

AWSuM User's Manual

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About AWSuM

What is AWSuM?

AWSuM (Academic Word Suggestion Machine) is an online tool that provides support for English academic research writers through an approach that integrates move analysis, particularly prominent in ESP (English for Specific Purposes), with the lexical bundles used in corpus research. AWSuM suggests high frequency lexical bundles for each move within a section of a paper in a specific discipline. AWSuM (<http://langtest.jp/awsum/>) has been available free of charge since February 2016.

The screenshot displays the AWSuM web interface. At the top left is the logo 'AWSuM Academic Word Suggestion Machine'. Below it are three dropdown menus: 'Discipline' set to 'Applied Linguistics', 'Section' set to 'abstract', and 'Move' set to '02_presenting_research'. Underneath is a 'Keyword' section with five numbered buttons (1-5) and three radio buttons labeled '3R', '4R', and '5R'. The '4R' radio button is selected. To the right of these is a checked checkbox labeled 'Auto-suggest'. Below the search controls is a text input field containing the word 'The'. A dropdown menu is open below this field, listing several lexical bundles: 'The extent to which', 'The purpose of this', 'The present study investigates', 'The results of a', 'The present study investigated', and 'The aim of this'. The first option, 'The extent to which', is highlighted in blue.

Why AWSuM is awesome:

- It can display frequent lexical bundles within a section of a paper in a specific discipline according to rhetorical structures (i.e., moves).
- It can suggest the most frequent lexical bundles through an auto-complete user interface.
- Checking for collocations and formulaic sequences in a specific discipline is much easier with AWSuM, because it displays the words before and after the search terms.
- With its concordance feature, AWSuM can display how words are actually used in the context of discipline-specific research articles.
- Due to these features, AWSuM is significantly more useful than conventional reference tools such as dictionaries.

Target Disciplines and Journals

As of December 2016, users can only select two academic fields: (1) Applied Linguistics and (2) Computer Science. In 2017, we will add Materials Science, and plan to support more fields in the future.

(1) Articles from the following journals in the Applied Linguistics field are included in AWSuM (Approximately 1,400 papers):

1. *Applied Linguistics*
2. *ELT Journal*
3. *English for Specific Purposes*
4. *Journal of Second Language Writing*
5. *Language Learning*
6. *Language Teaching Research*
7. *Modern Language Journal*
8. *Studies in Second Language Acquisition*
9. *System*
10. *TESOL Quarterly*

(2) Articles from the following journals in the Computer Science field are included in AWSuM (Approximately 300 papers):

1. *Applied Ergonomics*
2. *Behaviour & Information Technology*
3. *Communications of the ACM*
4. *Ergonomics*
5. *Human Factors*
6. *IEEE Transactions on Computers*
7. *IEEE Transactions on Knowledge and Data Engineering*
8. *IEEE Transactions on Parallel and Distributed Systems*
9. *IEEE Transactions on Pattern and Machine Analysis*
10. *IEEE Transactions on Software Engineering*
11. *International Journal of Human-Computer Interaction*
12. *International Journal of Industrial Ergonomics*

The preliminary steps for developing AWSuM included: (1) downloading the target papers in pdf or html format, and (2) attaching a mark (tag) for rhetorical structures (moves) within each section of the papers. We tagged all sections in the papers.

AWSuM was developed with a grant from the 2015-2016 Kansai University Outlay for Establishing Research Centers (Issue name: Establishment of Kansai University English Writing Hub as an International Research Point and the Development of an Academic Writing Support Tool). AWSuM has been developed with help from Mr. Akio Ohnishi at VERSION2 Inc. (<http://ver2.jp/>).

We shall explain how to use AWSuM below.

1. Selection of Disciplines, Sections, and Moves

1.1 Selection of Disciplines, Sections, and Moves

When you first access AWSuM (<http://langtest.jp/awsum/>), you begin by using the "Discipline" menu to choose a target field, the "Section" menu for choosing a section of research articles, and the "Move" menu to choose communicative functions within specific sections of their respective pull-down menus.

The screenshot shows the AWSuM logo and title. Below it are three dropdown menus: "Discipline" with "Applied Linguistics" selected, "Section" with "ALL" selected, and "Move" with "ALL" selected.

For the Discipline, Section, and Move menus, it is possible to select all disciplines, all sections, and all moves by choosing "ALL." In the following example, we select "Applied Linguistics" for Discipline, "abstract" for Section, and "02 presenting research" for Move.

The screenshot shows the same three dropdown menus, but with "Applied Linguistics" selected for Discipline, "abstract" selected for Section, and "02_presenting_research" selected for Move.

Top abstract
02_presenting_research 4-grams

This article reports on

the extent to which

This study examines the

This study investigated the

of English as a

This study examined the

This study investigates the

the purpose of this

The most frequently selected lexical bundles are displayed in frequency order along the right edge of the screen, according to the selected Section and Move. This lets you see which lexical bundles are most frequently used in a specific Section and Move.

For a list of move categories used in AWSuM, refer to the next page.

1.2 List of 25 Move Categories Used in AWSuM

Sections	Moves	Steps
Abstract	[01] Introduction (Establishes context of the paper)	<ul style="list-style-type: none"> Arguing for topic prominence (Claiming centrality) Making topic generalizations Defining terms, objects, or processes Identifying a gap in current knowledge Justifying the research study
	[02] Presenting the research	<ul style="list-style-type: none"> Stating the purpose directly
	[03] Describing the methodology	<ul style="list-style-type: none"> Describing the participants Describing the instruments or equipment Describing the procedure and conditions
	[04] Summarizing the findings	<ul style="list-style-type: none"> Describing the main features or properties of the solution or product
	[05] Discussing the research (Interprets or extends results beyond the scope of the paper, draws inferences, points to applications, or wider applications.)	<ul style="list-style-type: none"> Deducing conclusions from results Evaluating value of the research Presenting recommendations
Introduction	[06] Establishing a territory (Announcing the importance of the field)	<ul style="list-style-type: none"> Claiming the centrality of the topic Making topic generalizations Summarizing existing studies (Reviewing items of previous research) Drawing inferences from previous studies Reference to main research problems
	[07] Establishing a niche (Preparing for the present study)	<ul style="list-style-type: none"> Indicating a gap Adding to what is known Presenting positive justification Raising a question
	[08] Presenting the present work (Introducing the present study)	<ul style="list-style-type: none"> Announcing present research descriptively and/or purposively Stating purpose(s) Presenting research questions or hypotheses Definitional clarifications Reference to main research procedure (Summarizing methods) Predicting results (Announcing principal outcomes) Stating the value of the present research Indicating RA (Research Article) structure
	[09] Describing the sample [10] Describing research instruments [11] Describing the procedures [12] Describing data analysis procedure	
Results (or Results & Discussion)	[13] Preparing for the presentation of results	<ul style="list-style-type: none"> (Re)stating data collection and analysis procedure Restating research questions or hypotheses
	[14] Reporting specific / individual results	<ul style="list-style-type: none"> Location of results Reporting most important findings Substantiating (or invalidating) results Indicating non-consistent observations
	[15] Commenting on results	<ul style="list-style-type: none"> Interpreting results
	[16] Summarizing results	<ul style="list-style-type: none"> Presenting integrated results on the basis of a number of specific results
Discussion (or Conclusions)	[17] Preparing for the presentation of the discussion section	<ul style="list-style-type: none"> Giving background information (Restate the aims, objectives, procedural information, theories, and research questions)
	[18] Highlighting overall research outcome	<ul style="list-style-type: none"> Reporting results (Expected or unexpected outcome) Interpreting / discussing results Indicating significance of the outcome
	[19] Discussing the findings of the study	<ul style="list-style-type: none"> Comparing results with a hypothesis Comparing results with literature Exemplifying
	[20] Drawing conclusions of the study Stating research conclusions	
	[21] Evaluating the study	<ul style="list-style-type: none"> Indicating significance / advantage Indicating limitations Evaluating methodology
Conclusions (or Pedagogic implications)	[22] Deductions from the research	<ul style="list-style-type: none"> Recommending further research Making suggestions / drawing (pedagogic) implications
	[23] Summarizing the study	<ul style="list-style-type: none"> Providing summary
	[24] Evaluating the study	<ul style="list-style-type: none"> Indicating significance / advantage Indicating limitations Evaluating methodology
	[25] Deductions from the research	<ul style="list-style-type: none"> Recommending further research Making suggestions / drawing (pedagogic) implications

2. Presentation of lexical bundles (suggestion function)

2.1 Word Input

After selecting a discipline, section, and move, users input a character string. For a pre-determined number of words (Keyword), you will be presented with the lexical bundles from that section/move in frequency order in the form of an incremental search.

The following example demonstrates the process of finding which words typically follow “the” for the abstract presentation of research. If you enter a space after inputting “the,” you will see that common following words are presented.

If you do not wish to use the suggestion function, simply remove the check mark from “ Auto-suggest” on the right side of the screen.

The screenshot shows the AWSuM interface with the following elements:

- Discipline:** Applied Linguistics
- Section:** abstract
- Move:** 02_presenting_research
- Keyword:** 1 2 3 4 5 (with '1' selected)
- 3R 4R 5R:** 3R 4R 5R (with '4R' selected)
- Auto-suggest:** Auto-suggest
- Keyword Input:** The
- Suggestions:**
 - The extent to which
 - The purpose of this
 - The present study investigates
 - The results of a
 - The present study investigated
 - The aim of this

※ If no suggestions are displayed, try re-entering the space or the immediately preceding character.

We have confirmed that AWSuM runs on all browsers including iOS browsers. Please contact us if you discover any browser compatibility issues.

2.2 Designating Reference Words (Keyword) and Presented Words (R)

With AWSuM, it is possible to designate reference keywords on the left (Keyword) and presented words (R) on the right. This allows you to display words in a more restricted linguistic context.

Below, we provide a detailed example of how to specify reference words on the left and presented words on the right. (Note that the string of reference words counts as only a single word when choosing the number of display words.)

If you wish to write something like “The purpose of this study is...” in your abstract, you can do this by setting Keyword to **1** + **4R** (reference **1** word on the left, present **4** words on the right), and inputting “the.” The following suggestions will appear:

Section: abstract

Move: 02_presenting_research

Keyword: **1** 2 3 4 5

3R **4R** 5R

The

- The extent to which
- The purpose of this
- The results of a
- The present study investigated
- The aim of this
- The present study investigates

Next, we enter “the purpose” and set Keyword to **2** + **4R** (reference **2** words on left, present **4** words on the right), the left side becomes “the purpose” and you can check the most frequent words summing to **4** on the right.

Keyword: 1 **2** 3 4 5

3R **4R** 5R

The purpose
2 words

- The purpose of this study
- The purpose of this article
- The purpose of the study
- The purpose of this research
- The purpose of the present
- The purpose of this paper

Next, we enter “the purpose of,” and set Keyword to **3** + **4R** (reference **3** words on the left, present **4** words on the right), suggestions for the words to follow will be displayed.

The screenshot shows the AWSuM interface. At the top, the word 'Keyword' is displayed. Below it, there are two rows of buttons. The first row contains buttons labeled '1', '2', '3', '4', and '5'. The button '3' is highlighted with a red box. The second row contains buttons labeled '3R', '4R', and '5R'. The button '4R' is highlighted with a red box. Below the buttons, the text 'The purpose of' is entered in a text box and is circled in red. To the left of the suggestions, the text '3 words' is displayed in red. The suggestions are listed in a table with a blue header row:

The purpose of this study is
The purpose of this study was
The purpose of this article is
The purpose of the study was
The purpose of this research was
The purpose of the present study

Finally, with an input of “the purpose of this,” and Keyword set to **4** + **4R** (reference **4** words on the left, and present **4** words on the right), suggestions for the words to follow are displayed.

The screenshot shows the AWSuM interface. At the top, the word 'Keyword' is displayed. Below it, there are two rows of buttons. The first row contains buttons labeled '1', '2', '3', '4', and '5'. The button '4' is highlighted with a red box. The second row contains buttons labeled '3R', '4R', and '5R'. The button '4R' is highlighted with a red box. Below the buttons, the text 'The purpose of this' is entered in a text box and is circled in red. To the left of the suggestions, the text '4 words' is displayed in red. The suggestions are listed in a table with a blue header row:

The purpose of this study is to
The purpose of this study was to
The purpose of this article is to
The purpose of this research was to
The purpose of this paper is to
The purpose of this replication study is

As you increase the number of reference words for the phrase you wish to find suggestions for, the context will be increasingly limited. This allows you to see what kind of words should follow in more detail. This is an extremely useful reference when writing a research article.

Up until the previous example, we have always used **4R** (four words on right) suggestions, but if we set this to **3R**, it will suggest three words on the right, and with **5R**, it will suggest five words.

3R

Keyword

1 2 3 **4** 5 **3R** 4R 5R

The purpose of this |

- The purpose of this study is
- The purpose of this article is
- The purpose of this study was

5R

Keyword

1 2 3 **4** 5 3R 4R **5R**

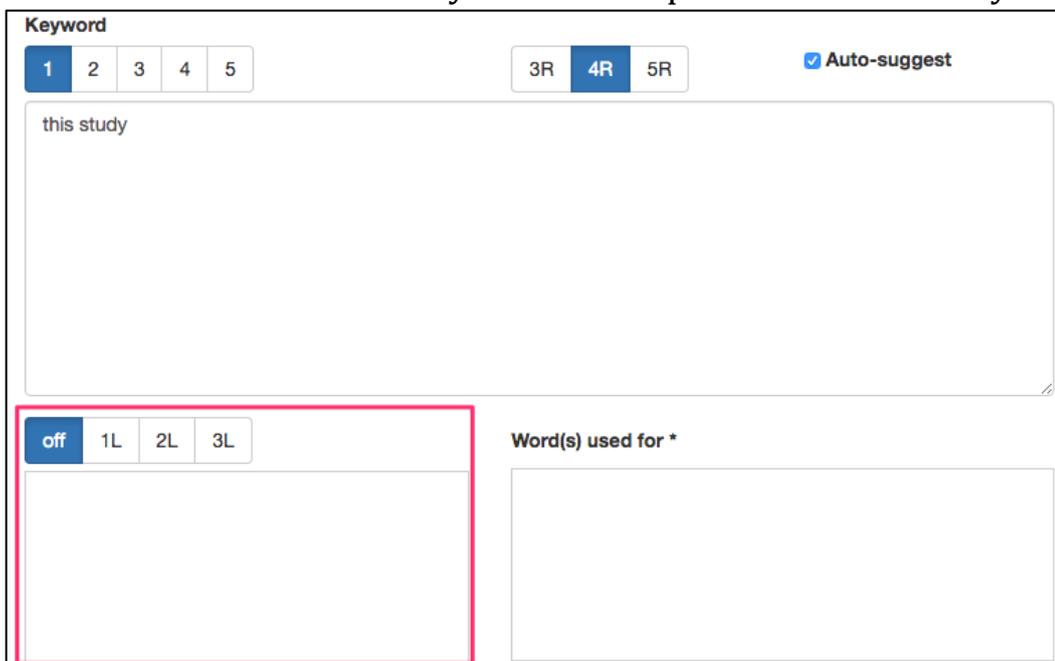
The purpose of this |

- The purpose of this study is to examine
- The purpose of this study was to examine
- The purpose of this investigation was to examine

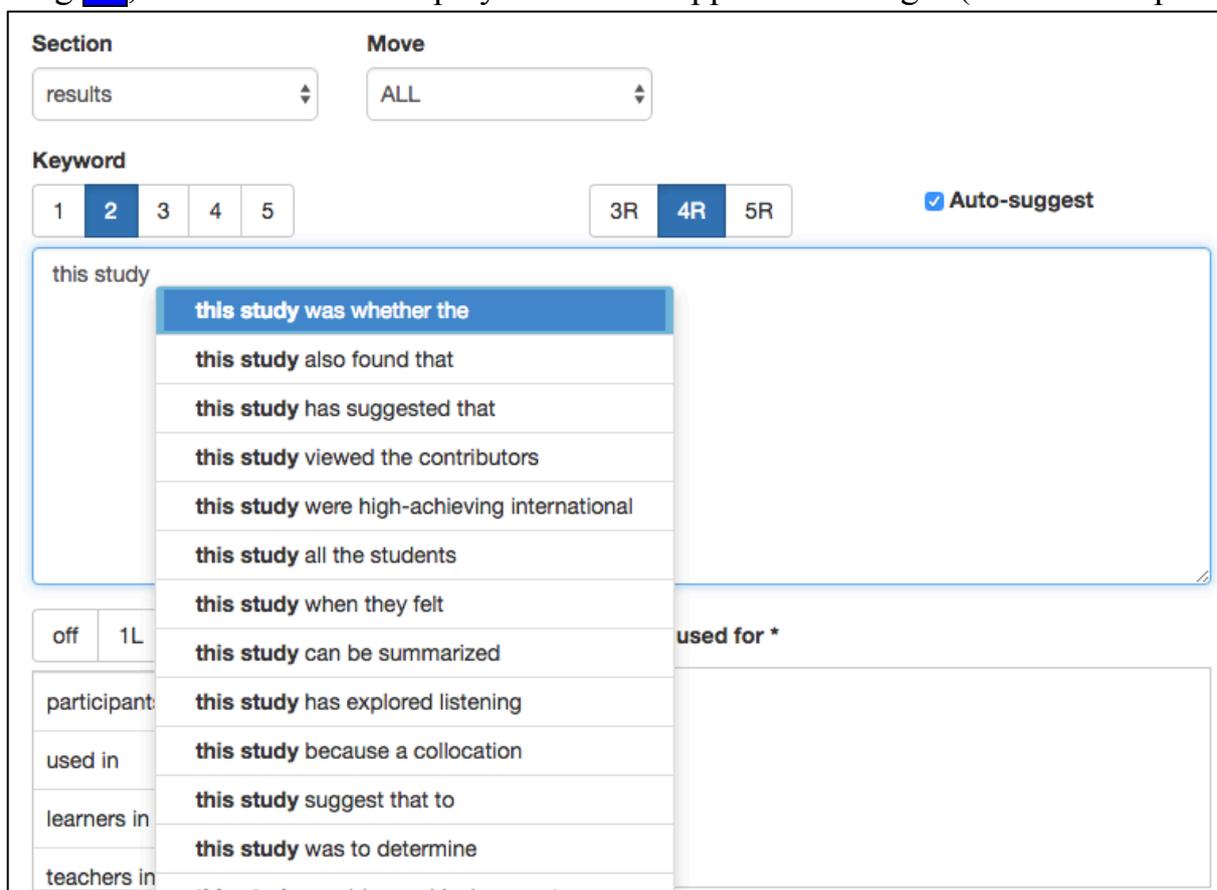
The purpose of AWSuM is to suggest “lexical bundles common to moves for academic research papers in a particular field.” There may be times when word sequences with low frequency are presented for reference (this is intentional), or special examples are displayed. You will need to take special care to avoid plagiarism when using such examples in your own paper. It is necessary for teachers to be aware of this when utilizing AWSuM in teaching L2 research writing.

2.3 Choosing Words (1L-3L) to Display on the Left

With AWSuM, it is possible to display 1 to 3 high frequency words (1L-3L) that appear to the left of the searched Keyword. This option is set to “off” by default.



As an example, we find the two words used before (to the left of) “this study,” by selecting **2L**, and we can still display words that appear to the right (in this example 4R).



By using this setting as shown in the left figure below, the two words used to the left of “this study” are displayed. If we set it to 3L, and use the suggestion function in the same way, the three words (3L) used to the left of “this study” will be displayed in frequency order, as shown in the right figure below.

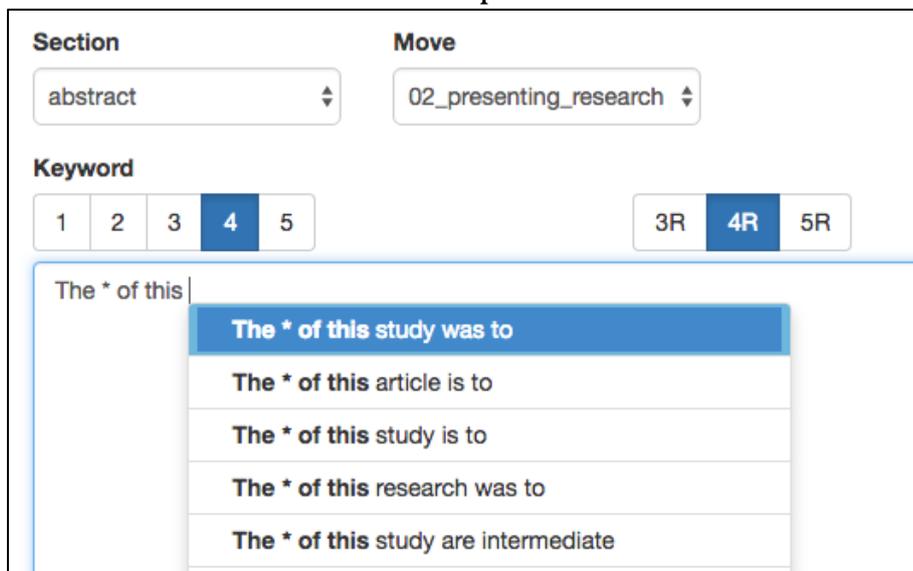
off	1L	2L	3L
participants in			
used in			
learners in			
teachers in			

off	1L	2L	3L
the participants in			
the teachers in			
the purposes of			
the scope of			

The words displayed the left (1L-3L) correspond to the suggestion function for the right side (3R-5R), and will not be displayed simply by selecting the off, 1L, 2L, or 3L buttons without entering search terms.

2.4 Wildcard Searches Using Asterisks

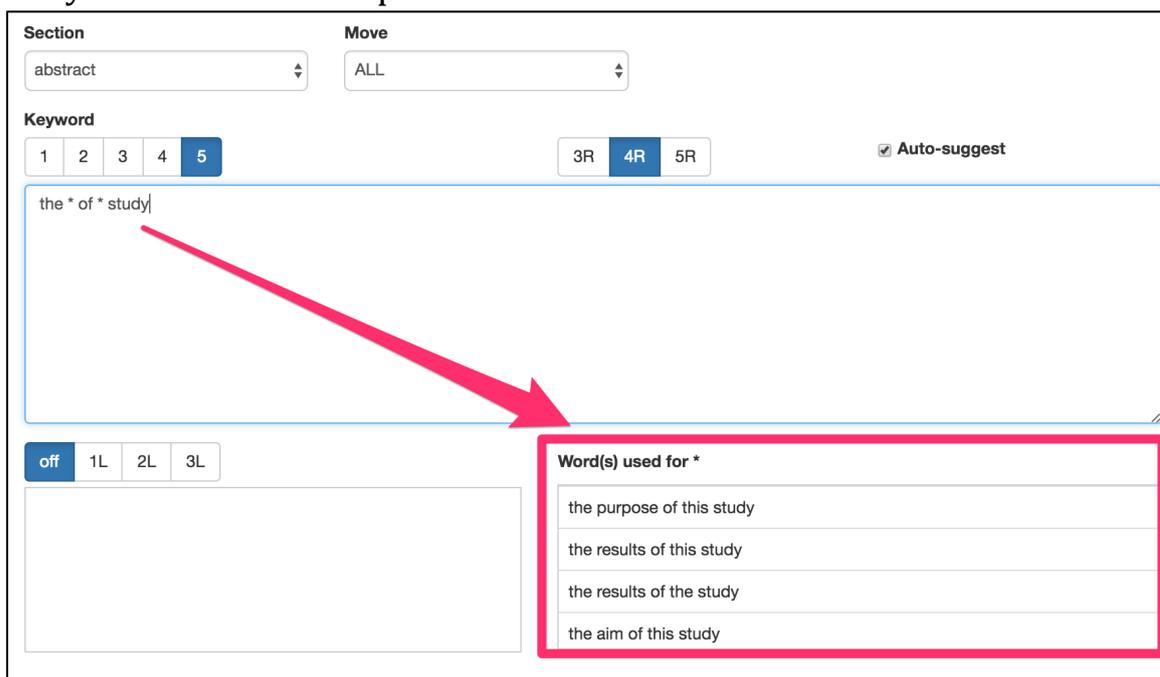
When you are performing an AWSuM search and do not know what word to use, you can use a wildcard search to search for strings containing any word in a specific place. When using the suggestion function, it is possible to use an asterisk (*) in place of one word. For example, if you enter “the * of this,” it is possible to perform a search regardless of what word is found in place of the asterisk.



It is also possible to search using two wildcards, by inserting two asterisks, such as in “the * of *”.

2.5 Displaying Words Corresponding to Asterisks

With AWSuM, when performing wildcard searches, it is possible to display high frequency words that correspond to the asterisks.



3. Concordance Line Functions

There will likely be times when you need to see examples in context to see how words and phrases are actually used in papers. There are free programs, such as AntConc (<http://www.laurenceanthony.net/software.html>) and CasualConc (<https://sites.google.com/site/casualconc/>), that contain such concordance functions, which make it possible to view examples in context. AWSuM also enables you to see the usage of words in their original context. Furthermore, with Google's custom searches, you can see how words and phrases are used in academic texts even if they are not covered by the corpus of AWSuM.

3.1 Displaying AWSuM Concordance Lines

You can search by selecting the words or phrases you wish to find in the upper text area, or inputting them directly into the Concordance text area and clicking the Search button.

The screenshot shows the AWSuM interface. At the top, there is a text area containing the phrase "the extent to which". A red arrow points from this text to the search input field in the Concordance section. The search input field contains the text "the extent to which". To the right of the search input field is a red button labeled "Search". Below the search input field, there is a table of concordance lines. The table has three columns: the first column contains the text from the original document, the second column contains the search term "the extent to which", and the third column contains the surrounding text. The concordance lines are as follows:

Text	Search Term	Context
s stimulated recall and the analysis of draft revisions this study investigates	the extent to which	self- peer and tutor
authors contemplating article submission may wish to consider	the extent to which	the number of nega
this study examined	the extent to which	# students enrolled
for task-based learning this study explores whether task complexity affects	the extent to which	learners focus on f
presentations of culture were co-constructed by teachers and students and	the extent to which	the observed cultur
atic and instead adopts a corpus-based register analysis tool to investigate	the extent to which	soap opera compa

The content displayed in Concordance area corresponds to the selected section and move.

3.2 Google Custom Search

The Google search area in AWSuM makes it possible to use the Google custom search function. The domain of this search is higher educational institutions in countries where English is the primary language, meaning it can be used to find words and phrases from academic texts outside of those covered by the AWSuM corpus.

The method of searching, similar to Concordance, is to select the words or phrases you want to find in the upper right area. Those terms will then be automatically entered into the Google custom search box below. Of course, you can also type the terms manually as with normal searches.

The screenshot shows a Google search interface. At the top left, it says "Google search". In the search box, the text "the * of this" is entered. To the right of the search box is a blue "Search" button. Below the search box, it displays "About 90,800,000 results (0.53 seconds)" and "Sort by: Relevance". The search results are listed below, with the first result titled "PURPOSE STATEMENTS". The snippet for this result is: "The purpose of this paper/letter/document is to..." "In this paper, I will describe/ explain/review/etc. the..." "My reason for writing is to..." "This paper will discuss the ...". The URL for this result is "faculty.washington.edu/ezent/imwps.htm". The second result is titled "The purpose of this agreement is to set forth the terms and ...". Below the title, it says "File Format: PDF/Adobe Acrobat". The snippet for this result is: "The purpose of this agreement is to set forth the terms and conditions under which. Auxiliary may operate as an auxiliary organization pw suant to Chapter 7 Part ...". The URL for this result is "auxiliary.calstate.edu/wp-content/.../DH_Foundation_OpAgr.pdf".

If you perform a search using double quotations, strings such as "the * of this" will be searched for complete matches. If double quotations are not included, any search result that contains "the," or "of," or "this" will be displayed. (Additionally, when using * as a wildcard in Google, it will return cases when * covers a single or multiple words.)

4. Links

At the bottom of the AWSuM screen, there are links to free sites that are useful for English research writing and instruction. The currently registered links are as shown below. We are interested in registering potentially useful links, so please contact us if you find something that you think may be useful.

< Wording/thesaurus/collocation >

1. Sketch Engine (<https://the.sketchengine.co.uk/open/>)
Search the British Academic Written English Corpus (BAWE). With Word sketch, it is possible to use collocation, and with Thesaurus you can search for replacement expressions.
2. StringNet Navigator 4.0 (<http://nav4.stringnet.org/>)
Enter a word, wording, or collocation, and examples are displayed.
3. WriteAway (<http://writeaway.nlpweb.org/>)
Enter a word, and patterns such as wording or grammar and examples are displayed.
4. Just The Word (<http://www.just-the-word.com/>)
Enter a word, and patterns such as wording or grammar and examples are displayed. Uses BNC.
5. FLAX [Resource Collections] (<http://flax.nzdl.org/>)
Enter a word or phrase, high frequency collocations and wording are displayed in a list.
6. ozdic.com (<http://ozdic.com/>)
Enter a word or phrase, high frequency collocations and examples are displayed.

< Collections of Phrases for Research Articles >

7. Academic Phrasebank (<http://www.phrasebank.manchester.ac.uk/>)
The University of Manchester Academic Phrasebank is a collection of phrases, summarized according to function or section, containing phrases you may wish to use in a research paper.
8. Online PhraseBook (<http://englishforresearch.com/phrasebook/>)
Collection of phrases you may wish to use in research articles according to rhetorical functions.

< Corpus Search >

9. Words and phrases (<http://www.wordandphrase.info/academic/analyzeText.asp>)
Enables searching of the COCA (Corpus of Contemporary American English).
When searching for single terms, it displays similar terms. It is also very useful for searching phrases.
10. Springer Exemplar (<http://www.springerexemplar.com/>)
Corpus of journals and books published by Springer.
11. Corpus of Research Articles (<http://rcpce.engl.polyu.edu.hk/RACorpus/>)
Corpus of research articles covering 39 fields (more than 5.5 million words).
12. COCA (<http://corpus.byu.edu/coca/>)
Enables searching of the Corpus of Contemporary American English.
13. BNC (<http://corpus.byu.edu/bnc/>)
Enables searching of the British National Corpus.

5. Miscellaneous Info

5.1 Publications

As of April 2017, our research results have been reported in two papers (one published, the other in press):

Mizumoto, A., Hamatani, S., & Imao, Y. (2016). Analysis of research articles in applied linguistics using an approach combining moves and lexical bundles: Toward developing a support tool for writing research articles in English. *English Corpus Studies*, 23, 21–32. [Written in Japanese]

Mizumoto, A., Hamatani, S., & Imao, Y. (in press). Bundle-move connection approach: Applying its concept to the development of an online writing support tool for research articles. *Language Learning*.

In March 2017, we have published a book in Japanese, entitled “English Academic Writing Instruction Using ICT: Development of a Support Tool and its Applications.”

5.2 Future Research and Development Plan

Moving forward, we plan to promote the following R&D, while applying for external grants such as Grants-in-aid for Scientific Research in Japan:

- Instruction for writing articles using AWSuM.
- Covering many fields from both the sciences and humanities.
- Automation of move tagging.
- Investigating a method for presentation of lexical bundles that is not based solely on frequency.
- Presentation of synonyms and antonyms.
- Presentation of collections of expressions.

We are constantly searching for research collaborators, so please contact us if you are interested. We would also like to hear the opinions and impressions of those who have used AWSuM for research writing.

5.3 Credits

AWSuM is powered by VERSION2 Inc. (<http://ver2.jp/>), an innovative Japanese company specializing in web technology for education.



VeRSION2
web technology for education