

# Variability of Languages in Time and Space

## **Lecture IV**

## **Writing Systems**

- Variability of writing systems
- Development of writing

*Anja Nedoluzhko*

# Writing

- Writing is not a purer form of language than speech!
- Writing is a system of recording language by means of visible / tactile marks
- Writing is NOT object of linguistics

speech – written text  
music – written notes



*Words spoken are symbols of affections or impressions of the soul; written words are symbols of words spoken. (Aristotle: Peri Hermeneias)*

*Language and writing are two distinct systems of signs; the second exists for the sole purpose of representing the first. The linguistic object is not both the written and the spoken forms of words; the spoken form alone constitutes the object. (F. de Saussure: Course in General Linguistics)*

# Writing systems of the world



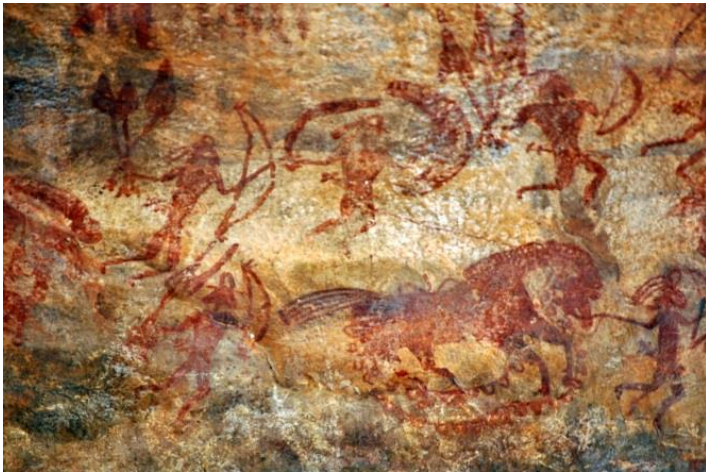
# Predecessors of Writing



Things



Wampums (shell beads)



Pictograms (cave paintings)



Quipu from Inca people (talking knots)

semiography  
(meaning-based writing)

phonography  
(sound-based writing)



pictography



*The story of an Eskimo hunter*

The combination of these Pictograms tell the story of a hunter.



THE HUNTER LEAVES HOME, SLEEPS ONE NIGHT ON AN ISLAND,



GOES TO ANOTHER ISLAND, SLEEPS TWO NIGHTS,



HUNTS AND KILLS A SEA LION AND RETURNS HOME.



'up'

'down'



salient



concave

Chinese

ideography



Egyptian hieroglyphs



[re] 'sun'

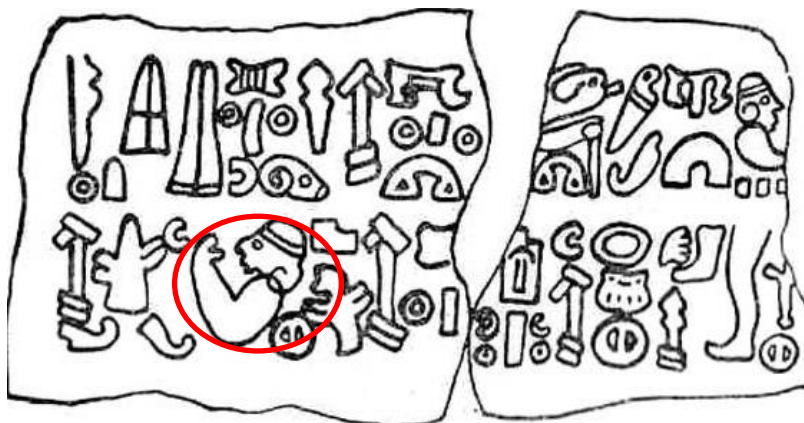
**sun**



[re] 'god'

**god of the sun**

pictography



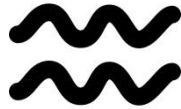
Luwian





$$17 + 9 = 23$$

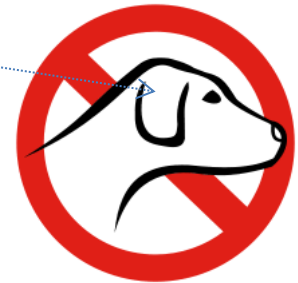
$$\begin{array}{r} 389 \\ \cdot 54 \\ \hline 1556 \\ 1945 \\ \hline 21006 \end{array}$$



ideography



pictography





# Rebus writing

language independent

language dependent

ideography

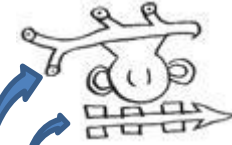
morphography

Aztec

pictography

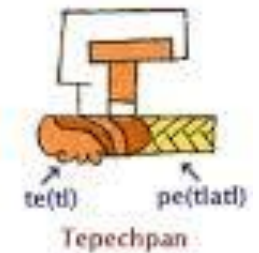
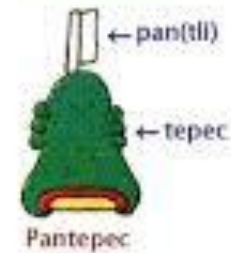
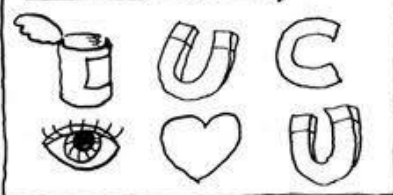
rebus writing

Itzkoatl

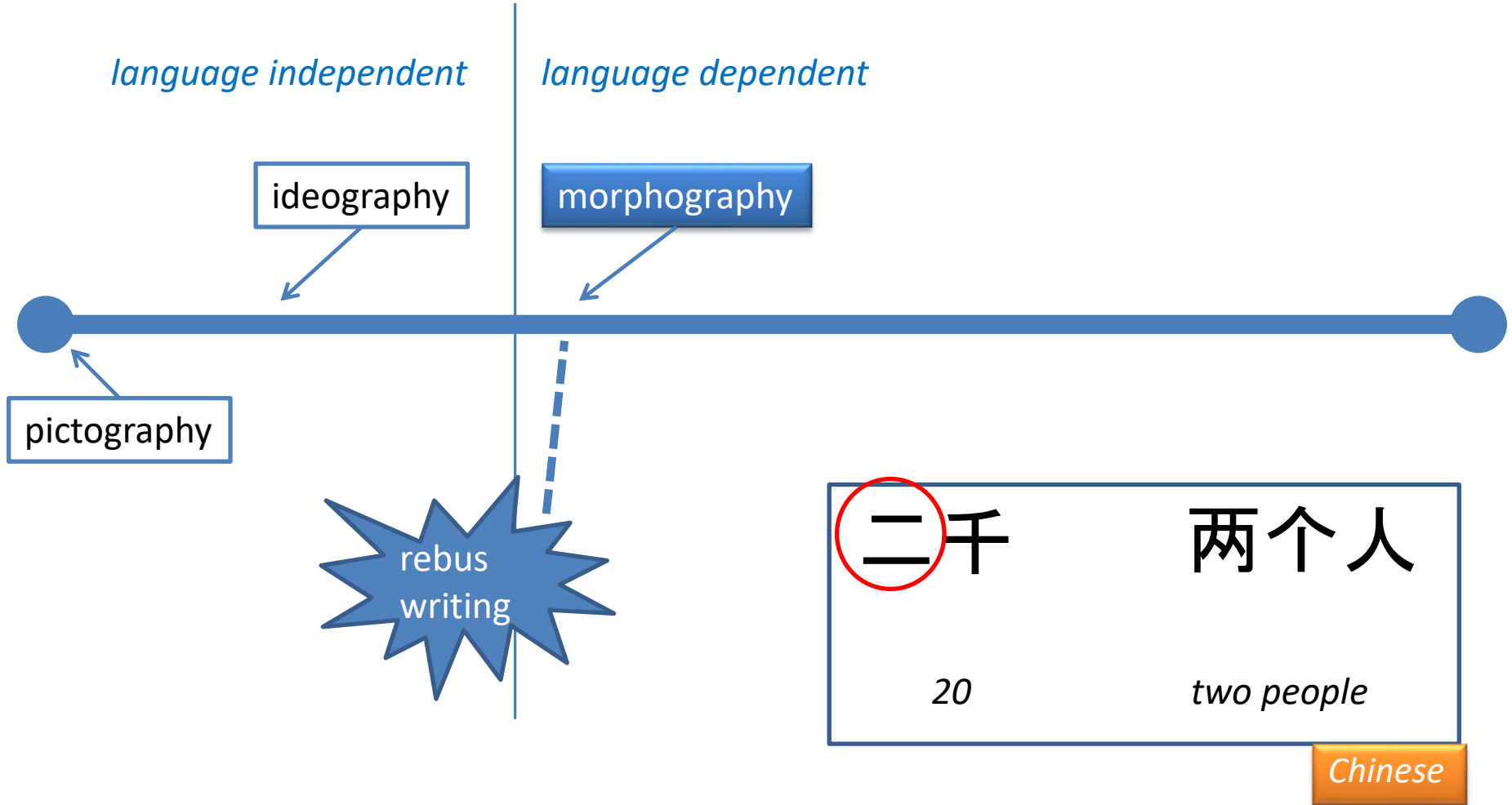


Itz 'arrow'  
ko 'container'  
atl 'water flow'

What does this say?



# Rebus writing



## Morphographic systems

- Relationship between the symbol and its referent is mostly arbitrary
- A graphic unit corresponds to a meaningful and grammatically autonomous unit (a word or a morpheme)
- Each morpheme gets its own symbol, thousands of symbols needed
- There are two major logographic writing systems: Sumerian (Cuneiform) and Chinese
- Further in the writing of Japanese, less frequently in Korean, formerly in Vietnamese
































































































# Sumerian writing

- one of the earliest writing systems
  - Sumerians in southern Mesopotamia
  - clay tablets with pictures of objects (semi-pictographic writing)
    - animals and their body parts, tools, plants etc. discernible
    - baked clay tablets are heavy, but indestructible
- early tablets
  - signs conventionalized in form, but considerable variation
    - the composition of the line drawing not standardized
  - the primary referent of the signs were physical objects (e.g. a bull)
- pictograms developed into cuneiform signs (klínové písmo)

app. 3500 BC:



# Graphic development of Sumerian cuneiform signs


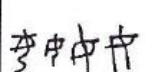


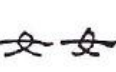
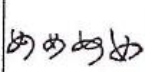






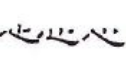
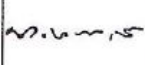







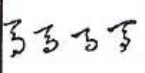







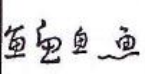


original image	90° turn	ca 2500	ca 2000	Babylonian	Assyrian	sound shape	meaning
						an, il	sky
						ki, ke	land
						lu	human
						munus	female
						kur, mat	mountain
						sag, šag	head
						ka, inim	mouth
						nig, ša	bread
						ku	food
						a	water
						nag	drink
						du	foot
						na	fish
						gu, gud	bull
						ab, lid	cow
						še	grain

- cuneiform signs used for 3 thousand years
  - 900 to 1,000 attested independently occurring signs in total
    - a very limited expressive power (cf. an average high-school student uses vocabulary of app. 20,000 words, in comprehensive dictionaries 300,000 words listed)

# Graphic development of Chinese characters

- grew out of drawings of natural objects
- their origin still unclear, app. 1750–1040 BC

Period	Chinese term	Pinyin	English
13th–11th centuries BCE	甲骨文	jiaguwen	oracle-bone script
13th–4th centuries BCE	金文	jinwen	bronze script
8th century BCE	大篆	dazhuan	greater seal script
3rd century BCE	小篆	xiaozhuan	lesser seal script
2nd century CE	隸書	lishu	clerical script
since 4th century CE	草書 行書 楷書	caoshu xingshu kaishu	cursive script running script standard script

Oracle-bone script	Bronze script	Greater seal script	Lesser seal script	Clerical script	Cursive script	Running script	Standard script
							
							
							
							

(Coulmas, 2003, 51)



# Graphical structure of Chinese characters

- In Chinese, characters map onto morphemes and words
- lishu
  - first major lexicon compiled, about 120 AD: 9,500 characters, based on six formation principles (simple pictograms, ideographs etc.)
- lexicon of current Chinese
  - Tradition of Chinese lexicography: adding characters, never eliminating any
  - Huang and Huang (1989)
    - 74,000 characters, 25,000 out of which are variants
  - *List of Modern Chinese Characters for Everyday Use* by the Committee for the Writing of the National language (1988):
    - a primary list of 2,500 characters, a secondary list of another 1,000 characters
    - considered sufficient for other than specialized and technical texts
  - statistics:
    - 1,000 most common characters account for about 90 % of all characters used in publications directed at a general readership
    - another 1,400 characters necessary to cover the next 9 %
    - another 1,400 characters to raise the level to 99.9 %
      - reflecting the Zipf's law



*Egyptian hieroglyphs*

*language independent*

*language dependent*

ideography

morphography



[re] 'sun'

***sun***



[re] 'god'

***god of the sun***

pictography

rebus  
writing

*to distinguish  
homonyms...*

determinatives,  
keys

*en. Polish – polish  
g. Leben – leben*

## Syllabic Writing System

- The basic graphic units are interpreted as speech syllables
  - a syllable is a unit of speech that can be articulated in isolation and bears a single degree of stress (English) or a single tone (Chinese)
  - typically, a syllable is a consonant followed by a vowel (CV)
  - different languages allow for different syllables

**VC**

**CVC**

**CCCVCC**

**V**

**CvCV**

EN: *strength*

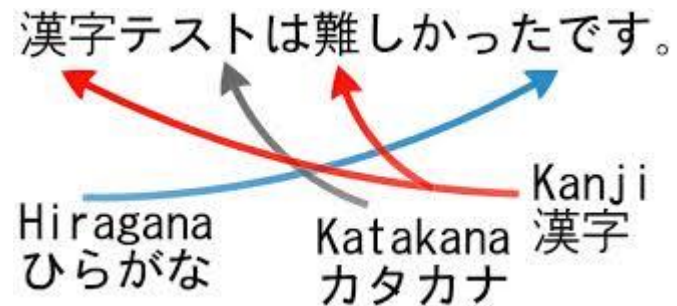
## Syllabic Writing System

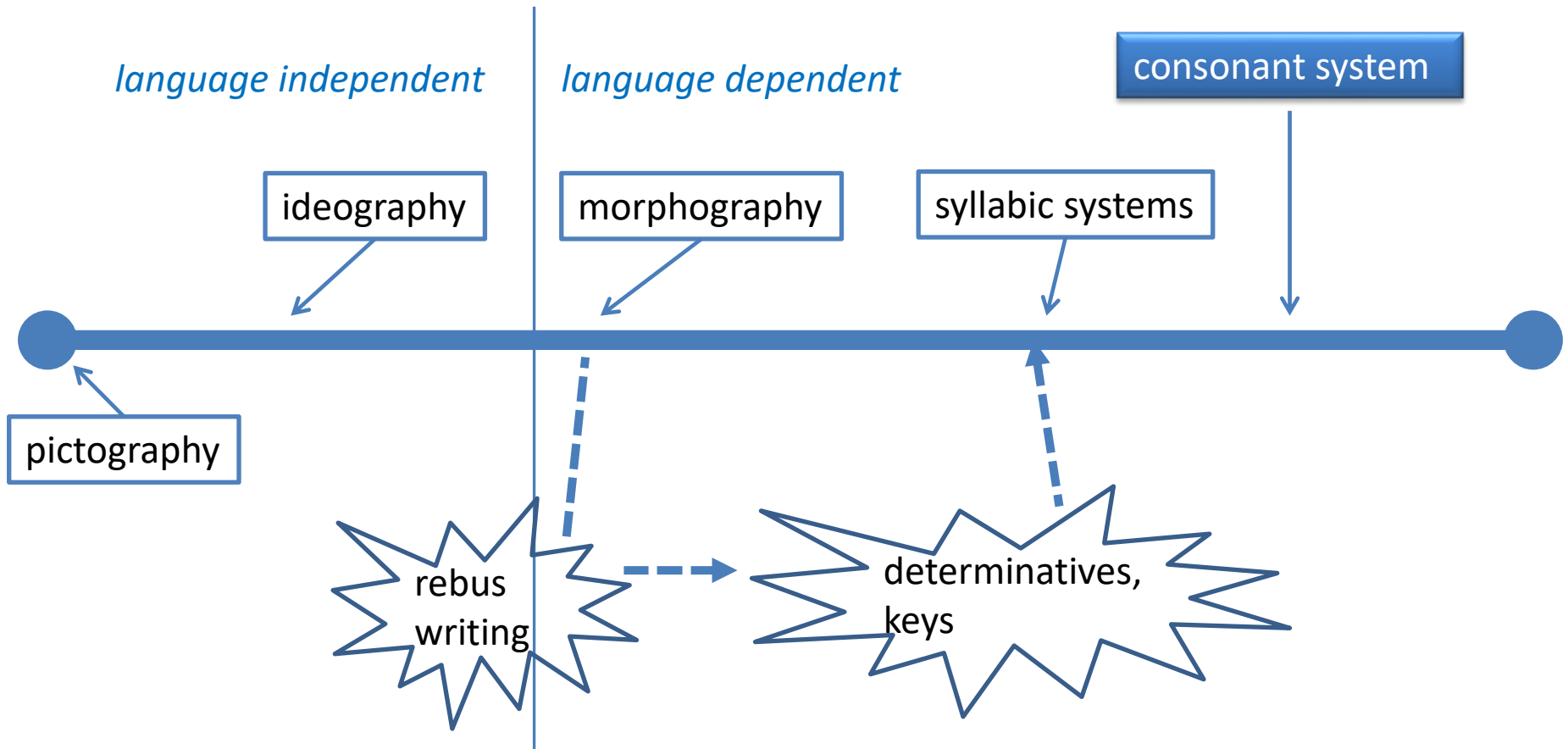
- No writing system could map speech syllables to graphic signs in the ratio 1:1
- Languages combine different strategies developed for syllabic writing to decrease the number of signs in comparison to the number of speech syllables
  - combining simple syllables, disregarding minor distinctions such as aspiration of final consonants
  - combining syllables with logograms
- One of the most well-known examples of syllabic systems is the Katakana writing system in Japanese

# Japanese Writing System

- Kanji - logographic system, adopted Chinese characters
- Kana (syllabic)
  - Hiragana (used primarily for native or naturalised Japanese words and grammatical elements)
  - Katakana (used primarily for foreign words and names)

The Japanese writing system







# Consonantal writing systems (Abjad)

- signs represent the consonantal value of a syllable, ignore the vocalic element
- a certain amount of guess is needed to determine which syllable is represented

𐤀	ʾ	𐤁	Ṭ	𐤂	P
𐤃	B	𐤄	Y	𐤅	Ṣ
𐤆	G	𐤇	K	𐤈	Q
𐤉	D	𐤊	L	𐤋	R
𐤌	H	𐤍	M	𐤎	Š
𐤏	W	𐤐	N	𐤑	T
𐤒	Z	𐤓	S		
𐤔	Ḥ	𐤕	ʿ		

Phoenician

Arabic

زمن

n m z

zaman 'time'

Arabic

*vowel differences generally do not distinguish morphemes*

**kataba** كَتَبَ "he wrote" (masculine)

**kutiba** كُتِبَ "it was written" (masculine)

**yaktub(u)** يَكْتُبُ "he writes" (masculine)

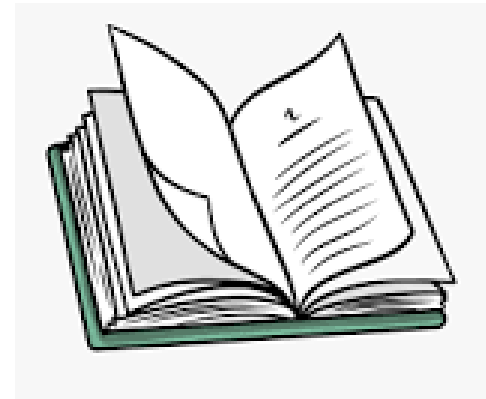
**kitāb** كِتَاب "book"

**kutub** كُتُب "books" (plural)

**kātib** كَاتِب "writer"

**katabat** كَتَبَتْ "clerks"

**katā'ib** كِتَائِب "documents"



English

*vowels differentiate root morphemes*

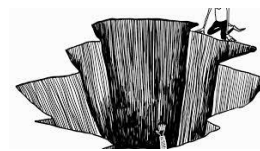
**pat**

**pot**

**pet**

**put**

**pit**



# Diacritic

- a mark put above, below, through or on a letter (διακριτικός - 'distinguishing')
  - For Latin script: from 24 to more than 100 signs
  - For Cyrillic script: from 33 to ca. 60 signs

ˊ (é) acute	ˋ (è) grave
˝ (ő) double acute	˙ (ȧ) lower dot
◊ (å) angstrom, circle	— (ō) macron
˘ (ü) breve	ˆ (š) ogonek, hook
ˇ (č) caron, haček, klicka	• (ė) raised dot
¸ (ç) cedilla	/ (ø) solidus, slash
ˆ (ô) circumflex	˚ (ł) stroke
- (‡) crossbar, bar	~ (ñ) tilde
•• (ö) diaeresis, umlaut	

## acute accent ( ´ )

fr. *café*

rus. *микрофón*

cs. *káva*

pl. *sześć*

hs. *kósc*

viet. *dầu sắc*

Arabic

Hebrew

אלהים

God [elohim]

Consonants:

Vowels:

א [Silent]

ֶ e

ל L

ֹ o

ה H

ִ i

י Y

מ M

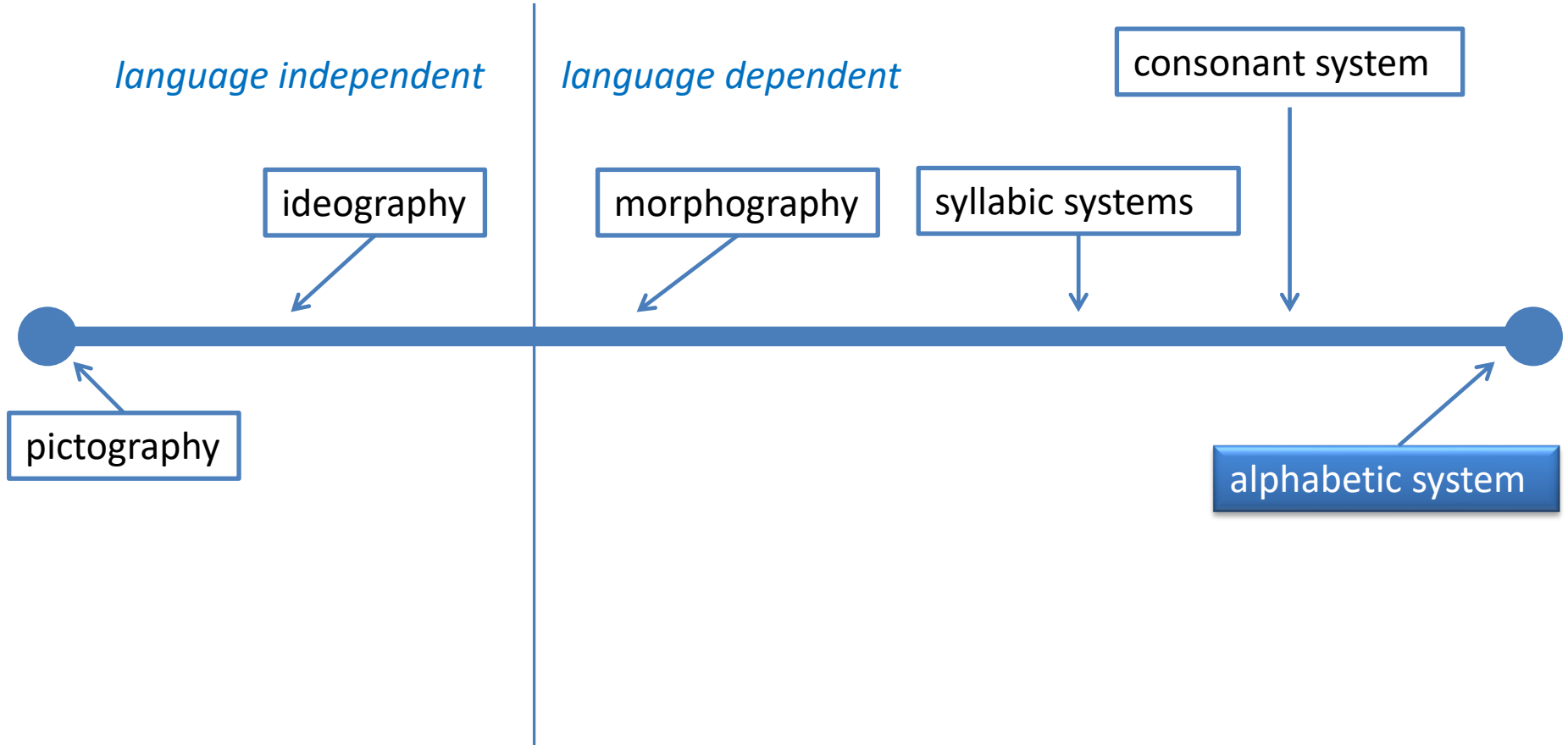
وَمَنْ بِجِسْمِي وَحَالِي عِنْدَهُ سَقَمٌ  
وَتَدَّعِي حُبِّ سَيْفِ الدَّوْلَةِ الْأُمَمُ  
فَلَيْتَ أَنَا بِقَدْرِ الْحُبِّ نَقْتَسِمُ  
وَقَدْ نَظَرْتُ إِلَيْهِ وَالسَّيُوفُ دَمٌ  
وَكَانَ أَحْسَنَ مَا فِي الْأَحْسَنِ الشَّيْمُ  
فِي طَيْهِ أَسْفَ فِي طَيْهِ نَعَمْ  
لَكَ الْمَهَابَةُ مَا لَا تَصْنَعُ الْبُهْمُ

ישראל

Izrael

«هو القطر ده مفيهوش رجولة ولا إيه يا جدعان؟!»، بهذه الكلمات ودَّع الشاب محمد عيد الحياة،  
ليقفز بعدها مباشرة من القطار رقم «934» المتجه من الإسكندرية إلى الأقصر، بعد أن أجبره  
الكسري على القفز، لعدم قدرته على دفع ثمن التذكرة.

וַיֹּאמֶר אֱלֹהִים יִקְוּ הָאֲמִיִּם



## Alphabetic Writing System

- Alphabetic letters encode phonemic segments
- Less than 50 symbols is needed to make this system work
- Languages: English, German, Greek, Czech, ...



# References

- Florian Coulmas. Writing systems. 2003. An Introduction to their linguistic analysis. Cambridge University Press.
- Coulmas, Florian. 1989. The Writing Systems of the World. Oxford: Basil Blackwell
- Coulmas, Florian. 1996. The Blackwell Encyclopedia of Writing Systems. Oxford: Blackwell.
- Adams, Marilyn. 1990. Learning to Read. Cambridge: Cambridge University Press.
- Chafe, Wallace. 1987. Properties of spoken and written language. In: R. Horowitz and S. J. Samuels (eds.), Comprehending Oral and Written Language. New York: Academic Press, 83–113.
- Senner, Wayne M. (ed.). 1989. The Origins of Writing. Lincoln: University of Nebraska Press
- Daniels, Peter. T., and William Bright (eds.). 1996. The World's Writing Systems. New York: Oxford University Press.
- Gaur, A. 1985. A History of Writing. New York: Charles Scribner's Sons.
- Henry Rogers. Writing Systems. A Linguistic Approach. Backwell Publishing. 2005
- Harrise Roy: The Origin of Writing (1986); Signs of Writing, (1995); Rethinking Writing, (2000)