**Readme for ROPE (*Remembering Outlines in Plover more Easily*) – version 2.3:**

**A system for learning and remembering outlines for over 4,000 common English words**

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**(Rope 2.3 was launched on 9/27/2019, and will probably be updated many times.)**

**Links:**

Visit the ROPE GitHub page to download the ROPE 2.3 spreadsheet, Anki deck, dictionary, and readme! **https://github.com/kburchfiel/rope**

For videos I’ve made about Plover, along with videos about typing in general, visit my YouTube playlist at **https://www.youtube.com/playlist?list=PLYtyZPMUWeI\_4i4pc0peBPGMfSV7C5Nxw**

**Intro and TL;DR**

ROPE is a guide to learning and recalling Plover outlines for about 4,200 common English words. It does this in two ways: first, it relies on Anki's spaced repetition system to help you solidify the outlines in your memory. Second, it includes mnemonic "stories" to help you remember a sizable chunk of the outlines. These stories, around **2,800** in total as of 6/30/2019, serve to connect the outlines to their corresponding word by including words that are similar to the components of the outlines.

ROPE 2.3 also includes many added-in outlines (**around 3,150** as of 6/30/2019) that serve as alternatives to the outlines in the standard Plover dictionary. They're meant to let you write words in fewer keypresses and/or strokes, but are completely optional, and standard outlines for every word are provided when available. By using these added-in outlines (along with pre-existing outlines), you can write all of the top 4,000 English words (by frequency, according to one frequency list) **in just one stroke, and in 5 keypresses or less**. In addition, you'll be able to to write the top 1,000 English words **in 4 keypresses or less**.

If you'd like to try using ROPE to learn and practice outlines, download both the Excel document and the Anki file. (If you don't have Anki on your computer, download it for free from the website.) The Anki file and the Excel document have the same material; Anki is just a flashcard program that lets you keep track of your learning, and the Excel file is useful to have as a reference. Once you've gone through the Learn Plover! exercises, you can start using Anki to learn new outlines, even if you're very new to Plover.

This system is meant to be super-customizable, so you can add in or change stories, outlines, and words however you please.

Finally, as noted above, I plan to continue to update ROPE 2.3 over time. For instance, I will probably change some outlines as needed and add in extra stories. These updates will be transmitted to the Google Drive folders, so you should always have access to the latest versions of the files.

For more detailed information, see below!

P.S: Don't assume anything I say in the stories to be true! There's a ton of made-up stuff and false information, but it's all there to help you learn the outlines.

**The ROPE metaphor**

Picture a mountain that is 4,201 feet (or meters) tall. We’ll call this Mount Outline. Mount Outline is pretty steep, and has one foot (or meter) for every outline in ROPE.

To climb Mount Outline, you could learn each outline by trial and error, and hope that you will write each one enough times to enter it into your memory. However, with this strategy, you may find yourself slipping down the mountain quite often, as it’s easy to forget outlines if you don’t write them often enough.

That’s where ROPE comes in! ROPE is a “rope” that is meant to help you climb Mount Outline in a more efficient manner. The Anki deck and mnemonic stories in ROPE helped me climb up this mountain, and they may help you as well.

Happy studying!

**Disclaimer with regard to the added-in outlines:**

I am a Plover enthusiast, but I am not a professional stenotypist, and I am still working on building my speed. Although I think my outline additions will help me boost my speed, I don't have any proof that these outlines will be faster than the original outlines also listed. Therefore, use these new outlines at your own risk!

**Source for the original frequency list and frequency stats:**

These words and frequency statistics come from the New General Service List Website (http://www.newgeneralservicelist.org/ ) (Browne, C., Culligan, B., and Phillips, J). The "NGSL Stats & Frequencies to 34K" list was the main source of words and is available at http://www.newgeneralservicelist.org/s/NGSL-101-with-SFI.xlsx .

Citations for the NGSL, which also contributed material for this list:

Browne, C., Culligan, B. & Phillips, J. (2013). The New General Service List. Retrieved from    http://www.newgeneralservicelist.org.

Citation for the NAWL, which some of the words in this list belong to:

Browne, C., Culligan, B. & Phillips, J. (2013). The New Academic Word List. Retrieved from    http://www.newgeneralservicelist.org.

**How ROPE 2.3 can help you save keypresses:**

ROPE's added-in outlines usually let you write common words with fewer keypresses and strokes than you could with the outlines that already exist in the Plover dictionary. See the table below (copied and pasted from the ROPE 2.3 spreadsheet) for more details:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Average keypresses per root word in ROPE 2.3: | | | | | |
| (This set of words does not include a couple of curse words in the NGSL top 4000) | | | | | |
| Word rank category | ROPE 2-3 outlines (at time of publication) | Original outlines | Regular typing (e.g. Qwerty/Dvorak; includes extra keypresses for capital letters but not for space key) |  |  |
| 1 to 100 (in terms of frequency:) | 2.510 | 3.680 | 3.54 |  |  |
| 1 to 500 | 3.122 | 4.804 | 4.97 |  |  |
| 1 to 1000 | 3.416 | 5.245 | 5.60 |  |  |
| 1 to 2000 | 3.828 | 5.724 | 6.15 |  |  |
| 1 to 4000 | 4.224 | 6.389 | 6.62 |  |  |
| **All ROPE 2.1 words (including non-root words)** | **4.218** | **6.348** | **6.59** |  |  |

**1. The wordlist and other components of ROPE**

**1.1. How did you choose which words to put in this list?**

The roughly 4,200 words in this list came from the New General Service List website (by Browne, C., Culligan, B., and Phillips, J) (<http://www.newgeneralservicelist.org/> ). Specifically, the list includes the 2,801 words in the New General Service List ; many of the supplemental words in the NGSL document (such as months, days of the week, and numbers); common *derivatives* of the NGSL words, such as "am" and "are" for the *root* word "be"; and other words that were ranked in the top 4,000 by SFI (standard frequency index) in the "NGSL Stats & Frequencies to 34K" document, minus 2 curse words (f\*\*\* and s\*\*\*) (see <http://www.newgeneralservicelist.org/s/NGSL-101-with-SFI.xlsx> ). So essentially, ROPE includes almost all of the top 4,000 words in English (according to one frequency list), along with important supplemental and derivative words.

I should point out that this is mostly a list of *root* words, and many derivative words aren't included. Generally, I only added in a derivative word when the preferred outline for that word couldn't be guessed by knowing the root word (or another derivative) and a knowledge of Plover's phonetics and prefix-suffix strokes. Also, the more common I imagined a derivative word to be, the more likely I was to add it. In doing so, I think I was able to prevent this list from gaining redundant outlines that you wouldn't need to learn separately.

In short, I think ROPE will prepare you to write lots of common English words. And if there are other words that you frequently use, feel free to add them to your copy of the documents!

**1.2. What is the purpose of the stories and the Anki deck?**

I found that while creating a list of outlines for common words was helpful for me, learning the outlines wasn't enough; I actually had to remember them! That's where Anki comes in. Anki has a great spaced repetition algorithm that helps you review cards more efficiently. You review each card more often when you're starting out (or after you got a review wrong), and less often once you're gotten it right multiple times in a row. There are both desktop and cell phone versions of the program that sync with one another.

I thought I was set once I had my list of outlines and Anki decks. But after I was a couple thousand reviews in, I saw that I could use some extra help in remembering the more tricky and non-intuitive outlines. That's where the ~2,790 'stories' I've included come in. (See below for more information on those.) These stories, which I wrote in the process of going through the entire deck, have really helped me recall outlines that I haven't had many opportunities to review.

While everyone's experience will vary, I think these outlines, flashcards, and stories can be just as helpful to other Plover learners as they were to me—which is why I'd like to share them with anyone who's interested.

**1.3. How should I review these cards in Anki? I'm worried I will forget the cards I studied first by the time I get to the end of the deck.**

**This is a very important question, and one that took a lot of trial and error for me to answer! ROPE 2.3 has around 4,200 cards, so if you were to study the cards in linear order (from most frequent to least frequent), you might end up forgetting the first cards you studied by the time you go through the whole deck at least once. Even though Anki uses a spaced repetition feature to guard against forgetting cards, the reality is that if you try to study a lot of new cards each day without making sure you've completed all your reviews, some cards will be forgotten. (This was the case for me, at least.)**

**Here is the Anki study method that I recommend to help you learn new cards without forgetting older cards in the process. It helps ensure that you have done all needed reviews of cards at or above a certain frequency before moving on to cards of a lower frequency.**

1. Click on the deck in Anki.

2. Under "Options" (on the bottom of the Anki screen), sort cards by "show new cards in order added." As long as the original Excel deck on which the Anki deck is based was sorted by word frequency, with the most frequent words on top, this step will help ensure that you learn and review the most frequent words in Anki first.\*

**(A word of caution for step 2.5, the following step: this action will erase any progress you have already made on cards in ROPE. However, if you know a card well, you should be able to review it fairly quickly, so this should not slow your progress with reviews too much.)**

**2.5:** Select the ROPE 2-3 deck, then hit “Browse” at the top of the screen. Hit “Enter” to select cards from ROPE 2-3 only. Highlight all of the cards using CTRL-A, right-click, and select “Reschedule.” Choose the “Place in review queue with interval between” option, and keep both numbers below at 0. **(Note: if you have already reviewed all the cards in the deck, you do not need to choose this option, and in fact it may be best not to.)**

What does this step accomplish? When you first launch the deck, all of the cards will be “new” cards, so they would originally not show up in the filtered deck that we are creating below (which will only show due cards). The purpose of this step 2.5 is to tell Anki that all the cards in the deck, including ones you have never studied, are due; that way, they will show up in the filtered deck.

3. Click on "Tools" (near the top left of the Anki screen), and then select "Create Filtered Deck." Make sure that the text in the "Search" row reads "deck:"ROPE 2-3" is:due." (This will tell the program to choose only due cards for this deck.) In the "Limit to" tab, **choose "Order added" for how Anki will select the cards.** (You can also choose the number of cards to select for your deck. You can choose to study a set number at a time, such as 50 or 100, or you can put “9999” in for the number and limit your reviews by time (e.g. 1 hour). The latter is my preferred method.)\*\* Finally, you have the option of using custom steps; I recommend checking the custom steps box and then entering “1 10” into that box (if it’s not already listed). Then click "Build" at the bottom.

This filtered deck plays a very important role: it helps you focus your due card reviews on the most frequent words in ROPE. Without this filtered deck, you might have a higher chance of forgetting frequent cards as you review less frequent cards.

**5. Now that you have both your ROPE 2.3 deck and your filtered deck set up, here's how you can learn new outlines while still remembering older outlines:**

1. Go to your filtered deck and study the due cards there. You can study until you go through all the cards in that deck (probably not feasible at first!) or limit your study to a certain period of time. I prefer the latter option, as it lets me know in advance how much time I'll be spending on card reviews. (You can rebuild the deck if you go through all the cards before your time limit is up; read on for more details.)

It's that simple! This filtered deck will increase your outline vocabulary while also protecting your recall of older, more frequent words.

Also note that this filtered deck is just a temporary holder for cards from the ROPE 2.3 deck. If you delete the filtered deck, the cards themselves will not be deleted; instead, they will return to the ROPE 2.3 deck.

If you run out of cards in this filtered deck to review, or if you want to reuse the deck for another day, just click on the filtered deck and click "rebuild." This will replenish the deck with a new set of due cards for you to review.

One final note: before exporting your Anki deck (e.g. to back it up), I think you may need to delete any filtered decks and custom study session decks that are based on that original deck. Otherwise, it is possible that the cards in those filtered/custom study session decks won't be backed up along with the cards in the original deck.

\*When you add in a group of cards to Anki from a converted Excel spreadsheet at the same time, Anki considers the top rows of that spreadsheet to be the first cards added to the Anki deck. Therefore, in sorting the ROPE Excel spreadsheet by frequency rank, with the most frequent words at the top of the spreadsheet, I ensured that the most frequent due cards would appear in the filtered deck when I selected "Show new cards by order added" in the Anki options.

**PART 2: STORIES**

**2.1. What do you mean by 'stories'?**

I owe James Heisig, the author of the brilliant *Remembering the Kanji* and *Remembering the Hanzi* books, all the credit for the idea of using mnemonic stories to recall information. Heisig wrote those books to help people learn the characters that are found in written Japanese and Chinese. His premise was that in order to remember how to write characters, you need to look at the individual elements of those characters, and then craft a story that connects those elements to the meaning of the character.

The stories in ROPE use a similar concept. Generally, any given story uses one or more words inspired by the letters in the Plover outline to link those letters to the word that the outline produces. The idea is that when you're faced with a word in English whose corresponding outline you are trying to remember, you'll first remember the story for that word, as stories are easier to remember than strings of letters.

The stories generally have one or more words that represent some or all of the letters in the outline. Once you remember those words, you'll be able to transition from the words to the letters in the outline, perhaps aided by characteristics in the original word and/or your understanding of steno theory.

As a disclaimer, these stories do not solve all the work of remembering an outline, but I like to think they get you 80% there or so. That's because this is not a precise system in which each letter always maps to the same word in a story. Depending on their context, any given letter or series of letters in an outline can mean different things story to story. Also, the words in the story can be based off just one letter in the outline, or they can be based off multiple (or all of) the letters in the outline. Finally, the stories generally focus on parts of an outline that will be hard to remember, and may not mention letters that you would know to include anyway. I mention all this because this mnemonic system is a little "fuzzier" than a system where the mnemonic device takes all the guesswork away. (The advantage of a 'fuzzy' system, in my view, is that it's much more flexible and allows you to create stories in many different ways. It also allows for much shorter and simpler stories with fewer elements in them to remember.)

A more precise mnemonic method to use with Plover was developed by Joshua Pan, and can be found at <https://github.com/openstenoproject/plover/wiki/Stenotype-Mnemonics-for-Beginners-(English)>

**2.3: Different strategies for creating stories**

I used a number of different strategies to come up with words that could help me remember the letters in an outline. I found that having multiple strategies made the story-making process easier. If you're trying to create your own story for an outline, feel free to use these strategies as well.

My strategies included:

1. Looking up the outline in Wikipedia and seeing what words the outline stands for or represents. I can then use these things as words in my story.

2. Assigning each key on the steno keyboard a specific word for which it stands (e.g. "octopus" for O, "space shuttle" for S- , and then using those words in your story. Note that vowel/consonant “specifiers” that you can use for this task are listed below.)

3. Identifying one or more words that appear similar to all or part of the outline itself (note: I find using one word to represent the entire part of an outline to be perhaps the ideal strategy for creating a story, although this is not always possible)

4. Identifying a phrase that appears similar to the outline itself

5. Identifying a word that has one or more syllables that are similar to the outline

6. Identifying other steno outlines that exist within the outline, and using the words to which those outlines map in the story.

7. Creating a phrase based off the individual letters in the outline (especially useful if these other strategies aren't proving viable or useful). The words represented by each letter can change from story to story; for instance, S-may stand for "sugar" in one story, but "scout" in another.

Note that these strategies can also be combined to produce multiple words for a story.

When using multiple outlines/letters within an outline to create a story, I recommend trying to use elements that don’t overlap, as this seems to improve recall (at least for me). For example, if you are trying to create a story for the outline TOEFL, it would be more ideal to create a story that uses “appoint” (the word to which TOEF maps) and LASER (the word used to represent –L) than it would be to create a story that uses “diet” (the word to which TOEL maps) and FRENCH FRIES (the phrase used to represent –F). This is because TOEF and –L do not overlap, whereas TOEL and –F do.

**2.3. Vowel and Consonant Specifiers**

When the following words are present in a story (and capitalized), they specify that a certain vowel or consonant is present in the outline. (Thanks to Joshua Pan for helping inspire this strategy.) Often, when a vowel specifier is present, it denotes the only vowel present in the outline, but in some cases, other vowels also appear.

(The outlines I use for these words are also listed. Using most of these outlines with an asterisk converts the words to all caps and notes the letter they represent after the word, which is useful when writing stories. For instance, PEUPG maps to "ping pong," but P\*EUPG maps to "PING PONG (P-)." In some cases, the outline for the all-caps version of the word is different; these exceptions are noted.)

**2.3.1. Vowels:**

1. A: APPLE (AURPL)

2. O: OCTOPUS (PROBGT)

3. E: ELEPHANT (KWAUFL)

4. U: URANIUM (AURPB)

5. EU: EUROPE (KWRURP)

6. AO: BOOT (I use PWA\*UT for "BOOT (AO)"; "boot" is PWAOT.

7. AE: ACCIDENT & EMERGENCY DEPARTMENT (TKAERPB for the capitalized version; I didn't create an outline for the undercase version)

8. AU: GOLD (chemical symbol is AU) (SKW-G, and TKPWO\*LD for the capitalized version)

9. OE: DEBT (since a debt is something you OE (owe)) (TKET for "debt", TK\*EUT for "DEBT (OE)"

10. OU: OKLAHOMA (since OU is a university in Oklahoma) (O\*BG for "Oklahoma", O\*EUBG for "OKLAHOMA (OU)"

11. AOE: MOSQUITO (PHEUBG)

12. OEU: OIL (OEUL for "oil": O\*EULS for "OIL (OEU)")

13. AEU: CANADA (in honor of the word "eh") (KUPBD)

14. AOU: U-TURN (AERPB)

15. AOEU: ICEBERG (AOEURG)

**Also, the word "porcupine" (PRAOEUPB) in a story means that the outline has an asterisk. ("Star" is sometimes used for this as well.)**

Not all stories use these vowel specifiers, but feel free to add them to stories when they would be helpful for you. If I keep entering the wrong vowel sound when I'm quizzing myself on outlines, that's an indicator that I need to include one of the vowel specifiers into my story.

When these words are used in stories, they give you more freedom in choosing a word to help you remember the outline. Normally, the word you choose should have a pretty similar vowel sound as the outline, as otherwise you might enter the wrong vowel sound. However, when one of the above words is entered in a story, you know for certain that a word will contain a particular vowel.

That means when choosing words that will connect the outline to its meaning, we can use words that have similar consonant sounds as the outline, but an entirely different main vowel. To make the connection between the outline and the word clearer, I sometimes replaced the vowels in the outline with lowercase vowels, enclosed in parentheses, that match the vowel in the story.

This probably sounds pretty confusing without an example, so here's one:

The story for ROEUR for the word "error" reads:

"If you ask to have your steak grilled R(ae)R (rare), but it comes to you well done and fried in OIL, then the chef has made two unfortunate errors.

What's going on here? Well, since OIL is present, we know that the word contains OEU. That means that when writing the story, I didn't need to connect "ROEUR" to a word with an "oi" sound; I just needed to find a word that started with R and ended with R, like the outline does. "Rare" seemed like a good choice.

However, ROEUR doesn't really sound like rare, and it might be hard to connect the two in your head. So instead of writing out ROEUR within the story, I wrote R(ae)R, which sounds a lot more like "rare." The "ae" is made lowercase and enclosed in parentheses so that you won't mistake it for actual letters in the outline.

The idea here is that when you're recalling the outline for error, you'll think of R…R from the word "rare," and then OEU from the word "OIL." Putting them together, we get ROEUR.

I probably went into more detail here than was necessary, but I didn't want you to get confused when you saw something like R(ae)R in a story.

**2.3.2. Consonant Specifiers (thank you Joshua Pan for helping inspire this method):**

1. S-: SPACE SHUTTLE (SPULT)

2. T-: TOKYO (TROEBG)

3. K-: KANGAROO (TKPWRAO)

4. P-: PING PONG (PEUPG)

5. W-: WALRUS (WAOUL)

6: H: HONDURAS (HAOPBD)

7: R-: RUSSIA (ROURB)

8: -F: FRENCH FRIES (TPOUF)

9: -R: ROLLER COASTER (ROERBG)

10: -P: PINEAPPLE (PEUPL)

11: -B: BRAZIL (PWREUL)

12: -L: LASER (PHOUF)

13: -G: GOAT (TKPWOET)

14: -T: TACOs (though many stories also use "tea" to represent this letter) (TAEBG) ( I also added in TAEBGS for "TACOS (-T)

15: -S: SPAIN (SPAEUPB)

16: -D: DALLAS (TKAULS)

17: -Z: ZOO (I use R\*AOUP

for "ZOO (-Z); "zoo" is SAO\*)

**2.4. These stories seem like a lot of extra effort and are kind of silly. Do they really work?**

Based on my own experience, I believe they do work. It's a lot easier to remember stories than it is to remember non-intuitive strings of letters. That reflects a central truth about mnemonics—that to remember something, you want to convert it into a form that's easier to recall.

However, I'm quite sure that not all of my stories will work for you. Some of them reference things (like Nintendo games) that you may not know anything about. And in the process of studying these outlines, you'll probably think of some far better stories than the ones that I had. In this case, the solution is easy: overwrite my story with your story in the Excel file and Anki deck!

**2.5. Why only ~2750 stories? Why not a story for every word?**

There are a number of reasons why a word may not have a story attached to it:

1. In general, I only included stories when they would make a substantial contribution towards my recall of an outline. That's why there's no story for STOP for the word "stop." They simply wouldn't be necessary!

2. Quite a few of the words in this list are just derivatives of other words. If I have a story for one of those words (ideally the root), then I normally didn't include a story for the derivative words. For example, since I have a story to help me remember TPEF for the word "effective," I didn't see a need to write stories for TPEFL for "effectively."

3. I started writing stories after I had already had a fair bit of experience with Plover, so some very common outlines (like –T for "the") were so engrained in my memory already that I didn't think they needed an outline. I think the story method isn't as important for ultra-common words, since writing them over and over again will force them into your memory. The stories are more valuable for words that will only come up once in a while.

4. Sometimes an outline will demonstrate a pretty straightforward inversion, and in cases like that I often wouldn't create a story.

Regardless, if you see a word that you think needs a story, go ahead and create one! I'll admit that *creating* a story yourself will probably prove more helpful in recalling an outline it than using one of mine. But I thought I would try to give you a 2700-story head start. ;)

**2.6. But won't pausing to remember a story take time? Wouldn't it just be faster to output words from muscle memory?**

Yes! Absolutely. Steno is built for speed, and recalling stories takes longer than just writing a word.

These stories are meant to be like the giant Saturn V rockets that powered astronauts in the Apollo missions into orbit. The rockets served a useful purpose, but once they were no longer needed, the astronauts detached them and let them fall away. Likewise, these stories can help you go from consistently forgetting an outline to consistently remembering them. And once you're consistently remembering them, you may be able to let go of the story and just encode the outline into your muscle memory.

But not to worry—if you forget an outline, the stories can help you insert it back into your memory.

**2.7. Anything else I should know about the stories?**

**1. Don't assume anything I say in the stories to be true!** There's a ton of made-up stuff and false information, but it's all there to help you learn the outlines.

2. **Don't assume that an apparent outline I inserted in a story actually maps to a word unless it's stated explicitly that it does.** A huge chunk of the outlines that I included in these stories, probably the vast majority, are 'pseudo-outlines' that are just there to help you link the word you're studying to the outline you're studying.

3. The stories shouldn't be assumed to be actual explanations of how these outlines were developed.

**3. THE OUTLINES AND THE WORDS**

**3.1. How did you pick what outlines to use for each word?**

I started with words that are already in the Plover Dictionary. However, I then added in additional outlines in order to save keypresses and strokes. Whether you use these additional outlines is totally up to you!

**3.2. Why did you choose so many new outlines?**

Because I currently write steno on a keyboard, and not on a purpose-built steno machine, I wanted to be able to write all the words in ROPE 2.3 in just one stroke and in 5 keypresses or less. I figured that this would reduce fatigue. In addition, as a beginning user, I thought that creating shorter outlines could also improve my speed and accuracy.

Theoretically, you could write all words in ROPE in just 4 keypresses or less. However, not all of those outlines are easy to write. Therefore, I decided to aim for outlines that wouldn't be too hard to write, which led to me incorporating 5-keypress outlines into ROPE as well.

Once again, **you don't need to use these additional outlines if you prefer not to!** Outlines that are added in are placed in their own column, so it's easy to tell which is which.

**3.3. How did you choose the new outlines?**

I personally believe that a good outline has 3 qualities: (1 ergonomics (so it's comfortable to write); (2 ease (so you can type it consistently without making an error), and (3 efficiency (meaning it doesn't require many keypresses). While it's also helpful for an outline to resemble the word it's mapped to, this isn't necessary, as you can use mnemonic devices (such as the stories in ROPE) to commit non-intuitive outlines to memory.

**Finding potential outlines**

To add in the new outlines, I first used an online combinations generator (https://planetcalc.com/3757/) and Excel to make a list of all potential 1-4 stroke outlines (along with some 5-stroke outlines) that could be written using what I call the "homerow." (I define the "homerow" as the letters STKPWHR on the left hand, AOEU with the thumbs, and FRPBLGTS on the right hand. These are the keys that you do not need to substantially move your fingers to reach.) Using this generator and Excel, I came up with a list of around 9,500 potential outlines. Over 5,000 of these used 4 or fewer keypresses. If you'd like to view this list yourself, you can go to the "Outlines of 5 or fewer keypresses" tab in the ROPE 2.1 spreadsheet.

**Coding the outlines**

I then went through many of these outlines and coded them for how easy I thought they would be to write, and whether they were already mapped to a word. (Many of them were already assigned, but I found a number of "gems" that were untouched. After I coded them, I then assigned them to words in ROPE. Because these new outlines normally weren't intuitive, I then added in mnemonic stories to make it easier to remember the outlines.

**My criteria for selecting outlines for words:**

Although many of my added-in outlines had little or nothing to do with the words to which they were mapped, my choice of outlines was not entirely random; there were a number of criteria that have guided my choice of outlines and my many updates to this outlines list. Here are at least some of those criteria (which are not ranked in any particular order):

**1. Shorter outlines for more frequent words**

In general, I tried to assign shorter outlines to more common words in ROPE, and 5-stroke outlines to less common words, with the overall goal being to reduce the number of keypresses that you'll use in an average day of writing. (All of the outlines in the top 1000 have 4 or fewer keypresses.) Another benefit of starting with shorter outlines was that I could then use the words those outlines stood for as components of stories for longer outlines that included them.

**2. Different outline endings work better for different parts of speech**

I also recognized that different outlines are ideal for different parts of speech depending on their endings. This is due to the additional endings that verbs, nouns, and adjectives can take. Outlines that can have G, D, and S added to the end without turning into another word (and without requiring a second stroke) are ideal for verbs, as you'll often add on a G, D, and an S to a verb to produce the –ing, -ed, and –s endings. (However, outlines that end in G can work fine for verbs as well, as long as you can produce a one-stroke “-ing” version of the word by adding an asterisk to the outline for the root form of the verb). Outlines that can have –L and –R added to them are ideal for adjectives, since these often take an –ly ending, and sometimes an –er ending. Outlines that can have S added to them are ideal for nouns, as you can then write the plural form of the word. (Outlines that end in -T and -G are also ideal for nouns, as these outlines are not as ideal for verbs.) Outlines that can't have anything added to them are ideal for adverbs and adjectives, although it's ideal for outlines for adjectives to support the addition of an L (and sometimes an R).

As far as the process of adding in outlines went, I found that adding in outlines for one part of speech at a time (e.g. verbs, then adjectives, then nouns, then adverbs) may be more efficient. It's best to do verbs first, as they have a limited number of ideal outlines (due to the endings they can take). I think it's then ideal to add in outlines for adjectives, as they will benefit from outlines that can have an R or L added to them. After that, you can add in outlines for nouns, and finally adverbs.

**3. Some outline beginnings/endings are more ergonomic than others**

With regard to ergonomics, I have found that some key combinations are easier to write consistently than others. This may be because (at least on a regular keyboard) my hands naturally rest in a curved pattern, with the middle and ring fingers higher than the pinky and index fingers. Keypress combinations that help maintain this curvature (e.g. ST- may feel more comfortable to write than outlines that force the hands to assume a different position (Other writers may have their own preferences, but I thought it would be helpful to share my (non-exhaustive) list.

Beginnings that I like (and would prefer to use for briefs):

SP-; ST-; SH-; SR-; PW-; HR-; TK-

Beginnings that I don’t like as much (and would prefer to avoid for briefs)

TW-; TR- (when followed by A or O); KP-; WH- (which really isn’t terrible but does make the index finger go higher than the middle finger)

Endings that I like:

-FR (especially for verbs); -FP (especially for verbs); -RP- (especially for verbs); -RB; -PG; -FS; -PB

Endings that I don’t like as much:

-FB (especially –FPB, as it’s hard to avoid writing –FRPB); -GT

**4. Preferred fingers to use for outlines**

Steno makes good use of every finger, so I don’t think it’s ideal to avoid using a particular finger. However, I have found that I prefer to avoid vowel-less outlines that use a combination of ring-finger keypresses and non-ring-finger keypresses. In addition, I consider it a plus if a brief uses the same finger on both hands, as I find it easier to use the same finger twice than to use two different fingers.

**5. Similar outlines for similar words**

In addition, I also tried to give similar words similar outlines so as to reduce the amount of unique, non-related outlines that you will need to memorize. If one word in ROPE is the same as another word in ROPE, except for a certain suffix (such as –ly, –er, -ive, or -tion), it will be ideal for that word to have the same outline, except with one or more additional letters (such as -L, -R, -F, or -T) that represent the suffix. (See below for an explanation for my use of "T" instead of "GS" in some situations.) This strategy has the additional benefit of reinforcing your recall of similar words. When adding a suffix to a word would cause the word to have more keypresses than desired (i.e. 5+ strokes for root words in the top 1,000 and 6+ strokes for all other words in ROPE), I had three options. First, I could change the original word so that adding a suffix would keep the new word under my keypress limits. Secondly, I could add in a new outline for the derivative word whose root (the part I to which I was adding the suffix) was similar to, but not identical to the original outline. For example, in some cases, I replaced the final letter of an original outline with an asterisk to create an outline for the derivative word. Finally, I could add in an unrelated outline for the derivative word.

As noted above, I prefer to match the root version of an outline with the root version of a word and then match derivative versions of that outline with derivative versions of that word. However, in cases where the derivative version of the word is more common than the root version of the word (especially when the root version of the word doesn't appear in ROPE), I may match the root version of an outline to a derivative word, and a derivative version of an outline to a root word.

**6. Avoiding/removing non-intuitive vowel-less outlines (NIVLOs)**

Following the introduction of ROPE 2.3, I found that learning and correctly writing outlines that aren’t at all intuitive and don’t have vowels in them (which I term NIVLOs) seems to be harder than learning and writing outlines that have a vowel and/or are intuitive. My hypothesis is that this is due to at least two reasons:

1. It may be that I pronounce outlines mentally in my head while writing them (especially early in the learning process). Outlines that don’t have a vowel might take longer to pronounce, as there can be more syllables involved; this, in turn, might lengthen the writing process. For example, although the outline H-FG is shorter than the outline HAFG, HAFG could actually end up being faster. I might find myself spelling out H-F-G in my head before/while writing the outline (which would take 3 syllables), whereas I could mentally pronounce “HAFG” in two syllables, thus making it easier and/or faster to write. (If this doesn’t make much sense, that’s fine; it’s simply one theory I have as to why vowel-less outlines seem to be slower for me.)

2. The other reason is that vowels reduce ambiguity for certain outlines. For example, suppose I used H-RP for an outline. This is just 3 characters, but the problem is that it may be hard for me to remember what side of the keyboard the vowel is on (i.e. whether the outline is HR-P or H-RP). Vowels help eliminate this ambiguity. If the outline were HARP or HRAP, I would know exactly which R were being used. The more ambiguous an outline is, I theorize, the harder it is to write quickly and correctly.

These two factors seem to play a larger role when the outline in question has no obvious connection to the word it is representing. Therefore, outlines that are vowel-less but at least somewhat intuitive do not create as many issues for me.

Regardless of the exact reasons why NIVLOs are problematic, I decided to try to reduce the number of NIVLOs in my outline list. If a *superior* non-NIVLO alternative is available for a word that’s currently mapped to a NIVLO, then I may replace the NIVLO with the non-NIVLO outline.

My original version of ROPE 2-3 (by my count) probably had over 450 NIVLOs, but I have been able to significantly reduce that count over time. One such strategy involved transferring great outlines from less frequent words to more frequent words, then finding other outlines for the words to which those outlines used to map, which could also involve taking outlines from other words! For example, if I needed a 4-stroke outline for a word in the top 1000, I could (1 look through the outlines for words outside of the top 1000, transfer a 4-keypress outline from one of those less frequent words to the word in the top 1000, and then find a 5-keypress outline that could be used for the less frequent word

However, because there are only so many “voweled” outlines available with under 4 or 5 keypresses, and because some NIVLOs actually seem to work pretty well (SKP- for “and” being a prime example), ROPE 2-3 does have some NIVLOs, and will likely continue to do so.

Also, there is a NIVLO column in ROPE 2-3 (currently column J) that you can review and edit as needed.

**7. The use of –T and \* to represent different endings**

When it makes sense to do so, I prefer to use -T instead of -GS to represent the "-ion" and “-ation” endings, as (1 it often saves a keystroke, and (2 it can make it easier to write the plural form of outlines for verbs that end in G. For instance, I use ORGT for "organization." Using ORGT allows you to use ORGS for "organizes," and also makes it a little easier to write "organizations" (ORGTS).

–GS is still used for some outlines, however (such as outlines for some words based on a verb that ends in –T). Another option, though, is to use an asterisk instead of –GS. This makes it easier to write the plural form of the word ending in –ion.

I also prefer –T over –PLT for the "-ment" ending, and you will see this reflected in my outline additions as well.

When it is helpful, I also use –T to represent other endings. For instance, I added in WRUBLT for "interference," which is based on the addition of WRUBL for "interfere." –T essentially serves as a 'miscellaneous” ending that can represent multiple suffixes as needed.

When adding –T to the outline won’t work, or when –T is already taken, I like to use \* as a “backup” modifier. In addition, I often add \* to an original outline to produce a new outline that is an antonym of the original outline. I find that this strategy makes it easier to remember the new outline.

**8. Intuitive outlines are preferable to non-intuitive ones**

Although I do believe that it’s not crucial for outlines to be intuitive, I acknowledge that, all else being equal, intuitive outlines are better fits than non-intuitive outlines (provided that the intuitive outlines still fit within my 4- and 5-keypress limits).

**9. Outlines with -R and R-**

If you have an outline that uses R-, *especially* if it’s a vowel-less outline, you should also consider adding in the same outline except with -R, and vice versa. That’s because it can be hard to remember which R to use, even with a mnemonic story that helps differentiate between them. In addition, I would recommend adding in an outline with both Rs in use, as your fingers may try to write both of them at the same time. I would also recommend against using outlines that differ only in the type of R they use to write two different words, although this still shows up in ROPE. You may also find it helpful to apply this concept to outlines that use one of the two Ps.

**10. Preferred keys for outlines**

Although the briefs in ROPE use every key but the number row, my preferred keys for briefs are those that don’t involve much horizontal finger travel: specifically, every key but the asterisk key, the number row, D, and Z. However, plenty of my briefs do use the asterisk key, since it’s a helpful tool for creating derivative outlines.

**11. Does it work “in vivo”?**

An outline may look great on the spreadsheet, but only after it’s put into practice can you determine whether it works for you. I have made lots of changes to my original outline list after finding that some of the outlines I originally assigned to words were hard to write consistently. The largest example of this was the trouble I had with vowel-less outlines, which led me to replace many of these outlines with “vowelled” outlines.

**12. Using outlines already mapped to other words**

I don’t have too many qualms about using great outlines already mapped to less frequent words for more frequent words, particularly if I can remap the less frequent word to the same outline except with an asterisk added. For example, HOP is a great outline for verbs that usually maps to “hop,” a word ranked #3,999 in frequency. Because this outline is both very short and very easy to write, I remapped it to “clothe” (making “clothing” and “clothes” into 4-keypress outlines), and remapped “hop” to H\*OP. Ultimately, there are only so many great outlines to go around, so I’m happy to repurpose them for more frequent words.

**Other notes on outline choices:**

**Replacing –S with –Z for plurals**

For plurals of outlines that end with –S, it can be helpful to add in outlines that replace the –S with a –Z, as these will make it easier to write the plural forms. For example, I use KAS for “individual,” so I added in KAZ for “individuals.” This is much easier to write than is KASZ. Similarly, I use S-GS for “solution,” so I added in S-GZ for “solutions.”

**Adding in outlines for "hidden" root words**

If a word in ROPE was based off a root word that is not one of the ~4,200 words in ROPE, I sometimes created a new outline for that root word, and then provided a story for that outline. This would not only help you remember the outline for the word based on the root word, but would also make it easier to write the root word.

**3.3. I'd rather use a different outline for some of these words.**

No problem! The Excel and Anki versions of ROPE are both super-customizable, so you can make all the changes to the outlines that you'd like. The outlines I've listed are simply *my* preferences, just as the stories I've listed are simply the ones that I preferred to use. Feel free to edit this list to fit your needs.

**3.5. Are there some other outlines I should also add in?**

For adjective outlines (both old and new), I recommend adding in -ly and -er endings by adding on R and -L to the end of the stroke (provided that those additions don't change the outline to a different word). For instance, with the addition of PWRE for "extraordinary," I also added in PWREL for "extraordinarily." I sometimes mention these additions in my notes for outlines, but not always.

Also, I certainly recommend adding in misstroke outlines when helpful. Misstroke outline are especially useful when you have an outline that uses the middle and pinky finger on one hand, but not the ring finger. In those cases, you'll want to add in an outline that also uses the ring ringer. This means:

1. In outlines that include SW-, try to include a misstroke outline that has SKW-.

2. In outlines that include -BS, try to include a misstroke outline that has –BGS.

3. In outlines that include SP-, try to include a misstroke outline that has SKP-.

4. In outlines that include –PT, try to include a misstroke outline that has –PLT.

In addition, I find that it's hard to remember which R key should be used with outlines. Although mnemonic stories should help, one solution for this issue is to add in an alternate outline that uses the other R key. In addition, you may also want to consider adding in an outline that uses both R keys (as both of your index fingers may want to press R at the same time). This issue can also arise with P, so if you find yourself entering in the "wrong" P key, try adding in an alternate outline that uses the other P key.

**4. Other useful stuff**

**4.1. I just downloaded Plover for the first time tonight. Can I start using this immediately?**

I wouldn't recommend using this until you've gone through all the terrific Learn Plover! exercises and understand them well. (<https://sites.google.com/site/ploverdoc/> ) I normally didn't include any information about interpreting outlines if it was already listed there. For instance, the stories assume that you know which combinations of keys on the Plover keyboard (e.g. PH-, -BG) map to which keys (e.g. M, K.).

Once you've done the Learn Plover! exercises, I think you're welcome to start ROPE if you'd like to.

**4.3. I want to focus on learning the most common 500/1000/2000 words first. Is there a way to do this?**

There are a number of ways to do this:

1. You can create a filtered deck and review the cards by order added, which helps ensure that you have studied more frequent cards before moving on to less frequent cards. This is my preferred strategy and is discussed in far more detail above.

2. You can create a custom deck in Anki by copying and pasting the top 500, 1000, etc. words from the Excel document into a text editor, then into Anki. (There's more information online about how to convert spreadsheets into Anki decks.)

3. You can also use Anki’s tags feature to study a deck that only includes cards that share a certain tag. By tagging the cards you’d like to focus on (such as the 500 most frequent words) and creating a deck with only those tagged cards, you’ll be able to focus your studying on a select group of cards.

**4.4. How should I sort the Excel file?**

It's really up to you! Just make sure to select all columns before sorting! I think sorting them by alphabetical order and by frequency both make sense.

**4.5. Do you plan to keep updating this?**

*Yes*. This is definitely still a work in progress. I'll probably add in a number of additional stories (and maybe even additional words), and I'm sure there are some typos to correct too. I may also change some outlines if I find that they're not ideal or ergonomic.

I plan to release frequent updates to these files. However, if I make more major updates in the future, I might release a new set of materials as ROPE 2.4, or even ROPE 3.0.

**4.6. I'd like to contribute! Can I send you stories and corrections?**

Corrections are welcome! As far as stories go, I think the best thing to do is add those stories to your deck, and then share them online for others to use if you wish, rather than sending them directly to me. I might not have as much time/interest in this project in the future as I do now, so I wouldn't want to be the one responsible for maintaining it with new stories.

**4.7. What other information is included in the Excel/Anki documents?**

The Excel and Anki files also include:

1. The original list from the NGSL website, if any, in which these words appeared

1. The frequency ranks for words

3. Simplified versions of some of the outlines

4. Alternate or added-in outlines for some of the words

5. Additional information that might help you remember an outline (but doesn't constitute a mnemonic story)

6. Other statistical information from the "NGSL Stats & Frequencies to 34K" document

7. Whether or not a given outline is, in my opinion, a NIVLO (non-intuitive vowel-less outline)

**4.8. I don't like the formatting of the Anki cards! The text is far too large/small.**

My apologies for this. I use Anki on an unscaled 4K monitor, so I have to make the text a lot larger than I otherwise would. You can change the font size and formatting of the deck through Anki, and there should be online FAQs available to help you out with that.

**4.9. Copyright info:**

I release all of the stories I myself wrote into the public domain (along with the outlines I created, if that is necessary/possible), so you can do whatever you want with them. (All trademarks referenced in the stories, of course, are still protected by law.) The makers of the NGSL report that "all of our corpus-derived word lists are public domain and available to you for free as long as you properly cite our work." I also received permission to use the "NGSL Stats & Frequencies to 34K" document in this project.

**4.10. Note on glitchy early version of Anki deck:**

[This is sort of a "note to self" for future Anki file creation.] When I first created the Anki deck for an earlier version of ROPE, I copied and pasted the cells directly from Excel into Notepad, saved the Notepad file as an UTF-8 document, and then imported this document into Anki. This led to some odd issues (for instance, 4198 of the 4201 cards were imported, but "lab," "lamp," and "ingredient" were not; in addition, some cards had missing characters, such as missing quotation marks). Therefore, I went back and reread the instructions for importing Excel files into Anki (https://docs.google.com/document/d/12YE\_FS6A9ANLTESJNtPP116ti4nNmCBghyoJBRtno\_k/edit# ), and now I realize I must do the following for a successful import:

1. Within Exel, save the Excel file as a Unicode Text .txt file with a different name. (To prepare this file, I copied and pasted (as values) only the rows and columns I needed for the Anki cards from ROPE’s Excel file into a new Excel file; cleared all the formatting; and then saved in Exel it as a Unicode Text file.)

2. Open this Unicode text file in Notepad (rather than copy and paste the text from the ROPE Excel file directly into Notepad). Before opening the file, **change the "encoding" to Unicode within the dropdown menu.**

3. Save this Notepad file as a UTF-8 file by changing the encoding to UTF-8 at the bottom, then saving it as a .txt file once again.

4. Import this UTF-8 file into Anki

**4.11: A word of caution on editing the cards in the Anki deck:**

If you add in a new outline for a card in the Anki deck, and that card is not due soon because you have already guessed it a number of times, I recommend going into the "Browse" section, selecting the ROPE 2-3 deck, and rescheduling the card so that it will be placed in the review queue with an interval in between 0 and 0 days (the default option). This will help you practice the new outline more frequently.

**4.11. Am I the only person who has read this whole readme?**

No—I read it too. ☺

-Kenneth Burchfiel