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

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Professor, Department of Linguistics  
Chair, Department of Slavic Languages and Literatures  
Associate Dean for Languages  
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?

- Writing is a system to represent *language* (not ‘thought’) in visual form
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- Writing is a system to represent *language* (not ‘thought’) in visual form.

  ![Cartoon illustration]

  *REMINDER, THERE’S NO “I” IN “TEAM.”*

  *NO, BUT THERE’S A “U” IN “PEOPLE, WHO APPARENTLY DON’T UNDERSTAND THE RELATIONSHIP BETWEEN ORTHOGRAPHY AND MEANING.”*

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

- Words and morphemes:

- Syllables and phonemes:
  1. This sentence doesn’t have fewer than five syllables in it.
  2. Syllables are the basic unit of poetic meter (scansion), etc.
  3. Phonemes: distinctive units of sound in a given language: consonants (k, b, h, ...); vowels (a, e, ...); diphthongs (ai, au, oi, ...); tones
Linguistic units

- Words and morphemes:
  - *teachers*: a word consisting of three morphemes
Linguistic units

- Words and morphemes:
  1. *teachers*: a word consisting of three morphemes
  2. *teach-er-s*: stem-suffix-suffix
Linguistic units

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- Syllables and phonemes:
  1. *This.sen.tence.does.n’t.have.few.er.than.five.syl.la.bles.in.it.*: Syllables are the basic unit of poetic meter (scansion), etc.
Linguistic units

- **Words and morphemes:**
  1. *teachers*: a word consisting of three **morphemes**
  2. *teach-er-s*: stem-suffix-suffix

- **Syllables and phonemes:**
  1. *This.sen.tence.does.n’t.have.few.er.than.five.syl.la.bles.in.it.:*  
     - **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

<table>
<thead>
<tr>
<th>Type</th>
<th>Symbols represent</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logographic</td>
<td>morpheme or word</td>
<td>Chinese hànzì</td>
</tr>
<tr>
<td>Syllabary</td>
<td>syllable</td>
<td>Japanese kana</td>
</tr>
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<td>Abjad</td>
<td>C (V optional)</td>
<td>Hebrew, Arabic</td>
</tr>
<tr>
<td>Alphabet</td>
<td>consonants, vowels</td>
<td>Greek, Latin, Cyrillic</td>
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- Alphabets and abjads are **phonemic** systems
# Major types of writing systems

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- Alphabets and abjads are **phonemic** systems
- Phonemic systems and syllabaries are **phonographic** systems
Sumerian: The language of Sumer, ca. 3000-2000 BC

- The world’s first historical civilization
Sumerian writing: Cuneiform

- ‘Cuneiform’ means ‘wedge-shaped’, from the shapes the stylus made in clay
Sumerian writing: Cuneiform

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

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- First place we see evidence of **phonographic** writing: the use of symbols to represents 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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>3200 BCE</th>
<th>3000 BCE</th>
<th>2400 BCE</th>
<th>1000 BCE</th>
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<tr>
<td>sag</td>
<td><img src="3200BCE" alt="sag" /></td>
<td><img src="3000BCE" alt="sag" /></td>
<td><img src="2400BCE" alt="sag" /></td>
<td><img src="1000BCE" alt="sag" /></td>
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<tr>
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<td><img src="3200BCE" alt="gin" /></td>
<td><img src="3000BCE" alt="gin" /></td>
<td><img src="2400BCE" alt="gin" /></td>
<td><img src="1000BCE" alt="gin" /></td>
</tr>
<tr>
<td>šu</td>
<td><img src="3200BCE" alt="šu" /></td>
<td><img src="3000BCE" alt="šu" /></td>
<td><img src="2400BCE" alt="šu" /></td>
<td><img src="1000BCE" alt="šu" /></td>
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<tr>
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<td><img src="3000BCE" alt="še" /></td>
<td><img src="2400BCE" alt="še" /></td>
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</tr>
<tr>
<td>ninda</td>
<td><img src="3200BCE" alt="ninda" /></td>
<td><img src="3000BCE" alt="ninda" /></td>
<td><img src="2400BCE" alt="ninda" /></td>
<td><img src="1000BCE" alt="ninda" /></td>
</tr>
<tr>
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<td><img src="3000BCE" alt="a" /></td>
<td><img src="2400BCE" alt="a" /></td>
<td><img src="1000BCE" alt="a" /></td>
</tr>
<tr>
<td>ud</td>
<td><img src="3200BCE" alt="ud" /></td>
<td><img src="3000BCE" alt="ud" /></td>
<td><img src="2400BCE" alt="ud" /></td>
<td><img src="1000BCE" alt="ud" /></td>
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<tr>
<td>mušen</td>
<td><img src="3200BCE" alt="mušen" /></td>
<td><img src="3000BCE" alt="mušen" /></td>
<td><img src="2400BCE" alt="mušen" /></td>
<td><img src="1000BCE" alt="mušen" /></td>
</tr>
</tbody>
</table>

'head'
'to walk'
'hand'
'barley'
'bread'
'water'
'day'
'bird'
Meanwhile, the Egyptians were up to something similar

*Rosetta Stone:* Jean-François Champollion
Meanwhile, the Egyptians were up to something similar

*Rosetta Stone:* Jean-François Champollion

Hieroglyphics mixed logographs....

- hr: 'head'
- pr: 'house'
- r: 'sun', 'day'
- s²: 'duck'
- iw: 'to walk'
Meanwhile, the Egyptians were up to something similar.

**Rosetta Stone:**

Jean-François Champollion

**Hieroglyphics** mixed logographs...

- `hr`: 'head'
- `pr`: 'house'
- `r`: 'sun', 'day'
- `s3`: 'duck'
- `iw`: 'to walk'

**Determinatives...**
- And, eventually, some phonographs:

<table>
<thead>
<tr>
<th>Glyph</th>
<th>Transl.</th>
<th>Phonetic</th>
</tr>
</thead>
<tbody>
<tr>
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<td>q</td>
<td>[q]</td>
</tr>
<tr>
<td>Ⲣ</td>
<td>r</td>
<td>[r]</td>
</tr>
<tr>
<td>Ⲣ</td>
<td>s</td>
<td>[s]</td>
</tr>
<tr>
<td>Ⲣ</td>
<td>t</td>
<td>[t]</td>
</tr>
<tr>
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<td>u</td>
<td>[u]</td>
</tr>
<tr>
<td>Ⲣ</td>
<td>u</td>
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<td>w</td>
<td>[w]</td>
</tr>
<tr>
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<td>[x]</td>
</tr>
<tr>
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<tr>
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<td>[z]</td>
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<table>
<thead>
<tr>
<th>Biconsonantal</th>
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</thead>
<tbody>
<tr>
<td>ⲗ</td>
</tr>
<tr>
<td>ⲗ</td>
</tr>
<tr>
<td>ⲗ</td>
</tr>
<tr>
<td>ⲗ</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Triconsonantal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ⲗ</td>
</tr>
<tr>
<td>ⲗ</td>
</tr>
<tr>
<td>ⲗ</td>
</tr>
<tr>
<td>ⲗ</td>
</tr>
</tbody>
</table>
Originally pictographs, developed into logographs: what do the following mean?

水大
Chinese writing: ‘Characters’

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水 大

- In Pinyin transcription: shuí³, dà⁴
Chinese writing: ‘Characters’

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

In Pinyin transcription: shui³, da⁴

‘water’

‘big’
Chinese writing: ‘Characters’

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

水 大

- In Pinyin transcription: shui³, da⁴
  - ‘water’
  - ‘big’

- Today most characters consist of two parts: a semantic radical (bùshǒu) and phonetic determinative
Maya glyphs: Writing of the Mayan empire, 2000BC-900AD
Maya glyphs: Writing of the Mayan empire

- Palenque:
Maya glyphs: Writing of the Mayan empire

Maya Glyph Block
American Museum of Natural History

Copyright © 2005, Lawrence K Lo
Maya glyphs: Writing of the Mayan empire

- Partly logographic:
Maya glyphs: Writing of the Mayan empire

- Partly syllabic:
  - tzu (l(u))
    - tzul
    - ‘dog’
  - tzi’ (l(i))
    - tz’il
    - ‘writing’
  - b’a (la)
    - b’alam
    - ‘jaguar’
  - a (ma)
    - Aj Maxam
    - ‘Man of Maxam’
  - a (ka)
    - Chaak
    - ‘Rain God’
  - k(u)
    - kaloomte’
    - ‘high king’

Jason Merchant (U Chicago)
Sometimes both

WITZ

wi
down

↑

WITZ

↑

wi tzi

witz

‘mountain’
### Japanese katakana: Mostly a syllabary

<table>
<thead>
<tr>
<th>Monographs (gojūon)</th>
<th>a</th>
<th>i</th>
<th>u</th>
<th>e</th>
<th>o</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>∅ ∅</strong></td>
<td>ア</td>
<td>イ</td>
<td>ウ</td>
<td>エ</td>
<td>オ</td>
</tr>
<tr>
<td><strong>a</strong></td>
<td>a [a]</td>
<td>i [i]</td>
<td>u [u]</td>
<td>e [e]</td>
<td>o [o]</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>カ</td>
<td>キ</td>
<td>ク</td>
<td>ケ</td>
<td>コ</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td>サ</td>
<td>シ</td>
<td>ス</td>
<td>セ</td>
<td>ソ</td>
</tr>
<tr>
<td><strong>sa [sa]</strong></td>
<td>sa [sa]</td>
<td>shi [ɕi]</td>
<td>su [su]</td>
<td>se [se]</td>
<td>so [so]</td>
</tr>
<tr>
<td><strong>T</strong></td>
<td>タ</td>
<td>チ</td>
<td>ツ</td>
<td>テ</td>
<td>ト</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>ナ</td>
<td>ニ</td>
<td>ヌ</td>
<td>ネ</td>
<td>ノ</td>
</tr>
</tbody>
</table>
Cherokee: 86 symbols (syllabographs)

- Invented from scratch in the early 1800s by Sequoyah
Cherokee: 86 symbols (syllabographs)

- Invented from scratch in the early 1800s by Sequoyah

- 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)

<table>
<thead>
<tr>
<th>D a</th>
<th>R e</th>
<th>T i</th>
<th>O o</th>
<th>O u</th>
<th>i v</th>
</tr>
</thead>
<tbody>
<tr>
<td>ga</td>
<td>ge</td>
<td>gi</td>
<td>go</td>
<td>gu</td>
<td>gv</td>
</tr>
<tr>
<td>ha</td>
<td>he</td>
<td>hi</td>
<td>ho</td>
<td>hu</td>
<td>hv</td>
</tr>
<tr>
<td>la</td>
<td>le</td>
<td>li</td>
<td>lo</td>
<td>lu</td>
<td>lv</td>
</tr>
<tr>
<td>ma</td>
<td>me</td>
<td>mi</td>
<td>mo</td>
<td>mu</td>
<td></td>
</tr>
<tr>
<td>na</td>
<td>t r</td>
<td>hna</td>
<td>G n a h</td>
<td>ne</td>
<td>ni</td>
</tr>
<tr>
<td>qua</td>
<td>c o</td>
<td>que</td>
<td>o q u i</td>
<td>o v</td>
<td>q u o</td>
</tr>
<tr>
<td>s U</td>
<td>sa</td>
<td>4 s e</td>
<td>b i</td>
<td>t s o</td>
<td>o u</td>
</tr>
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<td>t a</td>
<td>s d e</td>
<td>b t e</td>
<td>J d i</td>
<td>J t i</td>
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<tr>
<td>d l a</td>
<td>L t l a</td>
<td>L t l e</td>
<td>C t l i</td>
<td>U t l o</td>
<td>O t l u</td>
</tr>
<tr>
<td>t s a</td>
<td>T s e</td>
<td>T r</td>
<td>t s i</td>
<td>K t s o</td>
<td>J t s u</td>
</tr>
<tr>
<td>w a</td>
<td>w e</td>
<td>w i</td>
<td>w o</td>
<td>w u</td>
<td>w v</td>
</tr>
<tr>
<td>y a</td>
<td>y e</td>
<td>y i</td>
<td>h y</td>
<td>G y u</td>
<td>B y v</td>
</tr>
</tbody>
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Syllabaries and phonemic inventories

Suspect anything about the phonological properties of these languages?

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?
Syllabaries and phonemic inventories

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- Hint: How many vowels do they have? How many consonants? How do these combine?
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The origins of writing in Greece

- Earliest deciphered Greek: Linear B (ca. 1400-1200 BC)
Developed by Semitic peoples somewhere in Phoenicia (now Lebanon) 1000 BCE?
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First major phonemic script
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First major phonemic script
However, it was still an abjad: no vowels
Developed by Semitic peoples somewhere in Phoenicia (now Lebanon) 1000 BCE?

First major phonemic script

However, it was still an *abjad*: no vowels

Descended from pictographic Proto-Sinaitic via Proto-Canaanite
<table>
<thead>
<tr>
<th>Name</th>
<th>Proto-Canaanite</th>
<th>Phoenician</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>'aleph</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td>‘ox’</td>
</tr>
<tr>
<td>taw</td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
<td>‘mark, signature’</td>
</tr>
<tr>
<td>mem</td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
<td>‘water’</td>
</tr>
</tbody>
</table>
Phoenician

, B G D H W Z Ch

T Y K L M

P C Q R Ś, Š Th
Hebrew

'alep    l
bet      m
gimel    n
dalet    s
he       ș
waw      q
zayin    r
het      š
tet      t
yod      taw
kap      k
lamed    ך
mem      נ
nun      ס
samek    פ
ayin     ג
pe       ד
tsade    ה
qop      ג
reš      י
šin      כ
taw      ב

Jason Merchant (U Chicago)
Wht’s wrs: nglsh wrttn wth n vwls, r...

Englesh wretten en sech e wee thet evere vewel es repleced be e
sengle sembel?

Duus thu fruquuncu uf thu sumbul muttur?

Whqt qbqqt qf Q wqrq tq pqck q mqrq qrbqtrq sqmbql?

I e uue o ei ay oe o e ea iou e oe ee?

S th strctr f nglsh n mr r lss clr wtht th vwl lttrs?
Wht’s wrs: nglsh wrttng wth n vwls, r...

S th strctr f nglsh n mr r lss clr wthth th vwll ltns?
Wht s th bg dl hr?

- S th strctr f nglish n mr r lss clr wtht th vwls lttrs?
- Wht’s wrs: nglish wrtttn wth n vwls, r...
- Engle wretten en sech e wee tht evere vwel es replced be e sengle sembel?
Wht's th bg dl hr?

- S th strctr f nglish n mr r lss clr wtth th vwlttrs?
- Wht's wrs: nglish wrtttn wth n vwls, r...
- Englesh wretten en sech e wee tht evere vewel es replced be e sengle sembel?
- Duus thu fruquuncu uf thu sumbul muttur?
Wht s th bg dl hr?

- S th strctr f nglsh n mr r lss clr wtht th vwls?
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- Duus thu fruquuncu uf thu sumbul muttur?
- Whqt qbqt qt Q wq r tq pqck q mqeq qrbqtrq sqmbql?
Wht s th bg dl hr?

- S th strctr f nglsh n mr r lss clr wtht th vwl lttrs?
- Wht’s wrs: nglsh wrtttn wth n vwls, r...
- Englesh wretten en sech e wee thet evere vewel es replced be e sengle sembel?
- Duus thu fruquuncu uf thu sumbul muttur?
- Whqt qbqqt qf Q wqrq tq pqck q mqrq qrbqtrqrq sqmbql?
- I e uue o ei ay oe o e ea iou e oe ee?
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 ($\text{alpha} + \text{bet(a)}$)
A useful development

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

<table>
<thead>
<tr>
<th>Phoenician symbol</th>
<th>name</th>
<th>value</th>
<th>Greek symbol</th>
<th>name</th>
<th>value</th>
</tr>
</thead>
<tbody>
<tr>
<td>א</td>
<td>'ālep</td>
<td>[ʔ]</td>
<td>Aα</td>
<td>alpha</td>
<td>[a]</td>
</tr>
<tr>
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<td>he</td>
<td>[h]</td>
<td>Eε</td>
<td>epsilon</td>
<td>[ɛ]</td>
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<td>yodh</td>
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<td>ι</td>
<td>iota</td>
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</tr>
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<td>Ηη</td>
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Alphabets from the Greek: Latin, Cyrillic, etc...

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

Аа Бб БбГ Гг Гг
Дд Дд Ее Ее Ёё Ёё Жж Жж
Зз Зз Ии Йй Йй Кк Кк
Лл Лл Мм Мм Нн Нн Оо Оо
Пп Пп Рр Рр Сс Сс Тт Тт
Уу Уу Фф Фф Хх Хх Цц Цц
Чч Чч Шш Шш Щщ Щщ Ъъ
Ыы Ее Ээ Юю Юю Яя 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

- **Cf.** *tin, thin, thing, this, thick, tick, sick*: 3 sounds in each
Phonemes of Midwestern American English: 24 consonants

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- Cf. *tin, thin, thing, this, thick, tick, sick*: 3 sounds in each
- *breath, breathe, meth, seethe, bath, bathe*
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- Cf. *tin, thin, thing, this, thick, tick, sick*: 3 sounds in each
- *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

- **Vowels:**
  - i, ï (as in 'tie')
  - u, û (as in 'juice')
  - o, ʌ (as in 'goat')
  - e, ɛ (as in 'left')
  - æ (as in 'map')
  - a, ɑ (as in 'bat')

- **Diphthongs:**
  - ai, aɪ (as in 'raise')
  - ow, əʊ (as in 'now')
  - ay, aɪ (as in 'day')
  - ai, aɪ (as in 'take')

Examples:
- 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*
How do you pronounce *ghoti*?

- *gh* as in *enough*
- *o* as in *women*
- *ti* as in *nation*
How do you pronounce *ghoti*?

- *gh* as in *enough*
- *o* as in *women*
- *ti* as in *nation*
- = *fish!*

Jason Merchant (U Chicago)
Is texting destroying the English language?
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1. Fewer than 10% of words are abbreviated in texts
Is texting destroying the English language?

1. Fewer than 10% of words are abbreviated in texts
2. Abbreviations have always been with us
Is texting destroying the English language?

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Is texting destroying the English language?

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Is texting destroying the English language?

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3. To abbreviate presupposes some spelling
4. Texting is supplementing, not supplanting, speech; it is not replacing any equivalent form of written communication
5. Autocomplete is already ending abbreviations
Comparing orthographies

- **Size of units**
  - Large: Word
  - Small: Syllable, Phoneme

- **Kana (Japan)**
- **Devanagari (India)**
- **Chinese and Kanji (Japan)**

- **Transparent**
- **Opaque**

Languages shown: Italian, German, French, 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

Errors in word reading at the end of first grade

67% 29% 8% 6% 2% 28% 7% 3% 3% 3% 6% 23% 5%
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:

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‘rahə ‘meː’
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   ‘but he WILL come’

"rahə 'me:

"kiŋ/ahə 'me:

"t̪/u̪kə 'je:"
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