am chdy
[P2, 15]
qokchey qody or aiiin okaiin o ckhy — sheod faidy
[P2, 16]
shol kedy lor ar okar qoky kedy r — yteey qoka*m
[P2, 17]
tochey qokeedy qokaiin okeor qokar — okees ar oky
[P2, 18]
saiin otain chckhy okal okair arol — qokey okary
[T1, 19]
pchedy chetar ofair arody

Folio 41, Recto

[P1, 1]
pshey kedaleey oked shekechy — opshes ypchd qotchexdy shkalkeedy
[P1, 2]
ykeeo alshey okedy keshdy dy — dor yechoky qokeed chpy qokedy dy
[P1, 3]
qok ray yokedy ychdy,kchdy — qokedy qokedy shekchy cheky daly
[P1, 4]
chdchy ytcheeky ypchedy schdy — ytedy cthhy cheees oteey otal dam
[P1, 5]
qotchy sal yteedy kchdy — dchedy kchdy dchedy dalain

[P2, 6]
shedey polchedy qokeey chekedy ytey — chkchod ypchedpy shepy shedy
[P2, 7]
parchdy kchey yteedy qokeody — ykedy chkedy qokedy chedy qokedy
[P2, 8]
dair chedy chcthy qokey lchdy — qokedy qokal chekedy qodor am
[P2, 9]
qokeedy okedy chekedy chedy — chctheody chekal daiin cheo al okedy
[P2, 10]
s,shok shedy qokchdy dchdaldy — ykedy qokeedy qokedy qoked
[P2, 11]
ykeod ykeedy chekeedy cheked

Folio 41, Verso

[T1, 1]
keesodar
[P1, 2]
fcheody qopcheefy opchdy cfhekchdy — yfchedy chefchepy shdchdy qotar dal
[P1, 3]
dshedy tchey s⌒aiin shkey okedy okary — daiin okedy ykeeody choy teoy dar
[P1, 4]
qokeody okey qokeody oreeor rkedy — rkeeody qokeedy okeey qokor sheors
[P1, 5]
ycheos orchey daiin ol chor⌒or⌒aiin — oteedy qoteor oteodal olain
[P1, 6]
todaiin or cheos yteedy okar ord — oteor qokar ol oteody
[P1, 7]
ykeey okey ykeeor cthdy chdar — ykeo⌒aiin okeody ory
[P1, 8]
daiin orkeeo rkor⌒chedy okeey

Folio 42, Recto

[P1, 1]
sho ofaiin ckhachcthy otcheey pchear
[P1, 2]
sol,kaiin char cheky otshaiin dairy
[P1, 3]
toshy chtshar chotar chain dal
[P1, 4]
shor chetar chotais dar cthaiin
[P1, 5]
qokar chocthy chotor chy kary
[T1, 6]
dorain char

[P2, 7]
pcho chy kshaiin shotaiin cham shan
[P2, 8]
yshol chees cthol shor shol cty chary
[P2, 9]
qotchor otchol ctho kchodan chkchory
[P2, 10]
choty dol ksheo cthor otol cthol chol — shol dain
[P2, 11]
qotor cho chody daiin shol ctheey dar — chy daiidy
[P2, 12]
dcheey chol shol chokaiin choeky dckhy — dain dal
[P2, 13]
qopor shol shot shol shol daiin dain s — cheam
[P2, 14]
sho kshey choty chdain chodaiin daiin — dam
[T2, 15]
pchody otshey dodaiin

[P3, 16]
pydaiin sheor shaiin tsh olchy sholy
[P3, 17]
shotol shol chety daiin chokchy chkaiin
[P3, 18]
qody cthochy otaiin shy kshes chor ain
[P3, 19]
otchoty daiin chot sho cth*y cthy,s os
[P3, 20]
shol chol shoky okol sho chol shol chal
[P3, 21]
shol chol chol shol ctoiin shos odan
[P3, 22]
kchaiin chos cthaiin choro* chaiin
[T3, 23]
okchol,shol kolschees

Folio 42, Verso

[P1, 1]
tcho ctho sheey qocho taiin shols — chol chor dain
[P1, 2]
dshey tchey y kchey chtchy cthy dan — dain otol daiin
[P1, 3]
sho chotody chotol oky chol chol — dl chcthy otoy
[P1, 4]
qotchy chkchy sar dy — odaiil — ykchy okol⁀dg
[P1, 5]
chokeeor chey chetan — s ary — okol chetaiin
[P1, 6]
okeokear cheotchar — sy — saiin cthar dam
[P1, 7]
chok sheokey keeey d — chekeesshy
[P1, 8]
sodal saiin

[P2, 9]
posheor sho char chekcheey qokod — sho cpheo rchy
[P2, 10]
schor okchey chy shol olor cheaiin — ctchy tcheen d
[P2, 11]
qo aiin qokeey kchol cheal oteol⁀d — shey teaiin d
[P2, 12]
chotcheey chol ol chaiin oteeaiin — chkchy taiin y
[P2, 13]
sho chey teor shey checthey daiin — chokeey daiin
[P2, 14]
qoteey chy kchy cthy ctsees choly — sarar ar⁀al
[P2, 15]
chokey chol okey
[T1, 16]
okor odeey

Folio 43, Recto

[P1, 1]
tarodaiin ytedy chody ofchtar chcphedy ypar shol folor aiin cphey dar
[P1, 2]
yteody oteol ytedy ar chety dar aiir okaldy daral otchdy daiin dalr
[P1, 3]
yty yty oty she ody shy olor ytchdy kaiin chky qotydy dar aiin ykam
[P1, 4]
dasar ytey tedy kar or ar shekalchdy cholky qotaly chedy oty otam
[P1, 5]
ykor ch*dy shekody qotody qotar okedy dar chockhy dam otain ytam
[P1, 6]
kchedy chedy daly cheody cheolkeepchy

[P2, 7]
pshesy otey kshedy opchdy kedar okedy chdy shocphey dytydy pchdy kedy dam
[P2, 8]
ytchedy chedy cheody shy qoiiin sheeky chedy dain shy ykolor otaiin old
[P2, 9]
dshedy qotedy dor cheey odain

[P3, 10]
pshdar shed ody qotedy ypchdy qockhedy opchdy daiin qokedy dydydy qotar
[P3, 11]
ytchedy ty shol toldy shody otchdy shdy otolol shd olky ytol otary cheky dy
[P3, 12]
dor shol qokol shedy qotedy qokeedy qokody okchdy otedy shedy oty yty dy saiin
[P3, 13]
tshed qosheckhey odeedy qeokchy qotedy daiin shodody shochol chckhy ykedy dy
[P3, 14]
ykeody checkhy chokchy odain chckhey chokor aiin

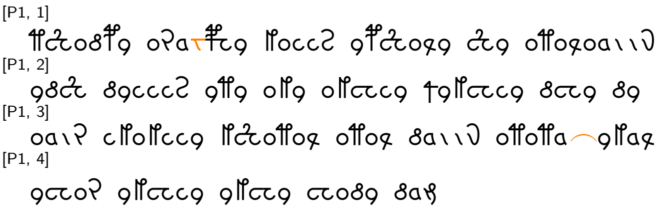
Folio 43, Verso

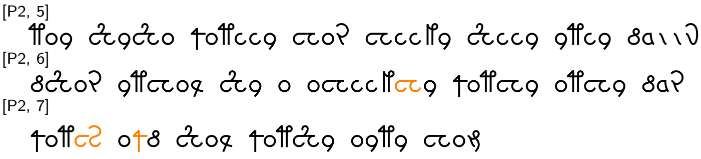
[P1, 1]
pdsairy dalteoshy da⁀ly sheet or arodl lkeo r‿araiin otedy‿o⁀poldy
[P1, 2]
shedy octhy otedy chedy dar ches𝑥khy okeody oky okaldy kchedy okar
[P1, 3]
tody te𝑥dy qot chocthy chky oky chdy okedy ykaiin chey ody dary
[P1, 4]
dshey ykeedy chees aiin shey qocthedy chey qokar checkhy okam
[P1, 5]
qokchedy or⁀alody otedol chcthdy chtey

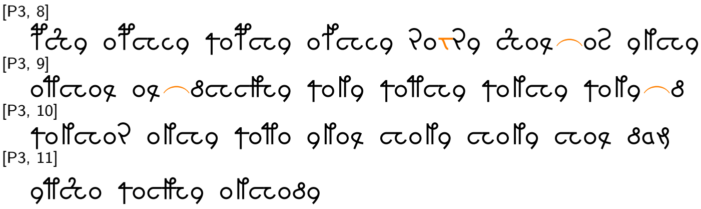
[P2, 6]
tolkchdy okedy qokedol shedy okedal shedy pchdol otey dalorain
[P2, 7]
ytshedy ykeody oykeedy chedy tedy chcthy otam ot ytaiin otas
[P2, 8]
shetcheodchs ochedy oteody chedy chody daiin sheody ykar chep
[P2, 9]
ytchdy olos aiin ockhy

[P3, 10]
tar⁀chor ar aldar chdy daldar chepy yteedy sypchey pchedy ypor
[P3, 11]
y sheey or⁀air yteey cheody ar sheo qody chcthy chdy choty shecthy
[P3, 12]
y shee kedy dar⁀chey qotedy ekaiin chedy cthey oteol or aiin odain
[P3, 13]
dshedy tedy cthedy chekcheey dy keody otedy cheetam okedar amam
[P3, 14]
dykeedain chedy okeedy chedal olkey cheky choal chedy oteorom
[P3, 15]
oteod qolkeey⁀kaldy chy darody qokeey kol⁀dary⁀taros
[P3, 16]
ol eees aiin oloaiin oteos qoky chey

Folio 44, Recto


[P1, 1]
[P1, 2]
[P1, 3]
[P1, 4]




[P3, 8]
[P3, 9]
[P3, 10]
[P3, 11]

Folio 44, Verso

[P1, 1]
tsho qotshy cthol dchor otol shol tol qotshol otoldy
[P1, 2]
yolkol cheol qokchain daly otchol daiin shol qotor⁀ar
[P1, 3]
tol okchos shcthy otol daiin cthy cthy

[P2, 4]
yokalod shaiin shor shorody shky sho ytchy opchod opy
[P2, 5]
oain shol cthy cphaiin ykchor otchy qoty otcheor cthain
[P2, 6]
tol dair ytaiin dol y kchain otykeey otchol ytaiin dy
[P2, 7]
oko tchaiin cthol dy cheol ololy

[P3, 8]
tsheody cthaiin odaiin shol shey cphy — ytoda — ol
[P3, 9]
dshor cthees lol keees cthy chcthy lo
[P3, 10]
lsho qokchy tshy cphaiin cthal kal
[P3, 11]
okol chol chol choky okaiin cthy otal
[P3, 12]
ychey teol choiin chcthy ctho cthol
[P3, 13]
lchor shor dairl

Folio 45, Recto

[P1, 1]
pykydal shacthy oty shey qop char opchal ypchar opchar
[P1, 2]
shor cthy qoky qokol qokaiin chol chol ykaiin dar om
[P1, 3]
qo chcthy kchol daiin qoaiin cthy chaiin ykeey cthom
[P1, 4]
lor‿y kaiin ykeol ykeol cham

[P2, 5]
kolsho pchor kchey ty opchaldy otshy qokchy doldaiin
[P2, 6]
otchar okchar daiin ytchody tcholol otar dal dary
[P2, 7]
lchar qor y kar dar

[P3, 8]
tchol cthy qodaiin cthy dain cthey otydal daiin g
[P3, 9]
dor or chain dain ykoldy ytaiin qotchol kol dy
[P3, 10]
okaiin shar yky oky kair daldy dalor cheol dal
[P3, 11]
l okaiin okcho laldan daldaiin

Folio 45, Verso

[P1, 1]
korary chko kol chey fsholom shor ykchy dod opchaiin olald
[P1, 2]
okol chor daiin cthy okchol chom okolor dy — okchol s
[P1, 3]
qokchy l or cheol qotol qotol chy ky ctho d — ykar yd
[P1, 4]
okchy qocthy dai!n dai!l dair shy

[P2, 5]
qotol choiin okchar dar oty! — shoto dol py — oty!tam
[P2, 6]
ss aiin cphor qokey tod — ytchdy dy — dy chem
[P2, 7]
tchtcho kchol dshy oty ol — ytchom

[P3, 8]
ykcheor odal sho dy pchom — otor oaiir
[P3, 9]
ychor cthy chol qokom sy — sa ykchom
[P3, 10]
dshor otshy oky tsholol — ytchor d
[P3, 11]
or chor ytchy doiin dcholdy

3 Analysis

3.1 Glyph Frequencies

Based on a transliteration by Takahashi (see Section 1), a first basic analysis of frequencies can be performed, by simply counting each Latin letter of the transliteration. This results in Table 1, listing all letters that are used.

Letter	Glyph	Count	
		Takahashi	Takahashi/Bauer
o	o	25,468	
e	e	20,070	
h	h	17,856	
y	y	17,655	
a	a	14,281	
c	c	13,314	
d	d	12,973	
i	i	11,660	
l	l	10,518	
k	k	9,996	
r	r	7,456	
n	n	6,141	
t	t	5,968	
q	q	5,423	
S	S	4,501	
s	s	2,886	
p	p	1,406	
m	m	1,116	
T	T	976	
K	K	938	
f	f	425	
P	P	224	
g	g	96	
F	F	80	
I	I	72	
x	x	35	
v	v	9	
z	z	2	

Table 1: Letter frequencies in Takahashi's transliteration.

Determining what counts as *one* glyph, though, is in some cases an interpretative act. It seems straightforward to assume that c and h are one glyph (i.e., ch). Likewise, S and h could be interpreted as another glyph (i.e., Sh). Additionally, one *might* interpret instances of cth, ckh, cph, or cfh as representing ch (or Sh), on the one hand, and t, k, p, or f, on the other. Concerning those "gallows" characters, as they have come to be called, it is not clear whether t and k or p and f are variations of the same glyphs, only diverging in one small loop (as Tiltman 1967 seems to have interpreted them). In the following, the four gallows will be treated as distinct glyphs, as has become customary. Accordingly, Table 2 gives frequencies for several c combinations, taking into account four forms of "pedestalled gallows". The table also includes three instances that bear some resemblance to Latin abbreviations (also see D'Imperio 1978, p. 95).

Furthermore, while there are instances of a single i, it is not clear whether instances like ii and iii or combinations with n like in or iin represent separate glyphs. Table 3

Letter(s)	Glyph	Count	
		Takahashi	Takahashi/Bauer
`ch`	ch	11,008	
`Sh`	Sh	4,501	
`cTh`	cTh	950	
`cKh`	cKh	906	
`cPh`	cPh	216	
`cFh`	cFh	74	
`c`	c	143	
`co`	co	9	
`cy`	cy	7	

Table 2: Glyph frequencies in Takahashi's transliteration for several c combinations.

gives frequencies for several of those i combinations. Assuming there are three glyphs i, in, and iin, it is of course difficult to determine when there actually is a in or a iin.

Letter(s)	Glyph	Count	
		Takahashi	Takahashi/Bauer
`i`	i	590	
`ii`	ii	195	
`iii`	iii	10	
`n`	n	148	
`in`	in	1,752	
`iin`	iin	4,076	
`iiin`	iiin	154	
`iiiin`	iiiin	2	

Table 3: Glyph frequencies in Takahashi's transliteration for several i combinations.

This being said, I tentatively stipulate a set of 22 glyphs. Table 4 gives frequencies for those glyphs. They are counted according to the following rules:

- The glyphs a, d, e, g, j, l, m, o, q, r, s, v, x, and y are simply counted as before. Hence, frequencies are identical with Table 1.
- The glyph Sh is counted every time S and h appear consecutively.
- The glyph ch is counted every time c and h appear consecutively, as well as in cases where there is T, K, P, or F between them.
- The glyph t is counted every time t or T appears.
- The glyph k is counted every time k, K, or ʞ appears.
- The glyph p is counted every time p or P appears.
- The glyph f is counted every time f or F appears.
- The glyph in is counted every time i and n appear consecutively without there being a preceding second i.
- The glyph iin is counted every time i, i, and n appear consecutively.
- The glyph i is counted every time it is not part of in or iin as well as in instances of j.

Letter(s)	Glyph	Count (Percent)		
		Takahashi		Takahashi/Bauer
o	o	25,468	(15.636)	
e	e	20,070	(12.322)	
y	y	17,655	(10.839)	
a	a	14,281	(8.768)	
ch	ch	13,154	(8.076)	
d	d	12,973	(7.965)	
k	k	10,934	(6.713)	
l	l	10,518	(6.458)	
r	r	7,456	(4.578)	
t	t	6,944	(4.263)	
q	q	5,423	(3.329)	
Sh	Sh	4,501	(2.763)	
iin	iin	4,232	(2.598)	
s	s	2,886	(1.772)	
in	in	1,752	(1.076)	
p	p	1,630	(1.001)	
i	i	1,240	(0.761)	
m	m	1,116	(0.685)	
f	f	505	(0.310)	
g	g	96	(0.059)	
x	x	35	(0.021)	
v	v	9	(<0.001)	
		162,878		

Table 4: Glyph frequencies in Takahashi's transliteration

3.2 Entropy

Next, let's take a look at the manuscript's entropy. To this end, I utilize the conceptualization of information entropy by Shannon (1948), basically measuring the variability of glyphs in the manuscript. Entropy H can be defined as shown in (1), where p_z denotes the probability of z, with z being an element of the alphabet Z.

$$H = -\sum_{z \in Z} p_z \log_2 p_z \tag{1}$$

To calculate the entropy, I suppose the above stipulated glyphs to form alphabet Z (see Table 4). Accordingly, changes to the corpus are made so that each stipulated glyph has a single corresponding character in the transliteration. Changes are made according to the following rules:

- The glyph Sh is represented by `Sh` in EVA. For calculating the entropy, every time `S` and `h` appear consecutively, they are replaced by `1`
- The glyph ch is represented by `ch` in EVA. Every time `c` and `h` appear consecutively, they are replaced by `2`. Following the above stated rules for glyph counting, ch is also believed to be present when c and h are separated by T, K, P, or F, represented by `T`, `K`, `P`, or `F` in EVA. In those cases, it is believed that t, k, p, or f are also present. They are represented by `t`,`k`, `p`, or `f` in EVA. Hence, they are replaced by `2t`, `2k`, `2p`, or `2f`.
- The glyph z, represented by `z` in EVA, is counted as k, represented by `k` in EVA. Hence, every `z` is replaced by `k`.

- The glyph is represented by `iin` in EVA. Every time `i`, `i`, and `n` appear consecutively, they are replaced by `3`.

- The glyph is represented by `in` in EVA. Every time `i` and `n` appear consecutively, they are replaced by `4`.

- Lastly, the glyph , represented by `I` in EVA, is counted as , represented by `i` in EVA. Hence, every `I` is replaced by `i`.

Calculating the entropy for this converted corpus results in $H = 3.866$. As comparisons, Table 5 also offers the entropy values for the unconverted transliteration as well as for a randomly generated text consisting of 22 different characters and being 234,956 characters long (just as the converted transliteration).

Corpus	H
Takahashi	4.021
Takahashi (converted)	3.866
Takahashi/Bauer	
Takahashi/Bauer (converted)	
Random text	4.459

Table 5: Entropy (H) for different transliterations.

References

Beinecke Rare Book and Manuscript Library. 2004. “Cipher manuscript (Voynich manuscript).” Accessed February 14, 2023. https://collections.library.yale.edu/catalog/2002046/.

Bettencourt, Rebecca. 2019. “Voynich unicode.” Accessed January 30, 2023. https://www.kreativekorp.com/software/fonts/voynich/.

Clemens, Raymond, ed. 2016. *The Voynich manuscript.* New Haven and London: Yale University Press.

D’Imperio, Mary. 1978. *The Voynich manuscript. An elegant enigma.* Maryland: National Security Agency/Central Security Service.

Schwerdtfeger, Elias. 2004. “Voynich information browser.” Accessed January 30, 2023. http://voynich.freie-literatur.de/.

Shannon, Claude Elwood. 1948. “A mathematical theory of communication.” *Bell System Technical Journal* 27 (3): 379–423.

Stolfi, Jorge. 1998. “Reeds/Landini’s interlinear file in EVA, version 1.6e6.” Accessed February 12, 2023. https://www.ic.unicamp.br/~stolfi/voynich/98-12-28-interln16e6/.

Takahashi, Takeshi. 1999. “Voynich manuscript-transcription.” Accessed January 30, 2023. http://www.voynich.com/pages/index.htm.

Tiltman, John. 1967. “The Voynich manuscript. The most mysterious manuscript in the world.” *NSA Technical Journal* 12:41–85.

Zandbergen, René. 2023. “Text analysis. Transliteration of the text.” Accessed February 2, 2023. http://www.voynich.nu/transcr.html.