

Monosyllabicity and the Origins of Syllabaries

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Writing Systems and Linguistic Structure

“written language is a product of linguistic awareness” (Aronoff 1985)

- Reflects the categories present in spoken language
 - segment, syllable, word, etc.
- Embodies a theory of language
 - though also affected by cultural history

Traditional Typology of Writing

- **Logographic**
 - more accurately “morphographic”
- **Syllabic**
 - especially core CV syllables
- **Alphabetic**
 - segments, or just consonants

Syllabic Writing

A brief survey

Ancient Syllabaries



Sumerian Syllabic Signs

Basic

V

CV

VC

CVC

Composed

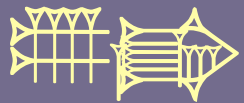
(V: in Akkadian)

CV-VC = CVC

CV-V = CV:

CV-V-VC = CV:C

Sumerian Syllabic Writing



ú-ga

u.ga “raven”



lu-lim

lu.lim “stag”



hu-rí-in

hu.rin “eagle”

Chinese (Morpho) Syllables

門 *mén* (“door”)

白 *bái* (“white”)

安 *ān* (“peace”)

每 *měi* (“every”)

支 *zhī* (“branch”)

Chinese Phonetic: *mén*

門 *mén* (“door”)



捫 *mén* “touch” + HAND

們 *mén* “plural” + PERSON

悶 *mèn* “depressed” + HEART

閑 *xián* “barrier” + TREE

Chinese Phonetic: *bái*

白	<i>bái</i>	“white”	
↓			
柏	<i>bó</i>	“cypress”	+ TREE
伯	<i>bó</i>	“uncle”	+ PERSON
拍	<i>pāi</i>	“pat”	+ HAND
怕	<i>pà</i>	“fear”	+ HEART

Mayan Syllabic Signs

Basic

V (?V)

CV

Composed

$CV_1-CV_1 = CVC$

$CV_1-CV_2 = CV:C, CV?C$

Mayan Syllabic Writing



pa ka
la

pa-ka-la
pa.kal “shield”



tzu lu

tzu-lu
tzul “dog”



ku tzu

ku-tzu
kutz “turkey”

Phonetization

Syllabic signs from
logographic signs

Steps in Phonetization

- **Logographic value**
 - Typically a depictive sign
- **Rebus**
 - Use of sign for another word with similar pronunciation
- **Phonetic sign**
 - No longer tied to word units

Sumerian Rebus

 *gi* “reed” > *gi* “render”

 *ti* “arrow” > *ti(l)* “live”

 *a* “water” > *a* “in”

Sumerian Phonetization

 **a** “water” > **a**

 **ni** “oil” > **ni**

suffix *-ani* “his/her”:

  **a-ni**

Words and Syllables

Monosyllabic languages
and syllabic signs

Ease of Creation

“Syllabic signs clearly originated from word signs. This is a **relatively easy** matter in preponderantly **monosyllabic languages**, like Chinese or Sumerian, where the choice of monosyllabic signs from monosyllabic words is easy.”

Gelb (1963)

The odds of writing

“In the languages for which scripts were independently devised — Sumerian, Chinese, Mayan — **words are generally one syllable long**. [...] This is no coincidence.”

“This is **unlikely** to happen with a polysyllabic–structure language...”

Daniels (1992)

Amenability

“... writing may have actually emerged only when [language–external] factors converged and interacted in the context of a language that was **typologically amenable** to the effective development of a script ... [i.e.] with a **predominantly monosyllabic** structure.”

Boltz (2000)

Salient words

“A **word** is the **shortest stretch of speech** that can be uttered by someone without linguistic training (an Inuit–speaker who makes a mistake can’t break off in the middle of a word and correct part of it, but after breaking off must begin to say it at the beginning).”

Daniels (1996)

Salient syllables

“There is thus a **naturalness** to the **syllable-sized** stretch to the stream of speech.”

“... the syllable, and not the segment, is what the lay person produces when asked for a **small bit of speech** ...”

Daniels (1992)

Knowledge of Syllables

Conscious and Unconscious

Syllables vs. Segments

- Syllables much more salient and accessible
 - See especially Morais and collaborators
- Segmental (phonemic) awareness harder to achieve
 - Reading difficulties in alphabets
- Typically cited against claim that alphabet are superior or more natural
 - But also shows that syllabaries should not require monosyllabic words

Syllabic Segmentation

“the development of a syllabification procedure in speech processing depends primarily on **informal experience with the language** rather than on formal instruction”

Morais et al. (1989)

Syllable Matching

- Match CV or CVC syllables
 - /gʌr/ in *gar.gan.ta* “throat”
 - /gʌ/ in *ga.rou.pa* “grouper”
- Better accuracy if same syllable structure
 - True of illiterate and newly literate subjects
 - But literates better overall

Morais et al. (1989)

Summary: Syllables

- **Good level of awareness**
 - Even in polysyllabic languages
- **Basic unit of phonological structure**
 - Accessible in all languages
- **Linguistic manipulation**
 - Prosodic morphology
 - And phonetization...

Truncation in Phonetization

Syllabic signs derived by
rebus from longer words

Truncation

- Reduction to shorter template
 - Syllable
 - Core syllable
 - Foot
- With reduplication
 - Truncation plus full base
- Without reduplication
 - Truncated form alone

Manam Reduplication

salaga

“to be long”

sa-salaga

“long (plur.)”

tumura

“to be cold”

tu-tumura

“cold (plur.)”

English Truncation

<i>Edward</i>	>	<i>Ed</i>
<i>Michael</i>	>	<i>Mike</i>
<i>Patricia</i>	>	<i>Trish</i>
<i>cabriolet</i>	>	<i>cab</i>
<i>public house</i>	>	<i>pub</i>
<i>disrespect</i>	>	<i>dis</i>

Old Japanese Truncation

君	<i>kun</i>	“lord”	>	ku
欲	<i>yoku</i>	“desire”	>	yo
下	<i>shimo</i>	“lower”	>	shi
鳥	<i>tori</i>	“bird”	>	to
沼	<i>numa</i>	“pond”	>	nu

Lange (1973), Habein (1984)

More Truncation

- Luwian hieroglyphs
 - *targasna* “donkey” > **ta**
- Linear B
 - *kuminon* “cumin” <> **ku**
- Egyptian
 - *dww.t* “a snake” > **d**

Non-Truncation

- **Old Chinese**
 - Strictly monosyllabic
 - No need for truncation
 - Includes complex syllables
- **Sumerian**
 - Heavily monosyllabic
 - No use of truncation
 - Includes VC and CVC

Sumerian Avoidance




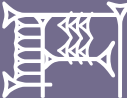

Eligible for phonetization:

a “water”, *ni* “oil”, *gi* “reed”, *ga* “milk”,
en “lord”, *sar* “garden”

Not eligible for phonetization:

dumu “child”, *nita* “man”, *udu* “sheep”,
mušen “bird”, *igi* “eye”

Akkadian Matches

	<i>māt-</i>	“country”	>	mat
	<i>bīt-</i>	“house”	>	bit
	<i>ūm-</i>	“day”	>	úm
	<i>id-</i>	“arm”	>	id
	<i>šamm-</i>	“plant”	>	šam

Labat (1952)

Old Japanese CV Matches

多 <i>ta</i>	“many”	>	ta
母 <i>mo</i>	“mother”	>	mo
田 <i>ta</i>	“field”	>	ta
十 <i>so</i>	“ten”	>	so
津 <i>tu</i>	“harbor”	>	tu

Habein (1984)

Mesoamerican Truncation

- **Mayan**
 - CV signs
 - Roots are basically CVC and CVCVC
 - But probably not the original source
- **Epi-Olmec**
 - CV signs
 - Roots are longer
 - Truncation required to create CV

Mayan Truncation

<i>*neh</i>	“tail”	>	ne
<i>*b'aah</i>	“pocket gopher”	>	b'a
<i>*q'uu?</i>	“nest”	>	k'u
<i>*tyooq</i>	“mist, cloud”	>	to
<i>*kar</i>	“fish”	>	ka

Houston, Robertson & Stuart (2000)

1500 B.C. | 1000 B.C. | 500 B.C. | B.C. | A.D. | 500 | 1000 | 1500 | PRESENT

PRECLASSIC PERIOD

CLASSIC PERIOD

POST-CLASSIC PERIOD

OLMEC

ZAPOTEC

MAYA

TEOTIHUACÁN

TOLTEC

MIXTEC

AZTEC

MAP LEGEND

- █ Olmec civilization
- █ Maya
- █ Aztec
- Other civilizations
- Selected archaeological sites
- ➔ Theorized direction of cultural influence

TWO THEORIES

The map reflects the thinking of some scholars that the Olmecs were a "mother" culture to other Mesoamerican civilizations. However, some academics think the Olmecs were a "sister" culture, developing through interaction with other peoples.



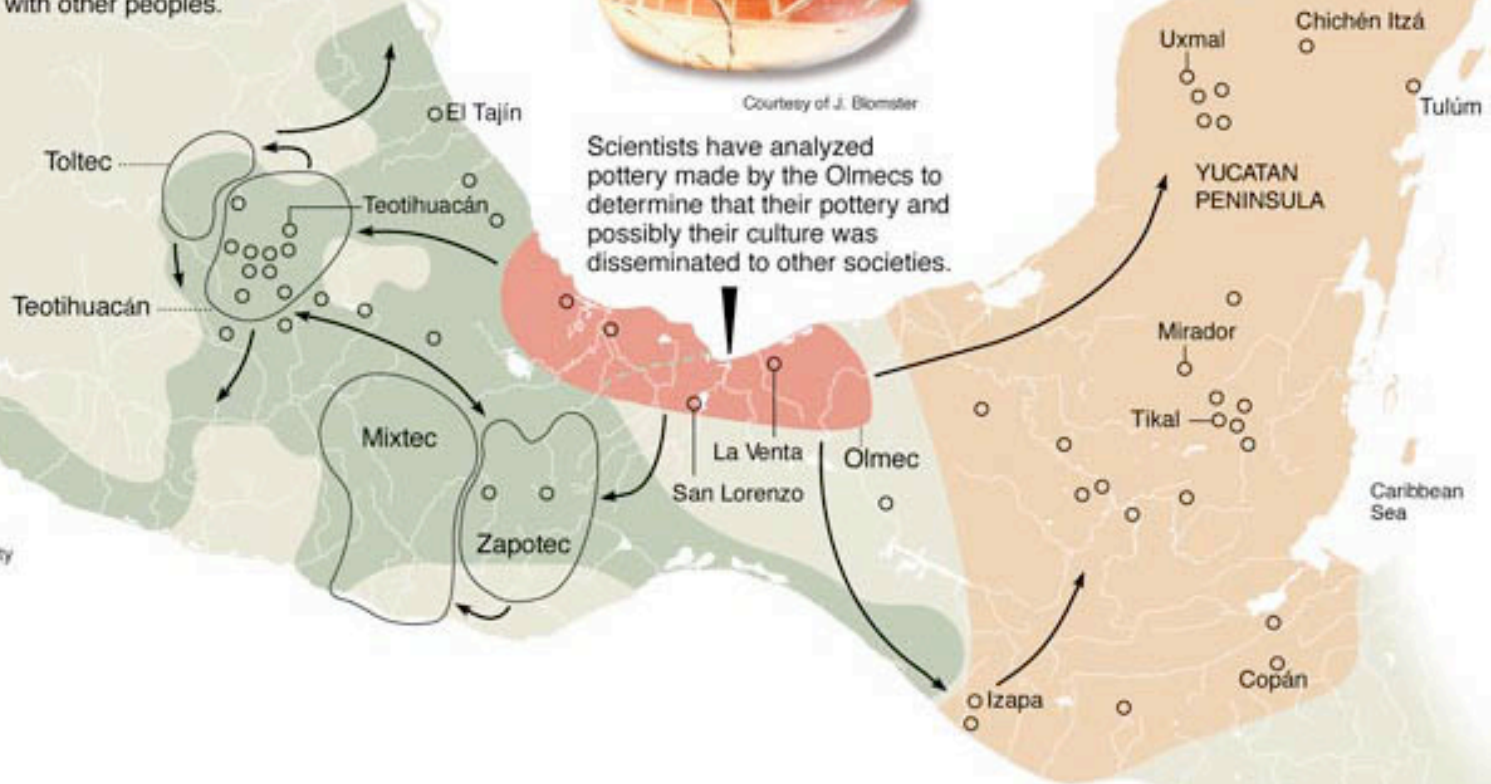
Courtesy of J. Blomster

Scientists have analyzed pottery made by the Olmecs to determine that their pottery and possibly their culture was disseminated to other societies.

MESOAMERICA

0 Miles 100

Sources: The Oxford Companion to Archaeology; Dr. Jeffery P. Blomster, George Washington University; Dr. Richard A. Diehl, University of Alabama; Dr. Michael D. Coe, Yale University



Gulf of Mexico

Chichén Itzá

Uxmal

Tulum

YUCATAN PENINSULA

Mirador

Tikal

Caribbean Sea

Copán

Izapa

Olmec

San Lorenzo

La Venta

Mixtec

Zapotec

Teotihuacán

Toltec

El Tajin

Teotihuacán

Epi-Olmec Syllabic Signs

Basic

CV (including ?V)

CVC (infrequent)

Composed

CV₁-CV₁ = CVC

Justeson & Kaufman (1993)

Epi-Olmec Syllabic Writing



na



sa



wʰ

na-sa-wʰ

nas.wʰ

“they passed”



ma



sa

ma-sa

ma.sa

“holy”

Epi-Olmec Truncation

<i>*nɛʔ</i>	“water”	>	nɛ
<i>*puw</i>	“scatter”	>	pu
<i>*neʔw-</i>	“set in order”	>	ne
<i>*koʔkej</i>	“fish”	>	ko
<i>*wɛstɛk</i>	“two”	>	wɛ

Kaufman & Justeson (2001)

Summary: Truncation

- Preference for match in size
 - Simple input–output relationship
- Minimal modification
 - Faithfulness to source word
- But truncation is still an option
 - Dominance of output constraint

Intuited Syllabaries

For Polysyllabic Languages

The Alaska Script

Created for Yupik by Uyakoq, c. 1900

“... unusual in being **devised for an agglutinative language** rather than a monosyllabic one ...”

Daniels (1996)

Just unusual, or a counterexample?

Yupik Sources

<i>ī</i>	“eye”	>	i
<i>tla</i>	“air, world”	>	tla
<i>nim</i>	“house”	>	ni
<i>mulik</i>	“breast”	>	mu
<i>ting-oq</i>	“flies”	>	ting

Jensen (1969), Schmitt (1980)

Cherokee

- Polysynthetic language
 - No monosyllabic content words
- Script invented by Sequoyah
 - In the years before 1820
 - No knowledge of English or its alphabet
- Signs are nearly all CV
 - Syllable-sized units
 - But not based on syllable-sized words

Cherokee Syllabic Signs

Basic

V

CV

s (+CV)

(*hna*, *nah*)

Composed

s-CV = *s*CV

CV-CV = CVC or CCV

Cherokee Syllabic Writing

ᎠᎾᎿ

hi.sgi “five”

hi-s-gi

ᎠᎿᎿᎿ

tsgi.li “ghost”

tsi-gi-li

ᎠᎿᎿᎿᎿ

dì.neéᎠ.di “dolls”

di-ne-lo-di

Summary: Inventions

- Syllabaries for polysyllabic languages
 - Alaska Script, Cherokee, and others
- Initial logographic attempts were abandoned
 - Words as salient constituents
- Syllabaries were the next salient constituent
 - Independent of word size

Conclusions – 1

- Syllables provide an efficient means of dividing up an utterance
 - CV especially is a versatile and economical basis for writing
- Monosyllabic words make rebus derivations more straightforward
 - Match is preferred when available
 - But intuitive knowledge of syllables is available even without such words

Conclusions – 2

- Two of three early syllabaries have signs that match typical word size
 - But not in Mesoamerica
 - And not in other inventions (Alaska Script, Cherokee, etc.)
- No necessary correlation between monosyllables and syllabaries
 - Linguistic knowledge is sufficient to generate syllabic signs

Thank you!

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