



Proposal to Encode Mayan Hieroglyphs

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MILESTONE 4 (for COMPARISON)

FURTHER ENHANCEMENTS OF PROJECT'S "GLYPHARY": SINGLE RECORD VIEW

Layout: **Via_NcodeX_SIMPLE** View As: Preview

4 unique Incomplete

Id 71 id_SIGNS

fk_Concordance

Name variant v1

NcodeX_Class1 F. Mammals (whole/parts) F

NcodeX_Class2 W2. Calendric, day & month names, W

NcodeX_Designation1 F

NcodeX_Designation2 W

O:K YO:K TZ'I

TRANSLATION

Iconic_value DOG

Sign_nickname "dog" / "ok day name"

NcodeX_STATUS value known

comments_CPG
11257 OK = T0765 / MV_2009 AP5
798 ch'o = T0765b 7 MV APB

ID_PhotoCatalog 11257

MATCH_ID_Count 35

MANUAL_RANK_Global

MANUAL_RANK_Class1

MANUAL_RANK_Class2

☐ Problematic

☒ Recoded

RECODED_from 785

RECODED_to 798

Refs

CLASSIFIED F

RELATED_TO
787 v2 TZIKIN? (Calendric)
11257 OK
785 ch'o(ko), gr.non-var.
798 ch'o, gr. non-var.

☐ Animated features

☐ Crosshatching

☐ Kawak (stony) markings

☐ Resplendent (jewel) markings

☐ Ak'b'al (darkness) markings

☐ Fleshy (mutilation) markings

☐ TE' (wood) markings

☐ HA' (water) markings

☐ K'A:K' (fire) scrolls

☐ NAL (maize) foliation

☐ Swirls / Scrolls / Volutes

☐ Skeletal / Bony / Defleshed features

☐ Underworld markings / putrefaction

☐ Other...

calc_Thompson_1972
☐ UNICODS
☐ calc_EVR_1961_ID
☒ calc_Thompson_1972_ID
☐ calc_Zimmermann_1956_ID
☐ calc_Macri_Vail_2009_ID
☐ calc_Macri_Looper_2003_ID

Thompson 1963
1431 11257
T0765ab
OK

Macri & Vail 2009
4603 11257
AP5
OK

Macri & Looper 2003
6183 11257
AP5
OK

Eyreinov et al. 1962
3009 11257
E323_02
OK

Zimmermann 1956
7761 11257
Z0707
OK

Tokoviline 2017
87 71
F 11257
31 07
AT_31:07
O:K YO:K TZ'I
Name AT: OOK / TZ'I

UNICODE Code_point
UNICODE_Code_point_Auto

VARIANTS

v1 OK/YOK

184 71
785_OK_44p1

185 71

186 71
785_OK_44p3

9776 71
11257 11257
DRE_24a_B2
OK

4170 71
11257 11257
DRE_32b_D2
OK

12112 71
11257 11257
DRE_42c_A3
OK

13401 71
11257 11257
DRE_43c_A2
OK

12185 71
11257 11257
DRE_44a_C3
OK

12202 71
11257 11257
DRE_45a_A2
OK

12814 71
11257 11257
DRE_53b_A2
OK

12839 71
11257 11257
DRE_54a_E2
OK

13160 71
11257 11257
DRE_58b_B1
OK

20770 71
11257 11257
DRE_58b_D5
OK

5769 71
11257 11257
DRE_58c_A6
OK

7778 71
11257 11257
DRE_60a_C1
OK

7767 71
11257 11257
DRE_60b_D1
OK

PRELIMINARY TAXONOMY (NEW):

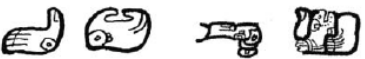
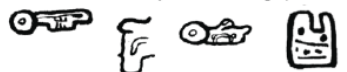
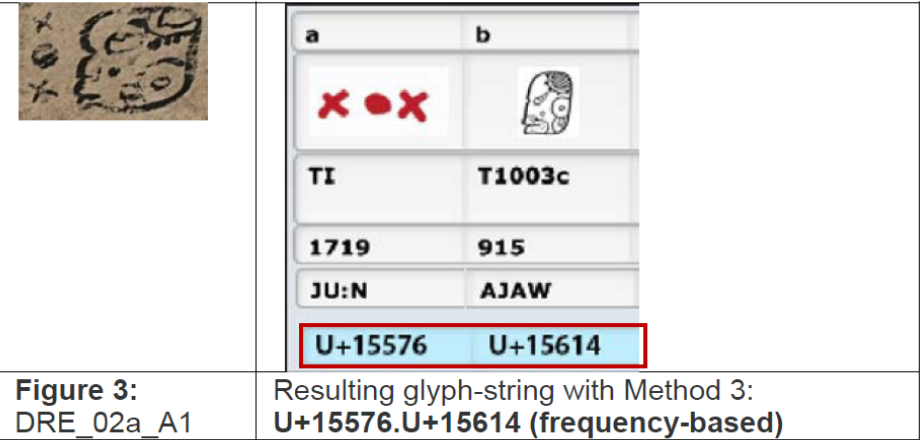
A1. Human bodily figures (complete, semi-complete) A2. Body parts (human / animal) 	K. Sky, Earth, Moon, Mountains, Water, Rain/Wind, Night, Day (Elements, Attributes, Natural forces, Cardinal directions, Colors and Natural landscape) 	TT. Broad Signs, OPEN, (horizontal, non-rotable) 
B. Anthropomorphic head-variants, parts of B-signs 	L. Architecture (cultural landscape) 	TTT. Broad Signs, iINERT/iNANIMATE
C. Supernatural (Anthropozoomorphic) and skeletal head-variants, portions of C-class signs 	M. Large Objects (man-made) and Furniture 	U. Symmetrical / repeating segment signs (abstract) 
D. Skulls / Flayed / Underworldly entities 	N1. Small objects / instruments/ tools / weapons 	V. Asymmetrical / elongated non-repeating segment signs 
E. Hand Signs 	N2 (O). Attire, dress, ornaments 	W1. Calendric, bar-and-dots / zero variants, number head-variants 
F. Mammals (whole/parts) 	P. Food, Drink and Offerings 	X (W2). Calendric, day & month names, period-names, non bar-and-dots / non-zero 
G. Birds / Bats / feathers (whole / parts) 	Q. Round/Oval/Squarish full-size , inanimated/aabstract cartouches 	Y. Functional/Grammatical(Affixes/Suffixes/Pronouns/Enclitic, etc. 
H. Amphibious / Reptiles / turtles 	R. Halved/Closed Round/Oval/Squarish, mostly symmetrical 	Z. Unclassified / Problematic, Undetermined signs
I. Fish / Mollusks / Shells / Insects / Invertebrates and other animals 	S. Halved/elongated-open / narrow signs, mostly symmetrical (rotable) 	
J.-Trees / Plants / Foliation / flowers / seeds / grains /fruits / substance/ edibles (non-animal origin) 	T. Broad Signs-Closed/Animated vars, low or high, mostly assymetrical (horizontal,non- rotable) 	

Table 3. Preliminary taxonomy employed on the Project's new Glyphary, specific for codical signs.

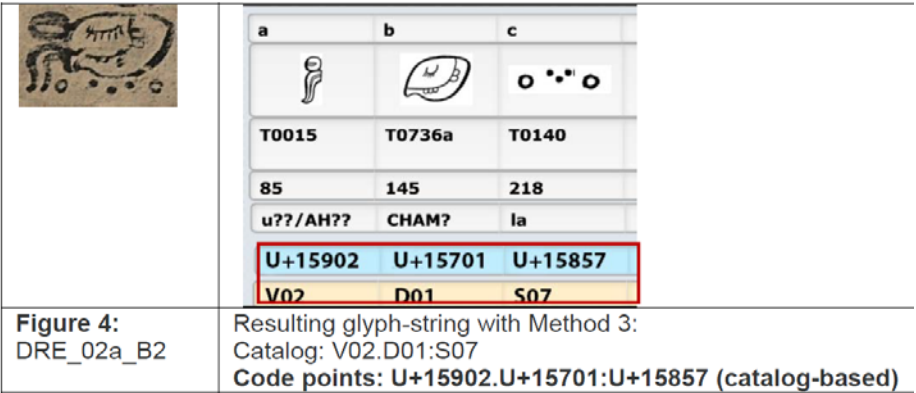
A1.3 Method 3 (Frequency-based Code Points): Based on the capture and analyses of glyphs occurring through all three Mayan codices performed for the Project during Milestones 1-3, a comprehensive listing of all signs attested in the Codices was produced (thereby defining the codical Mayan sign-repertoire). As a next step, SQL machine-based queries were performed within the database to be able to order these codical signs into a frequency-based ranking, with the most frequent signs above on the list (i.e. the sign 55 /u/ which repeats 557 times) and the less-frequent on the bottom (i.e. the sign 12345 /KUTZ/ which happens only once).



A1.4 Method 4 (Code Points based on new Mayan Catalog created for the project).

Implementation of Method 4 was largely modeled after Gardiner’s list for Egyptian hieroglyphs. Based on thorough communications with Deborah Anderson, a number of criteria were outlined that would facilitate the encoding process for Mayan hieroglyphs. For instance, it was specified that the current

To improve the methodological basis for the final taxonomy, on the next stage, the alphabet letters assigned to each category will be reanalyzed based on their frequency of occurrence. Thus, since current category S is by far the most numerous and frequent (in term of attested examples), letter S will be replaced by A. With letter R being the second most numerous will be assigned letter B and so on.



Sign font	Primary category	Secondary category	Combined Designation:	Code point assigned:
	S01	y01	S01y01	U+15500
	S. Halved/elongated-open / narrow signs, mostly symmetrical (rotatable)	Y.Functional/Grammatical (Affixes/ Suffixes/ Pronouns/Enclitics, etc		

LIST OF CHARACTERS, updated:
320+ signs attested in Mayan codices.

A. ID Unique	B. variant	C. GRAPHEME (font suggestion)	D. RANKING (frequency in Corpus)	E. CONTEXT (example glyph blocks)	F. NcodeX GLYPHARY DESIGNATION (composite)	G. CODE POINTS (Unicode standard)	H. NcodeX (prop.) DESIGNATION	I. PRIMARY CLASS	J. Secondary class	K. PHONETIC VALUES OF SIGN: LOGOGRAMS vs. syllables	L. ENGLISH TRANSLATIONS OF LOGOGRAMS (primary, secondary and tertiary meanings)
ID_Pho...	variant	NcodeX_Pict...	MATCH_ID...	::Picture	NcodeX_man	UNICODE_C...	MANUAL_Pr...	MANUAL_Pr...	MANUAL_Se...	NcodeX_Phonetic_value1	TRANSLATION
55			583		S01y01	U+15500	S01y01	S01	y01	u	
604			470		R01	U+15520	R01	R01		LE:M? KAYWA K?	
205			428		V01y06	U+15540	V01y06	V01	y06	wa	
12275			367							K'UH	god
174			362		R01y02	U+15520	R03y02	R03	y02	ki	
10			356		S02y03	U+15501	S02y03	S02	y03	ka	
1133	v1		352		R02y04	U+15521	R02y04	R02	y04	li LE:M?	resplendent
260			319		K01y08	U+155A0	K01y08	K01	y08	ja UH?	moon
85	v1		317		V04y10	U+15543	V04y10	V04	y10	a? AJ?	he/she of (AGN)
1130			316		R04y05	U+15523	R04y05	R04	y05	na	
12299			307		X02j02	U+15561	X02j02	X02	j02	K'IN	
459			303		X01j01	U+15560	X01j01	X01	j01	WA:J O:L	tamale heart
145			289		D01x03	U+15580	D01x03	D01	x03	CHAM	
247			274		V02y07	U+15541	V02y07	V02	y07	AJAW AJ?	lord/king he/she of
190			272		V03y09	U+15542	V03y09	V03	y09	ni	
454			265		X03k02	U+15562	X03k02	X03	k02	HA'	water rain
665			226		E01t01	U+155C0	E01t01	E01	t01	cha	
489			215		K03x04	U+155A2	K03x04	K03	x04	KAB' CHAB'? earth	supervise
12297	v1		214		X05k04	U+15563	X05k04	X05	k04	ku TU:N	stone
496			207		X06j03	U+15564	X06j03	X06	j03	NIK? SA:K? YATIK? flower? seed?	
22			203		O01v08	U+15540	O01v08	O01	v08	KOKA:J? ITZAM? ITZ? bird deity	
669			188		E02x07	U+155C1	E02x07	E02	x07	chi	
86			173		I01k07	U+15560	I01k07	I01	k07	YAX yi	green/blue new
1721			170		W03	U+15602	W03	W03		OX HUX	
240			164		V05j04	U+15544	V05j04	V05	j04	TI'	
1096			164							la	
484			158		X07a01	U+15565	X07a01	X07	a01	WINIK	person man
1008			153		D02		D02	D02		CHAM? JOL? UH? death? skull?	
1511			152		S04y12	U+15503	S04y12	S04	y12	va	

A. ID Unique	B. variant	C. GRAPHEME (font suggestion)	D. RANKING (frequency in Corpus)	E. CONTEXT (example glyph blocks)	F. NcodeX GLYPHARY DESIGNATION (composite)	G. CODE POINTS (Unicode standard)	H. NcodeX (prop.) DESIGNATION	I. PRIMARY CLASS	J. Secondary class	K. PHONETIC VALUES OF SIGN: LOGOGRAMS vs. syllables	L. ENGLISH TRANSLATIONS OF LOGOGRAMS (primary, secondary and tertiary meanings)
ID_Pho...	variant	NcodeX_Pict...	MATCH_ID...	::Picture	NcodeX_man	UNICODE_C...	MANUAL_Pr...	MANUAL_Pr...	MANUAL_Se...	NcodeX_Phonetic_value1	TRANSLATION
81			583		S01y01	U+15500	S01y01	S01	y01	u	
804			470		R01	U+15520	R01	R01		LE:M? KAYWA K?	
205			428		V01y06	U+15540	V01y06	V01	y06	wa	
12275			367							K'UH	god
174			362		R01y02	U+15520	R03y02	R03	y02	ki	
10			356		S02y03	U+15501	S02y03	S02	y03	ka	
1133	v1		352		R02y04	U+15521	R02y04	R02	y04	li LE:M?	resplendent
260			319		K01y08	U+155A0	K01y08	K01	y08	ja UH?	moon
85	v1		317		V04y10	U+15543	V04y10	V04	y10	a? AJ?	he/she of (AGN)
1130			316		R04y05	U+15523	R04y05	R04	y05	na	
12299			307		X02j02	U+15561	X02j02	X02	j02	K'IN	
459			303		X01j01	U+15560	X01j01	X01	j01	WA:J O:L	tamale heart
145			289		D01x03	U+15580	D01x03	D01	x03	CHAM	
247			274		V02y07	U+15541	V02y07	V02	y07	AJAW AJ?	lord/king he/she of
190			272		V03y09	U+15542	V03y09	V03	y09	ni	
454			265		X03k02	U+15562	X03k02	X03	k02	HA'	water rain
665			226		E01t01	U+155C0	E01t01	E01	t01	cha	
489			215		K03x04	U+155A2	K03x04	K03	x04	KAB' CHAB'? earth	supervise
12297	v1		214		X05k04	U+15563	X05k04	X05	k04	ku TU:N	stone
496			207		X06j03	U+15564	X06j03	X06	j03	NIK? SA:K? YATIK? flower? seed?	
22			203		O01v08	U+15540	O01v08	O01	v08	KOKA:J? ITZAM? ITZ? bird deity	
669			188		E02x07	U+155C1	E02x07	E02	x07	chi	
86			173		I01k07	U+15560	I01k07	I01	k07	YAX yi	green/blue new
1721			170		W03	U+15602	W03	W03		OX HUX	
240			164		V05j04	U+15544	V05j04	V05	j04	TI'	
1096			164							la	
484			158		X07a01	U+15565	X07a01	X07	a01	WINIK	person man
1008			153		D02		D02	D02		CHAM? JOL? UH? death? skull?	
1511			152		S04y12	U+15503	S04y12	S04	y12	va	

PARALLEL MAYAN TEXTS SELECTED FOR ENCODING

Page 0000

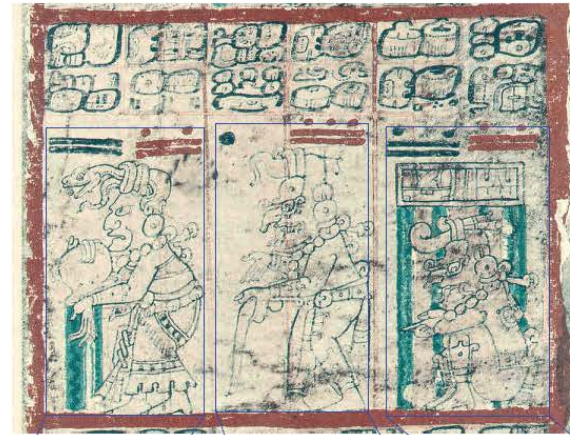


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Page 0000



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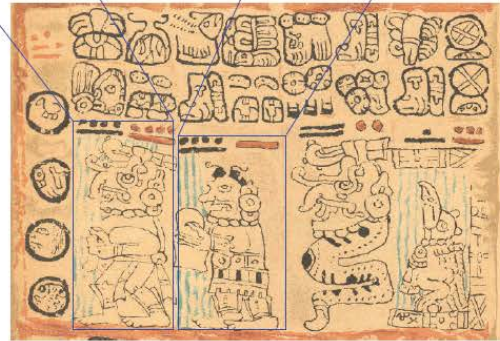
Page M10a



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Page M11a



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Page M12a

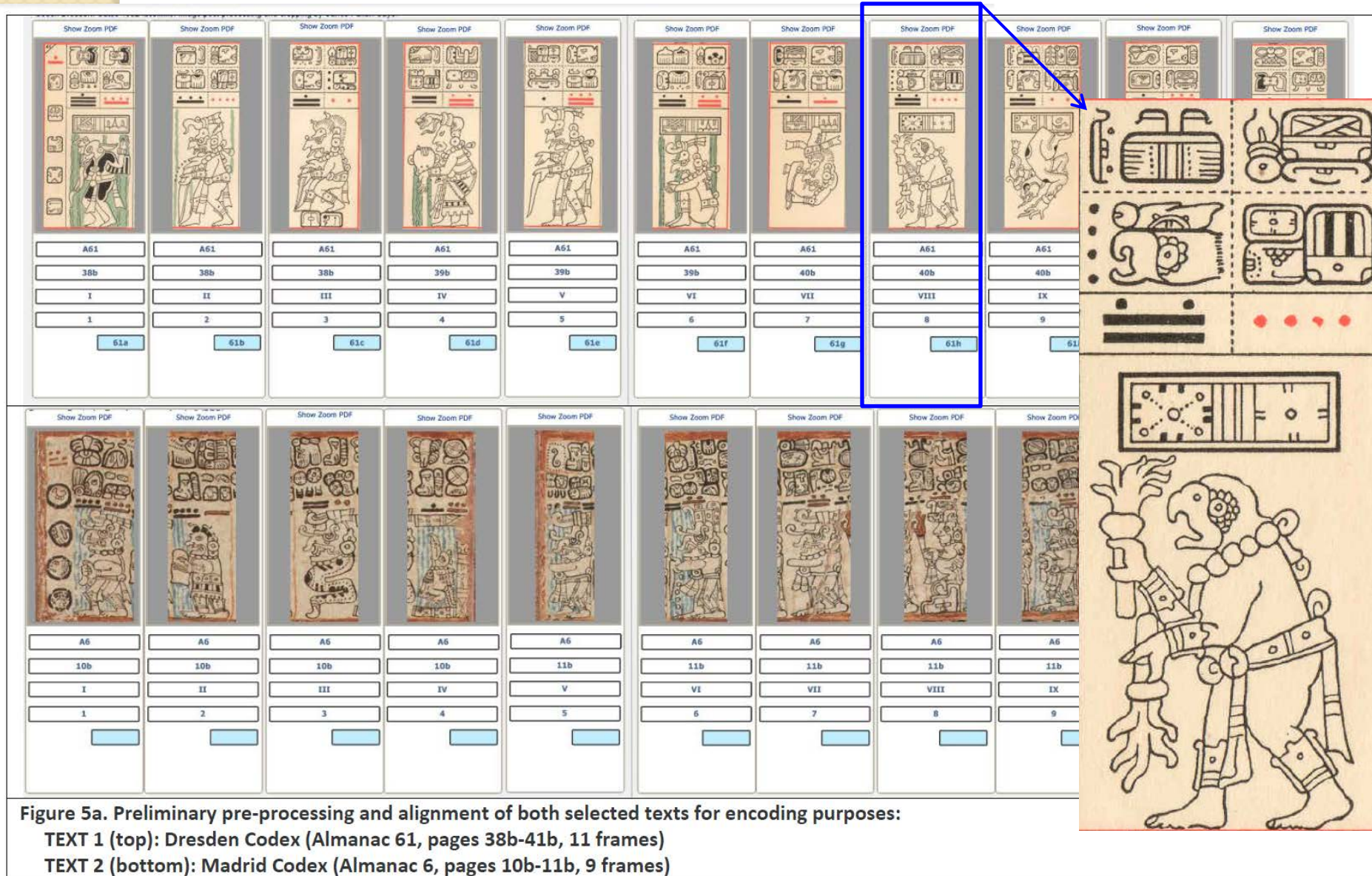


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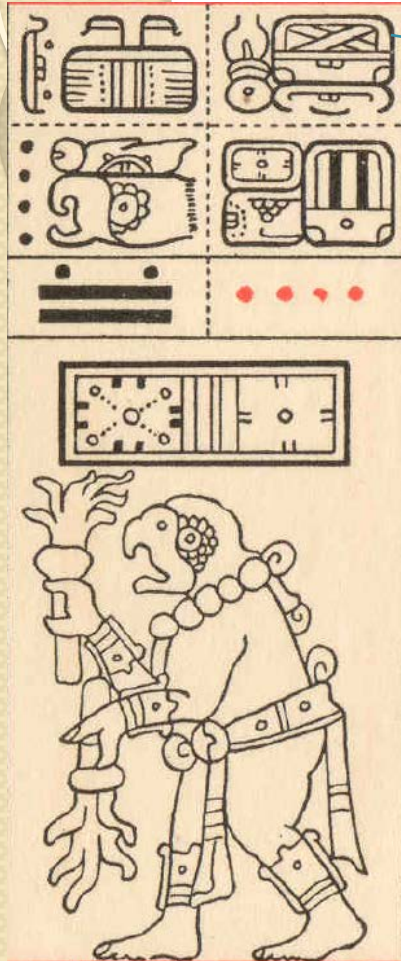
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PARALLEL MAYAN TEXTS SELECTED FOR ENCODING: DATABASE MAPPING



PARALLEL MAYAN TEXTS SELECTED FOR ENCODING

DRE_A61_VIII



a	b
	
MV/HE6	MV/2S6
55	50
u	K'AK'
3221	3216

S01.T12



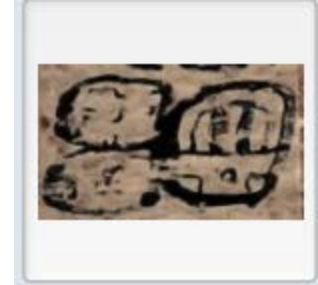
a	b	c
		
MV/3M2	MV/XH3	MV/1G1
129	524	1130
ti	CHAN/KAN	na
3293	3678	4279

V02.K04:R03



a	b	c
		
MV/004	MV/2S1	MV/BP4
1722	12276	11296
CHAN/KAN	NAL?	MO'
4485	3317	4647

W04.V06:G01



a	b	c
		
MV/XQ3	MV/ZC1	MV/XH2
12299	12297	510
K'IN	ku/TU:	HA:B'
3660	3645	3664

K01:X19.X21



Result (vectorial font):



Font being developed in collaboration with Andrew Glass (Microsoft)

LIST OF QUADRATS ARRANGED BY COMPLEXITY

JOINERS		
.	H	horizontal join
:	V	vertical join
[	L	Ligature normal (indeterminate/general conflation between signs 1 and 2)
»	I	Infixation (larger sign goes first)
^	S	superimposition (back, eclipsed sign goes first)
°	R	Reduction, sign 1 reduced but not infixed into sign 2)
□	PT	<i>Pars pro toto</i> Reduction. Part of a sign made to stand for the whole

New list of operators (simplified)

MEMBERS / SIGNS within GLYPH-BLOCKS:		
a	1	Member a, sign 1. Elongated "peripheral sign"
A	11	Member A, sign 1: large "core" sign
b	2	Member b, sign 2. Elongated "peripheral sign"
B	22	Member B, sign 2: large "core" sign
c	3	Member c, sign 3. Elongated "peripheral sign"
C	33	Member C, sign 3: large "core" sign
d	4	Member d, sign 4. Elongated "peripheral sign"
D	44	Member D, sign 4: large "core" sign
e	5	Member e, sign 5. Elongated "peripheral sign"
E	55	Member E, sign 5: large "core" sign
f	6	Member f, sign 6. Elongated "peripheral sign"
F	66	Member F, sign 6: large "core" sign
g	7	Member g, sign 7. Elongated "peripheral sign"
G	77	Member G, sign 7: large "core" sign
JOINERS		
.	H	horizontal join
:	V	vertical join
[	L	Ligature normal (indeterminate/general conflation between signs 1 and 2)
»	I	Infixation normal (sign 1 reduced and infixed into sign 2 in reading order)
«	II	Infixation normal (sign 1 reduced and infixed into sign 2 in reading order)
^	S	superimposition normal (sign 1 superimposed over sign 2)
˘	SI	Superimposition inverted (i.e. sign 2 (in reading order) superimposed over sign 1)
°	R	Reduction, sign 1 reduced but not infixed into sign 2)
((	))	Asymetric halves, half 1 reduced as compared to half 2 of quadrat)
□	DI	["∞" ; "DI"] // Dyslocated cluster, significant empty space separating two or more signs normally joined)

List of operators (draft proposal)

A. CLASS	B. RANKING	C. QUADRAT DIAGRAM	D. EXAMPLE FROM CODICES	E. NUMERIC GENERAL DESCR.	F. LETTER GENERALDESCR	G. LETTER SPECIFIC DESCR.	H. NUMERIC SPECIFIC DESCR.
Class	SQL ...	Quadrat_type...	Quadrat_exa...	Joiner_repre...	Joiner_st...	Joiner_repr...	Joiner_str_calc
1.01	340			1	a	A	11
2.01	668			1H2	a.b	a.B	1H22
2.02	248			1H2	a.b	A.b	11H2
2.03	105			1H2	a.b	A.B	11H22
2.04	112			1V2	a:b	A:B	11V22
2.05	97			1V2	a:b	a:B	1V22
2.06	68			1V2	a:b	A:b	11V2
2.07	11			1H2	a.b	(A°)B	(11R)H22
2.08	16			1L2	a[b	A«B	11II22
2.09	2			1L2	a[b	A*B	11SI22
2.10	2			1L2	a[b	A*B	11SI22
2.11	26			1L2	a[b	A*B	11S22
2.12	6			1L2	a[b	A«b	11II2
2.13	2			1L2	a[b	A*b	11SI2
2.14	1			1L2	a[b	a»B	1I22
2.15	3			1H2	a.b	(A).((B))	((11H))22))
2.16	2			1L2	a[b	a»B	1I22
2.17	2			1H2	a.b	a.∞B	1HDI22
2.18	2			1V2	a:b	A.(B°)	11V(22R)
2.19	0			1V2	a:b	(A°).:(B)	((11R)V(22)



Thanks!

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- Roozbeh Pournader
- UC Berkeley
- University of Bonn (*Abteilung für Altamerikanistik*)

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