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**The significance of the partial versus full writing
dichotomy for the typology of writing systems**

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Overview

- Opening remarks
- Sampling some writing-system (WS) typology proposals
- Conceptualizing the language to writing relationship
- Japanese kanji as example of partial-pleremic WS
- Closing remarks

Opening remarks 1: Initial motivation to address topic

Initial motivation for this talk addressing the **partial-full dichotomy** stemmed from recent impressions of how general literature commonly referring to **semasiography**, **ideography** and **pictography** as feasible principles for fully functional writing systems (WSs), especially in relation to expressive potentials of **emoji** (Danesi 2017).

While embryonic in Gelb (1952), arguably, distinction first accorded appropriate prominence in DeFrancis (1989: 3) (even if his formulation is not entirely without flaws).

[**Partial writing** is] a system of graphic symbols that can be used to convey only some thought ...

[**Full writing**] can be used to convey any and all thought.

Crucial caveats: (1) contrast is about potentiality to represent **language** (as medium of thought) and (2) it is an **idealization**.

Opening remarks 2: Further impetus from recent work

Further impetus comes from recent work on orthographic representation within **Japanese writing system** (JWS).

More specifically, from reflecting on the elusive trinity of core terms for writing systems research, namely, **writing system (WS)**, **script** and **orthography**, with a renewed appreciation for dichotomy's relevance for understanding JWS (Joyce & Masuda, under review).

Daniels (2018: 155) defines this trinity of terms, in following order.

- (1) orthography conventional spelling of texts, and the principles therefor
- (2) script a particular collection of characters (or signs), used to avoid specifying abjad, alphabet, etc.
- (3) writing system a script together with an associated orthography

Opening remarks 3: Trinity of terms 1

However, Joyce & Masuda (under review) start from two senses of **WS**: (a) technical for narrow range of abstract relationships between linguistic units and graphic signs—**morphographic**, **syllabographic** and **phonemic** writing systems—(Joyce & Borgwaldt, 2011; Joyce 2016), and (b)

specific rules according to which the units of the system are interpreted in a given language (Coulmas 2013: 17-18)

Script refers to particular graphic realization of a WS for a specific language (Coulmas, 2013, Joyce, 2016).

So, JWS consists of all 3 WSs and 4 scripts:

(1) morphographic 漢字 /kan-ji/ kanji, (2) syllabographic 平仮名 /hira-ga-na/ hiragana + (3) 片仮名 /kata-ka-na/ katakana, and (4) phonemic ローマ字 /rōma-ji/ Roman alphabet (Joyce & Masuda 2018).

Opening remarks 4: Trinity of terms 2

Orthography is about mediation between WS and script;

a writing system, as adapted and designed in order to write a particular language. An orthography makes use of a particular script to write a specific language (Sebba, 2007: 170).

Orthography also assumes the potentiality of '**correctly writing**' a particular language (Coulmas 1996; Desbordes 1997; Sebba 2007).

However, prescriptive notions of 'correctly writing' become quite strained when applied to JWS, given its multi-script nature and **pervasiveness** of graphic variation (Backhouse, 1984; Joyce, Hodošček, & Nishina, 2012; Joyce & Masuda, 2018; under review).

Against such background factors, **orthography** is probably best regarded as referring to principle(s) that a particular WS uses to represent a language's lexicon in writing.

Opening remarks 5: Partial/full vs. pleremic/cenemic

Thus, **significance** of dichotomy for WS typologies hinges on simple yet important observation that only **cenemic** (semantically-empty), **phonographic** WSs can achieve full writing, but partial, **pleremic** (semantically-informed) WSs still warrant **special attention** within WS research.

More specifically, need to develop more **coherent accounts** of how the signs of pleremic WSs represent a language's **morphemes** (including words as free morphemes).

Such accounts would stress a couple of **keys points**, namely,

- (1) Pleremic WSs are **partial WSs!** (not possible to represent all the words of a language – simply **too** many!).
- (2) Morphography is the **only feasible** level for pleremic WSs, as consensus-based **sign-language associations** are essential for a functional WS!

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Typology proposals 1: Gelb (1952)

No Writing: *Pictures*

Forerunners of Writing: *Semasiography*

1. Descriptive-Representational Device
2. Identifying-Mnemonic Device

Full Writing: *Phonography*

1. <i>Word-Syllabic:</i>	Sumerian (Akkadian) 	Egyptian 	Hittite (Aegean) 	Chinese
2. <i>Syllabic:</i>	Elamite Hurrian etc.	West Semitic (Phoenician) (Hebrew) (Aramaic) etc. 	Cypriote Phaistos? Byblos?	Japanese
3. <i>Alphabetic:</i>		Greek Aramaic (vocalized) Hebrew (vocalized) Latin Indic etc.		

Typology proposals 2: Hill (1967); Haas (1976, 1983)

Hill's (1967) typology, consisting of (1) discourse (partial), (2) morphemic and (3) phonetic systems, claimed to put

every system of writing in relation to that which all systems represent, language.

Haas' (1976, 1983) typology consists of 3 binary choices:

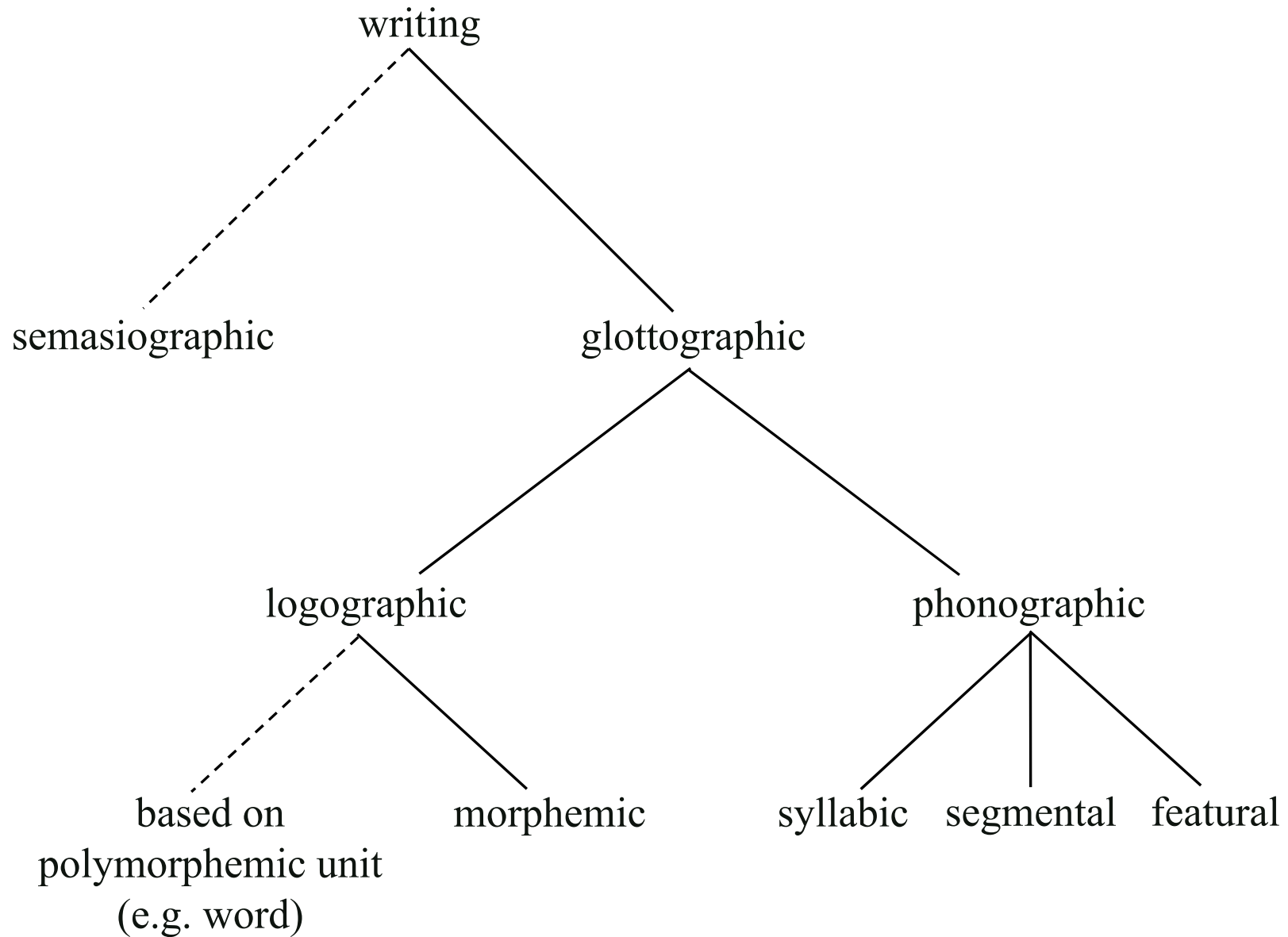
derived-original, empty-informed, motivated-arbitrary

However, **scripts** are really only distinguished according to the empty-informed contrast, which Haas also referred to as,

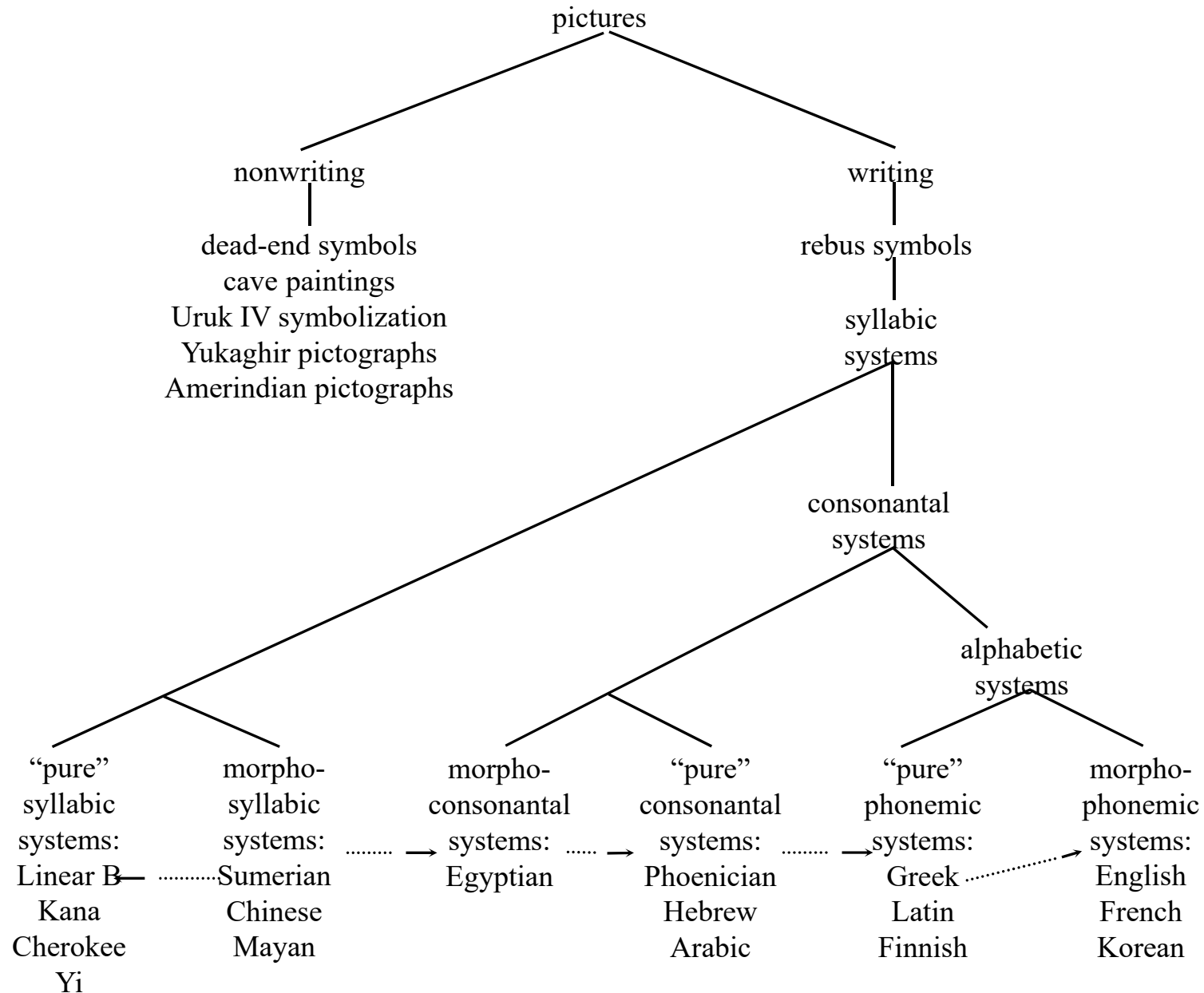
Cenemic: units only represent **sound**, so 'empty' of semantic reference (i.e., alphabets and syllabaries)

Pleremic: units are semantically 'informed' denoting both **sounds + meanings** (i.e., Chinese characters (kanji)).

Typology proposals 3: Sampson (1985; 2015)



Typology proposals 4: DeFrancis (1989)



Typology proposals 5: Daniels (1990, 2001, 2009, 2018)

Undoubtedly, Daniels' (1990, 2001, 2009, 2018) classification has been one of the most **influential** of the last two decades. It initially consisted of **6 categories**, but 2018 version drops (6)!

- (1) Logosyllabary (morphosyllabary)
- (2) Syllabary,
- (3) Abjad (Semitic-type script), where each character stands for a consonant
- (4) Alphabet (Greek-type script)
- (5) Abugida (Sanskrit-type script), where each character stands for a consonant accompanied by a particular vowel, with other vowels indicated by additions to the consonant symbol
- (6) Featural, where shapes of the characters correlate with phonetic features of designated segments.

Typology proposals 6: Coulmas (1992)

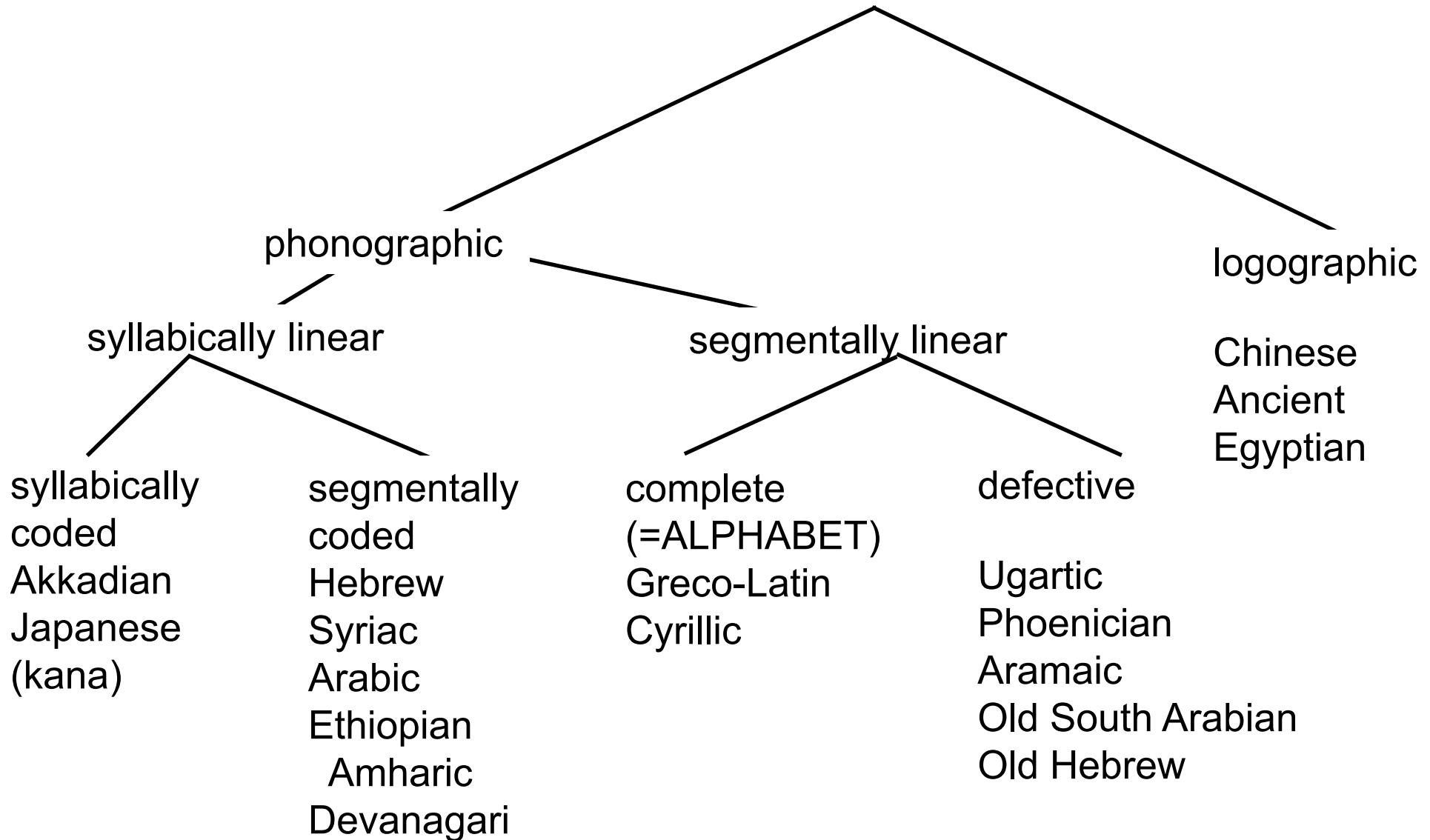
Pleremic writing systems

- (1) Logograms + phonograms (e.g., Hittite hieroglyphs)
- (2) Logograms + phonograms + determinatives (e.g., cuneiform)
- (3) Morphosyllabic signs (e.g., Chinese)

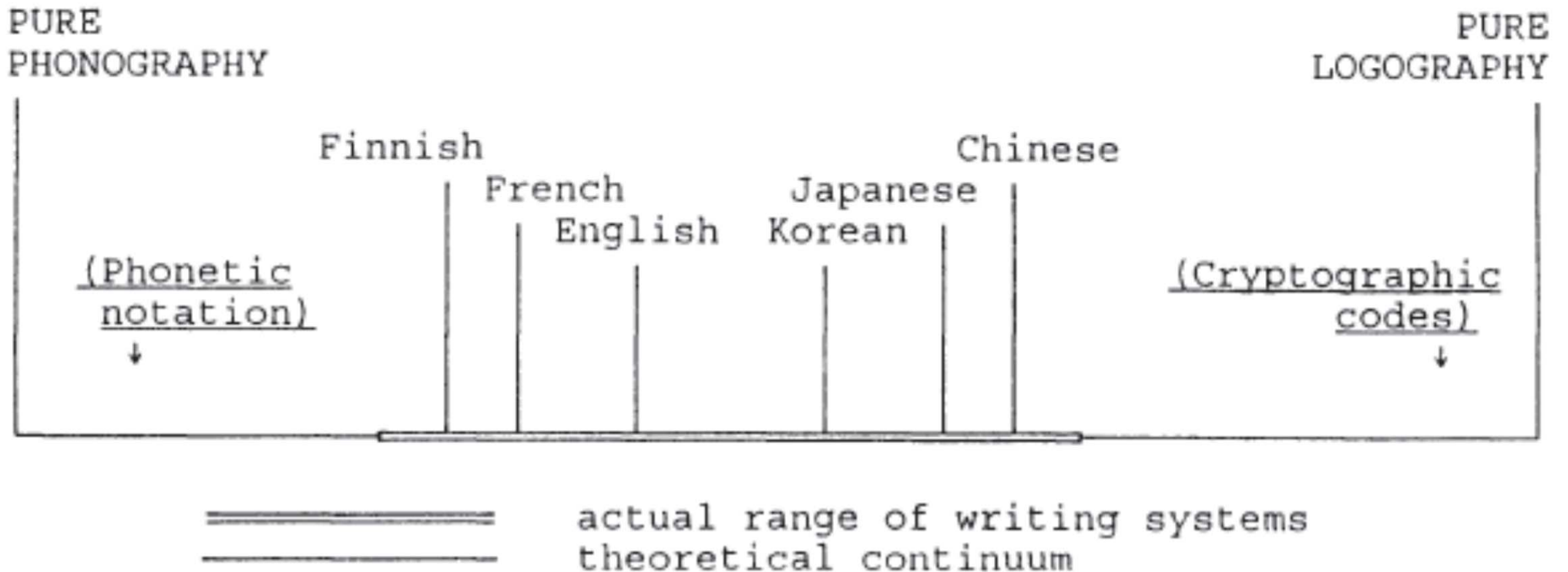
Cenemic writing systems

- (4) Syllabary (e.g., Japanese kana)
- (5) Consonantal alphabet (e.g., Phoenician)
- (6) Alphabet (e.g., Roman)
- (7) Alphabet with independent vowel letters and integrated consonant-vowel letters (e.g., Ethiopic)

Typology proposals 7: Faber (1992)

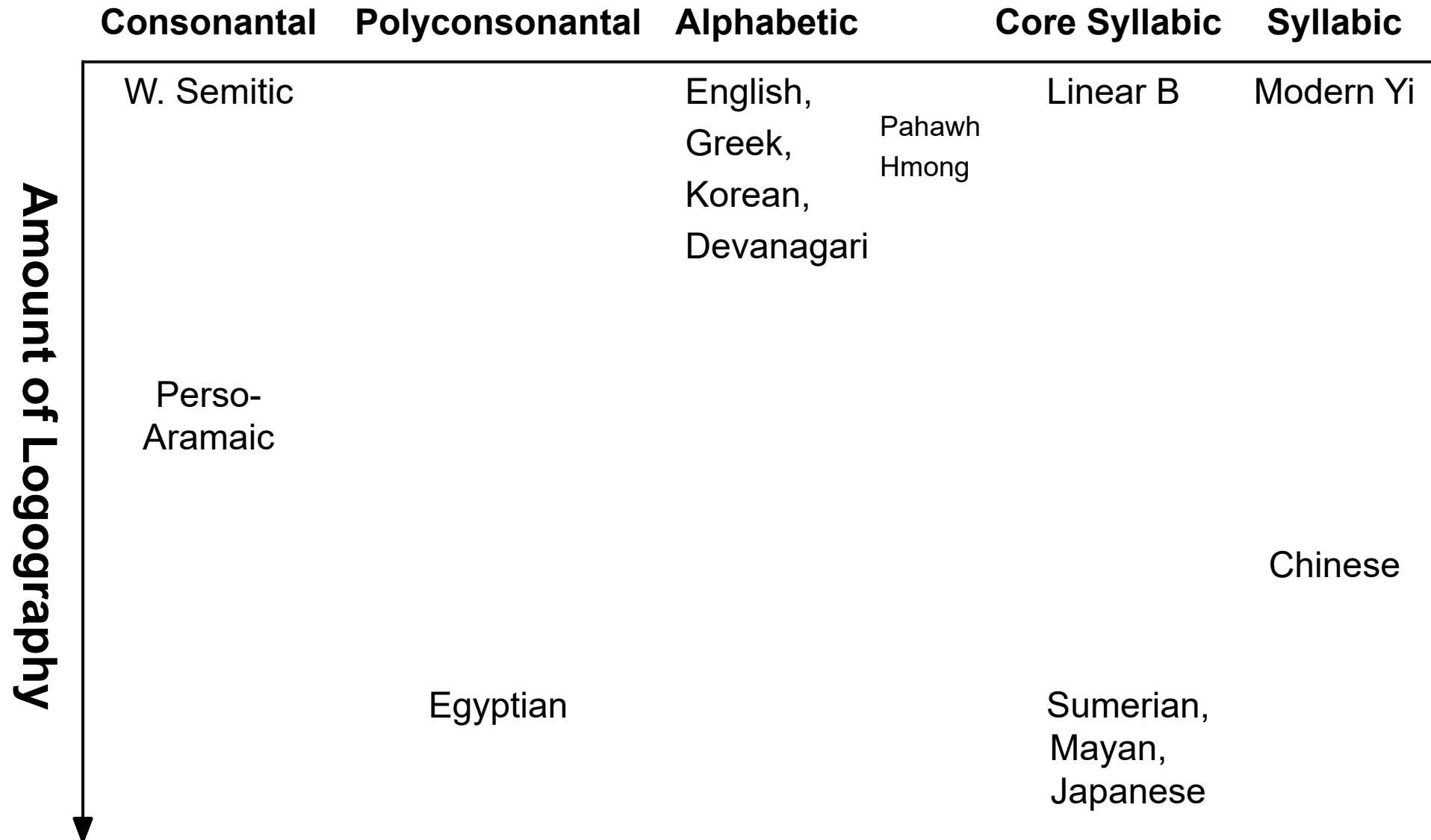


Typology proposals 8: Unger & DeFrancis (1995)



Typology proposals 8: Sproat (2000)

Type of Phonography

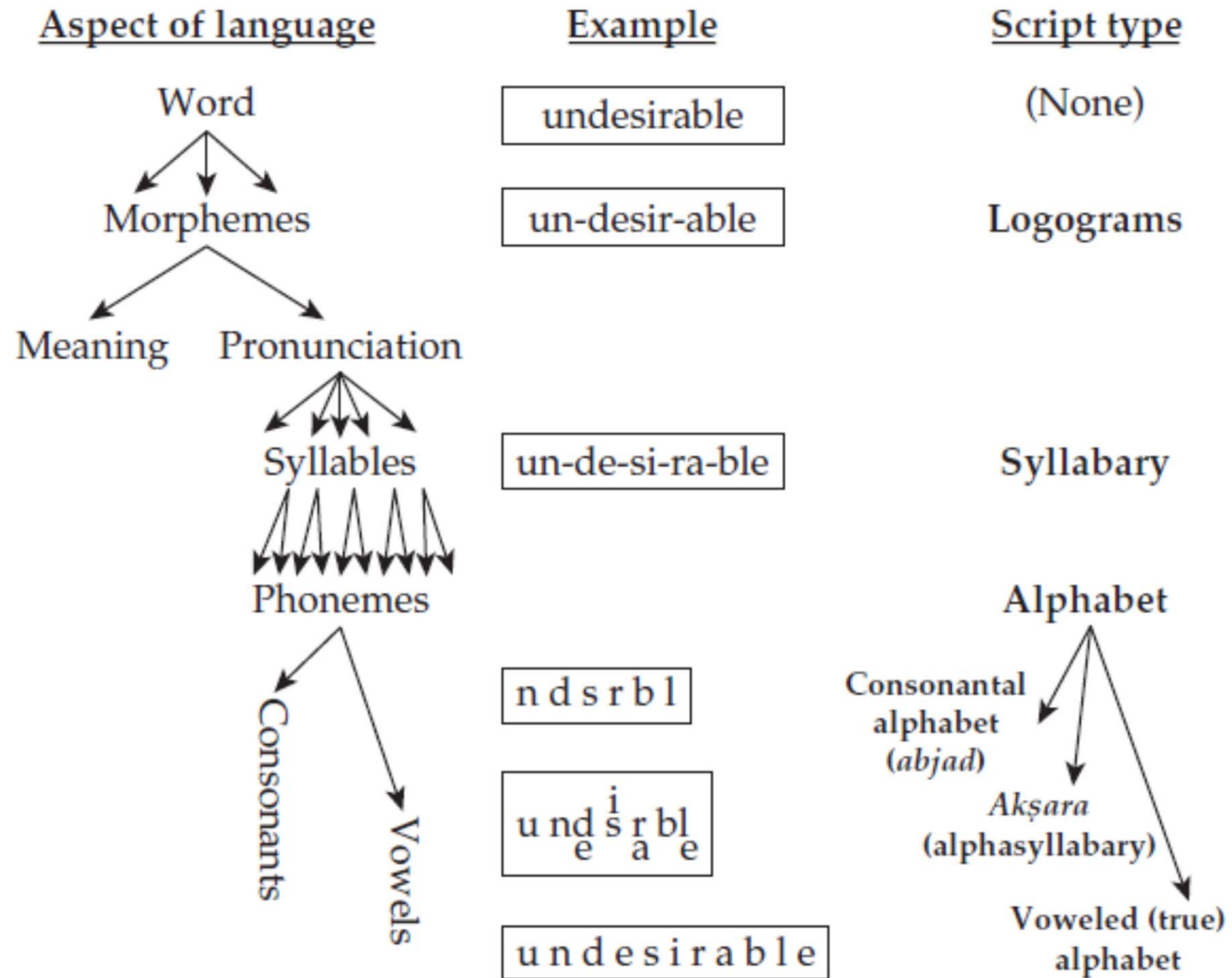


Typology proposals 9: Rogers (2005)

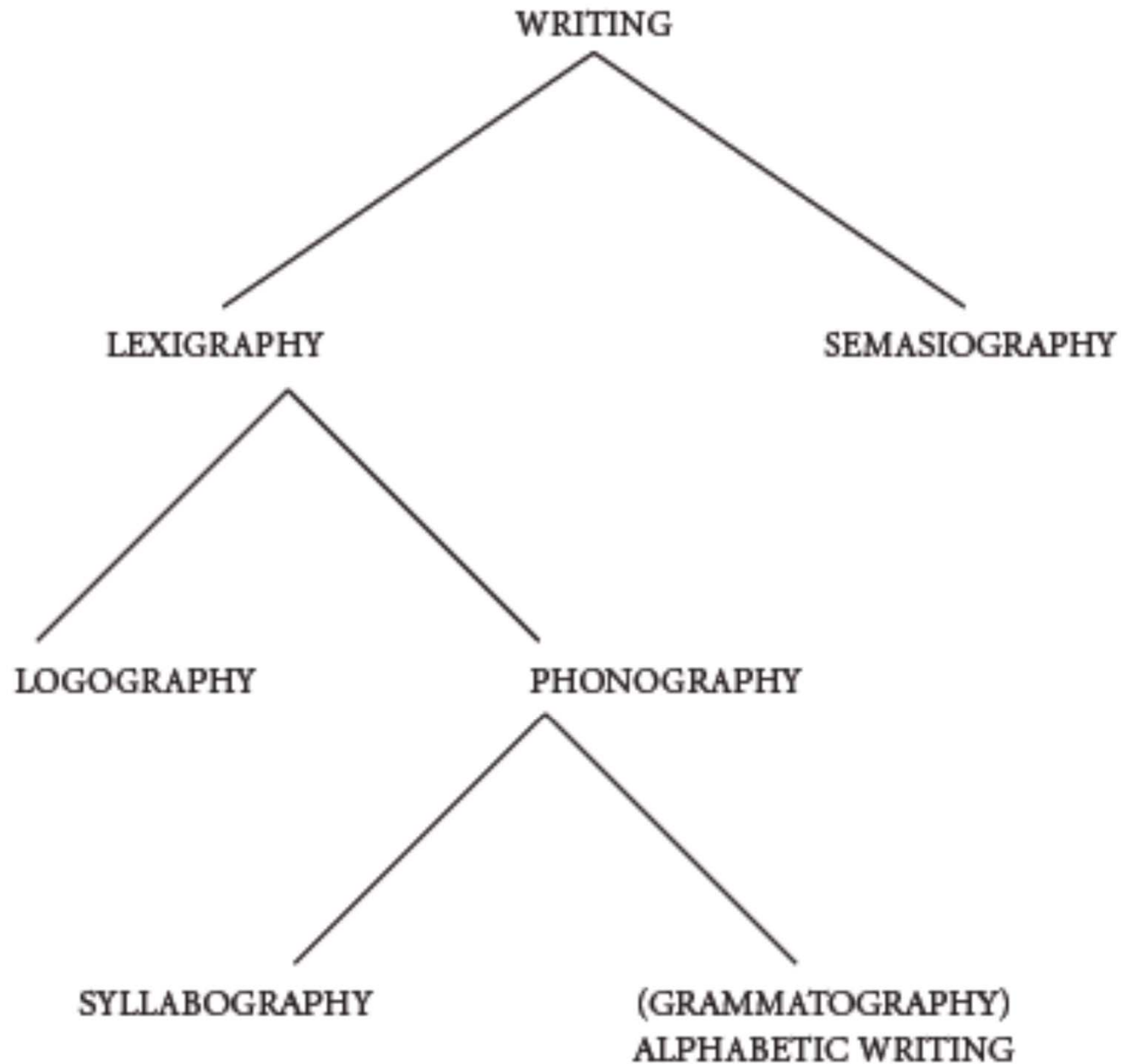
Type of Phonography



Typology proposals 10: Gnanadesikan (2009)



Typology proposals 11: Powell (2009)



Typology proposals 12: Joyce (2016)

Focusing on **terminology issues** for typology, Joyce (2016) questions value of labeling categories with exemplar names, obscuring the importance of the **syllable** for WSs, as Daniels (2018) continues to stress yet simultaneously largely conceals.

Daniels (2018)	Functional unit	Comments
Logography	Morphography	[more soon]
Syllabary		Separate signs [i.e., kana]
Abjad	Syllabography	Under-specify syllable vowel
Abugida		Extend core syllable signs
Alphabet	Phonemic WS	Both consonant + vowel signs
Prior category (6) of featural now regarded as alphabet		
Featural	Syllabography	Gestalt-sign (hangu block)

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Conceptualizing relationship 1: Representing language

Sample of proposals reflects both (1) different approaches to **conceptualizing writing** and (2) illustrates how scholarship moves forward (slowly), arguably, from earlier emphasis on historical lineage towards a clearer consensus for more **language-orientated** typologies.

[E]very system of writing in relation to that which all systems represent, language (Hill, 1967).

... [A]ll writing systems represent elements of *language*—not ideas or something else ... (Sproat, 2010: 9).

... [W]riting represents language ... (Daniels, 2018: 157).

Conceptualizing relationship 2: 2 views of relationship

Despite consensus views that (1) **language** is the primary medium of thought and (2) that languages consist of a **lexicon** and syntactic **rules** for combining words (Pinker, 1999), the specter of the **'language is speech'** view remains an issue.

language



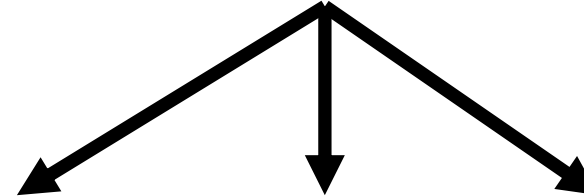
speech



writing

'language is speech' view

language



speech

writing

sign



relations of inter-translatability
between mediums of expression

abstract entity view

Modified from Joyce's (2011/2013: 69) figure 1: Schematic representation of 'language is speech' view and abstract entity view

Conceptualizing relationship 3: 'Language is speech'

This **specter** is discernable in Sproat's (2010) further claim that

... more specifically all writing systems mostly represent sound (rather than some other kind of linguistic object) (Sproat, 2010: 9).

Fine for phonographic WSs, but key word is the **mostly!**

language



speech



writing

Phonographic (cenemic) WSs

Syllable

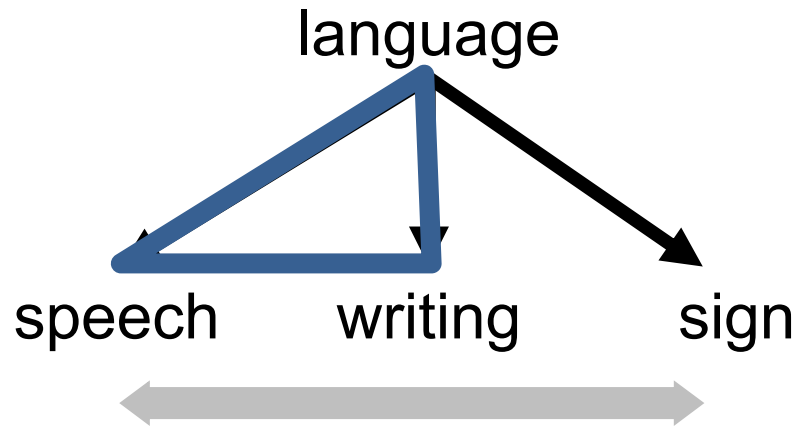
Syllabography

Phoneme

Phonemic WS

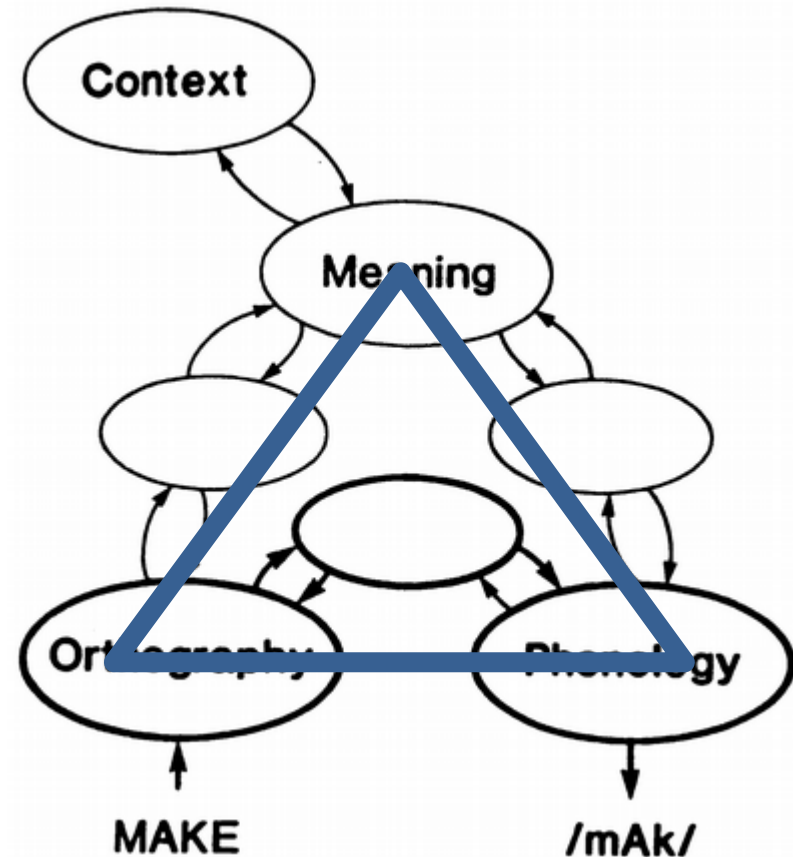
Conceptualizing relationship 4: Abstract entity

But, also need to explain that **'mostly gap'** in coherent manner.
How do morphemes link to language if **not via** phonology?



Pleremic WSs

Morpheme Morphography



Visible in the figure of Seidenberg & McClelland's (1989) triangle model

Conceptualizing relationship 5: Pleremic WSs are partial! 1

Partial vs full writing dichotomy is also central to arguments against term of **logography** (Joyce, 2011/2013, 2016)

logo (word)	+ graph	=	implies only words, but pleremic representation impossible for all!
morpho (morpheme)	+ graph	=	covers both free + bound with an emphasis on word-formation

Indeed, Daniels (2018) explicitly acknowledges that

“Morphography” would actually be preferable to “logography” (Daniels, 2018: 156).

And so the practice of continuing to use **logography** only serves to confuse, rather than clarify our understanding of WSs!

Conceptualizing relationship 6: Pleremic WSs are partial! 2

Daniels (2018) also comments on solutions underlying full WSs.

The solutions ultimately hit upon around the world were surprisingly similar: develop characters for their sounds, but also use characters for their meanings. In the latter use, the characters are called “word-signs,” or *logograms*. The term *heterogram* appears sometimes in Iranian studies ... Since it’s noncommittal as to the level of grammatical analysis involved—it doesn’t specify “word” or “morpheme,” just “otherness”—it might be convenient to adopt it for general use (Daniels, 2018: 99).

It is, however, hard to see how being ‘**noncommittal**’ in nature on key issue can be regarded as an **appropriate justification** for proposing a term, which effectively explains nothing.

Conceptualizing relationship 7: Pleremic WSs are partial! 3

Necessity of having **consensus** on the sign-language **associations** is also a key reason why emoji are unlikely to ever become a partial-pleremic WS.



What word of English does this emoji (絵文字) represent?

In 2015, a truly remarkable event occurred. The emoji known as “Face with Tears of Joy,” 🤩, was chosen by the Oxford Dictionary as the “*Word of the Year.*” Not only was it not a word—it was a pictogram—but it was chosen by one of the most prestigious dictionaries in the world (Danesi, 2017: vi).

Note, however, that Danesi (2017) omits to inform as to what it means, given that ‘face with tears of joy’ is just a description!

Conceptualizing relationship 7: Pleremic WSs are partial! 3

Danesi (2017) also comments on the following string of 5 **emoji**, taken from Berenson's (2009) emoji rendering of a work of literature, acknowledging that

.. without knowing the line verbally, this sequence could be interpreted in a variety of other ways. (Danesi, 2017: 146).



Impossible to derive **Ishmael** name of the original alphabet rendering - “Call me Ishmael” (Herman Melville's (1851) ‘Moby Dick’).

[Writing] a system of more or less permanent marks used to represent an utterance in such a way that it can be recovered more or less exactly without the intervention of the utterer.

(Daniels, 2018: 156).

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Kanji as example 1: Borrowed → NJ + SJ pronunciations

Adapted system: Japanese borrowed morphographic **kanji** (Chinese characters) from Chinese (prior to C7CE).

Kundoku: Core to that adaption was **‘meaning-mapping’** method of 訓読 /kun-doku/ ‘reading by gloss’ (Lurie (2012)).

Basically, associating Chinese characters with Japanese words plus rearranging their ordering according to Japanese syntax. Initially, practice for reading Chinese texts, but also, in reverse, became a way of **implementing** written Japanese.

Ondoku: Also origin of **dual-reading system** for kanji with both 訓読み /kun-yo.mi/ ‘native-Japanese (NJ) pronunciations’ plus 音読み /on-yo.mi/ ‘Sino-Japanese (SJ) pronunciations’.

Chinese character of 人 ‘person’ becomes linked with NJ morpheme /hito/ (/fitö/), but also with SJ morpheme /jin/ due to the considerable influx of Chinese loanwords by C8CE.

Kanji as example 2: Kanji formation 1

Traditionally [許慎 /kyo-shin/ (c. 120CE) 六書 /riku-sho/ ‘Six scripts’],
6 **principles** recognized, but 2 are actually related to usage.

Shirakawa’s (2012) analysis of 2,136 常用漢字表 /jō-yō-kan-ji-hyō/
‘List of kanji for general use’ according to 4 formation principles

[Note: Table is modification from Joyce (2011/2013); continues on next slide]

象形文字 /shō-kei mo-ji/ ‘pictographs’ [**264 (12.4%)**]

木 SJ /boku/, /moku/; NJ /ki/, /ko/ ‘tree’ [trunk + branches]

山 SJ /san/; NJ /yama/ ‘mountain’ [outline shape of 3 peaks]

象 SJ /shō/, zō/ ‘elephant; image’ [rotated + highly-stylized]

指示文字 /shi-ji mo-ji/ ‘ideographs’ [**10 (0.5%)**]

一 SJ /ichi/, /itsu/; NJ /hito/, /hitotsu/ ‘one’ [simple tally mark]

本 SJ /hon/; NJ /moto/ ‘base; main; book’ [stroke indicating base]

末 SJ /matsu/, /batsu/; NJ /sue/ ‘end, tip’ [stroke indicating end]

Kanji as example 3: Kanji formation 2

table continued

会意文字 /kai-i mo-ji/ ‘semantic compounds’ [531 (24.9%)]

林 SJ /rin/; NJ /hayashi/ ‘grove, woods’ [木 ‘tree’ + 木 ‘tree’]

森 SJ /shin/; NJ /mori/ ‘forest’ [林 ‘woods’ + another 木 ‘tree’]

休 SJ /kyū//; NJ /yasu.mu/ ‘rest; holiday’ [人 ‘person’ + 木 ‘tree’]

形声文字 /kei-sei mo-ji/ ‘phonetic compounds’ [1,312 (61.4%)]

寺 SJ /ji/; NJ /tera/ ‘temple’ functions as phonetic radical within number of other kanji, such as:

侍 SJ /ji/; NJ /samurai/ ‘serve; samurai’ [人 ‘person’ + /ji/ of ‘temple’]

持 SJ /ji/; NJ /mo.tsu/ ‘have; hold’ [手 ‘hand’ + /ji/ of ‘temple’]

時 SJ /ji/; NJ /toki/ ‘time; o’clock’ [日 ‘sun; day’ + /ji/ of ‘temple’]

Kanji as example 4: Kanji formation 3

DeFrancis (1989) is absolutely correct in stressing the **rebus principle** as key in the development of partial into full WSs.

[**Rebus principle**] a pictographic symbol was used not for its original meaning value but specifically to represent the sound evoked by the name of the symbol (DeFrancis, 1989: 50).

DeFrancis' uses  +  to express sounds of 'belief'

Certainly, in case of Sumerian cuneiform, that eventually led, through subsequent transmissions, to the creation of cuneiform WSs (Cooper, 1996).

However, in the case of Chinese characters, the rebus principle was employed in union with radicals, or semantic determiners, to create **phonetic compound** Chinese characters.

Kanji as example 5: Kanji formation 4

DeFrancis' example of phonetic compounds is now well-known.

媽 /mā/ 'mother' [phonetic compound – hard to draw 'mother']
is combination of
女 'woman' [pictogram] as semantic element for 'female-related'
+
馬 /mǎ/ 'horse' [pictogram] used as (close) phonetic element

Once 媽 **morphograph** created, just as it would be **error** to say /mǎ/ for intended morpheme of /mā/, it would also be a **grave mistake** to write 馬 for the intended the morpheme of 媽.

However, the fact that Chinese **never** became a cenic WS is a **serious dilemma** for the 'language is speech' view.

If writing is merely representing speech, what exactly is the **non-phonological element** of a Chinese character?

Where does it come from? What is it doing?

Kanji as example 6: Dual-reading system 1

As noted, kanji are associated with 2 kinds of readings:

NJ readings are associated with **NJ morphemes** for nouns, stems of both verbs and some adjectives.

SJ readings are associated with **SJ morphemes**, which are generally the components of compound words.

用 SJ /yō/; NJ /mochi.iru/ ‘use’

用いる /mochi.iru/ ‘use’ – as NJ verb stem plus hiragana representation of the inflectional elements

用具 /yō-gu/ ‘tool, equipment’ – element of modifier + modified compound word (Joyce 2002), combined with 具 SJ /gu/ ‘tool’

使用 /shi-yō/ ‘use, employ’ – element of synonymous pair compound word, combined with 使 SJ /shi/ NJ /tsuka.u/ ‘use’

Kanji as example 7: Dual-reading system 2

Frequency distributions of onyomi and kunyomi for jōyō kanji
(Table 2 from Joyce, Masuda, & Ogawa, 2014: 180)

Kunyomi per kanji	Onyomi per kanji							Total
	0	1	2	3	4	5		
0	0	741	78	2	0	0	821	
1	66	685	93	7	0	0	851	
2	9	238	55	5	0	1	308	
3	1	77	15	2	0	0	95	
4	0	35	10	1	0	0	46	
5	0	7	0	0	0	0	7	
6	0	1	0	0	0	0	1	
7	0	3	0	0	0	0	3	
8	0	0	1	0	0	0	1	
9	0	0	1	0	0	0	1	
10	0	0	2	0	0	0	2	
Total	76	1,787	255	17	0	1	2,136	

Kanji as example 8: Morphemes and allomorphs 1

Naturally, dual-reading system parallels the relationships between **morphemes** and **allomorphs**, but it also, admittedly, makes the notion of morphography far from straightforward.

[Poster session 2: Masuda & Joyce will also touch on the issues relating to determining morphemes and their status within compound words]

Joyce et al (2012) discuss the treatment of homophone lemmas (as head-word) within the NLP dictionary used in creating **Balanced Corpus of Contemporary Written Japanese** (BCCWJ: Maekawa et al 2011), with example of the homophone and sense discriminations for /au/.

Lemma	Ortho-Base	Meanings
合 <small>う</small>	あ <small>う</small>	fit, match, agree with, be correct
	合 <small>う</small>	fit, match, agree with, be correct

Kanji as example 9: Morphemes and allomorphs 2

Lemma	Ortho-Base	Meanings
	あう	meet, encounter
	会う	meet, encounter
会う	逢う	meet, encounter (date or tryst nuance)
	遭う	meet, encounter (undesirable nuance)
	遇う	meet, encounter (unexpected nuance)

4 kanji associated with 'meet, encounter' sense in compound words which illustrate their nuances as SJ morphemes

会議 /kai-gi/ 'meeting, assembly' – 会 + 議 /gi/ 'discussion'

逢瀬 /ō-se/ 'rendezvous, tryst' – 逢 + 瀬 /se/ 'rapids, shallows'

遭難 /sō-nan/ 'disaster; accident' – 遭 + 難 /nan/ 'difficulty; trouble'

奇遇 /ki-gū/ 'unexpected meeting' – 奇 /ki/ 'strange' + 遇

Kanji as example 9: Multi-script JWS

Standard JWS graphic conventions (Joyce & Masuda, under review)

Kanji	正書法 /sei-sho-hō/ ‘orthography’; SJ compound 筆 /fude/ ‘(calligraphy) brush’; NJ simplex word
Hiragana	です /desu/ ‘copula verb’; NJ verb の /no/ ‘possessive marker’; NJ case marking particle
Katakana	スマートフォン /sumātofon/ ‘smart phone’; FJ チカチカ /chikachika/ ‘flickering, twinkling’; NJ mimetic
Rōmaji	CM /shīemu/ ‘TV commercial, ad’; FJ
Mixed	読書する /doku-sho.suru/ ‘read’; verb [kanji+hiragana] 書く /ka.ku/ ‘write’; NJ verb [kanji+hiragana] 野菜ジュース /ya-sai jūsu/ veg. juice [kanji+katakana] 3000万円 /sanzen.man.en/ ‘30m yen’; [numeral+kanji]

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Concluding remarks 1

This talk has tendered some thoughts on the **partial versus full writing dichotomy** and its significance for WS typology.

More specifically, given that only **cenemic** WSs can achieve full writing, WS research needs to develop more coherent accounts of how **pleremic** WS functions, not just to explain historical examples, but to adequately elucidate the contemporary examples of JWS and Chinese WS, as well as expounding the implications for mixed WSs (such as English).

Robertson's (2004) insightful observation on the possibility of writing emerging from the **intersection** between

highly developed avenues of human perception – visual (iconic) and auditory (symbolic) perception (Robertson, 2004: 19).

could potentially provide a basis for more realistic accounts of how the **semantic** elements of kanji function.

Concluding remarks 2

This talk has also sought to stress how the only feasible level for pleremic WSs is the level of **morphology** (inclusive sense). Key point is that functional WSs are impossible without consensus on **sign-language associations**; otherwise the excesses of reference **ambiguity** would render a WS completely unworkable!

Thus, unless user communities can reach unanimous consensus on the lexical references of emoji, like 😂, it seems unlikely that they can ever develop into full WSs.

Orthography is about the various mediations between **WS(s)** and **script(s)** employed by a language's community of users to **graphically** represent the language's **lexicon** in writing!

Thank you for your kind attention

ご清聴ありがとうございます