Writing Systems

- **Pictographs** (no major role in current writing systems)
- **Ideographs** (symbols represent words or concepts)
- **Syllabic writing** (symbols represent syllables)
- **Alphabetic writing** (symbols represent individual speech sounds)
- **Morphophonemic writing** (variation on alphabetic writing – English spelling is mostly morphophonemic)

Pictographs

What does this sign mean? The tree component only is a pictograph – meaning conveyed directly because it looks like the thing it represents.

What does this pictograph mean?

Mountains?
Some particular mountains (Rockies, Adirondacks)?
Scenic view ahead?
Landscape mode (rather than portrait mode)?
Who knows?

What picture do draw for abstract concepts like *sadden*, *hypothetical*, *creative*, *ambitious*, or even verbs like *stall* (as in “My car stalled.”) or *fidget*?

What does this pictograph mean?
What do these pictures mean? How did you know?

These are ideographs – meaning is assigned by convention; i.e., we learn to interpret them in a particular way. In this case, the state compels us to learn them. Also called ideograms and logograms.

Other Ideographs

! @ # $ % & 1 2 3 4 … ?

Ideographs may or may not be iconic (i.e., look like the thing being represented). The road signs were all iconic. The symbols above are not.

Iconic or not, meaning is assigned by convention – we all agree that “%” means “percent”, and that the squiggly arrow means “curvy road ahead.”

Ideographs provide no clues about pronunciation; i.e., there is nothing in the numeral “2” that tells you to pronounce the symbol /tu/.

Ideographs Used in Chinese Writing

• Any iconic element to the symbol is probably lost on most readers
• Symbols represent whole words or concepts
• No clues to pronunciation
• Both concrete (sun, river, …) & abstract words (strength, good, peaceful) are represented

Chinese writing is not purely ideographic. Some characters represent broad semantic categories (e.g., person, insect, metal) and others provide pronunciation clues.

Writing systems derived from Chinese in use for Japanese (kanji), Korean (hanja).

Downsides to ideographic writing.

• Representation is (mostly) at the word level; character set is really huge. The number of symbols is in the many thousands (compare this number to the 26 Roman letters).
• Clues not provided to pronunciation (though Chinese is not purely ideographic). Encounter a new symbol? You’re stuck. Not true of alphabetic writing. What happened the 1st time you encountered the word “bombastic”?
• Place names, proper names, foreign words, etc., can be a headache.
• Specifying ideographs on a computer keyboard requires some creativity.
The upside: The writing system is **Language independent**.

This is a really big deal in China.

“Standard” Chinese: **Mandarin**, but a large number of “dialects” which are more properly viewed as separate languages. Some of the **mutually unintelligible** “dialects”:

Wú (Shanghainese); Yuè (Cantonese); Min Nán (Southern Min); Jǐnyǔ; Hakka; Xiāng (Hunanese); Gān Mǐn Běi (Northern Min); Mǐn Dōng (Eastern Min); Mǐn Zhōng (Central Min); Dungan; Pū-Xiān Huízhōu

Why is language independence important? A newspaper article or book can be read equally well by speakers of all of these languages.

**This would not be true with an alphabetic writing system, or any other system that conveyed sound rather than meaning.** This explains why China – with many mutually unintelligible languages – will probably never move to alphabetic writing.

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**Syllabic Writing**

Main idea is pretty obvious: Each symbol represents a **syllable**.

**Key difference from logographs/ideographs:** Symbols **represent sound, not whole words**.

Symbol set for a syllable-based writing system is called a **syllabary**.

Syllabaries are in use for several languages, including Japanese (two, in fact: **katakana** and **hiragana**), Korean (**hangul**), Inuit, & Cherokee.

Syllabaries are a good choice for languages with a fairly small number of syllable types – small phonemic inventory, constraints on syllable type.

**Japanese:** Under 100 syllable types (just 5 vowels, a little over a dozen consonants, no clusters)

**English:** Many thousands of syllable types (~3 times as many vowels as Japanese, ~twice the number of consonants, lots & lots of consonant clusters – **sphinx**, strength, etc.)

Would syllabic writing be a good choice for English? Not impossible, but it would be cumbersome.

**Alphabetic Writing**

Sound is represented rather than whole words, but sound is represented at the phoneme level, not the syllable level.

“Ideal” alphabetic system: 1 letter = 1 sound. No system in use meets this ideal, but some are close.

**English** isn’t one of the close ones.
Roman Alphabet

English (and many other languages) is written using the Roman alphabet.

Lineage:
1. Hieroglyphics -> West Semitic Syllabary (Phoenicians)
   - Hieroglyphics was a mix of ideographs & syllabic symbols; Phoenicians abandoned the ideographs and kept a 22-symbol syllabary
2. West Semitic Syllabary -> Greek Alphabet
   - Greeks added some vowel symbols to turn the syllabary into an alphabet
3. Greek Alphabet -> Roman Alphabet
   - Romans added a few symbols and redefined others to suit the phonetic structure of Latin

Why English Orthography Stinks

1. Roman alphabet is poorly suited to English for a very simple reason: The sound inventories of the two languages are very different, especially the vowel inventories.
   - Latin: 5 vowels, no diphthongs (e.g., buy, house, boy)
   - English: ~12 vowels + 3-4 diphthongs
   - How do you represent ~15 “vocoids” (vowels & diphthongs) with 5 symbols?

   Problem 1 could be dealt with by consistently using combinations of letters to represent sounds; e.g.,
   - ‘ee’ = [i] as in “meet”
   - ‘oa’ = [o] as in “boat”
   - ‘au’ = [ɔ] as in “caught”

   But: Isn’t done w/ much consistency. Letter-to-sound associations are all over the place.
   - /i/: ski, flee, meat, people, physiology, fetus, etc.
   - /t/: train, phone, rough, etc.
   - Many other examples. G.B. Shaw:
     - “fish” = ghōl (gh as in cough, ō as in women, th as in nation)

2. There are sounds in some words that could easily be represented with the Roman alphabet but, for one reason or other, they aren’t.
   - beauty: What speech sound immediately follows the /b/?

   Moral: Problem isn’t really the Roman alphabet. The alphabet wasn’t designed for English, but the liabilities could be dealt with. They aren’t. How’s come?

   The Culprits

1. Spelling standardization is surprisingly recent. As recently as the 19th C even educated writers spelled how they felt like. (For a good yuck, see Lewis-Clark journals.) Wasn’t any great thought given to the problem when spelling was finally standardized.

2. Historical sound change: Pronunciation changes; spelling stays put.
   - knight, knife – the /k/ used to be pronounced
   - gnaw, gnat – same deal with the /g/}

   cough, rough – words used to end with a phoneme that is no longer in the phonetic inventory of English
3. "Foreign born" words. Quite a few English words started out life as part of some other language's vocabulary. The habit is usually to retain the original spelling.

pizza, colonel, cello, junta, chassis, psalm, repertoire, liaison, sauna …

Result: Mishmash of different, inconsistent spelling conventions

4. Others – See MacKay, but the 3 above are the main ones.

OK, English spelling has problems everywhere you look. This is why it took most of us forever to learn to spell, and most of us still have uncertainties from time to time.

BUT: Is it really as bad as all that? Not really.

1. Spelling couldn’t be made truly phonetic if we wanted to do so.

2. We wouldn’t want it to be strictly phonetic.

b. No easy solution to dialect variation. Whose dialect should we use to establish the spelling rules? British? Australian? Irish? Scottish? American? Wouldn’t want spelling conventions to vary across these communities; i.e., you’d want a Brit to be able to read a book written by an Aussie.

1. Couldn’t do it if we wanted.

2. We wouldn’t want spelling to be strictly phonetic anyway.

Bottom Line:

- English spelling represents underlying morphological regularities, not superficial phonetic facts. This is a good thing.
- English spelling represents underlying phonological regularities, not superficial phonetic facts. This too is a good thing.

Morpheme/Morphological Rules

Morpheme: Smallest unit of language that conveys meaning.

believe: 1 word, 1 morpheme
believed: 1 word, 2 morphemes (believe + ed)
believable: 1 word, 2 morphemes (believe + able)
unbelievable: 1 word, 3 morphemes (un + believe + able)

Rules for combining these morphemes into words: morphological rules; e.g.

believe -> believable; read -> readable; prove -> provable; know -> knowable
stick -> sticks; photo -> photos; shirt -> shirts; paper -> papers
### Bound and Unbound/Free Morphemes

<table>
<thead>
<tr>
<th>morpheme</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paint, chair, picture, throw, run</td>
<td>unbound morphemes; these can all be used alone</td>
</tr>
<tr>
<td>calmly</td>
<td>Morphemes shown in red are bound morphemes; they cannot appear alone; those in blue are unbound or free morphemes. Unbound/free morphemes may appear either alone or in combination with other morphemes. Bound morphemes must be used in combination with (i.e., bound with) some other morpheme</td>
</tr>
<tr>
<td>stacked</td>
<td></td>
</tr>
<tr>
<td>pets</td>
<td></td>
</tr>
<tr>
<td>worker</td>
<td></td>
</tr>
<tr>
<td>painting</td>
<td></td>
</tr>
<tr>
<td>unbound</td>
<td></td>
</tr>
<tr>
<td>prearrange</td>
<td></td>
</tr>
<tr>
<td>postgame</td>
<td></td>
</tr>
<tr>
<td>anti/Violence</td>
<td></td>
</tr>
</tbody>
</table>

English spelling represents underlying morphological regularities, not superficial phonetic facts. Simpler than this sentence makes it sound.

**approximate, approximately**

Note the highlighted vowel. Is it pronounced the same way in the 2 words? Would you want the spelling to: (1) change to reflect the change in pronunciation? or (2) stay the same to reflect the fact that these two versions of the same word?

I vote for #2.

This is not a minor phenomenon in English. It’s all over the place.

In all cases the spelling reflects **not phonetic details** but the more important fact that the word on the right is derived from the one on the left by **morphological rules**.

English spelling is called **morphophonemic**, not phonetic. **This is a good thing, not a bad thing.**

<table>
<thead>
<tr>
<th>morpheme</th>
<th>morpheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>nation - nationality</td>
<td>medicine - medicinal</td>
</tr>
<tr>
<td>magic – magician</td>
<td>social – society</td>
</tr>
<tr>
<td>discuss – discussion</td>
<td>televisé – television</td>
</tr>
</tbody>
</table>

**One more example:**

- walk – walks
- cat – cats
- dog – dogs
- pan – pans

We’ve seen this before: If the word ends in a voiceless consonant, add [s]; if voiced, add [z]. But note that the spelling does not reflect this – always get "s" in spelling. On an abstract, phonological level, it’s an /s/ in both cases: a sound pattern rule handles the **phonetic** detail of whether this “abstract” /s/ is realized as [s] or [z].

Same as the morphology thing: **The spelling system reflects underlying linguistic (phonemic/phonological) facts, not superficial phonetic facts. This is good.**
SUMMARY

Types Writing Systems
(Note: No system is purely any of the types listed)

Symbols Represent Words or Concepts

- Pictographs
- Logographs

Meaning is Supposed to be Obvious
- Examples: Chinese, Japanese (kanji), Some symbols used in Deadly End English (! @ # $ % 1 2 3 …) Cherokee

Symbols Represent Sound

- Syllabaries
- Alphabets

Meaning is (meaning by convention)
- Examples: Japanese (kana) Korean, Inuit, Others

SUMMARY (cont’d)

Morphophonemic writing: All alphabetic systems in actual use are of this type (I’m pretty sure).

Main idea: Unit is the speech sound rather than the syllable, but spelling conventions are intended to capture underlying morphological & phonological regularities, not surface phonetic facts.

Example 1: assume-assumption

Spelling rules could do one of two very different things:

1. Use 2 different symbols to represent the vowels since the vowels are different in the 2 words (phonetic spelling), or
2. Use the same symbol in both cases so that the reader can easily see that and “assumption” is a morphologically relative of “assume” (morphophonemic spelling).

Which kind of system is actually in use in English? Phonetic or Morphophonemic?

Example 2: backs – bags ([baks] - [bagz])

Spelling rules could do one of two very different things:

1. Use an “s” for “backs” and a “z” for “bags” to reflect the difference in phonetic details (phonetic spelling), or
2. Use the same symbol in both cases so that the reader can easily see that all that is happening is that the base morpheme (back or bag) is being made plural (morphophonemic spelling).

Which kind of system is actually in use in English?

Example 3: jogged - walked

Note that the spelling shows a “d” in both cases; however, in “walked” the final consonant is actually a /t/, while in “jogged” it is a /d/.

To work out on your own: (1) In what way is example 3 analogous to example 2? (2) In what way is this another example of morphophonemic rather than phonetic writing?

The International Phonetic Alphabet (IPA)

In one important sense the IPA does not belong in this section — not used as the writing system for any language. No books written in IPA, no newspapers, people don’t write letters to one another in IPA.

IPA was developed explicitly for the study and description of the sound patterns of the world’s languages.

Two important features:

1. This alphabet really is phonetic – one-to-one correspondence between speech sounds and symbols:
   - The symbol /i/ always specifies the vowel in “beef”; every time the vowel in “beef” occurs the symbol /i/ is used to represent it.
2. Designed to represent the sounds of all of the world’s languages.

Does the IPA represent sound at the phonetic level or the phonemic level?

Example: How would we transcribe the words "cat" and "scafell" or "pot" and "spat" or "bat" and "barn"?

Answer: The IPA allows you to transcribe **either at the phonetic level** (e.g., representing phonetic details such as aspiration or vowel nasalization) or **at the phonemic level** (i.e., ignoring phonetic details and specifying only the phonemic category).

**Phonetic:** 

```
[kʰæt]-[skæt], [pʰɒt]-[spat], [bæt]-[mæn]
```

**Phonemic:** 

```
/kæt/ - /skæt/, /pɒt/-/spat/, /bæt/-/mæn/
```

How are these different?

- **Phonetic transcription** represents the fine phonetic details; e.g., the allophonic differences between [kʰ] and [k], [pʰ] and [p], [æ] and [ə].

- **Phonemic transcription** ignores the fine phonetic details, representing only the broad phonemic categories /k/, /p/, and /æ/.

- Phonemic symbols are enclosed in **slashes** (e.g., /k/, /p/, /æ/).

- Phonetic symbols are enclosed in **square brackets** (e.g., [kʰ], [k], [pʰ], [p], [æ], [ə]).