To the Typology of Writing Systems

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Grapholinguistics in the 21st century— From graphemes to knowledge

The problem of the typology of writing systems

- The problem of the typology of writing systems first arose in the 19th century in the works of Edward Taylor and Isaac Taylor, the latter proposed to distinguish between **logographic**, **syllabic** and **alphabetic** systems (1883).

- Modern typologies clarify the relationship between a language unit and a written sign, distinguishing
  - between logo-(morpho-)syllabic and pure phonographic systems,
  - between syllabic, **moraic** and alphabetic spelling, **Abugida** and **Abjad**.

- They are works by J. Sampson, J. Defrancis, W. Bright, R. Sproat, P. Daniels, F. Coulmas, H. Rogers, M. Neef, and others.

The aim and starting point of analysis

- The aim of present report is to demonstrate how the existing typology of writing systems can be further refined using additional criteria for classification based on the main capabilities of a scriber and a reader to integration and differentiation.

- The generalizing classification by Henry Rogers is taken for the starting point of analysis.

- (Rogers, Henry. *Writing systems: A linguistic approach*. Blackwell Publishing, 2005).

H. Rogers: Classification of writing systems

- H. Rogers proposes 3 dimensions for classification of writing systems:
- 1) **Type of Phonography**: Abjad, Alphabetic, Abugida, Moraic, Syllabic
- 2) **Amount of Morphography**:
- a) 'it is greater if there are symbols that represent the morphemes (<7 8 9>), or …
- b) if the spelling distinguishes different morphemes (*by, bye, buy*)'
- 3) **Orthographic Depth**, which is greater when allomorphs are spelled the same (*child – children, sign – signal*) (*in opposition of upper-case and lower-case fonts in the Scheme)*

H. Rogers: Classification of writing systems

Type of Phonography

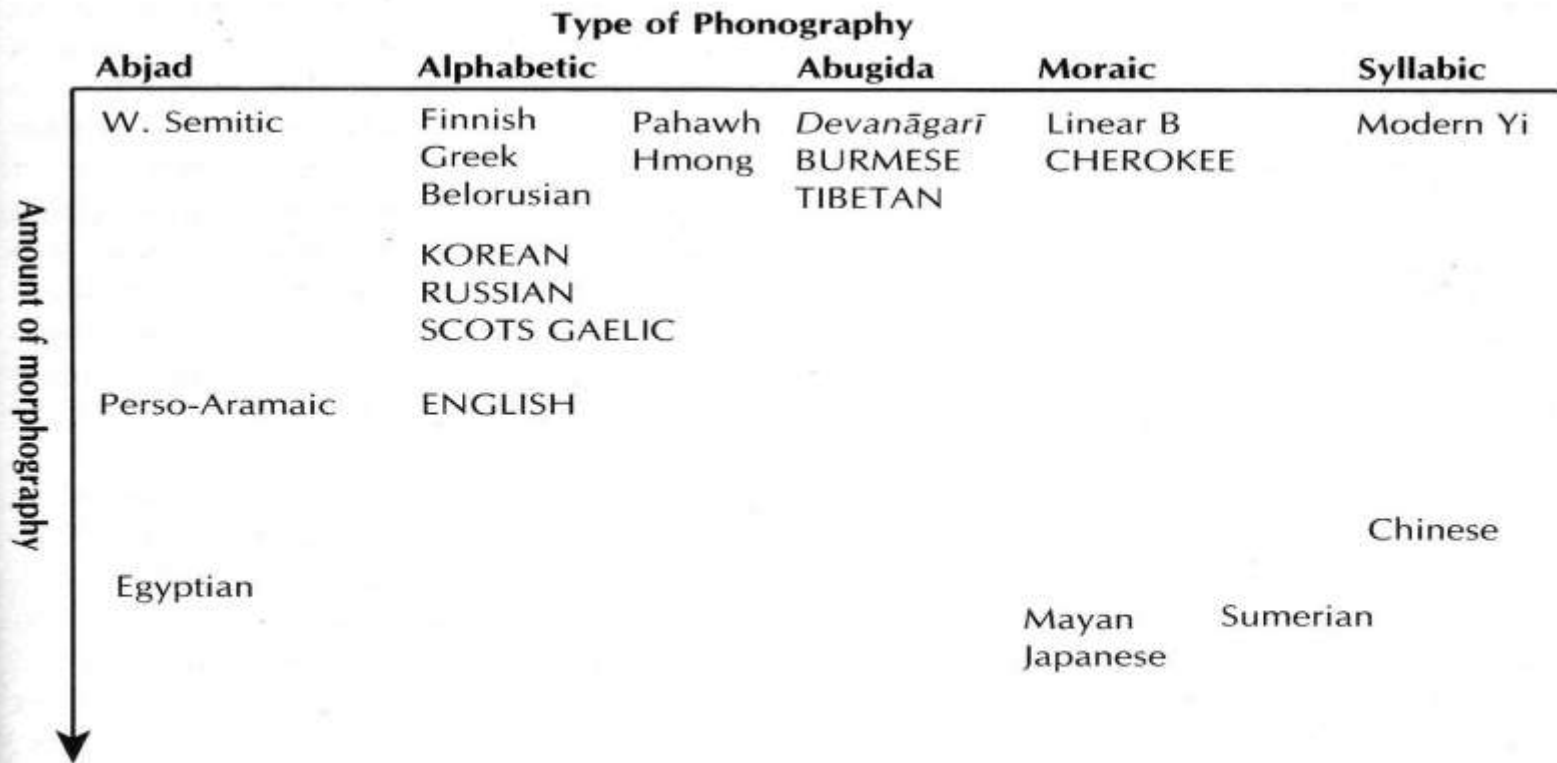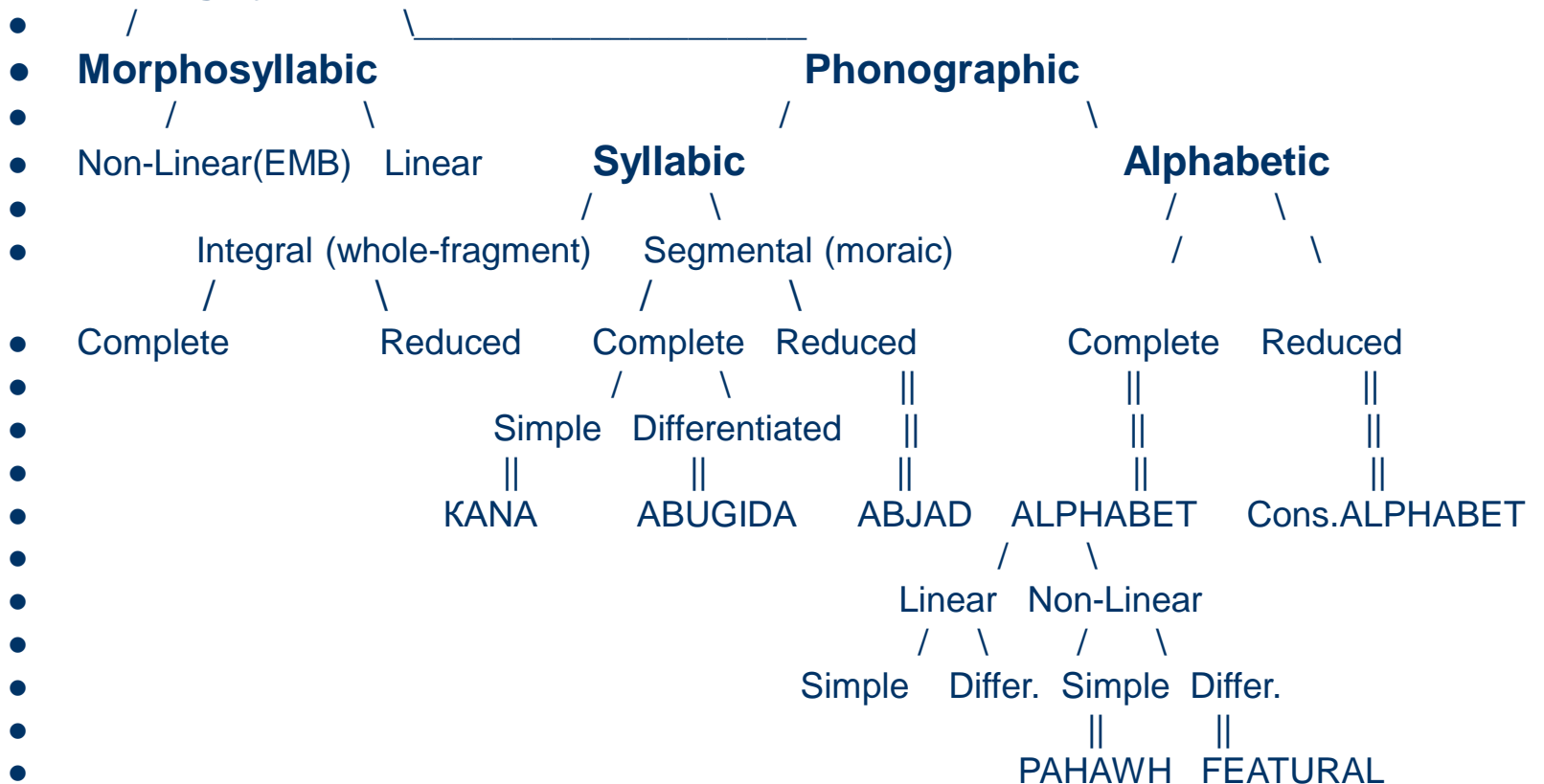| Abjad	Alphabetic		Abugida	Moraic	Syllabic
W. Semitic	Finnish Greek Belorusian	Pahawh Hmong	*Devanāgarī* BURMESE TIBETAN	Linear B CHEROKEE	Modern Yi
	KOREAN RUSSIAN SCOTS GAELIC				
Perso-Aramaic	ENGLISH				
					Chinese
Egyptian				Mayan Japanese	Sumerian

Amount of morphography ↓

Figure 14.5 Revised classification of writing systems (capitals show deep systems; regular type, shallow)

Discussion

- Some languages are posed between the classes: Sumerian between Moraic and Syllabic writing, Pahawh Hmong between Alphabetic and Abugida writing.

- The scheme is rather a field, which allows position between classes when some scripts cannot be clearly assigned to a specific class, since they have a mixed nature.

- Maybe the criteria for determining them have not been developed.

Another categorization

- With regard to the existing classifications, further categorization may be proposed. It is based on 4 binary attributes of spelling:
- 1) linear – nonlinear spelling,
  - 4
  - 1 –2 – 3 – 4   2-1-3
- 2) integral (whole) – segmental (decomposed)
  - [CCVC] / [CVCVC] – [CV]-[CV]-[CV], the parts have equal value
- 3) complete (vocalized) – reduced (consonant)
  - [CV] - [C^x], the parts are indivisible (as 'master' and 'slaves')
- 4) simple (invariant) – differentiated spelling
  - [CV] - [Ca^v] , the parts are in subordination as 'head' and 'modifier'.
- These dimensions operate at different levels of analysis.

- **Writing systems**
-     /   _____
- **Morphosyllabic**   **Phonographic**
-     /   \   /   \
- Non-Linear(EMB)   Linear   **Syllabic**   **Alphabetic**
-                  /   \   /   \
-      Integral (whole-fragment)   Segmental (moraic)   /   \
-        /   \   /   \
- Complete   Reduced   Complete   Reduced   Complete   Reduced
-                 /   \ || || ||
-               Simple   Differentiated || || ||
-                || || || || ||
-              KANA   ABUGIDA   ABJAD   ALPHABET   Cons.ALPHABET
-                                   /   \
-                           Linear   Non-Linear
-                        /   \   /   \
-                     Simple   Differ. Simple Differ.
-                            || ||
-                      PAHAWH   FEATURAL

Morphosyllabic systems

- According to the type of Phonography, 3 traditional classes are distinguished: Morpho-syllabic (or logo-syllabic), Syllabic and Alphabetic writing, each having its own subclasses.

- A. **Morpho-syllabic** type gives :

- 1) nonlinear systems – **Emblematic** spelling (Aztec)

- 2) linear systems – **developed Mixed writing**.

- The syllabic component of Morpho-syllabic systems can be further detailed by the type of Phonography.

1. Linear *vs.* nonlinear spelling

- Linear arrangement is an important step in the formation of phonetic writing. It follows the deployment of speech in time using one graphic dimension.

- A non-linear, emblematic lay-out of readable graphic units is the first stage of logo-syllabic writing: it allows reading only names and numbers in a pictographic frame representation.

Aztec emblems in the space of pictorial text : Lords of Tenochtitlan (Codex Mendoza, 2 r)

- The emblems of Lords' names are attached to the pictorial glyphs of Lords.
- The emblem of TE-NOCH-TITLAN is in the center; it includes glyphs of a stone (*te-tl*), a cactus (*noch-tli*) and an eagle in the middle – to convey the sense 'among' (-*titlan*)

Aztec emblems in the space of pictorial text : Izcoatl's conquests (Codex Mendoza, 5 v.)

- The Lord Izcoatl (Snake – /*coa-tl*/ – with arrows - /*iz-tli*/, the name-emblem attached to his head)
- - speaks (a 'speech scroll' at his mouth)
- - about his war conquests – symbol of war – the shield and arrows: binom *mitl chimalli*
- Symbols of conquered cities (burning and falling temple) with name emblems. The images look fantastic, that indicates at rebus spelling.
- *Izcoatl speaks: I have conquered these cities…*

Emblematic writing
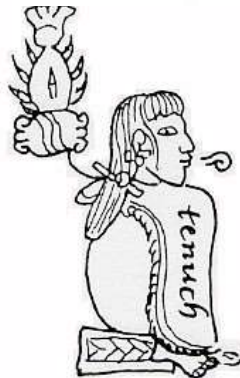
- CUAU-HUAH-CAN ('the place of possessors of eagles'= with lots of eagles): 2 homonyms for 'eagle' and 'tree', the latter as phonetic hint.
- AHUACA-TLAN ('the place with lots of avocado): (avocado) tree with teeth -*tlan*, locative suffix and 'teeth'.
- CUAUH-NAUAC ('near trees'), nahuac 'near', nahua-tl 'speech'
- ***Coyu-cac*** (tribe name, rebus: 'coyote+sandal'),
- ***Te-noch*** (personal name, rebus: 'stone+cactus') (a founder of Tenochtitlan).

Emblems in Early Egyptian: Narmer's Pallet
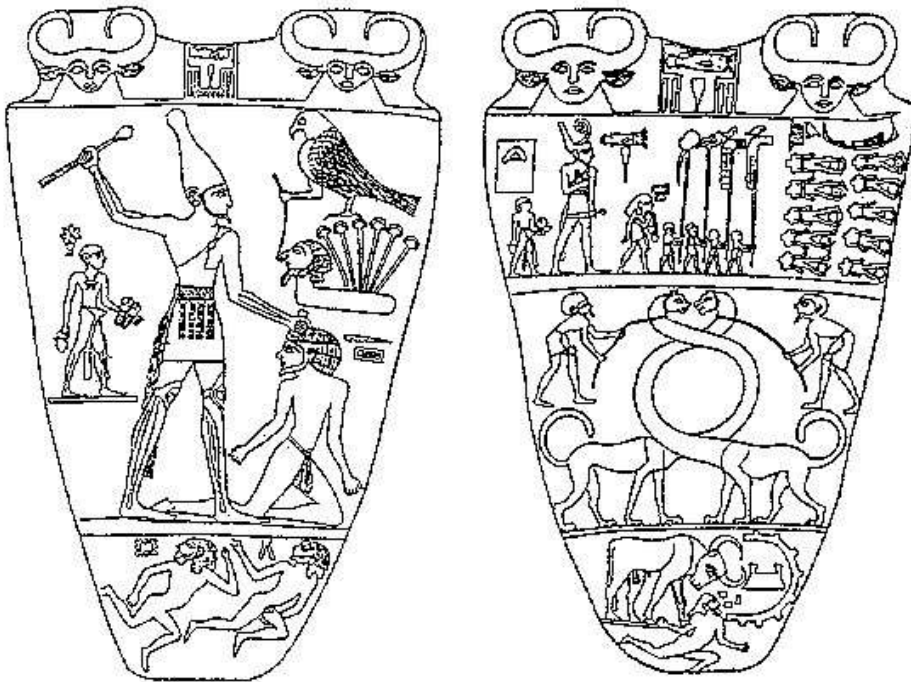
- The same technique of a readable emblem can be seen in the Narmer's pallet: a name NARMER 'fierce catfish' (XXXIII–XXX c. BC, for king Menes) is given 3 times: between the heads of cows (goddes Hathor) and near his head.

› An emblem of a number: 6 lotus flowers for 6000 captive warriors.

Emblematic techniques in linear scripts

- ओं मणि पद्म हूँ

ॐ मणि पद्मे हूं (Tibetan calligraphy)

■옴 마니 반메 훔

- The emblematic techniques are used also in linear scripts.
- $\bar{O}^n$ ma-ni pa-dme $h\bar{u}^m$
- **Devanagari**

- $\bar{O}^m$ ma-ni pa-dme $h\bar{u}^m$
- **Tibetian**

- **Korean:** Om ma-ni pad-me hum
- **The linear sequence of aksharas or syllable blocks combines with emblematic arrangement of elements using vertical dimension.**

2. Integral vs. segmental spelling

- This dimension deals with the division of pronunciation units in parts for their graphic representation.

- The starting point is the word as a whole unit of speech.

- It may be segmented differently:
  - W = [CCVC] – [CV]-[CVC] or [CV]-[CV]-[CV] or [CV]-[CV]-[VC]
  - W = [CVCVC] – [CV]-[CV]-[CV] or [CV]-[CVC] , …

  The natural segmentation gives a sequence of mora signs.

B. Syllabic – Moraic writing

- So we can have 2 types of spelling:
- 1) using signs for close (and open) syllables (CVC, CCVC, CVCC, …) – Yi-type (*syllabic*)
- 2) using signs only for moras (CV, V, -C) as minimal pronunciation units in decomposing a word – Kana-type (*moraic*).
- It is argued that not only Japanese Kana refers to moraic systems, but also Abugida and Abjad should do, presuming that they were based primarily on syllables with a short vowel, the mora, having secondary ways for conveying long vowels in the syllable.

3. Complete vs. reduced spelling: Abugida and Abjad

- Abjad and Abugida can be opposed as two moraic subclasses, along with Kana-type.
- **Abugida** is a complete vocalized writing with standard subsystem of vowel modifications Ca^V,
- **Abjad** is graphically reduced, non-vocalized type, presupposing an indefinite vowel in a syllable C^x.

- The reduced spelling is proper also to Egyptian writing with uniliterals C^x, biliterals $C^x C^x$ or triliterals $C^x C^x C^x$ (mixed integral reduced script).
- In all these non-vocalized systems a vowel is conceived as an inner characteristic of a syllable (mora), variable in word formation and incapable to independent use.

4. Simple – differentiated script

- The differentiation presupposes using elements that refine the reading of a simple sign; it works already on the morpho-syllabic level (as 'phonetic complement') (n^x-f^x-r^x)-f^x-r^x = /nefer/ 'beautiful'.

- Abugida differs from Kana systems using diacritic modifications of the invariant sign, whereas Kana uses several invariant signs for different vocalization, (Yet Kana has differentiation diacritics for some pairs)

Pa	Ba
ぱ	ば
Pi	Bi
ぴ	び
Pu	Bu
ぷ	ぶ
Pe	Be
ぺ	べ
Po	Bo
ぽ	ぼ

प pa　पा pā　पि pi　पी pī　पु pu　पू pū

Abjad and Alphabet

- Alphabetic writing is the last stage of phonological analysis.
- According to *alphabetic principle* each phoneme should be expressed by a full-formed grapheme.
- The Abjad mode of writing is largely defined by the phonological, morphological, and lexical structure of classical West Semitic languages, where a vowel is not independent unit: it could not open a syllable, and it is variable in the word-formation (so it is not a constant characteristics of the root).
- Alphabetic writing appears in a language where vowels have independent value. So it shows vowels in characters equvalent in size and position to consonant letters.

Some generalizations on vowel representation: vowel "democracy" in Greek alphabet

- We can allow the metaphor of democracy here (with 'gender' sense): vowels are hidden under yashmak in the presence of consonants in Abjad,

- they form different "garments" for consonants in Abugida (sometimes they form "soul" for the consonant "body"),

- and at last the Greek claim for democracy gives them their independent status in the Alphabetic text.

Possible transfers

- The given 4 characteristics of writing systems can further describe different types and a transfer from one type to another. Thus, Abjad differentiated by diacritics becomes consonant Alphabet. Alphabet using techniques of non-linear block spelling may be marked as a separate type. The next step of differentiation forms Featural Korean script.

Other criteria for classification

- Some additional criteria for classification, manifested in the functioning of a system, can be identified:
- the degree of Ideography (not only of Morphography, according to Sproat and Rodgers),
- the degree of Xenography,
- the level of graphic Complexity (analytic/synthetic writing),
- the Orthographic depth (according to Rodgers).

Not evolution, but improvement

- The interests of a scriber and the interests of a reader, in contrast, contribute to the development of writing. It may not be so much about evolution as about improving writing. Different forms of writing coexist in the modern world, providing different needs: in the speed of writing or in the exactness of speech transfer. They can serve to conceal information, they can be a means of magic or play, of expressiveness or decoration.

- 886 bā bā liù= 拜拜了 bàibài le 'Bye-bye'

- 768 qī liù bā = 吃了吧 chī le ba 'Let's go eat'
  !(^^)!   (*O*)   \(^_^)/

Samples of calligraphy

Thank you for your attention!