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In this column, we explore the issue of teachers and technology—not just as it relates to CALL solutions, but also to Internet, software, and hardware concerns that all teachers face. We invite readers to submit articles on their areas of interest. Please contact the editor before submitting.

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Visualizing Patterns to Help Language Learners

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Natural Pattern-Matchers

Humans are natural pattern-matchers. In fact, noticing patterns has made us better hunters and better farmers. Our brains are wired to find patterns. We can discern patterns even when no pattern exists. Figure 1 shows a random pattern, but I bet your mind can create a pattern.



Figure 1. Rorschach inkblot card.

Patterns in Language

Language is permeated with patterns. Some patterns are easily perceived, such as the presence of prepositions before noun phrases. Having students highlight prepositions and then underline any noun phrases that follow the prepositions can help learners notice the pattern of prepositional phrases. The ability to recognize patterns is considered to be one of the traits of good language learners.

Using Technology to Reveal Patterns

To learn a language structure or usage, students must first notice it and its pattern. Many language

patterns can be discovered and visualized using technology. A digital text can be searched for a particular language pattern. Once found, the pattern can be colorized, enlarged and labelled. This is akin to using a powerful version of the *find* and *replace* function found in Microsoft Word. Using technology to foreground patterns helps language learners acquire language by increasing the chance that learners notice the target language (Truscott, 1998).

The Power of Regular Expressions

Regular expressions, aka regex, are powerful search tools used to find predetermined patterns. Regex have been described as “mutant wildcards on steroids” (Christiansen & Torkington, 2003). Regex work within computer programs or scripts. JavaScript, a language often used to control the behaviour of web pages, commonly makes use of regex.

For example, when you enter a credit card number online, but omit the final digit, regex and JavaScript work together to generate an error message. Microsoft Word also provides a graphical user interface that uses regex searches. This is accessible from *Advanced find* on the dropdown menu of *Find* on the *Home* tab.

Regex in AntConc

Teachers familiar with corpus tools may have already noticed an option to search corpora using regex. Laurence Anthony’s ever popular and free concordance tool, AntConc, includes this feature as one of the *Search Terms* options on the *Concordance tab*. A simple regex search can help you look up two words at once by simply inserting a pipe between two words (e.g., *much* | *many*). This search, shown in Figure 2, finds either *much* or *many*. This search could be used to help students notice the pattern that *much* is commonly used before uncountable nouns while *many* comes before plural nouns.

I will introduce three language learning tools that visualize patterns.

Pronunciation Scaffolder

The Pronunciation Scaffolder (Blake, 2019) was specially created for Japanese learners of English. This tool uses regex to help students read presentation scripts or other formal texts aloud. Users select the aspects of pronunciation that they need help with. Figure 4 shows a screenshot of the Pronunciation Scaffolder interface.

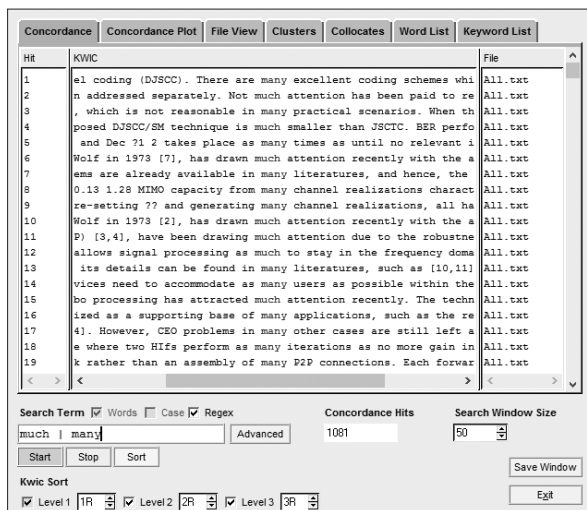


Figure 2. Regex search in AntConc.

Passive Voice Detector

Regex can be used to discover particular language features. For example, passive voice follows a predictable pattern (1):

- (1) Subject + be + past participle

The following examples (2, 3, 4) show passive voice being used in different tenses with regular verbs (i.e., those ending in -ed):

- (2) This office *will be cleaned* soon.
- (3) The bank *was robbed* by two boys.
- (4) They *are being questioned*.

A basic regular expression can be used to discover passive voice when the past participle is regular and ends with -ed.

Once the regex has discovered (or matched) the pattern, JavaScript can be used to colorize verbs.

To use the passive voice detector, simply input a text into the submission box and any verbs in the passive voice will be highlighted (see Figure 3).

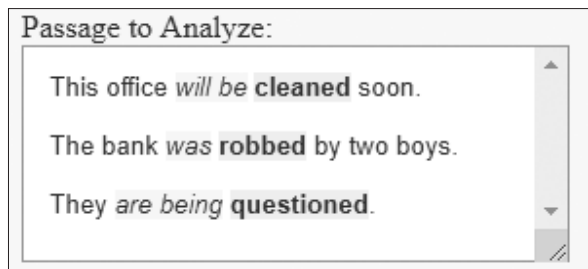


Figure 3. Passive Voice Detector (Tyler, 2019).

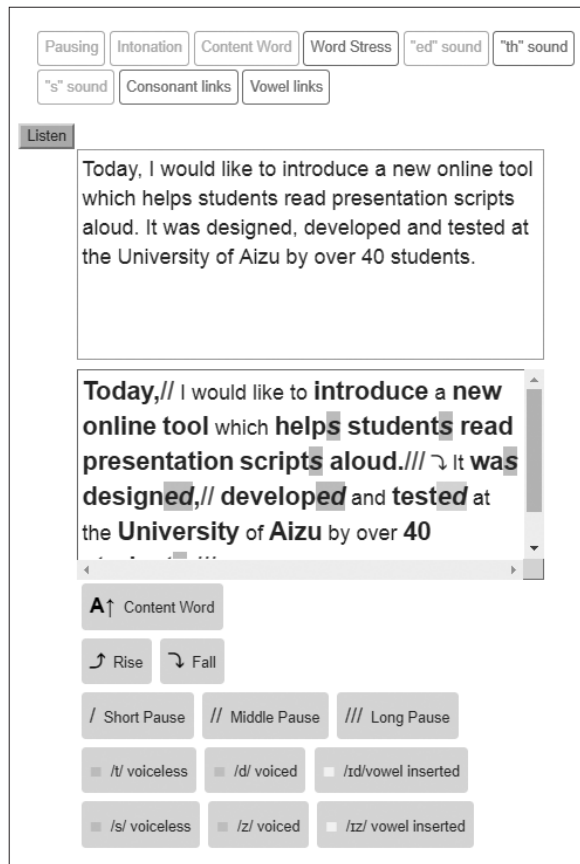


Figure 4. Pronunciation Scaffolder interface.

The Pronunciation Scaffolder uses colour, size and symbols to visualize pronunciation features, such as intonation, word stress, and difficult sounds.

The Pronunciation Scaffolder can be accessed on any web-enabled device. Each student can input a text, for example a dialogue. This enables students to work on texts according to their interest and level. Users are recommended to focus on the first four elements (pausing, intonation, content word, and word stress) before trying the others. Students practise reading the annotated texts aloud. Once they have built up confidence, they can work with a partner. As a follow-up activity, students could act out or record the dialogue.

Closed-question Responder

Regular expressions can also be used to help generate examples of language use. The Closed-question Responder identifies the patterns of closed questions—those that are usually answered with *yes* or *no*. On identifying the pattern used, the responder automatically generates positive and negative answers. A screenshot of the responder is shown in Figure 5.

Automatic responder to closed questions

Insert a yes-no question in the submission box and click the "respond button"

Do Tom and Jerry fight a lot?

Positive and negative responses will appear below:

Yes, they do.

No, they do not.

Figure 5. Closed Question Responder (Blake, 2018).

Students can input questions as many times as they like, making changes and seeing how the suggested positive and negative answers are altered. This type of experimentation is a form of discovery learning in which students use trial and error to learn how English works. This learning method not only encourages active learning, but also allows for personalization by users who decide the content of the sentences they input. Students particularly enjoy trying to create a question that the responder is unable to answer appropriately.

Second Annual Performance in Education SIG in Sapporo Conference/2020 JALT Hokkaido Winter Language Teaching Conference

February 1–2, 2020 (just before the Snow Festival, although there will be activities available for the whole family)

Hokusei Gakuin University in Sapporo

Getting Creative: Avenues to Successful Practices in EFL

<https://qr.go.page.link/u1hJj>

This year the PIE SIG will join with JALT Hokkaido Chapter, Brain SIG, and Critical Thinking SIG. The PIE SIG conference will be embedded in the Hokkaido Chapter's 2020 JALT Hokkaido Winter Language Teaching Conference. The PIE SIG is now accepting presentations on performance in education. Call for Papers and Registration information is on the conference website. Deadline for Call for Papers is October 27, 2019.



Conclusion

Why not try out the Passive Voice Detector, Pronunciation Scaffolder or Closed-question Responder? If you want to suggest a language pattern that you would like to be visualized for your students, feel free to drop me a line.

Perhaps, some tech-savvy readers can make use of regex to visualize syntactic structures or lexical sets that are the most relevant to their students.

References

- Anthony, L. (2019). *AntConc* [Computer Software]. Tokyo, Japan: Waseda University. Retrieved from <http://www.antlab.sci.waseda.ac.jp/>
- Blake, J. (2018). Visualizing language: Using regex and JavaScript. *JALT 2018 Technology in Teaching Workshop*. Retrieved from <https://john6938.github.io/JALT2018TnT/>
- Blake, J. (2019). *Pronunciation Scaffolder ver 3.0* [Online Tool]. Retrieved from <https://jb11.org/pronscaff.html>
- Christiansen, T., & Torkington, N. (2003). *Perl Cookbook: Solutions & Examples for Perl Programmers*. O'Reilly Media, Inc.
- Truscott, J. (1998). Noticing in second language acquisition: A critical review. *Second Language Research*, 14(2), 103–135.
- Tyler, S. (2019). *Passive Voice Detector* [Online Tool]. Retrieved from <https://datayze.com/passive-voice-detector.php>



East Shikoku JALT Chapter
Donna Brinton:

Dispelling Pronunciation Myths

Saturday, December 7 – 16:30–18:00

Kochi University of Technology (Eikokuji Campus)
JALT Four Corners tour

Toyohashi JALT is really looking forward to once more welcoming a Four Corners Tour speaker. This year it is Donna Brinton, She will talk on the topic: 'Dispelling Pronunciation Myths: Best Practices for Teachers' from 1:30 to 4:00 on Sunday 24th November at our regular meeting place at Room 541 in Building 5 at Aichi University's Toyohashi Campus. Do join us at Toyohashi in Aichi Prefecture and enjoy our friendly and supportive atmosphere. We look forward to seeing you!