

How to write around the world (And which ways are best)

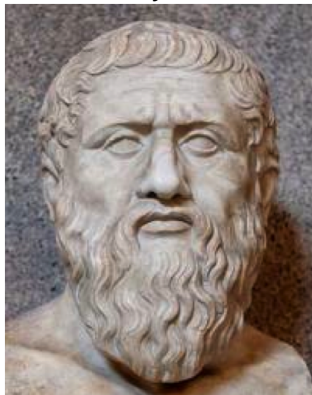
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University of Chicago

Humanities Day, October 2015

Is there a right and wrong way to speak?

- Plato's *Cratylus*, or *On the correctness of names*



What is writing?

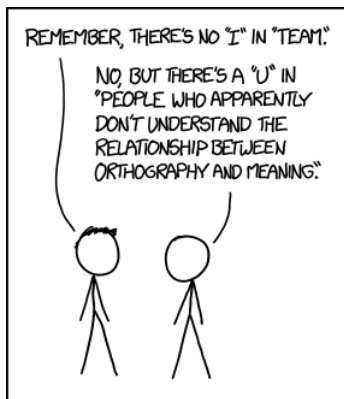
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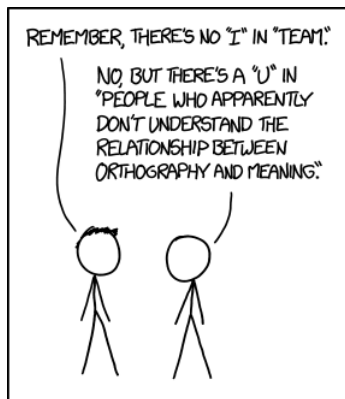
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- The basic units are therefore *linguistic* units: words, morphemes, syllables, or phonemes

Linguistic units

- Words and morphemes:

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 - 1 *teachers*: a word consisting of three **morphemes**

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Syllables are the basic unit of poetic meter (scansion), etc.
 - 2 **Phonemes**: distinctive units of sound in a given language:
consonants (*k, b, h, ...*); vowels (*a, e, ...*); diphthongs (*ai, au, oi, ...*);
tones

Major types of writing systems

Type	Symbols represent	Example
Logographic	morpheme or word	Chinese <i>hànzì</i>
Syllabary	syllable	Japanese <i>kana</i>
Abjad	C (V optional)	Hebrew, Arabic
Alphabet	consonants, vowels	Greek, Latin, Cyrillic

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- Alphabets and abjads are **phonemic** systems
- Phonemic systems and syllabaries are **phonographic** systems

Sumerian writing: Cuneiform

- 'Cuneiform' means 'wedge-shaped', from the shapes the stylus made in clay



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- Began as **pictographs** (stylized representations of objects or properties thereof or relations between)



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- First place we see evidence of **phonographic** writing: the use of symbols to represent sound (syllables or segments) rather than just concepts or ideas (3000-2700 BCE)
- Made possible by the use of the **rebus principle**: a symbol could be used for any word that was pronounced like the word whose meaning it originally represented.

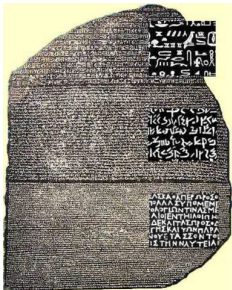
From logograms to cuneiform

	3200 BCE	3000 BCE	2400 BCE	1000 BCE
sag 'head'				
gin 'to walk'				
šu 'hand'				
še 'barley'				
ninda 'bread'				
a 'water'				
ud 'day'				
mušen 'bird'				

Egyptian

- Meanwhile, the Egyptians were up to something similar

Rosetta Stone:



Jean-François Champollion



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- **Hieroglyphics** mixed logographs....

				
<i>hr</i>	<i>pr</i>	<i>r^c</i>	<i>s³</i>	<i>tw</i>
'head'	'house'	'sun', 'day'	'duck'	'to walk'

Egyptian

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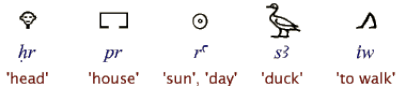
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- **Hieroglyphics** mixed logographs....



- **Determinatives**...



Egyptian

- And, eventually, some phonographs:

glyph translit. phonetic



3

[ʔ]



i

[i]



≡

y

[y]



ʿ

[ʿ]



w

[w]



b

[b]



p

[p]



f

[f]



m

[m]



n

[n]



r

[r]



h

[h]

glyph translit. phonetic



ḥ

[h]



ḫ

[x]



ḥ

[ç]



s

[s]



š

[š]



ḳ

[q]



k

[k]



g

[g]



t

[t]



t̄

[tʰ], [c]



d

[d]



d̄

[dʰ], [j]

biconsonantal



ir



mr



sw



wp



ms



k3



wr



nb



s3



mn



rw



ḏd

triconsonantal



ʿnh



rwḏ



w3ḥ



ḥtp



nfr



ḥpr



nṯr



šmʿ

Chinese writing: 'Characters'

- Originally pictographs, developed into logographs: what do the following mean?

The image shows the Chinese character '水' (shuǐ) in a bold, black, calligraphic style. The character is composed of three main strokes: a vertical stroke on the right, a curved stroke on the left, and a smaller curved stroke on the right side of the vertical stroke.The image shows the Chinese character '大' (dà) in a bold, black, calligraphic style. The character is composed of three main strokes: a vertical stroke on the left, a horizontal stroke across the middle, and a curved stroke on the right.

Chinese writing: 'Characters'

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The image shows the Chinese character '水' (shuǐ) in a bold, black, calligraphic style. It is a logograph that evolved from a pictograph of a water droplet. The character consists of a central vertical stroke with a hook at the bottom, and two curved strokes on either side that resemble waves or droplets.The image shows the Chinese character '大' (dà) in a bold, black, calligraphic style. It is a logograph that evolved from a pictograph of a person with arms and legs spread wide. The character consists of a central vertical stroke with a hook at the bottom, and two horizontal strokes that extend outwards, resembling arms or legs.

- In Pinyin transcription: shuǐ³, dà⁴

Chinese writing: 'Characters'

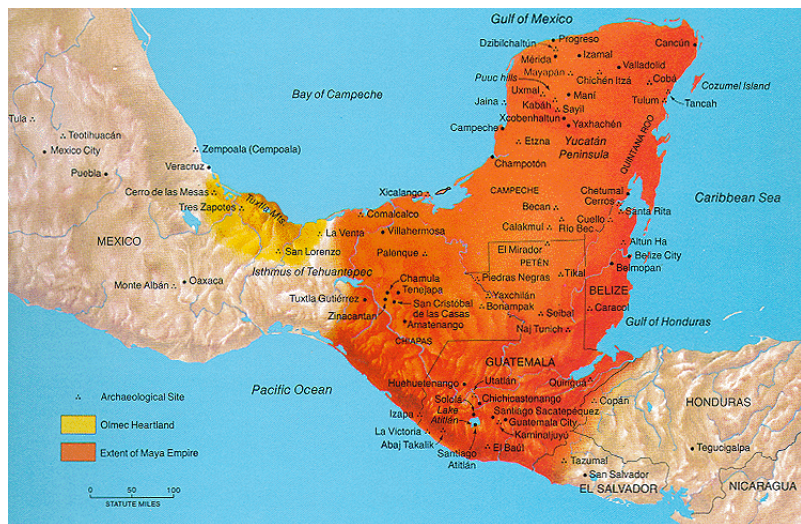
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- In Pinyin transcription: shuǐ³, dà⁴
- 'water'

'big'

Maya glyphs: Writing of the Mayan empire, 2000BC-900AD



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- Palenque:



Maya glyphs: Writing of the Mayan empire



Maya glyphs: Writing of the Mayan empire

- Partly logographic:



Maya glyphs: Writing of the Mayan empire

- Partly syllabic:



tzu l(u)

tzul
'dog'



b'(i)

tz'ib'
'writing'



m(a)

b'alam
'jaguar'



a →

← m(a)

xa

Aj Maxam
'Man of Maxam'



a k(u)

ahk
'turtle'



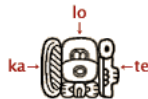
t'(i)

muut
'bird'



k(i)

Chaak
'Rain God'



ka →

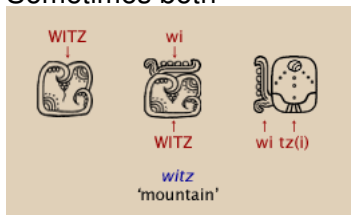
← te

m(a)

kaloomte'
'high king'

Maya glyphs: Writing of the Mayan empire

- Sometimes both



Japanese katakana: Mostly a syllabary

Katakana syllabograms

	Monographs (gojūon)				
	<i>a</i>	<i>i</i>	<i>u</i>	<i>e</i>	<i>o</i>
∅	ア a [a]	イ i [i]	ウ u [u]	エ e [e]	オ o [o]
<i>K</i>	カ ka [ka]	キ ki [ki]	ク ku [ku]	ケ ke [ke]	コ ko [ko]
<i>S</i>	サ sa [sa]	シ shi [ɕi]	ス su [sɯ]	セ se [se]	ソ so [so]
<i>T</i>	タ ta [ta]	チ chi [tɕi]	ツ tsu [tɕɯ]	テ te [te]	ト to [to]
<i>N</i>	ナ na [na]	ニ ni [ni]	ヌ nu [nu]	ネ ne [ne]	ノ no [no]

Cherokee: 86 symbols (syllabographs)

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- Almost a true syllabary (find the exception):
(The 'v' in the last column stands for a front mid unrounded nasalized vowel)

Cherokee: 86 symbols (syllabographs)

D a	R e	T i	Ꭰ o	Ꭱ u	Ꭲ v
Ꭳ ga Ꭴ ka	Ꭵ ge	Ꭶ gi	Ꭷ go	Ꭸ gu	Ꭹ gv
Ꭺ ha	Ꭻ he	Ꭼ hi	Ꭽ ho	Ꭾ hu	Ꭿ hv
Ꮀ la	Ꮁ le	Ꮂ li	Ꮃ lo	Ꮄ lu	Ꮅ lv
Ꮆ ma	Ꮇ me	Ꮈ mi	Ꮉ mo	Ꮊ mu	
Ꮎ na Ꮏ hna Ꮐ nah	Ꮑ ne	Ꮒ ni	Ꮓ no	Ꮔ nu	Ꮕ nv
Ꮖ qua	Ꮗ que	Ꮘ qui	Ꮙ quo	Ꮚ quu	Ꮛ quv
Ꮝ s Ꮞ sa	Ꮟ se	Ꮠ si	Ꮡ so	Ꮢ su	Ꮣ sv
Ꮤ da Ꮥ ta	Ꮦ de Ꮧ te	Ꮨ di Ꮩ ti	Ꮪ do	Ꮫ du	Ꮬ dv
Ꮮ dla Ꮯ tla	Ꮰ tle	Ꮱ tli	Ꮲ tlo	Ꮳ tlu	Ꮴ tiv
Ꮵ tsa	Ꮶ tse	Ꮷ tsi	Ꮸ tso	Ꮹ tsu	Ꮺ tsv
Ꮻ wa	Ꮼ we	Ꮽ wi	Ꮾ wo	Ꮿ wu	Ᏸ ww
᏷ ya	ᏸ ye	ᏹ yi	ᏺ yo	ᏻ yu	ᏼ yv

Syllabaries and phonemic inventories

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- Hint: How many vowels do they have? How many consonants? How do these combine?
- A syllabary would be a nightmare for a language like English... how many distinct possible syllables does English have?

The origins of writing in Greece

- Earliest deciphered Greek: Linear B (ca. 1400-1200 BC)



Back to the Ancient Middle East: Phoenician

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- However, it was still an **abjad**: no vowels
- Descended from pictographic Proto-Sinaitic via Proto-Canaanite

Phoenician

Name	Proto-Canaanite	Phoenician	Gloss
'aleph			'ox'
taw			'mark, signature'
mem			'water'

Phoenician

ʾ
B
G
D
H
W
Z
Ch

T
Y
K
L
M
N
S
,

P
C
Q
R
Š, Š
Th

Hebrew

א	'alep	'	ל	lamed	l
ב	bet	b	מ	mem	m
ג	gimel	g	נ	nun	n
ד	dalet	d	ס	samek	s
ה	he	h	ע	ayin	'
ו	waw	w	פ	pe	p
ז	zayin	z	צ	tsade	ʒ
ח	het	ħ	ק	qop	q
ט	tet	ʔ	ר	reš	r
י	yod	y	ש	šin	ʃ
כ	kap	k	ת	taw	t

What's the big deal here?

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- What's worse: English written with no vowels, r...
- English written in such a way that every vowel is replaced by a single symbol?
- Does this frequently happen in other languages?

What's the big deal here?

- What's the structure of English and how is it less clear with the vowel letters?
- What's wrong: English written with 26 vowels, r...
- English written in such a way that every vowel is replaced by a single symbol?
- Does this fundamentally affect the sound of the word?
- What about the words "Q wqrq tq pqck q mqrq qrbqtrqrsqmbql"?

What's the big deal here?

- Something about English is more or less clear without the vowel letters?
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- English written in such a way that every vowel is replaced by a single symbol?
- Does this fundamentally affect the meaning?
- What about the words "quickly" and "quickly"?
- Is it possible to read "quickly" without the vowels?

A useful development

- Phoenician was an abjad...

A useful development

- Phoenician was an abjad...
- But the Greeks borrowed the symbols and made the first true **alphabet** (<alpha + bet(a))

A useful development

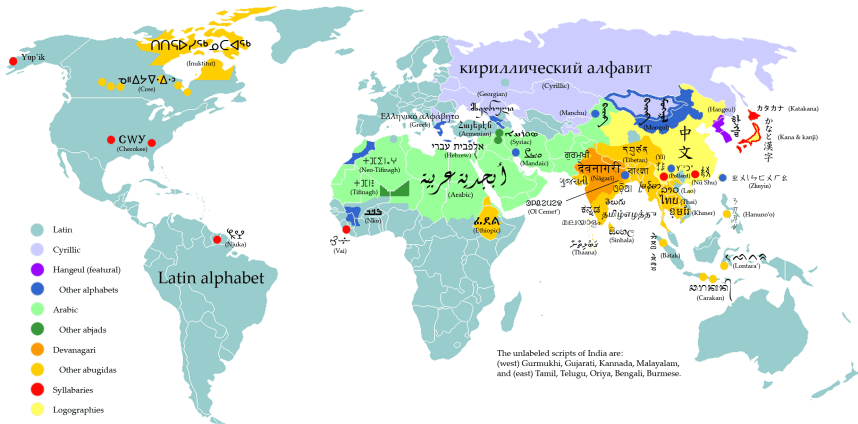
- The Greeks re-appropriated certain symbols to serve their phonemic needs.

Phoenician			Greek		
symbol	name	value	symbol	name	value
𐤀	'ālep	[ʔ]	Αα	alpha	[a]
𐤁	he	[h]	Εε	epsilon	[e]
𐤂	yodh	[j]	Ιι	iota	[i]
𐤃	heth	[ħ]	Ηη	eta	[ɛː]
𐤄	'ayin	[ʕ]	Οο	omicron	[o]
𐤅	waw	[w]	Υυ	upsilon	[y] ([i])

The Greek alphabet

Αα	Alpha	Νν	Nu
Ββ	Beta	Ξξ	Xi
Γγ	Gamma	Οο	Omicron
Δδ	Delta	Ππ	Pi
Εε	Epsilon	Ρρ	Rho
Ζζ	Zeta	Σσς	Sigma
Ηη	Eta	Ττ	Tau
Θθ	Theta	Υυ	Upsilon
Ιι	Iota	Φφ	Phi
Κκ	Kappa	Χχ	Chi
Λλ	Lambda	Ψψ	Psi
Μμ	Mu	Ωω	Omega

Alphabets from the Greek: Latin, Cyrillic, etc...



The unlabeled scripts of India are: (west) Gurmukhi, Gujarati, Kannada, Malayalam, and (east) Tamil, Telugu, Oriya, Bengali, Burmese.

The Russian (Cyrillic) alphabet

А а Аа Б б Бб В в Вв Г г Гг
Д д Дд Е е Ее Ё ё Её Ж ж Жж
З з Зз И и Ии Й й Йй К к Кк
Л л Лл М м Мм Н н Нн О о Оо
П п Пп Р р Рр С с Сс Т т Тт
У у Уу Ф ф Фф Х х Хх Ц ц Цц
Ч ч Чч Ш ш Шш Щ щ Щщ Ъ ъ Ъ
Ы ы Ыы Э э Ээ Ю ю Юю Я я Яя

Our own alphabet: the Roman or Latin

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- 26 letters, well suited to writing Latin: how about English?

Phonemes of Midwestern American English: 24 consonants

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	
Affricate					tʃ dʒ			
Fricative		f v	θ ð	s z	ʃ ʒ			h
Nasal	m			n			ŋ	
Lateral				l				
Approximant					ɹ	j	(ɹ) w	

- Cf. *tin*, *thin*, *thing*, *this*, *thick*, *tick*, *sick*: 3 sounds in each

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- *breath*, *breathe*, *meth*, *seethe*, *bath*, *bathe*

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Approximant					r	j	(ɹ) w	

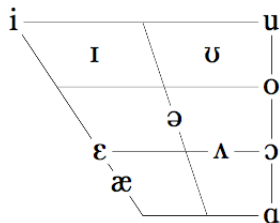
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- *breath*u, *breathe*u, *meth*u, *seethe*u, *bath*u, *bathe*u
- th is a *digraph*: two letters used to represent one sound

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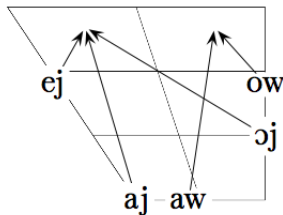
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- *breath*, *breathe*, *meth*, *seethe*, *bath*, *bathe*
- *th* is a *digraph*: two letters used to represent one sound
- Old English had letters for these: þ ('thorn') and ð ('eth'):
ðis <this> vs. þin <thin>

Phonemes of Midwestern American English: 15 vowels and diphthongs



beat, bit, bet, bat, boot, put,
but, bought, (ro)bot, a(bout)



bait, bite, bout, Boyd, boat

How do you pronounce *ghoti*?

- *gh* as in *enough*

How do you pronounce *ghoti*?

- *gh* as in *enough*
- *o* as in *women*

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- *gh* as in *enough*
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- *ti* as in *nation*

How do you pronounce *ghoti*?

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- *ti* as in *nation*
- = fish!

Txting: The Gr8 Db8, lol

Is texting destroying the English language?

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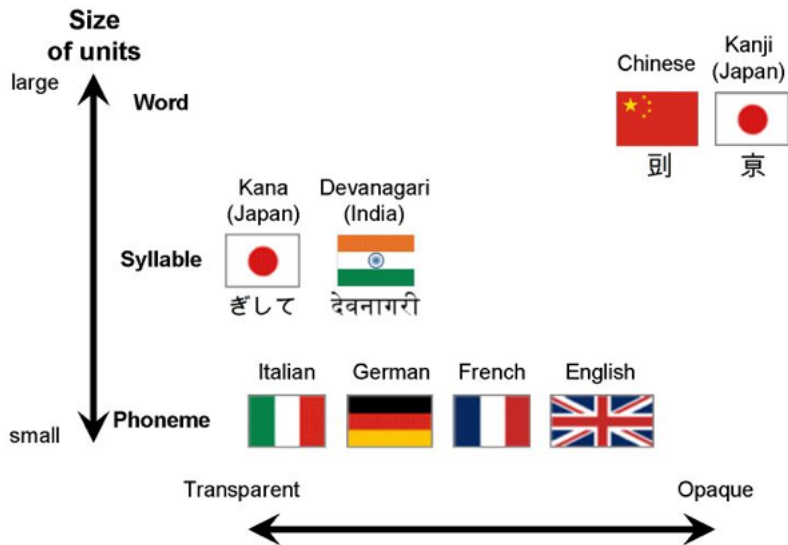
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- 4 Texting is supplementing, not supplanting, speech; it is not replacing any equivalent form of written communication

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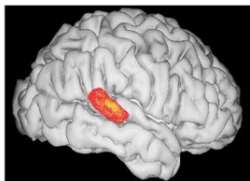
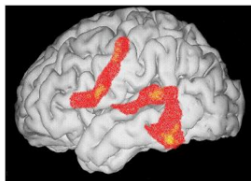
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- 5 Autocomplete is already ending abbreviations

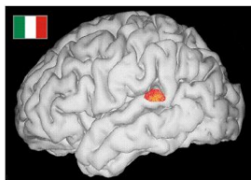
Comparing orthographies



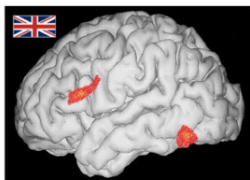
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Network common to reading in Italian and in English



Stronger activation
in Italian



Stronger activation
in English

Figure 2.20. The transparency of the spelling system influences the organization of the reader's brain. Writing systems differ in the size of the units they denote (phonemes, syllables, or whole words) and in their degree of transparency (the regularity of the relation between symbols and speech sounds). Italian spelling is very regular, while English spelling bristles with irregularities and exception words. When contrasting brain activations in Italian and English, small modulations are seen within an overall shared network. Italian causes stronger activation in auditory areas of the superior temporal lobe, while English puts greater emphasis on the

Comparing orthographies

‘Whole word’ reading strategies are inferior to phonemic training

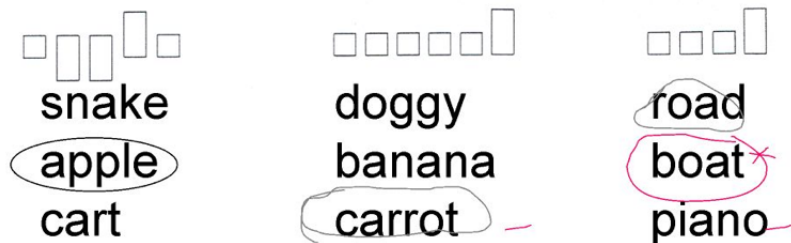


Figure 5.2. In spite of its inefficacy, the whole-language method continues to inspire educators throughout the world. The tests shown here are still used in some classrooms during the first few weeks of reading instruction. Although the child cannot yet sound out letters, he is asked to pair a whole word with the corresponding image (top). He of course makes gross errors such as calling a cat “pig,” suggesting that he is unaware of the alphabetic principle. The child is also taught to attend to the overall contours of ascending and descending letters. Note that even the teacher errs on the word “boat.” These exercises are in no way related to how our brain recognizes words.

Comparing orthographies



Comparing orthographies

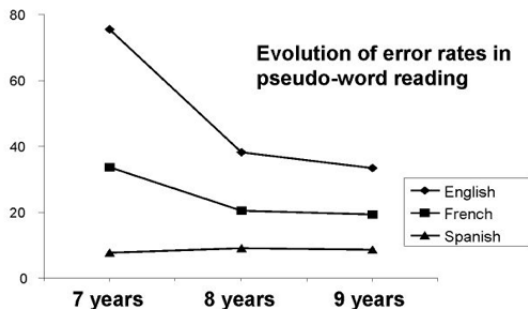


Figure 5.3. European languages are not equal in the face of reading acquisition. Error rates in reading familiar words were measured in fifteen European countries after one year of schooling (top, data from Seymour et al., 2003, table 5). Finnish, German, Greek, Austrian and Italian, whose spelling is transparent, were already read accurately. At the other end of the scale, English is very opaque and children could only read one out of three words. These inequalities were perpetuated in subsequent years, particularly for pseudo-words such as “balist” or “chifling” that can only be deciphered with grapheme-phoneme decoding (bottom, data from Goswami et al., 1998, table 8). It takes one or two additional years of schooling before an English child reaches the reading level of a French child.

So English writing (and spelling) can be tough to learn... but at least it's not Irish:

- 1 Rachaidh mé
'I WILL go.'

So English writing (and spelling) can be tough to learn... but at least it's not Irish:

- 1 Rachaidh mé
'I WILL go.'
- 2 Coinneochaidh mé
'I WILL keep.'

So English writing (and spelling) can be tough to learn... but at least it's not Irish:

- 1 Rachaidh mé
'I WILL go.'
- 2 Coinneochaidh mé
'I WILL keep.'
- 3 ach tiocfaidh sé
'but he WILL come'

So English writing (and spelling) can be tough to learn... but at least
it's not Irish:

❶ Rachaidh mé
'I WILL go.'

'rahə 'me:

So English writing (and spelling) can be tough to learn... but at least it's not Irish:

- 1 Rachaidh mé 'rahə 'me: 'I WILL go.'
- 2 Coinneochaidh mé 'kin/ahə 'me: 'I WILL keep.'

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- 3 ach tiocfaidh sé 't/ukə 'ʃe: 'but he WILL come'

Thank you and...



Enjoy your visit!

The Disk of Phaistos: 1800-1600 BC, found on Crete



- Logographic, syllabary, abjad, alphabet?

The Disk of Phaistos: 1800-1600 BC, found on Crete



- Logographic, syllabary, abjad, alphabet?
- 241 stamped tokens, 45 unique signs

The Disk of Phaistos: 1800-1600 BC, found on Crete



- Logographic, syllabary, abjad, alphabet?
- 241 stamped tokens, 45 unique signs
- Most likely a syllabary