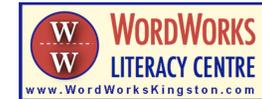


Spelling-out and writing-out-loud with the word sum

Multi-sensory instruction that explicitly engages the learner with morphemic AND graphemic structures of the written word



Pete Bowers May 30, 2018

Steps for constructing word sums that include marking and announcing of dropped single, silent <e>s

Step #1: Build left side of word sum.

This written word sum...

please + ure →

...is written and spelled aloud in groups like this: p-l-ea-s-- "plus"--ure "is rewritten as"

Step #2: Say "Check the joins!" and mark changes on left side of word sum.

a) The vowel suffix <ure> replaces the final, non-syllabic <e> of <please>.

b) Draw a line through that <e> to remind yourself to announce that change when you complete the right side of the word sum.

Note that the final, non-syllabic <e> (commonly referred to as the "single, silent <e>") represents no phonology. Letters or letter combinations that do not write phonemes are called orthographic markers an etymological structure. In <please> this <e> functions as a plural canceling marker, and to distinguish this word from its homophone <please>.

final, non-syllabic <e> vowel suffix

For suffixing conventions see Big Suffix Checker and/or Interactive Suffix Checker

please + ure →

Step #3: Complete right side of word sum, announcing the structure you have represented on left side of word sum.

Spell and write out the result...

please + ure → pleasure

...in groups like this: p-l-ea-s-- "replace the <e>" -- "pause" -- ure

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Click [HERE](#) for a document outlining the conventions I recommend for writing-out-loud word structure in conjunction with constructing word sums. This 2018 document is revised in light of my own learning since the one I created in 2011! What follows provides more background for that practical document.

Those who take on these conventions will see that my recommended practice for working with word sums *demand*s attention not only to **morphemic** structure but also **graphemic** structures.

These conventions are my own adaptation of practices I learned from Real Spelling.

It is important to distinguish between a *necessary* scientific tool for valid orthographic analysis of the structure of words like the word sum and a *recommended* practice that can be associated with the process of working with word sums.

The word sum: The lexical algorithm (con conversationally referred to as the word sum) is essential to the process by which linguists identify the morphological structure of written words. Word sums mark the *process* by which written morphemes are synthesized into a written word, or the *process* by which their constituent written morphemes can be analyzed from a written word. It is a *non-optional* tool for scientific analysis of written morphological structure.

A way of engaging with the word sum: The "spelling-out" and "writing-out-loud" conventions I recommend *can* be associated with working with word sums, but they are by no means necessary to this scientific process. Nonetheless, I recommend this practice because I have found it to be so useful for my own understanding and that of the teachers, tutors and students I have worked with. I share those conventions as something for you to consider for your own learning and practice.

Recognizing the scientific precision of the word sum: When people start working with word sums, many assume they can adapt the word sum that is presented to them according to their own preferences. I understand why that *seems* reasonable.

So much of what teachers are presented with *should* be adapted. If word sums were just “a cool teaching strategy” it would be reasonable to try our own versions of them.

But word sums are not a “teaching strategy” any more than mathematical symbols for “equal” and “square root” or scientific notation for chemical processes are “teaching strategies.” We use established scientific and mathematical conventions in our instruction *about* math and science. We don’t modify these symbols and conventions to study math or science in schools. Teachers don’t adapt the equal sign into an arrow to show the sum of numbers out of personal preference.

Studying orthography scientifically is an unfortunate novelty in education -- unlearning old habits demands careful attention

When teachers and tutors are introduced to structured word inquiry, their past experiences do not associate spelling with scientific inquiry. As a result it is not obvious that this tool called “the word sum” for studying spelling structure should be treated with the same respect that we give conventions for studying math and science.

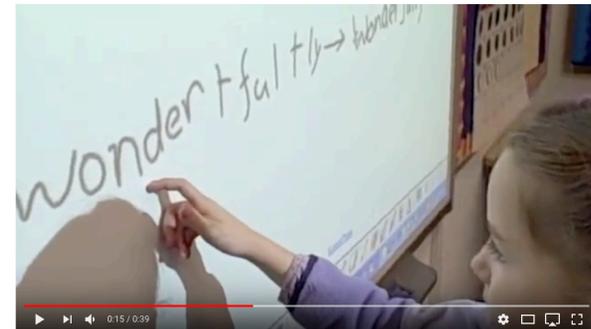
One of the prime values of the word sum is that it offers such a powerful tool for *beginning to understand the reliable logic of English spelling*. But this key lesson is only available when people use word sums with care and precision. The process I recommend facilitates exactly this kind of precision when working with word sums.

Helping students make sense of the written word is one of the most consequential duties teachers have. Taking on the conventions for working with word sums that I recommend forces teachers to attend carefully to the

orthographic structures and conventions that govern our written word. Taking on this challenge sparks on-going teacher learning -- and thus on-going student learning.

Let’s start making sense of this process by studying it in action with some young students.

- 1) **View an example:** Watch [THIS 40 sec. VIDEO](#) of a Grade 1 student spelling out the structure of the word <wonderfully> with the help of a word sum. I encourage you to do so **before** reading on.



Grade 1 Student Working with Word Sums

Did you notice Sophie pause on the left side of this synthetic word sum in the base <wonder>? Watch again and you will see she does NOT pause when she hits that same point on the right side of the word sum. Consider what the process of spelling-out-loud offers both the student and the teacher/tutor.

We see how closely Sophie is attending to the spelling structure of this word sum as she spells-out loud what she sees. She brings even greater focus to the orthography by drawing her finger along the spelling as she spells-out.

My guess is that at that moment she announces and points at the <d> in <wonder>, she notices that it is followed by a final <er>. Given the context of her instruction (which is clearly rich in explicit morphological instruction) Sophie must be familiar with <-er> suffixes. Spelling-out this word sum so intently could well spark her to notice this possible suffix that she hadn't noticed when she first constructed the word sum. Wondering about the possibility of an <-er> suffix takes time to process, causing her to pause.

Thankfully, the teacher does not interrupt her thinking to ask her anything, and Sophie just continues on her own. When she gets to the right side of the word sum, we can see that she does *NOT* pause before the <er>. My guess is that after thinking about the <er> on the left of the re-write arrow, she realized that she couldn't make sense of <wond> and rightfully concluded that there is no <-er> suffix in this word. This is like noticing an <ing> in <spring>, but recognizing there can't be an <-ing> suffix in this word because <sp> doesn't make sense as a base. Teachers working with SWI regularly practice the process of distinguishing between morphological "foils" and actual written morphemes. Such background experience arms a student like Sophie to become an independent scientific thinker about word structure.

Also consider what Sophie's spelling-out-loud offers her teachers. They get a window on the thinking of a learner without forcing the learner to be able to articulate what they are thinking.

I described my hypothesis of what Sophie's spelling-out signals, but I wasn't there to ask. If I had been there with Sophie, I would have asked her about her pause and

what she was thinking at that moment. Whether or not Sophie was even conscious of pausing, spelling-out like this can provoke a line of questioning for the teacher that would be rich for student learning.

Teacher learning → Student learning

Teachers who take on the practice of spelling-out-loud word structure with their students spark multiple potential learning benefits. Like students, teachers notice more details when we inspect any complex system carefully and systematically. Spelling-out and writing-out-loud encourages the teacher to carefully engage with the word sum and the orthographic structures it highlights. Increased orthographic understanding of the teacher can only be expected to benefit student learning over time.

Of course students also gain from the increased focus on word structure. In addition, as we saw with Sophie, this process gives teachers *a means to assess and interrogate students' understanding*.

I also recommend watching this [similarly short video](#) with Richard spelling out a word sum for <doing> and then constructing and spelling out a word sum for <does>.



Note how Richard's spelling out encourages him to pay close attention to word structure and provokes rich questions from his teacher. And crucially, see the joy on this child's face as he demonstrates his understanding of these spellings.

Now that you have seen Sophie and Richard do it, I encourage you to study the conventions for announcing word structure that they have been taught.

The document identified on page 1 offers detailed instructions for constructing word sums and spelling out word structure. The first page of that document provides background on this practice (thoroughly re-written in 2018). That introduction is followed by step-by-step instructions for spelling out word sums.

Study the document linked [HERE](#) before reading on.

Practice: Now that you have gone over the conventions for spelling out word structure with the help of a word sum, challenge yourself to spell-out-loud the morphemic and graphemic structure of the words listed below -- first *without* the scaffolding of a word sum.

the	spelled	pondered
does	helpfully	purple
doing	teacher	fighting
marry	bookkeeper	duckling

To test the hypotheses that you spelled-out-loud (without writing and without a word sum) take out a pen and paper and write-out-loud your hypotheses with complete word sums using the [guide](#) for spelling-out.

Here are some things you will have to keep in mind...

- Signal morphemic boundaries with a clear pause.
- Signal digraphs and trigraphs and orthographic markers **in the base** by announcing those single or multi-letter structures as a group. It is not a “pause” between graphemes and orthographic markers in the

base. Rather each grapheme (single-letter, digraph or trigraph) or orthographic marker receives the same amount of time. Note that this list includes words that are just bases. For such mono-morphemic words, you signal graphemes and orthographic markers, but do not leave any pauses that signal a morphemic boundary. *NOT* pausing signals your understanding of a word as a free base element.

- Signal that you know which of these words include “double letters” and which simply include the same letter twice in a row as an accidental juxtaposition (as outlined on page 3 in the document). If there is a plus sign in a word sum between two of the same letters in a row -- you cannot say “double”. You can’t pause at a plus sign and also say double. If there is no plus sign separating the same letter twice-in-a-row, you must call it a double. This works for words with and without doubled consonants for suffixing. For example...

fall + ing → falling (Spell-out: “double <l>”)

hop(p) + ing → hopping (Spell-out “double <p>”)

joy + ful + ly → joyfully (Spell-out “<ful> pause <ly>”)

Note: I’ve given an example of a word with suffixing changes above. To get you started with this initial task, however, I picked words with no suffixing changes. With the linked document, you’ll see the conventions for announcing the three suffixing changes.

Assessment -- Check your learning: Click [HERE](#) to see a page with this list of words analyzed with word sums and key for spelling out those words. That page has more about spelling-out as a teaching and assessment tool and more classroom examples.

Understanding the difference between “Spelling-out-loud” and “Writing-out-loud”

I’ve been using these phrases without explaining the difference. It’s time to nail that terminology down.

Spelling-out-loud: I use this phrase for spelling out word structure *without* writing at the same time. In the video with Sophie, the word sum is already written, so she is spelling-out-loud. The task with the words I gave on the previous page is to start by spelling-out-loud *without* the help of a word sum. Notice, this process is more demanding when announcing structures without a word sum. The word sum has plus signs and symbols for suffixing changes to guide how we spell-out-loud. When I become uncertain of how to spell-out-loud a word, I reduce the load on my working memory by taking a pen and working through writing the word structure out-loud so that I can mark all the signals of spelling-out in the word sum (where to pause, any suffixing changes).

Writing-out-loud: I use this phrase to describe the process of writing and spelling-out word structure at the same time. I think Richard’s teacher is wise to not stop him as he writes is word sum for <does> without spelling-out with the camera going. Over time, I would make sure to model that process and encourage Richard to make that process become becomes an automated habit. And then he does not have to remember to do it.

Writing-out-loud builds on [cognitive load theory](#), and the well established fact that memory is stronger when information is processed through multiple memory routes. Combining the motor movement of writing-out and spelling-out the structural units of affixes and also graphemes and orthographic markers *in the base* helps

fix those structures in the learner’s mind. I think of “writing-out-loud” in word sums as a “worked example” of spelling-out-loud without the scaffolding of the word sum. The practical document you worked with is itself a kind of worked example for processing word structure. For more on this concept see my link on [Cognitive Load Theory](#).

Provoking teacher learning about graphemes

A subtle, but important value of learning to spell-out graphemes in the base is that it forces teachers to recognize when they don’t know the graphemes in a base! Identifying what we don’t know points us to what we need to learn. I strongly recommend [Gina Cooke’s LEX grapheme deck](#). It is the only reliable grapheme deck I know. It has information on morphological and etymological constraints on grapheme-phoneme choice. Getting stuck on spelling out the base is a perfect prompt to dive into that bank of information!

Summing up for now...

There is much more behind these conventions and how it can help us work with the scientific tool of the word sum. I plan to address this topic with more detail with reference to research and theory. For now, I share this as a draft document to help people get started with this practice.

I hope working through and revisiting these documents helps refine your own understanding of word sums, and the morphemic, graphemic and etymological structures that all fall *within the plus signs of a valid word sums*.

And of course, nothing motivates like understanding!

Pete Bowers, May 30, 2018