

# **The Scientific Study of Written Language**

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# The History of Spoken English





- ❖ The written language is not the spoken language written down
- ❖ NO spelling system has developed to represent the pronunciation of the language
- ❖ Speech is thought made audible,  
Spelling is thought made visible
- ❖ Spelling makes sense



# What does it mean to “read”?

## Sound out/pronounce words??

- Reading aloud adds cognitive load
- Focusing on sounding out can obscure meaningful structures
- Pronounce without gaining meaning

## Gain meaning from print??

- Gain meaning without pronouncing
- Focusing on meaning, structure, and history helps us understand spelling



# What does it mean to “read”?

## Spoken syllables vs. written syllables

- [æk • jən] VS. <act + ion>
- Which analysis is more meaningful??
- Why do we say it this way? VS. Why do we spell it this way?
- Making connections via Word Families

act

acts

acted

acting

actor

active

action

actually

exact

transaction



# Defining Our Terms

- **Linguistics** → lingu + ist + ic + s
  - the study of *language*s
- **Phonology** → ~~phone~~ + o + logy (phoneme)
  - the study of the *psychology* of spoken language
- **Phonetics** → ~~phone~~ + et(e) + ic + s (phone)
  - the study of the *physiology* of spoken language
- **Morphology** → morph + o + logy (morpheme)
  - the study of the form/structure of words



# Defining Our Terms

- **Phonics** → ~~phone~~ + ic + s
  - literacy instruction based on small part of speech research and psychological research
- **Phonemic Awareness**
  - awareness of phonemes??
- **Orthography** → orth + o + graph + y
  - correct spelling (the study of??)
- **Orthographic phonology**
  - The study of the connection between graphemes and phonemes



# Meaning, Structure, History AND Phonology

Phonology *is* important, it's just not the *most* important

- Phonological Primacy/Phonics
- Homophone principle

## Sight Words

- Why is there a <w> in <two>?

## Schwa

- Why do we spell [dɪfrənt] <different> and not <difrent>

## Considering Orthographic Phonology

- Why do we not replace the <e> at the end of <change> in <changeable>?



# Orthographic Phonology

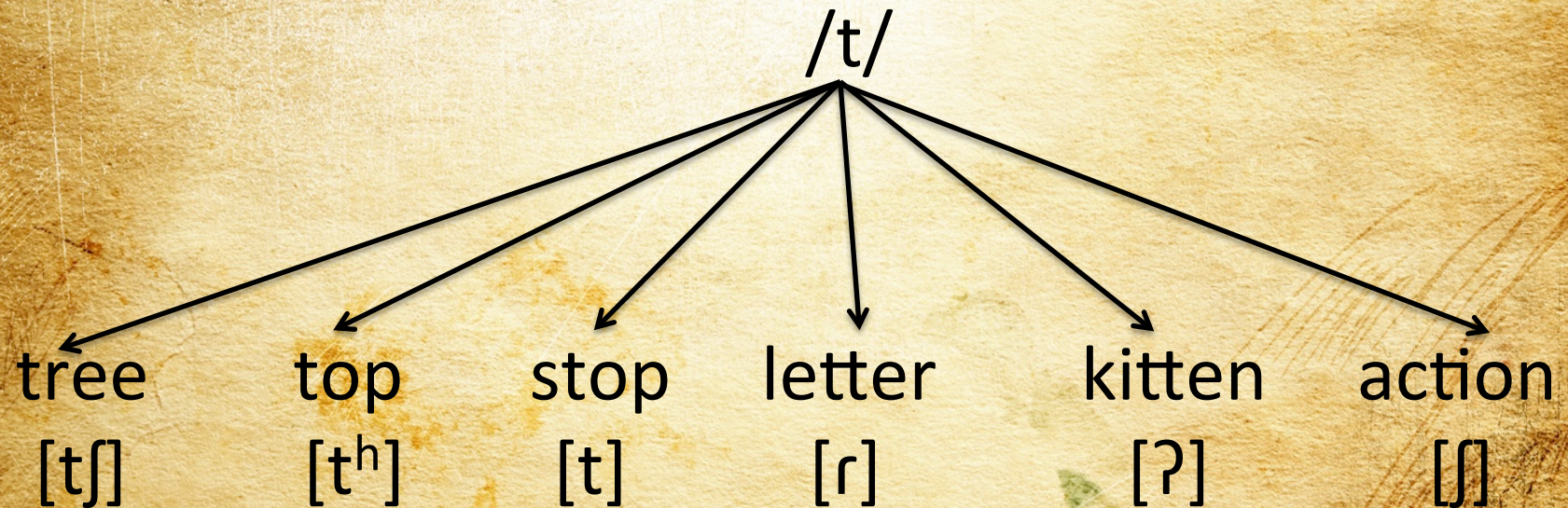
- **Phonology** → **phone** + o + log + y (phoneme)
  - the study of the *psychology* of spoken language
- **Phonetics** → **phone** + ete + ic + s (phone)
  - the study of the *physiology* of spoken language



# Orthographic Phonology

**Phonemes** are spelled by **graphemes**

**Allophones:** different phonetic realizations of the same phoneme



**Zero allophone:** <prints> <sign> <thing>



father vs farther

hid vs head

brick vs break

prints vs prince

please vs pleas

defuse vs diffuse

Word:	British	American	Australian
<i>hairy</i>	/ heəri /	/ heri /	/ hæ:eri /
<i>near</i>	/ niə(r) /	/ nɪr /	/ nɪa /
<i>ask</i>	/ ɑ:sk /	/ æsk /	/ æsk /
<i>answer</i>	/ ɑ:nsə(r) /	/ ænsər /	/ ænsa /
<i>grass</i>	/ grɑ:s /	/ græs /	/ grɑ:s /
<i>dance</i>	/ dɑ:ns /	/ dæns /	/ dɑ:ns /
<i>process</i>	/ prəuses /	/ pra:ses /	/ pra:ses /
<i>fear</i>	/ fiə /	/ fir /	/ fɪ / - / fɪa /
<i>sheer</i>	/ ʃiə /	/ ʃɪr /	/ ʃɪ / - / ʃɪa /
<i>buy</i>	/ baɪ /	/ baɪ /	/ bae /
<i>fate</i>	/ feɪt /	/ feɪt /	/ fæɪt /
<i>tour</i>	/ tuə(r) /	/ tur /	/ tua /
<i>later</i>	/ leɪtə(r) /	/ leɪdər /	/ leɪda /



# Scientific Inquiry

## General Steps

- Collect data/evidence
- Develop a hypothesis
- Test your hypothesis
- Collect more data/evidence and refine your hypothesis as needed



# Scientific Inquiry

## Written Language

- Investigate semantics (meaning)
- Hypothesize about morphology (form/structure)
- Test your hypothesis using etymology (history and relatives)
- Investigate orthographic phonology
- Revise your hypothesis as needed



# Scientific Inquiry

## The four questions

- Q1: What does it mean?
- Q2/3: How is it built? What are its history and relatives?
- Q4: What can we learn from its pronunciation?



# Scientific Inquiry

<sign>

## Q1: What does it mean?

### noun

- 1 an object, quality, or event whose presence or occurrence indicates the probable presence or occurrence of something else
- 2 a gesture or action used to convey information or instructions
- 4 *Mathematics* the positiveness or negativeness of a quantity

### verb

- 1 [*with object*] write one's name on (a letter, card, or similar item) to identify oneself as the writer or sender
- 2 [*no object*] use gestures to convey information or instructions



# Scientific Inquiry

**<sign>**

**Q2: How is it built?**

**<sign> is a base element**



# Scientific Inquiry

<sign>

**Q3: What are its history and relatives?**

**sign (n.)**

early 13c., "gesture or motion of the hand," especially one meant to communicate something, from Old French *signe* "sign, mark," from Latin *signum* "identifying mark, token, indication, symbol; proof; military standard, ensign; a signal, an omen; sign in the heavens, constellation," according to Watkins, literally "standard that one follows," from PIE **\*sekw-no-**, from root **\*sekw-** (1) "to follow."



# Scientific Inquiry

<sign>

**Q3: What are its history and relatives?**

**sign (v.)**

c. 1300, "to make the sign of the cross," from Old French *signier* "to make a sign (to someone); to mark," from Latin *signare* "to set a mark upon, mark out, designate; mark with a stamp; distinguish, adorn;" figuratively "to point out, signify, indicate," from *signum* "identifying mark, sign" (see **sign (n.)**). Sense of "to mark, stamp" is attested from mid-14c.; that of "to affix one's name" is from late 15c. Meaning "to communicate by hand signs" is recorded from 1700. Related: Signed; signing.



# Scientific Inquiry

<sign>

**Q3: What are its history and relatives?**

signs → sign + s

signed → sign + ed

signing → sign + ing

signal → sign + al

signify → sign + i + fy

design → de + sign

designate → de + sign + ate

signature → sign + ~~ate~~ + ure

resignation → re + sign + ~~ate~~ + ion



# Scientific Inquiry

<sign>

**Q4: What can we learn from its pronunciation?**

<s i g n>  
[s aɪ n]

<d e s i g n>  
[d ə z aɪ n]

<s i g n a l>  
[s i g n ə l]

<r e s i g n a t i o n>  
[r ɛ z ə g n ɛ i ʃ ə n]

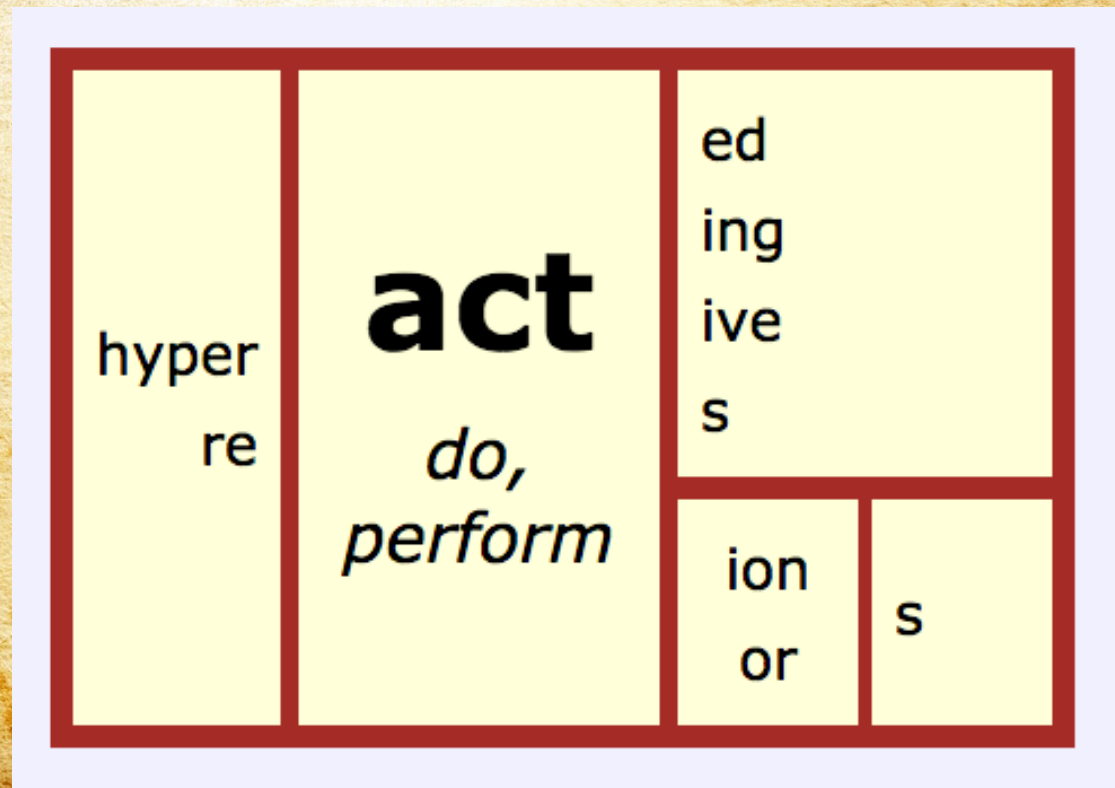


# Scientific Inquiry

## Tools

- Word sums: act + ion → action

- Matrices





ex  
hyper  
re

**act**  
*do,*  
*perform*

ed  
ing  
ion  
ly  
s

ive

ate

ed  
ing  
s

ism  
ist

it

y

or

s

u

al

ly



# Resources: Investigation of Written Language

Etymological Dictionary (Etymonline):

<http://www.etymonline.com>

Word Searcher:

<http://www.neilramsden.co.uk/spelling/searcher/>

Mini Matrix Maker:

<http://www.neilramsden.co.uk/spelling/matrix/temp/index.html>



# Resources: Investigation of Written Language

Gina Cooke (LEX):

<https://linguisteducatorexchange.com>

Pete Bowers (WordWorksKingston):

[http://www.wordworkskingston.com/WordWorks/  
Home.html](http://www.wordworkskingston.com/WordWorks/Home.html)

Real Spelling: <http://www.realspelling.fr/>



# Resources: Investigation of Written Language

Blogs:

<http://barnettsbuzzingblog.edublogs.org>

<http://rebeccaloveless.com/blog/>

<https://languageinnerviews.com>



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