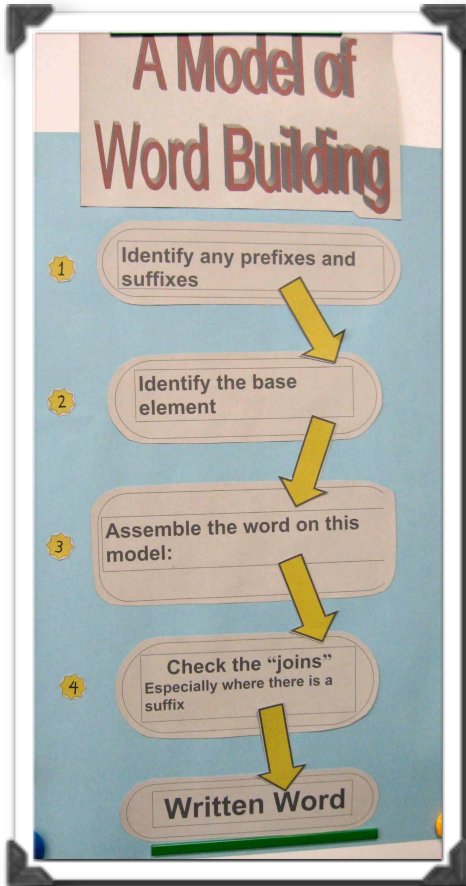
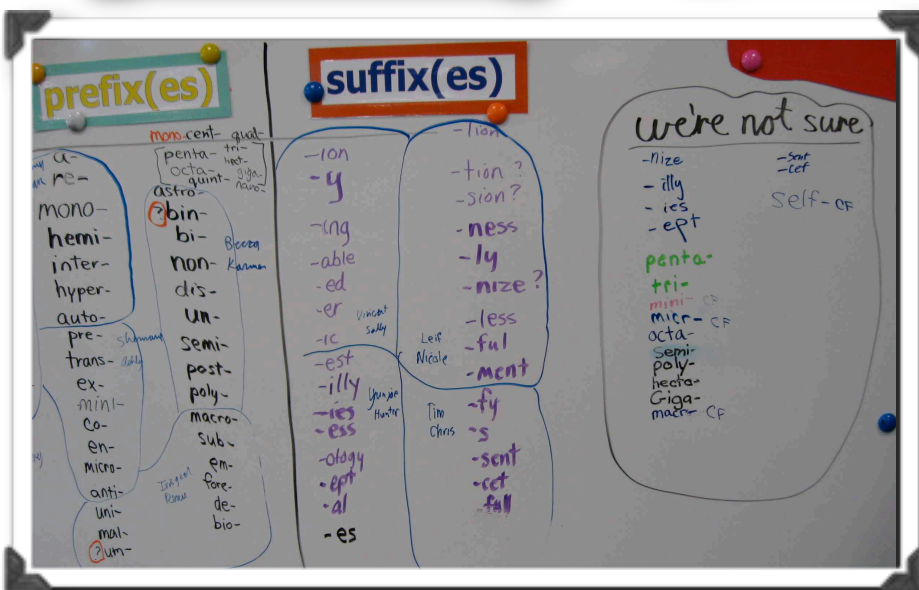


Reference Booklet

Concepts, terms and principles related to English spelling and how it can be taught



Structured Word Inquiry:
Developing literacy and critical thinking by scientific inquiry about how spelling works



Presenter:
Peter Bowers

Basic Assumptions Driving Structured Word Inquiry

1. English spelling makes sense. It is a well-ordered reliable system that functions to represent the meaning of words to English speakers.
2. Students have a right to instruction which accurately illustrates how their writing system works to represent meaning.
3. Teachers have a right to training and resources that accurately represent the writing system.
4. Because English spelling is well-ordered, its basic structures and conventions can be taught through inquiry based problem solving as an engine for developing students' word knowledge and motivation for word learning. More fundamentally this process enriching students' ways of understanding and investigating their world.
5. Well-designed practice of key concepts in isolation, and in connected text builds students' ability to apply learning independently.

Structured Word Inquiry

Steps to facilitate student theory generation and testing about spelling:

1. Use an interesting spelling question to highlight a core orthographic concept. The question can be initiated by teacher or a student.
2. Hypothesis development: Present students with sets of words chosen to reveal a spelling convention to guide the development of a hypotheses for the class to test. (Draw from Zone of Proximal Development principles in word selection.)
3. Hypothesis testing: Confirm or disprove proposed hypothesis in order to establish and describe the exact orthographic pattern.
4. Consolidate students understanding of new convention: Design lessons to practice established conventions.

Examples of well structured practice: Teachers may use systematic application of new convention with sets of words (e.g., flow charts & word sums) or create challenges for students to identify words in connected text which provide examples of newly learned convention (e.g. Use a Venn Diagram to collect words from classroom texts that showing when <c> is a way of writing /s/ or /k/).

Selecting among competing hypotheses

Like all scientific inquiry, testing of hypotheses in Structured Word Inquiry is guided by the following related principles:

- ***Scientists seek the deepest structures that account for the widest number of cases.***
- ***If two accounts provide the same solution, the most elegant solution is preferred.***

Two Kinds of Structured Word Inquiry

Teacher-Led Inquiry

- The teacher understands and selects the topic or concept to investigate.
- Teacher selects words and or word parts to guide students guide hypothesis development and testing of chosen topic.

Step 1: Model problem-solving techniques/strategies in context of a topic in which the teacher is confident of the answer.

Inquiry-Led Teaching

- A question arises, to which the teacher does NOT have an immediate answer.
- Teacher models established strategies for investigating spelling questions to develop and test a hypothesis.

Step 2: Model problem-solving techniques a mature problem-solver uses when they do not know the answer.

Both forms draw explicitly from the same structured questions for and model use of the same resources (eg., dictionaries, Word Searcher, etc.). The reference charts below are used both by students and teachers to guide both types of inquiry.

Stuck on a Spelling?

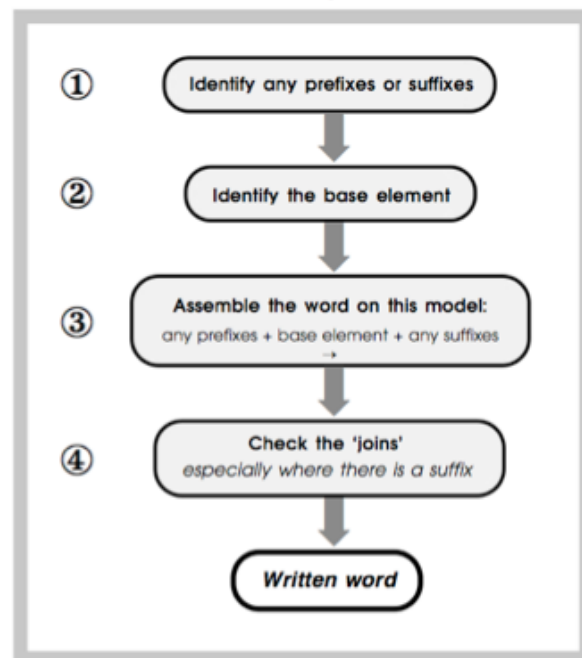
Investigate with these questions...

- (1) What does the word mean?
- (2) How is it built?
(Can you identify any affixes with a word sum?)
- (3) What other related words can you think of?
(Can the [Word Searcher](#) help you make a matrix?)
(Can a word origin dictionary help you?)
- (4) What are the sounds that matter?
(What grapheme/phoneme correspondences can you find that fit in your hypothesized morphemes?)

morphological connections?

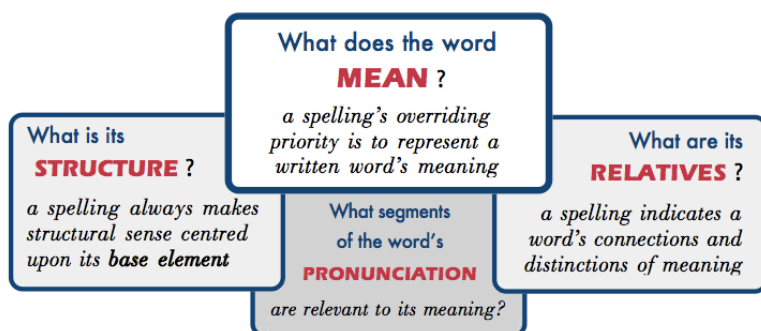
etymological connections?

Steps for Morphological Analysis



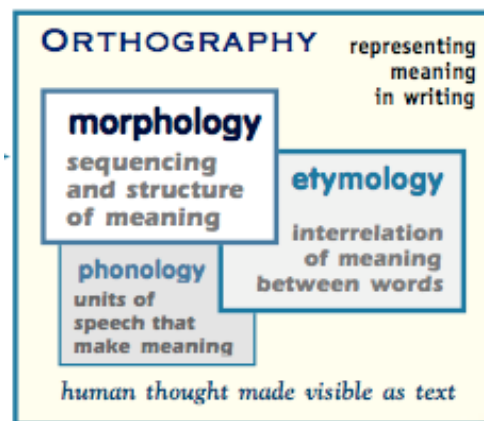
Outline of Concepts To Consider

– Spelling Represents Meaning



Melvyn Ramsden Residential Course book 2006

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English spelling

- ~ A well-ordered, extremely consistent system for representing meaning
- ~ A *fundamentally integrated* system of morphology, etymology and phonology
- **Morphology**: Sequence of structure and meaning: the guiding framework
 - ~ Spelling of morphemes (base, prefix suffix) consistent regardless of pronunciation.
 - ✦ cat+ s → cats uses <-s> for /s/; But, dog + s → dogs uses <-s> for /z/
 - ✦ do+es → does; sign+al → signal; please/ + ant → pleasant
 - ~ Can't identify graphemes until you know morphemic boundaries;
 - ✦ Graphemes can't cross morphemic boundaries: <reach> vs. <react>
 - ✦ <purple>: If the pronunciation /əɪ/ is at the end of a word is a suffix, use <-al>, if not usually use <le>. (puzzle, table, jumble, but... final, signal, industrial)
- **Phonology**: Involves the the elements of pronunciation relevant to meaning in a specific language. (See Melvyn's pdf booklet "Phonology and Phonetics — a Crucial Difference for a detailed discussion of orthographic phonology. It is exceptional!)
 - ~ **Phonemes**: Basic units or elements of phonology
 - ✦ Units of speech that *can affect meaning*
 - ✦ Can consist of more than one "sound", more precisely *phone* (long a, i, o, u phonemes use two phones - see diphthong chart in article on misspelling <*saycl>)
 - ✦ One phoneme can have more than one pronunciation (e.g. First phoneme in pronunciation of the word <out> pronounced in Canada vs. Southern States)

Concepts Continued...

~ **Orthographic Phonology:** written representation of the pronunciation of meaning

~ 2 components: **graphemes** & **phonemes** and their interrelationship

✦ **Graphemes:**

- *single spelling unit* of 1, 2 or 3 letters
- can represent one or more phoneme
- circumstances determine where, when and how they can be used.
- can't cross morphemic boundaries:
 <ea> is a digraph in <reach>, but not in <react>

~ Graphemes, not letters, are the basic building blocks of spelling. Consider...

picnic + ing → *picnicing → picnicking

The word <picnicking> is not built by 'adding the letter <k>', with the <-ing> suffix. The phonology of <c> is such that it cannot represent /k/ if it is followed by the letters <e>, <i> or <y>. Thus the <c> grapheme is unable to represent the phonology of the word <picnicking>. However, the digraph <ck> can be used in place of the <c> grapheme. Replacing the spelling unit <c> with the spelling unit <ck> effectively provides a link to the spelling of the base, while also providing a grapheme that represents the needed phoneme for the spoken word.

• Phonemes vs. phones

- ~ See WW website article on the misspelling <*saycl>.
- ~ All 'long vowel' phonemes except for the long <e> use two phones

• **Etymology:** The interrelation of meaning between words: Two kinds...

~ **Diachronic Etymology:** <dia-> 'through' <chron> 'time'

Influence of spelling and meaning of roots (e.g. Latin, Greek, Old English) with modern English bases and affixes. Often, current English words can be, or use distinct bases, but come from the same root. For example the words <hand> and <handle> are distinct base words, but share similarities in meaning and spelling as they derive from a common Old English root.

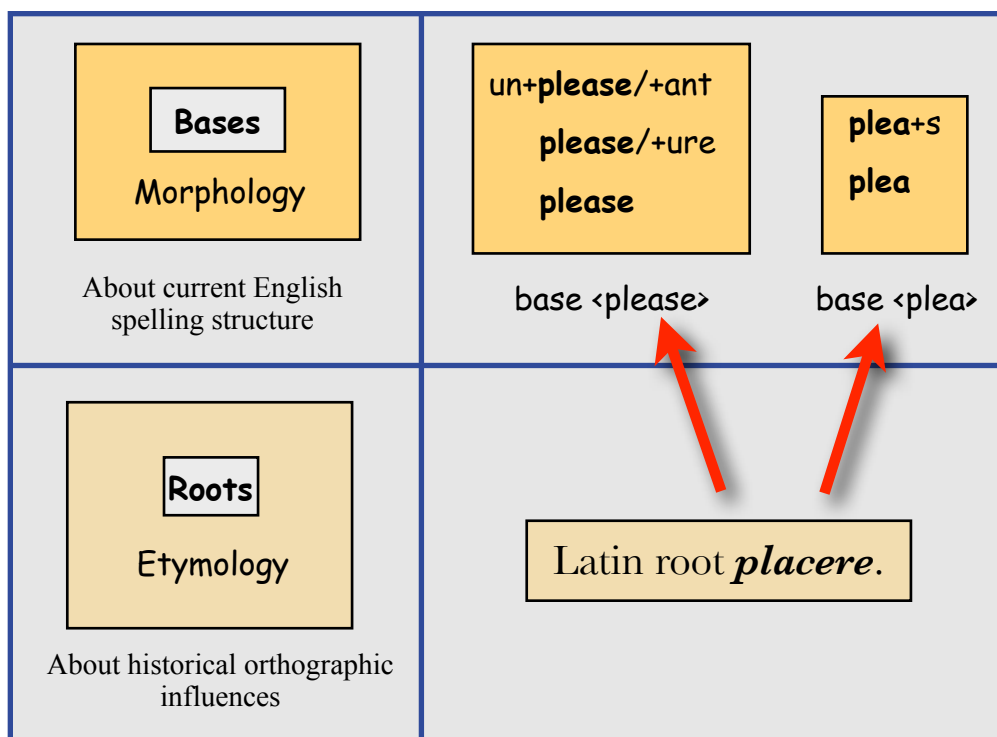
~ **Synchronic Etymology:** <syn-> 'acting or considered together' <chron> 'time'

Spelling can use letters to mark connections of meaning between words. For example the <w> in the word <two> is an etymological marker, not a grapheme, marking this word's connection in meaning to words like <twice>, <between>, and <twenty>. The role of synchronic etymology can also be seen in the choice of graphemes to show links in meaning. For example, the choice of graphemes for the homophones <here> and <hear> is guided by links in meaning to semantically - but not morphologically - connected words. The <ea> grapheme for <hear> provides a cue to the word <ear> while the spelling <here> marks a connection to words about place like <where> and <there>.

~ *The Interrelationship of Morphology and Etymology*

Morphology & Etymology:

Words of the same base WILL have the same root...
But, two words of the same root may not have the same base!



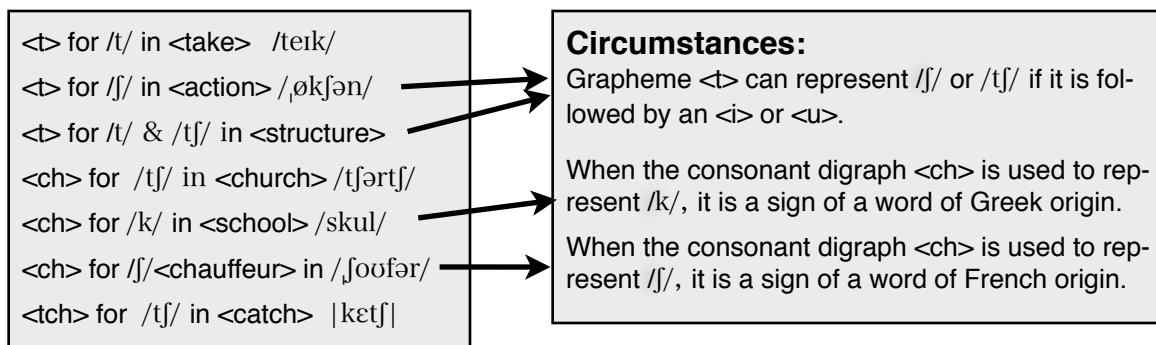
Important spelling principles represented by this diagram

- If words are morphologically related (have the same base), they **necessarily** share the same etymological origin (share the same root).
E.g. <pleasant>, <pleasure> and <please> share the same base <please>, so they must come from the same historical root.
- If words are etymologically related (share the same root), they are not **necessarily** morphologically related (they may or may not share the same base).
E.g. <please> and <plea> share the same root (L. placere) but are distinct bases. Because they are connected in meaning through their Latin origin, they share orthographic features (e.g., both use the <ea> digraph), but they are not in the same morphological family.
- Test for connections of morphology with a word sum. If there is no word sum with attested morphemes that can link two words, those words are almost certainly not morphologically related.

A closer look at some key concepts...

Graphemes, not letters, are the basic building blocks of spelling:

Consider some of the uses of the letters <t>, <c> and <h>...



Like all letters, <t>, <c> and <h> don't, in themselves, represent phonemes. Instead they are building blocks for a variety of **graphemes** of 1, 2 or 3 letters, each of which can represent one or more phoneme. The presence of any of these letters in a word don't tell us about pronunciation until we determine (explicitly or implicitly) a good deal of other information. For example:

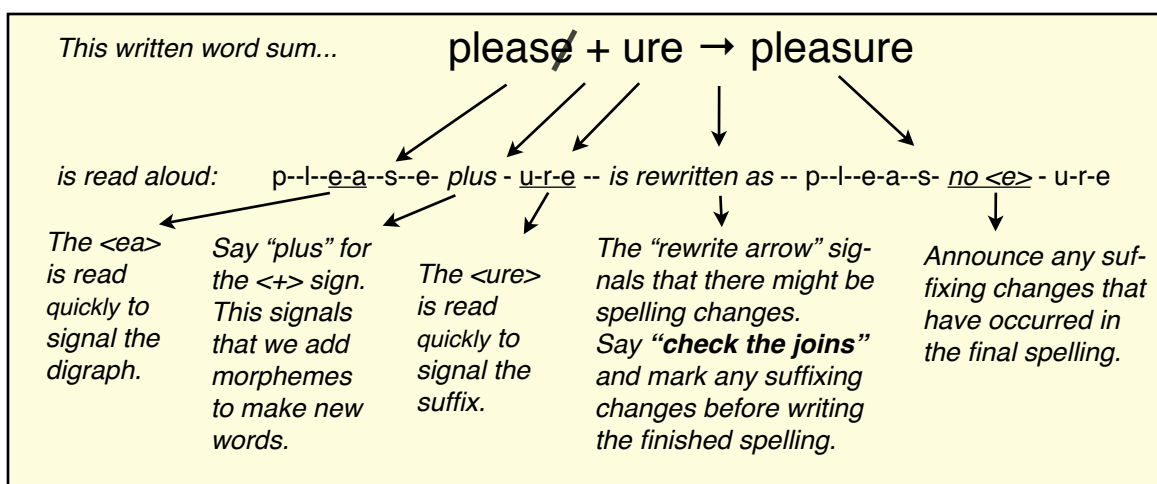
- Is the letter acting as a single grapheme or part of a two or three-letter grapheme?
- Since graphemes can't cross morphemic boundaries, we can't know if a string of two or three letters are acting as digraphs or trigraphs without knowing the morphological structure (reach/react).
- Nearby letters may be used to indicate the pronunciation of another letter. Here are three examples to consider:
 1. The single silent <e> *can* indicate that a previous vowel letter represents a long vowel (e.g., <cut> but <cute>; <mat> but <mate> but not in <love>, <have>, <come> where the silent <e> serves different orthographic functions).
 2. The pronunciation of the graphemes <c> and <g> have different pronunciations depending on whether they are followed by an <e>, <i> or <y>.
 3. Distinct pronunciations of the <t> grapheme are marked depending on whether or not it is followed by the letter <i> or <u>.
- Etymological information may be important. The pronunciation of <ch> in <chauffeur> occurs only in words of French origin. Teaching this feature of <ch> makes sense of a word like <chef>. Knowledge that spellings often give important clues to their origin helps in understanding the spelling of many words, and patterns. The consistency of the convention that no complete English word ends in <i> is recognized when students are explicitly taught that words like <ski> or <spaghetti> are not English words.

The Basics: Orthography Concepts and Teaching

Here is a list of some of the spelling concepts and teaching strategies that I consider to be basic, essential elements to classrooms learning to teach implement structured word inquiry in their classroom with the support of Real Spelling and other reference tools

- **Word sums and morphological matrices**

- Regular practice reading and building matrices, and moving between matrices and word sums is the best way I know to establish how the structure of words work, and connect words of related meaning and structure.
- **A word matrix** represents a member of a “word family”. A word family is the set of words connected by structure (base) and meaning regardless of pronunciation. (Do not use the descriptor “word family” for words linked by common pronunciations.) The matrix shows the full form of every morpheme. (e.g., The matrix representing the word <signature> includes an <-ate> suffix, even though the <e> of that suffix is replaced by the <-ure> suffix.)
- **Word sums** show underlying suffixing changes in the formation of a specific word. Teachers should learn to spell word sums **out loud** as they write them, and use consistent terminology.



- **Spelling out loud, and how we do it is critical!**

- Signal morphemes and graphemes with pauses.
- The same letter twice in a row: never a “double letter” when they cross a morphemic boundary, always a “double letter within a morphemic boundary.
- (e.g. the <follow> and <taller> have “double <ll>s; <hopping> has a “double <pp>”, but <helpfully> just as two <l>s with a pause between.

- **Spelling out loud as a reading strategy**

- When an early reader is guessing words based on the first letter, have them spell the word out loud and try again (forces them to look at the full word)
- Cover any affixes, and then have student spell the base or stem before trying to announce the word.

Some Teaching Principles

There is so much! How do I choose what to teach at any given time?

I try to frame my judgements when working with any learner -- pre-schoolers, elementary children, high school students, teachers -- with the following question to myself:

What is the most generative concept about the writing system to teach to this audience at this time?

This frame helps me if:

- (1) I don't know the full answer to a spelling question someone asks me;
- (2) I know a complex answer to a question that I don't know if I should teach right now.

Not all spelling conventions are equally generative, and how generative a certain concept is depends on the current understanding of the learner, so we need to make choices.

If I don't know the full answer to a spelling question, there usually is at least one spelling convention in a word that I can reinforce, even if it is not the main question. The most generative concept I can teach might even be just to communicate the message that I don't know the answer right now, but I'm sure there is an answer. I can put a question on the "Wonder Wall" and follow up on it at a time that doesn't distract from a more productive concept.

If on the other hand, just because I can explain a spelling doesn't mean that it is the right time to do so. Calculus teachers don't teach calculus to Grade 2 students just because they understand it. As in any content area, we need to make judgements whether something is overload to teach at a given moment, or if a concept is more fruitfully taught with underlying principles established first. There's nothing wrong with saying something like, "That's a great question! I do know something about that, but we'll have to do some more work before we're ready to take that one on."

A principle to remember when trying to develop a community of learners in the classroom

The knowledge of the group is greater than that of the most knowledgeable in the group.

This includes the teacher! This principle helps drive the "inquiry-led teaching" aspect of structured word inquiry. When we create the framework of smart problem-solving in the classroom, students are very likely to make rich observations or hypotheses that teachers do not see in the first. By inviting questions to which teachers do not know the answer, we reinforce the steps of problem-solving words, and the fact students' teachers are learners too!

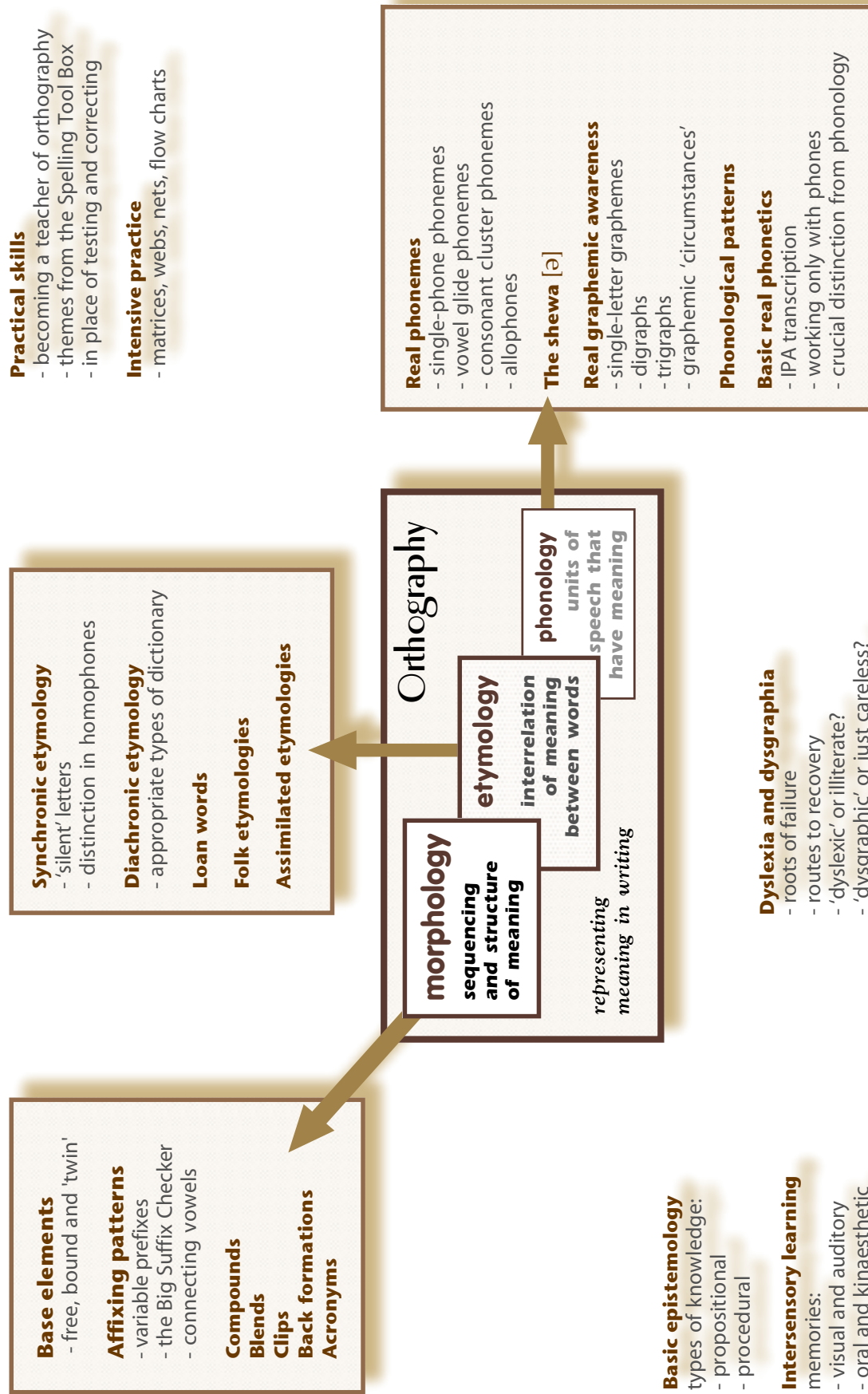
General strategies...

- Strategy of “contrasting elements” to testing hypotheses. (See word study on <house> in [Real Spelling Gallery](#).)
- Honour errors: For example, when working at the board, don’t correct spelling mistakes before you’ve let a child work through their own error. You need to understand errors before you can help students understand corrections.
- Spell morphemes don’t pronounce them (get students to catch you)
- Use a “Wonder Wall” Forum for students to write, post spelling questions and theories.
- Venn Diagrams and T-Charts to sort words, morphemes, graphemes on sticky-notes according to characteristics.
- Never teach a word in isolation. Try to find at least one affix that can be added to removed, or changed to show a morphological connection to another word. Pick an orthographic concept to teach and collect words that help reveal that concept.
- Get used to using exact linguistic terms with students as early as possible
- more....

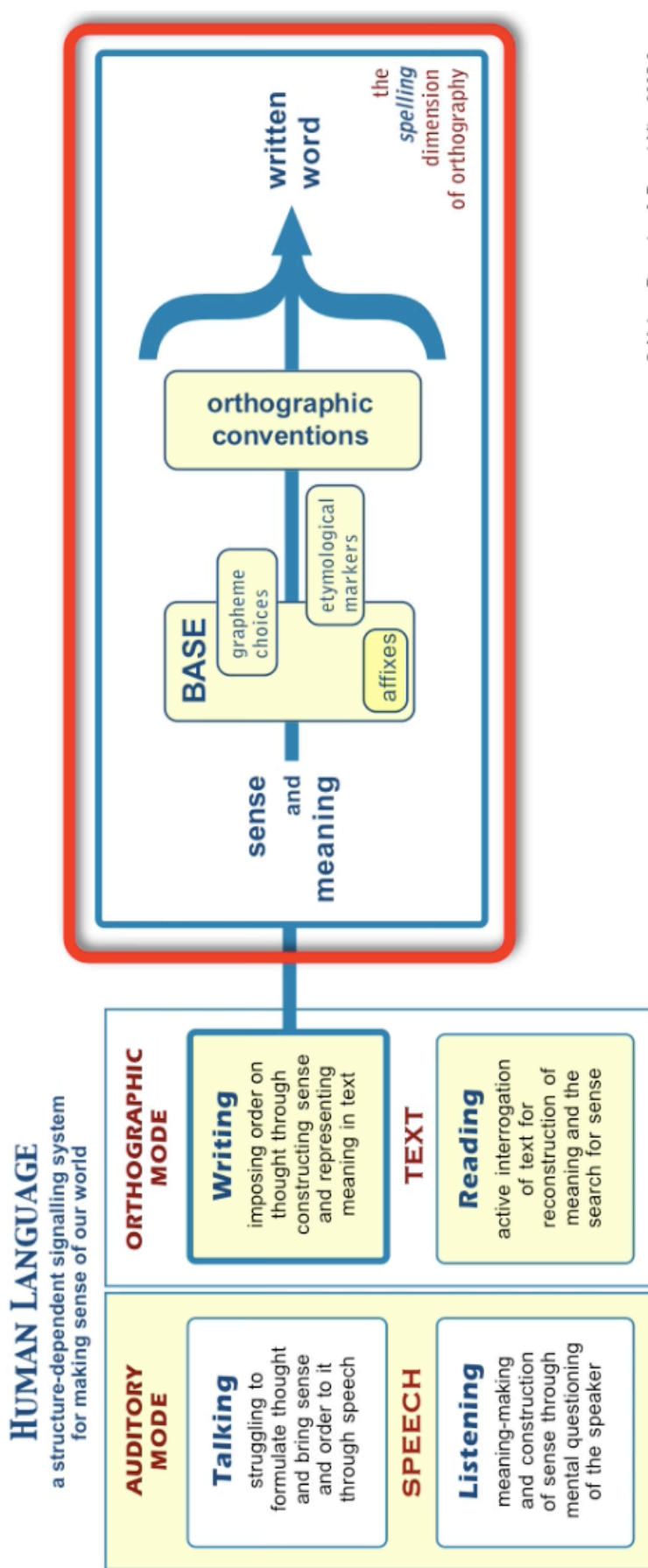
Tying the elements of orthography:

The conceptual map below is taken from a Real Spelling course booklet. It provides the basic model of the interrelation of the three fundamental elements of English spelling in the centre, along with examples core features of each of these elements that is supported by Real Spelling resources.

A conceptual map of the Core Element content



This model of English orthography is taken from a tutorial clip now in the Real Spelling Tool Box 2



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