

## **Accounting Academic Word List (AAWL): A Corpus-Based Study**

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### **Abstract**

The aim of this study was threefold: it aimed to develop a field-specific academic word list for accounting, to find the degree of coincidence between the word list and Coxhead's academic word list (AWL), and also to compare the occurrences of the most frequently used words in the list with six available word lists in different disciplines. A large corpus of accounting research articles was compiled and analyzed. We recognized 658 academic word families with the highest frequency in the corpus which we called Accounting Academic Word List (AAWL). These 658-word families accounted for 10.16 % of the whole corpus. Further analysis indicated that out of these high-frequency word families we identified, only 354 coincided with those listed in AWL. Moreover, 50 most frequently used words in the list accounted for 3.98 % of the whole corpus. These words appeared in six available word lists in different disciplines with different degrees of occurrences which is a starting point for the development of a composite word list. Generally, this study confirmed the significance of subject-specificity of corpus-based word lists. The findings of this study suggest that AAWL can be used as a reference for the accounting community.

**Keywords:** Academic Word List; Accounting Academic Word List; corpus analysis; Accounting Students; English for Academic Purposes

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## 1. Introduction

Because of the vital role of vocabulary in reading and writing academic texts, the knowledge of vocabulary seems to bring about educational achievement. Also, the acquisition of vocabulary is an indispensable component of students' academic competence. Therefore, academic word and collocation lists are widely considered to be important in education especially within the domain of language learning, particularly English for Academic Purposes (ESP) (e.g., [Campion & Elley, 1971](#); [Coxhead, 2000](#); [Dang, 2018](#); [Deveci, 2019](#); [Ghadessy, 1979](#); [Jablonkai, 2020](#); [Jahangard 2007](#); [Khani & Tazik, 2013](#); [Lynn, 1973](#); [Martinez, Beck & Panza, 2009](#); [Praninskas, 1972](#); [Valipouri & Nassaji, 2013](#); [Wang, Liang, & Ge, 2008](#); [Ward, 2009](#); [Xue & Nation, 1984](#); [Yang, 2015](#)). It has been argued that academic word lists can be classified into two types: "general academic word lists and field-specific academic word lists" ([Liu & Han, 2015](#), p. 1). General academic word lists are composed of words related to various disciplines ([Campion & Elley, 1971](#); [Coxhead, 2000](#); [Gardner & Davies, 2014](#); [Ghadessy, 1979](#); [Lynn, 1973](#); [Praninskas, 1972](#); [Xue & Nation, 1984](#)). These words can be acquired and used by the majority of ESP students as a prerequisite for their university studies.

Having combined four previously developed word lists, [Xue and Nation \(1984\)](#) established a comprehensive University Word List (UWL). The list contained 800 high-frequency non- General Service List (GSL) words across various disciplines. This word list was used for more than fifteen years and gained considerable attraction at that time. The word list was criticized by [Coxhead \(2000\)](#). In her seminal article, she mentioned the need for a more comprehensive academic word list and proposed Academic Word List (AWL). Coxhead explained that UWL lacked consistent selection principles and the corpora were small and did not contain a balanced range of topics. She emphasized a need for an academic word list based on the data gathered from a large, well-designed corpus of academic English. Her corpus contained 3.5 million words in 28 sub-disciplines of four main disciplines of Art, Commerce, Law and, Science. AWL consists of 570 word families which has become a standard and appropriate vocabulary list in English language education for many years, but several studies have found some weaknesses of AWL since its advent (e.g., [Hyland & Tse, 2007](#); [Gardner & Davies, 2014](#)).

[Gardner and Davies \(2014\)](#) developed an academic vocabulary list (AVL) while raising some concerns regarding the use of AWL. They draw our attention to two aspects of AWL that seem to be problematic: "the use of word families to determine word frequencies and the relationship of the AWL with [West's \(1953\)](#) General Service List (GSL)" (p. 3). By pointing out some key considerations for AVL such as using lemmas, not word families and including different academic disciplines, they established an AVL which derived from a 120-million-word

academic subcorpus of the 425-million-word Corpus of Contemporary American English (COCA; [Davies, 2012](#)). The corpus was almost 35 times larger than Coxhead's AWL corpus. In order to create the AVL, they used four criteria to distinguish the academic core including Ratio, Range, Dispersion, and Discipline Measure in which Ratio helps to exclude general high-frequency words from an academic 'core', while Criteria of Range, Dispersion, and Discipline Measure help to exclude technical words and words that occur mainly in one or two disciplines. They concluded that the AVL discriminated between academic and other materials and that it covers 14% of academic texts in both COCA and the British National Corpus.

The above-mentioned studies aimed to propose core academic words in their lists, but [Hyland and Tse \(2007\)](#) described that identifying core academic words from different academic disciplines can be questionable because these "lexical items often occur and behave in different ways across disciplines in terms of range, frequency, collocation, and meaning"(p. 235). Therefore, it seems essential to produce field or discipline-specific words to understand academic discourses. Field-specific academic word lists include words commonly found in different subject areas of a particular discipline (e.g., [Beck & Panza, 2009](#); [Khani & Tazik, 2013](#); [Martinez, Valipouri & Nassaji, 2013](#); [Wang, Liang, & Ge, 2008](#); [Yang, 2015](#)).

Medical academic word list (MAWL) was created by [Wang, Liang, and Ge \(2008\)](#). Eliminating GSL word families, MAWL contained 623 word families, which accounted for 12.24% of their corpus. [Ward \(2009\)](#) used a 271,000 word-corpus in order to develop a word list for foundation engineers. He intended to have a word list that could be utilized by low level learners of English and used by all disciplines of engineering. The word list was named Basic Engineering List (BEL) consisting of 229 words. He criticized that high school education does not equip engineering students with the ability to read English language textbooks in colleges or universities. [Martinez, Beck and, Panza \(2009\)](#) conducted a study in order to identify the academic words in a corpus of agriculture research articles (RAs). By adopting both quantitative analysis and qualitative observations, they found that the GSL (67.53%) and the AWL (9.06%) provided a cumulative coverage of 76.59% for the whole corpus. In their study the idea of specificity in EAP in general and the specificity of the meanings and behaviors of the words in particular has been emphasized. An academic word list for applied linguistics including 773 academic word types was developed by [Khani and Tazik \(2013\)](#). Of 773 words, 573 found in [Coxhead's \(2000\)](#) AWL. They described that GSL and AWL covered 88% of tokens in their corpus. [Valipouri and Nassaji \(2013\)](#) conducted a study to analyze a corpus of 1,185 chemistry RAs including 4 million words from different chemistry subject areas. They identified 1400 academic word families. They explained that, of 1400 word families, 327 overlapped with word families in AWL which provided coverage of 9.60% of the tokens in their

corpus. Out of 1400 words families, 390 used frequently in chemistry RAs which has not been in GSL and AWL.

Yang (2015) analyzed 252 English nursing research articles to find out the most frequently used nursing academic vocabularies. He established a Nursing Academic Word List including 676 word-families which accounts for 13.64% of the coverage in the nursing research articles. He stressed the necessity for generating field-specific academic word lists for EFL nursing students to strengthen their academic reading and writing proficiency.

Most aforementioned studies mainly used a text analysis approach for their purposes. The significance of texts analysis in EAP is associated with the idea that the texts used in particular specialist environments have particular characteristics that distinguish them from other texts and from the generalized summaries of linguistic features that arise from an approach to text analysis that uses a corpus of differing texts (Dudley-Evans, 1994).

Research articles as academic texts can be considered to be an important source of academic and technical information in order to investigate vocabularies related to specific fields of study. Specialists as actual writers of research articles try to use field-specific vocabularies in order to convey their messages to the readers and to publish their articles in well-known journals. This has persuaded researchers to make attempts not only to develop and establish word lists for different purposes including general, academic, or technical but also to present models and frameworks for identifying and categorizing words. For these reasons, accounting students and professors need to have a word list containing specific vocabularies related to the research articles of their field. To date, no study has been done to analyze accounting research articles to develop a word list.

One main finding among above-mentioned studies is that vocabulary can help increase students' advancement in academic writing in their area of study and lack of vocabulary can really affect the quality of their writing. The variability of vocabulary use can be attributed to the variability of academic disciplines. In other words, various disciplines have some words with a high frequency and a wide range of occurrences which are not usually found in basic general English texts (Farrell, 1990 as cited in Liu and Han, 2015). That is, the meanings of most of these words are closely related to a particular subject area (Valipouri & Nassaji, 2013). This is the main requirement for developing field-specific academic word lists and also a few studies have been done to identify technical vocabulary in different disciplines (Chung & Nation, 2003, 2004; Kwary, 2011; Ha & Hyland, 2014). Thus, EAP practitioners should work closely with special vocabulary to gain an understanding of discourses and courses related to their disciplines which confirms the idea of specificity of EAP vocabularies and texts (Dudley-Evans, 1993; Hyland, 2006). It is also challenging to adhere to general academic word lists such as AWL as versatile lists suitable and useful for all levels and

disciplines. Therefore, every field such as should have its own specific academic word list. Accounting as a practical and helpful field does not have a specific academic word list and attempts were made in the present study to establish such as word list.

## 2. The present study

Accounting students especially graduates need to read and write research articles written in English in order to be aware of the latest development and research trends in the field. One prerequisite to this awareness is to know words that are common in accounting research articles. Additionally, there are some words such as *disclosure, assets, forecast, cash, equity* which are frequently used in accounting research articles that are not in any general or field-specific academic word lists. As previously mentioned, many word lists have been developed for several specific disciplines, for example, applied linguistics; medical academic word list (MAWL); chemistry academic word list (CAWL); nursing academic word list (NAWL); engineering English word list; academic vocabulary in agriculture.

Regarding accounting, no one to the best of our knowledge has developed a word list specific to the field of accounting. To make sure, the researchers conducted interviews with three professors teaching English for accounting at three universities in Iran. They confirmed that there is no comprehensive accounting academic word list available for their students to be able to use it to read accounting research articles and to use it as a guide to write papers in English. Thus, an accounting academic word list is of practical significance. Accordingly, this research article is an attempt to develop a more restricted, discipline-based lexical repertoire of accounting. In developing the word list, we have tried to answer the following questions.

1. What are the most frequently used academic words in the accounting research articles?
2. How many academic words in accounting research articles coincide with those of AWL?
3. Which of the most frequent words identified in this study appeared in six various word lists across different fields?

The rationale behind the third question is that comparing different word lists from different fields of study to find out common words can lead to designing a composite word list useful for many disciplines. That is, the purpose of this investigation is to compare and contrast many word lists in order to determine the degree of overlap among various word lists (Yorkston, Dowden, Honsinger, Marriner, & Smith, 1988).

### 3. Methodology

#### 3.1. The corpus

For the study, the corpus consisted of a particular genre (research article)-2,098 accounting research articles were compiled. The criteria for building the specialized corpus were determined considering the specialty of the texts, their sizes, representativeness, and dates of publication (Liu & Han, 2015; Sinclair, 1991, 2005 as cited in Liu & Han, 2015). The corpus was specialized texts on accounting and provided information about vocabulary typically used in the field. Moreover, a very large corpus was used including 29,441,460 words. Finally, to achieve an acceptable level of representativeness of the corpus, the research articles written by qualified researchers and experts and published in top accounting journals from 2008 to 2017 were used.

Based on the purpose of our study, a large corpus was gathered to make sure of a reasonable number of occurrences of academic words. As Coxhead (2000) pointed out, “more language means that more information can be gathered about lexical items and more words in context can be examined in depth” (p. 216). All the research articles were downloaded from the five most influential journals in academic accounting. Bonner, Hesford, Van der Stede, and Young (2006) found that these five journals *Accounting, Organizations and Society, Contemporary Accounting Research, Journal of Accounting and Economics, Journal of Accounting Research, and The Accounting Review journal* rank consistently as the top journals in the field. The articles in *The Accounting Review journal* were not accessible from our university (Ilam University) at the time of the study, thus this journal was replaced by *Review of Accounting Studies Journal* based on expert view. The information regarding each journal is illustrated in Table 1. All the articles were collected from the journals published from 2008 to 2017 from the journals databases. The rationale behind selecting these journals was related to the idea of representation to include texts written by a variety of writers to neutralize bias that may result from the idiosyncratic style of one writer (Atkins, Clear, & Ostler, 1992; Sinclair, 1991, cited in Coxhead, 2000). Additionally, increasing the number of lexical items in the corpus maximize the degree of representativeness of the corpus (Sutarsyah et al., 1994, cited in Coxhead, 2000). As Bonner et al. (2006) mentioned, various specialty areas of accounting were among these five journals and “the proportion of articles devoted to the specialty areas of accounting has remained relatively constant” (p. 683). They mentioned the proportion of the articles related to four subject areas of accounting including financial accounting, management accounting, systems and tax, and auditing. For example, articles related to financial accounting appear in high numbers for all journals except *Accounting, Organizations, and Society* and auditing articles emerge in all journals except in the *Journal of Accounting and Economics*. It seems that articles in all subject areas can be seen at least in three of these five

journals. In other words, the research articles in different subject areas of accounting are the focus of analysis.

**Table 1**

*Number of Articles and Words in Each Journal*

| journals                              | Number of articles | Number of words |
|---------------------------------------|--------------------|-----------------|
| Accounting, Organizations and Society | 409                | 5898593         |
| Contemporary Accounting Research      | 511                | 6665233         |
| Journal of Accounting and Economics   | 489                | 6850905         |
| Journal of Accounting Research        | 325                | 5239783         |
| Review of Accounting Studies          | 364                | 4786946         |
| total                                 | 2098               | 29441460        |

### 3.2. Word Selection Criteria

A lot of studies on academic vocabulary utilized word families as the unit of analysis (e.g. [Coxhead, 2000](#); [Liu & Han, 2015](#); [Valipour & Nassaji, 2013](#)). A word family consists of a base word and all its derived and inflected forms that can be understood by a learner without having to learn each form separately” ([Bauer & Nation, 1993](#), p. 253). As [Nagy, Anderson, Schommer, Scott, and Stallman \(1989\)](#) mentioned, word families are an important unit in the mental lexicon. If learners know a base word, learnig its common inflected or derived members of the family does not involve much more effort. Additionally, Range (the program used to analyze the corpus) includes three ready-made word lists that are the first and second 1000 most frequent words in the GSL and AWL are in word families. Therefore, in this study the words are classified as word families based on Level 6 of [Bauer and Nation’s \(1993\)](#) Scale.

Following [Coxhead \(2000\)](#), three criteria (specialized occurrence, frequency and range) were adopted. For specialized occurrence, the word families included in AAWL had to be outside the first 2000 most frequently occurring words of English of GSL [West \(1953\)](#). Furthermore, we assigned a cut-off frequency and range procedure in which each word should occur equal to or higher than 839 times in the whole corpus and for range, each word should appear at least 50 times in each journal.

### 3.3. Procedure

For analysis, the corpus composed of 29,441,460 running words from top influential journals of academic accounting was given to Range ([Heatley, Nation,](#)

& Coxhead, 2002) to have a word list. The software can be downloaded and used for free (<https://www.wgtn.ac.nz/lals/resources/vocabulary-analysis-programs>). It is noted (Nation, 2005, p. 2) that Range can be adopted for several purposes “to find the coverage of a text by certain word lists, to create word lists based on frequency and range, and to discover shared and unique vocabulary in several pieces of writing”. After downloading the research articles from the journals databases, the downloaded files which were in pdf format, were converted into txt files. This is necessary as a corpus program (Range) can only analyze data in the form of txt. Additionally, aspects unrelated to the lexical analysis, charts, diagrams appendices, bibliographies, equations, abbreviations, function words, articles, propositions, and symbols were removed for the analysis. Txt files were entered into the software to find out the number of occurrences of each word, its range (i.e. how many texts the word occurs in) plus the words shared with the AWL and GSL word lists. Rang was run and the output consisted two main parts namely a table showing the number of words shared with the AWL and GSL and a word list with frequency and range of each word in the corpus. Then, those words below the cut-off frequency and range procedure were deleted. Also, function words such as pronouns, prepositions and numbers were excluded from the list. Finally, by removing all GSL words from the list, AAWL was developed. Finally, to compare the word list with different word lists, six well-known word lists were selected based on the expert views in different fields. They were Coxhead's (2000) AWL, Wang, Liang and Ge's (2008) medical academic word list, Ward's (2009) engineering English word list, Martinez, Beck, and Panza's (2009) Academic vocabulary in agriculture, Valipouri and Nassaji's (2013) chemistry academic word list, and Khani and Tazik's (2013) academic word list for applied linguistics.

#### 4. Validating the List

To make sure that the AAWL is appropriate and to determine that the list is more useful than AWL for the field of accounting, a validating test was performed. Coxhead (2000) mentioned that "the real test is how the list covers a different collection of similar texts"(p. 224). Thus, a small-sized validating corpus containing accounting research articles was compiled to investigate the AWL's coverage and that of the AAWL in the new texts.

First, three accounting professors were requested to choose randomly 30 accounting research articles from those five academic accounting journals, but the articles were different from those in our corpus regarding the years of publication. To be exact, the research articles in our corpus belonged to the years 2008 to 2017, while the validating corpus was selected from the articles published in 2018. The corpus contained 356,523 running words. As Liu and Han (2015) mentioned, the same criteria for selecting, collecting, and processing the validating corpus should be applied to build the specialized corpus to ensure the consistency of the corpus structure. Besides, “Texts in the validating corpus



should be different from those in the original corpus to guarantee the reliability of the testing results” (Liu and Han, 2015, p. 9). Therefore, the AWL and AAWL were validity tested by comparing their coverage in the validating corpus which is shown in Table 2.

**Table 2**

*The AWL's Coverage and the AAWL's Coverage in Validating Corpus*

| Difference        | The AWL's coverage | the AAWL's coverage |
|-------------------|--------------------|---------------------|
| Validating corpus | 11.37%             | 4.08%               |
| 15.42             |                    |                     |

Although, AAWL coverage was a little lower than that of AWL in some individual articles, on average as Table 2 indicated, the AAWL covered the validating corpus better than did the AWL. The AAWL's coverage of the validating corpus is 15.42% while the AWL's coverage of the corpus is 11.37%. As Coxhead (2000) pointed out, "A frequency-based word list that is derived from a particular corpus should be expected to cover that corpus well" (p. 224). Therefore, it can be concluded from the difference (4.08%) in coverage that, the AAWL seems to be more useful than the AWL in the field of accounting.

## 5. Results and Discussion

This study was set out to develop an academic word list for the field of accounting, to find the degree of coincidence between the word list and the AWL, and to compare the occurrences of 50 most frequent words in the list with six available word lists in different disciplines. As mentioned previously, all words with frequencies of 839 or higher in the corpus and range of 50 in each journal were regarded as frequent. All words below these criteria were excluded; therefore, the remaining words were 3,172. After removing aspects unrelated to the lexical analysis, we had 2,129 words.

**Table 3**

*The Coverage by the Different Kinds of Vocabulary in the Corpus*

| WORD LIST        | TOKENS     | % of the whole corpus | content words | AAWL       |
|------------------|------------|-----------------------|---------------|------------|
| GSL              | 8,711,440  | 29.58%                | 1,471         | 0          |
| AWL              | 3,288,707  | 11.17                 | 354           | <b>354</b> |
| not in the lists | 17,441,313 | 59.24                 | 304           | <b>304</b> |
| Total            | 29,441,460 | 100                   | 2,129         | <b>658</b> |



|                   |   |   |   |   |   |   |   |
|-------------------|---|---|---|---|---|---|---|
| Research          | * | * |   | * | * | * | 5 |
| Audit             |   | * |   |   |   |   | 1 |
| Financial         | * |   |   |   |   |   | 1 |
| Period            | * | * | * | * | * | * | 6 |
| Panel             | * | * |   |   |   |   | 2 |
| <b>Disclosure</b> |   |   |   |   |   |   | 0 |
| Evidence          | * |   |   | * |   | * | 3 |
| <b>Assets</b>     |   |   |   |   |   |   | 0 |
| <b>Forecast</b>   |   |   |   |   |   |   | 0 |
| Analysis          | * |   | * | * |   |   | 3 |
| <b>Cash</b>       |   |   |   |   |   |   | 0 |
| Prior             | * | * |   | * | * | * | 5 |
| <b>Equity</b>     |   |   |   |   |   |   | 0 |
| Economics         | * |   |   | * |   |   | 2 |
| Negative          | * | * | * | * |   | * | 5 |
| Positive          | * | * | * | * | * | * | 6 |
| Investor          | * |   |   |   |   |   | 1 |
| Significant       | * |   |   |   | * | * | 3 |
| Consistent        | * |   |   | * |   | * | 3 |
| Income            | * |   |   |   |   |   | 1 |
| Corporate         | * | * |   |   |   |   | 2 |
| <b>Accruals</b>   |   |   |   |   |   |   | 0 |
| Section           | * | * | * |   | * | * | 5 |
| Regression        |   | * |   |   |   |   | 1 |
| Compensation      | * |   |   |   |   |   | 1 |
| Incentives        | * |   |   |   |   |   | 1 |
| Participant       | * | * |   |   | * | * | 4 |
| Percent           | * | * |   | * | * | * | 5 |
| Coefficient       |   |   |   |   | * |   | 1 |
| Similar           | * | * | * | * | * | * | 6 |
| Estimate          | * | * | * | * | * | * | 6 |
| Role              | * | * |   | * | * | * | 5 |
| Empirical         | * |   |   |   | * | * | 3 |
| Statistics        | * | * |   | * | * | * | 5 |
| <b>Median</b>     |   |   |   |   |   |   | 0 |
| Loss              |   |   | * |   | * |   | 2 |

|                     |   |   |   |   |   |   |   |
|---------------------|---|---|---|---|---|---|---|
| Annual              | * | * |   | * |   |   | 3 |
| Ratio               | * | * | * | * | * | * | 6 |
| Hypothesis          | * | * |   | * | * | * | 5 |
| Impact              | * | * |   | * | * | * | 5 |
| Internal            | * | * |   |   | * | * | 4 |
| Indicate            | * | * | * | * | * | * | 6 |
| <b>Announcement</b> |   |   |   |   |   |   | 0 |
| Errors              | * | * |   |   | * | * | 4 |
| Contemporary        | * |   |   |   |   |   | 1 |
| Institutional       | * |   |   |   |   | * | 2 |
| Specific            | * |   |   |   | * | * | 3 |
| Theory              | * | * | * |   | * | * | 5 |
| <b>Abnormal</b>     |   |   |   |   |   |   | 0 |
| Potential           | * | * |   | * | * | * | 5 |

In order to find answers to the third question, fifty most frequent word families in our list which are shown in Table 4 were selected. It is very necessary to note that these 50 family words occurred 1,173,488 times in our corpus which accounted for 3.98 % of the whole corpus. It was intended to find out whether these words have occurred in the above popular word lists. If a word has appeared in different word lists, it can be called a multi-purpose academic word but if a word just occurs in one word list it can be called a field-specific word special to that field. As shown in Table 4, we compared 50 most frequent words with words in six different word lists in different fields to find out the degree of coincidence among these seven word lists.

Out of 50 words in our list, 37 appeared in [Coxhead's \(2000\)](#) AWL, 25 in [Wang, Liang and Ge's \(2008\)](#) medical academic word list, 11 in [Ward's \(2009\)](#) engineering English word list, 20 in [Martinez, Beck, and Panza's \(2009\)](#) academic vocabulary in agriculture, 25 [Valipouri and Nassaji's \(2013\)](#) chemistry academic word list, and 26 in [Khani and Tazik's \(2013\)](#) academic word list for applied linguistics. Therefore, our word list shares the most words with AWL; while it shares the least words with the engineering English word list. Of 50 words, there are 6 words (*Period, positive, similar, estimate, ratio and indicate*) that occurred in all 7 word lists and 11 words appeared in 5 word lists. There are nine words (bold words in Table 4) just occur in our word list. It can be said that there are some words in all or at least in most available word lists which can be called all-purpose academic words, because they are frequent in various disciplines. That is, comparing all words in various word lists can indicate the importance of field-specific word lists which once more necessitates the establishment of a word list specific for the field of accounting. Although in this study we could compare fifty words of the AAWL, establishing a word list from comparing different word lists

can be useful and practical for all disciplines. This new academic word list will be more comprehensive than the AWL including words from all academic disciplines. Coxhead (2000) pointed out that words in AWL are frequent in many disciplines, but some words are not in AWL appearing in other word lists, for example, the word *audit* is a frequent word in both in our list and in Wang, Liang and Ge's (2008) medical academic word list.

This reinforces the argument that although vocabulary lists differed from one another in which the majority of words are unique to a single list, there are fairly overlap between various pairs of vocabulary lists. Six out of 50 words occurred in all word lists. Therefore, a composite word list can be developed for future research by carefully scrutinizing all words in the word lists.

## 6. Pedagogical Implications

The findings of this study can be used for accounting students, instructors and material developers. The AAWL is subject-specific repertoire comprising words that are used frequently in accounting texts, thus, it can be used as a reference for the accounting community. Additionally, the word list can be useful for those who like to read and write accounting RAs. Researchers in the field of accounting who are interested in publishing their papers in topmost influential accounting journals can include these academic words in their studies to increase the possibility of accepting and publishing their articles. Special attention should be paid to the words in designing materials and developing a curriculum for accounting ESP courses based on the frequency order of the words in the list. Also, the efficiency of language-focused learning is of paramount importance (Nation & Hunston, 2018). Accordingly, accounting teachers and professors can have a repertoire of vocabularies at hand to use them in their classes and to recommend their students learn a reliable word list. To be exact, the AAWL can be taught directly by accounting teachers and professors. Finally, once accounting students begin their university studies, they encounter accounting RAs in order to do research or to be aware of the latest development in the field, therefore there is an urgent need to know the most frequently used words in their field of study.

## 7. Conclusion

The present study aimed to establish an academic word list specific to the field of accounting. To this end, an accounting academic corpus was used. Although the importance and need for AWL in the field of accounting was considered, a field-specific word list would better cover the accounting academic corpus. Analyzing a large corpus collected from research articles in five most influential accounting journals led to Accounting Academic Word List (AAWL). Therefore, subject-specificity of a word list is of paramount importance. Additionally, the need for the development of a composite word list was emphasized by analyzing the amount of overlap between various word lists. Thus, composite word lists may serve as a source of “core” vocabulary for use in all the above disciplines. Finally,

focusing on academic vocabulary supports the students in their academic studies at university, especially their academic writing and errors in vocabulary use affects the quality of their writing (Coxhead, 2012; Laufer, 1994; Leki & Carson, 1994). Further research is needed to be done in different aspects such as accounting collocations by using this corpus to complement finding of this study.

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**Appendix: Accounting Academic Word List (AAWL) ranked by frequency of occurrence**

|                        |                         |                          |                          |
|------------------------|-------------------------|--------------------------|--------------------------|
| <b>1. Research</b>     | 22. <i>Accruals</i>     | 43. <i>Announcement</i>  | <b>62. Define</b>        |
| 2. <i>Audit</i>        | <b>23. Section</b>      |                          | 63. <i>Statements</i>    |
| <b>3. Financial</b>    | 24. <i>Regression</i>   | <b>44. Errors</b>        | <b>64. Approach</b>      |
| <b>4. Period</b>       | <b>25. Compensation</b> | <b>45. Contemporary</b>  | 65. <i>Column</i>        |
| <b>5. Panel</b>        | <b>26. Incentives</b>   | <b>46. Institutional</b> | <b>66. Individual</b>    |
| 6. <i>Disclosure</i>   | <b>27. Participant</b>  | <b>47. Specific</b>      | 67. <i>Compustat</i>     |
| <b>7. Evidence</b>     | <b>28. Percent</b>      | 48. <b>Theory</b>        | <b>68. Focus</b>         |
| 8. <i>Assets</i>       | 29. <i>Coefficient</i>  | 49. <i>Abnormal</i>      | 69. <i>Extent</i>        |
| 9. <i>Forecast</i>     | <b>30. Similar</b>      | <b>50. Potential</b>     | <b>70. Bias</b>          |
| <b>10. Analysis</b>    | <b>31. Estimate</b>     | <b>51. Items</b>         | 71. <i>Proxy</i>         |
| 11. <i>Cash</i>        | <b>32. Role</b>         | 52. <i>Client</i>        | <b>72. Target</b>        |
| <b>12. Prior</b>       | <b>33. Empirical</b>    | <b>53. Adjusted</b>      | <b>73. Overall</b>       |
| 13. <i>Equity</i>      | <b>34. Statistics</b>   | 54. <i>Conservatism</i>  | 74. <i>Fiscal</i>        |
| <b>14. Economics</b>   | 35. <i>Median</i>       | <b>55. Credit</b>        | <b>75. Index</b>         |
| <b>15. Negative</b>    | 36. <i>Loss</i>         | 56. <i>Volatility</i>    | 76. <i>Discretionary</i> |
| <b>16. Positive</b>    | <b>37. Annual</b>       | <b>57. Issue</b>         | 77. <i>Versus</i>        |
| <b>17. Invest</b>      | <b>38. Ratio</b>        | <b>58. Factors</b>       | 78. <i>Fraud</i>         |
| <b>18. Significant</b> | <b>39. Hypothesis</b>   | <b>59. Fees</b>          | 79. <i>Sox</i>           |
| <b>19. Consistent</b>  | <b>40. Impact</b>       | 60. <i>Ability</i>       | <b>80. Affect</b>        |
| <b>20. Income</b>      | <b>41. Internal</b>     | <b>61. Alternative</b>   | <b>81. Strategy</b>      |
| <b>21. Corporate</b>   | <b>42. Indicate</b>     |                          | 82. <i>Portfolio</i>     |

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|-------------------------|--------------------------|-------------------------|----------------------------|
| 83. <i>Score</i>        | <b>107.Bond</b>          | <b>131.Subsequent</b>   | <b>155.Document</b>        |
| 84. <i>Securities</i>   | 108. <i>Liquidity</i>    | <b>132.Revenue</b>      | <b>156.Investigate</b>     |
| <b>85. Voluntary</b>    | <b>109.Deviation</b>     | <b>133.Legal</b>        | <b>157.Task</b>            |
| <b>86. Design</b>       | 110. <i>Asymmetry</i>    | 134. <i>Magnitude</i>   | <b>158.Equation</b>        |
| <b>87. Interaction</b>  | <b>111.Identify</b>      | 135. <i>Robust</i>      | 159. <i>Consensus</i>      |
| <b>88. Options</b>      | <b>112.Previous</b>      | <b>136.Primary</b>      | <b>160.Underlying</b>      |
| <b>89. Selection</b>    | <b>113.Initial</b>       | <b>137.Context</b>      | <b>161.Persistence</b>     |
| <b>90. Finally</b>      | 114. <i>Means</i>        | <b>138.Volume</b>       | 162. <i>Intercept</i>      |
| <b>91. Accuracy</b>     | 115. <i>Dummy</i>        | <b>139.Partner</b>      | 163. <i>Transparency</i>   |
| <b>92. Contrast</b>     | 116. <i>Implications</i> | <b>140.Hence</b>        | 164. <i>Expertise</i>      |
| <b>93. Structure</b>    | 117. <i>Turnover</i>     | <b>141.Survey</b>       | <b>165.Outcomes</b>        |
| 94. <i>Leverage</i>     | 118. <i>Covenants</i>    | <b>142.Consequences</b> | 166. <i>Untabulated</i>    |
| <b>95. Contract</b>     | <b>119.Required</b>      | <b>143.Project</b>      | <b>167.Proportion</b>      |
| 96. <i>Knowledge</i>    | <b>120.Predicted</b>     | 144. <i>Reaction</i>    | <b>168.Framework</b>       |
| 97. <i>Services</i>     | 121. <i>Mandatory</i>    | <b>145.Series</b>       | <b>169.Source</b>          |
| 98. <i>Executive</i>    | <b>122.Professional</b>  | <b>146.Relevant</b>     | 170. <i>Default</i>        |
| 99. <i>Shareholders</i> | 123. <i>Variation</i>    | <b>147.Components</b>   | <b>171.Benchmark</b>       |
| <b>100.Environment</b>  | <b>124.Function</b>      | 148. <i>Capture</i>     | <b>172.Fund</b>            |
| <b>101.Monitoring</b>   | <b>125.Aggregate</b>     | 149. <i>Tenure</i>      | 173. <i>Database</i>       |
| 102. <i>Correlation</i> | <b>126.Range</b>         | <b>150.Acquisition</b>  | <b>174.Summary</b>         |
| 103. <i>Litigation</i>  | 127. <i>Equilibrium</i>  | 151. <i>Dividend</i>    | <b>175.Found</b>           |
| <b>104.Distribution</b> | <b>128.Enforcement</b>   | <b>152.Conference</b>   | <b>176.Perspective</b>     |
| <b>105.External</b>     | 129. <i>Optimal</i>      | <b>153.Obtain</b>       | 177. <i>Accountability</i> |
| <b>106.Benefits</b>     | 130. <i>Outside</i>      | <b>154.Method</b>       | 178. <i>Bonus</i>          |

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|---------------------------|----------------------------|--------------------------|---------------------------|
| <b>179.Constant</b>       | <b>203.Core</b>            | <b>227.Unique</b>        | 251. <i>Decile</i>        |
| 180. <i>Lagged</i>        | <b>204.Perceive</b>        | 228. <i>Realized</i>     | 252. <i>Reliability</i>   |
| <b>181.Status</b>         | 205. <i>Variance</i>       | <b>229.Marginal</b>      | <b>253.Objective</b>      |
| <b>182.Manipulation</b>   | <b>206.Complexity</b>      | 230. <i>Inventory</i>    | 254. <i>Provisions</i>    |
| <b>183.Global</b>         | 207. <i>Compliance</i>     | <b>231.Exclude</b>       | <b>255.Fundamental</b>    |
| <b>184.Crisis</b>         | 208. <i>Incremental</i>    | <b>232.Filing</b>        | <b>256.Implementation</b> |
| 185. <i>Peer</i>          | <b>209.Construct</b>       | <b>233.Team</b>          | <b>257.Involved</b>       |
| 186. <i>Liability</i>     | <b>210.Resources</b>       | 234. <i>Logarithm</i>    | 258. <i>Merger</i>        |
| <b>187.Assume</b>         | <b>211.Access</b>          | 235. <i>Pressure</i>     | <b>259.Abstract</b>       |
| 188. <i>Profitability</i> | 212. <i>Hedge</i>          | <b>236.Create</b>        | <b>260.Domestic</b>       |
| 189. <i>Customer</i>      | <b>213.Conduct</b>         | 237. <i>Critical</i>     | 261. <i>Insurance</i>     |
| <b>190.Inferences</b>     | 214. <i>Dispersion</i>     | <b>238.Commission</b>    | <b>262.Revision</b>       |
| 191. <i>Transaction</i>   | 215. <i>Timeliness</i>     | <b>239.Authors</b>       | 263. <i>Reserved</i>      |
| <b>192.Major</b>          | <b>216.Plus</b>            | 240. <i>Senior</i>       | <b>264.Comments</b>       |
| 193. <i>Propensity</i>    | 217. <i>Premium</i>        | 241. <i>Clustered</i>    | <b>265.Appropriate</b>    |
| <b>194.Release</b>        | 218. <i>Classification</i> | <b>242.Corresponding</b> | <b>266.Interpretation</b> |
| 195. <i>Minus</i>         | 219. <i>Goodwill</i>       | <b>243.Mechanisms</b>    | 267. <i>Engage</i>        |
| 196. <i>Francis</i>       | <b>220.Media</b>           | <b>244.Exhibit</b>       | <b>268.Notion</b>         |
| <b>197.Principal</b>      | 221. <i>Typically</i>      | <b>245.Link</b>          | <b>269.Exposure</b>       |
| <b>198.Evaluation</b>     | <b>222.Precision</b>       | <b>246.Rely</b>          | 270. <i>Bankruptcy</i>    |
| 199. <i>Residual</i>      | <b>223.Capacity</b>        | <b>247.Technology</b>    | 271. <i>Cumulative</i>    |
| <b>200.Assess</b>         | <b>224.Regime</b>          | <b>248.Decline</b>       | <b>272.Via</b>            |
| <b>201.Transfer</b>       | 225. <i>Digit</i>          | 249. <i>Procedures</i>   |                           |
| 202. <i>Pension</i>       | <b>226.Code</b>            | <b>250.Ensure</b>        |                           |

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|                                 |                               |                                |                          |
|---------------------------------|-------------------------------|--------------------------------|--------------------------|
| <b>273.Categories</b>           | <b>297.Goal</b>               | <b>319.Thereby</b>             | <b>342.Reveal</b>        |
| 274.Impairment                  | <b>298.Psychology</b>         | <b>320.Sustainabi<br/>lity</b> | 343. <i>Reform</i>       |
| <b>275.Instance</b>             | <b>299.Comprehe<br/>nsive</b> | <b>321.Insights</b>            | 344. <i>Sentiment</i>    |
| 276. <i>Discount</i>            | 300. <i>Tone</i>              | <b>322.Credibility</b>         | <b>345.Text</b>          |
| <b>277.Job</b>                  | <b>301.Concentra<br/>tion</b> | 323. <i>Pseudo</i>             | <b>346.Portion</b>       |
| 278. <i>Outstanding</i>         | <b>302.Allocation</b>         | 324. <i>Commitme<br/>nt</i>    | 347. <i>Agencies</i>     |
| <b>279.Computed</b>             | <b>303.Intensity</b>          | 325. <i>Federal</i>            | <b>348.Achieve</b>       |
| 280. <i>Quintile</i>            | <b>304.Approxim<br/>ately</b> | <b>326.Mutual</b>              | <b>349.Established</b>   |
| 281. <i>Adverse</i>             | <b>305.Communi<br/>cation</b> | 327. <i>Maximum</i>            | <b>350.Authority</b>     |
| 282. <i>Budget</i>              | <b>306.Features</b>           | 328. <i>Negotiation</i>        | 351. <i>Optimistic</i>   |
| 283. <i>Capitalizat<br/>ion</i> | <b>307.Area</b>               | 329. <i>Perceptions</i>        | <b>352.Violation</b>     |
| <b>284.Attributes</b>           | <b>308.Norms</b>              | <b>330.Generate</b>            | 353. <i>Quantitative</i> |
| <b>285.Despite</b>              | 309. <i>Superior</i>          | <b>331.Identity</b>            | <b>354.Explicit</b>      |
| <b>286.Labor</b>                | <b>310.Assurance</b>          | <b>332.Shift</b>               | 355. <i>Interviews</i>   |
| 287. <i>Feedback</i>            | 311. <i>Technical</i>         | <b>333.Minimum</b>             | 356. <i>Univariate</i>   |
| 288. <i>Expenditures</i>        | 312. <i>Depreciation</i>      | <b>334.Normal</b>              | <b>357.Validity</b>      |
| <b>289.Conclusion</b>           | 313. <i>Linear</i>            | <b>335.Innovation</b>          | <b>358.Elements</b>      |
| 290. <i>Substantial</i>         | <b>314.Maturity</b>           | <b>336.Traditional</b>         | <b>359.Restricted</b>    |
| <b>291.Occur</b>                | 315. <i>Aggressive</i>        | <b>337.Principles</b>          | 360. <i>Distress</i>     |
| <b>292.Oversight</b>            | <b>316.Contribute</b>         | <b>338.Network</b>             | <b>361.Cycle</b>         |
| 293. <i>Mitigate</i>            | <b>317.Denote</b>             | 339. <i>Segment</i>            | 362. <i>Intangible</i>   |
| 294. <i>Metrics</i>             | <b>318.Random</b>             | 340. <i>Idiosyncratic</i>      | <b>363.Grant</b>         |
| <b>295.Constraints</b>          |                               | <b>341.Aspects</b>             | <b>364.Criteria</b>      |
| <b>296.Trend</b>                |                               |                                | <b>365.Emphasis</b>      |

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|                         |                          |                            |                            |
|-------------------------|--------------------------|----------------------------|----------------------------|
| 366. <i>Calendar</i>    | 390. <i>Background</i>   | 414. <i>Anomaly</i>        | <b>438. Culture</b>        |
| <b>367. Derivatives</b> | <b>391. Maintain</b>     | <b>415. Conflicts</b>      | <b>439. Neutral</b>        |
| 368. <i>Utility</i>     | 392. <i>Distinct</i>     | 416. <i>Fraction</i>       | 440. <i>Momentum</i>       |
| <b>369. Inspection</b>  | 393. <i>Percentile</i>   | 417. <i>Entry</i>          | 441. <i>Payoff</i>         |
| <b>370. Academic</b>    | 394. <i>Downward</i>     | <b>418. Consumer</b>       | <b>442. Dynamic</b>        |
| <b>371. Published</b>   | <b>395. Prohibit</b>     | <b>419. Equivalent</b>     | 443. <i>Stakeholders</i>   |
| <b>372. Demonstrate</b> | <b>396. Debate</b>       | 420. <i>Gross</i>          | <b>444. Enhance</b>        |
| 373. <i>Drift</i>       | 397. <i>Brokerage</i>    | <b>421. Version</b>        | 445. <i>Matrix</i>         |
| 374. <i>Billion</i>     | 398. <i>Modified</i>     | 422. <i>Sue</i>            | 446. <i>Career</i>         |
| <b>375. Concept</b>     | 399. <i>Throughout</i>   | <b>423. Facilitate</b>     | <b>447. Medium</b>         |
| 376. <i>Endogeneity</i> | <b>400. Assigned</b>     | 424. <i>Cognitive</i>      | 448. <i>Sophisticated</i>  |
| <b>377. Dimensions</b>  | <b>401. Equipment</b>    | <b>425. Consultants</b>    | 449. <i>Surplus</i>        |
| <b>378. Gender</b>      | 402. <i>Formation</i>    | 426. <i>Accelerated</i>    | 450. <i>Recall</i>         |
| <b>379. Motivated</b>   | <b>403. Implicit</b>     | <b>427. Parameter</b>      | <b>451. Ethical</b>        |
| 380. <i>Incorporate</i> | <b>404. Expert</b>       | <b>428. Techniques</b>     | 452. <i>Legitimacy</i>     |
| <b>381. Community</b>   | 405. <i>Extensive</i>    | <b>429. Seek</b>           | 453. <i>Dual</i>           |
| <b>382. Exogenous</b>   | 406. <i>Composition</i>  | 430. <i>Subjective</i>     | <b>454. Incidence</b>      |
| <b>383. Emerging</b>    | <b>407. Productivity</b> | <b>431. Identical</b>      | 455. <i>Reliance</i>       |
| <b>384. Purchase</b>    | 408. <i>Quartile</i>     | <b>432. Detect</b>         | 456. <i>Simultaneously</i> |
| 385. <i>Partial</i>     | 409. <i>Anonymous</i>    | <b>433. Location</b>       | <b>457. Conformity</b>     |
| <b>386. Output</b>      | <b>410. Scope</b>        | 434. <i>Reconciliation</i> | 458. <i>Enterprise</i>     |
| 387. <i>Deferred</i>    | 411. <i>Logistic</i>     | <b>435. Sufficient</b>     | 459. <i>Variability</i>    |
| <b>388. Preceding</b>   | <b>412. Inputs</b>       | 436. <i>Conjecture</i>     | 460. <i>Interim</i>        |
| 389. <i>Deflated</i>    | <b>413. Rational</b>     | <b>437. Reverse</b>        |                            |

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|---------------------------|-------------------------|-------------------------|--------------------------|
| <b>461.Administrative</b> | <b>484.Logic</b>        | 508.Willing             | 531.Discourse            |
| 462.Inverse               | 485.Lease               | 509.Agement             | <b>532.Imposed</b>       |
| 463.Binary                | 486.Lobbying            | 510.Takeover            | 533.Probe                |
| <b>464.Entity</b>         | 487.Conventional        | <b>511.Induce</b>       | <b>534.Supplement</b>    |
| 465.Proprietary           | <b>488.Region</b>       | 512.Availability        | 535.Switch               |
| <b>466.Acknowledge</b>    | 489.Footnote            | 513.Partition           | <b>536.Prospects</b>     |
| 467.Rotation              | 490.Tier                | <b>514.Scenario</b>     | 537.Scandals             |
| <b>468.Eliminate</b>      | <b>491.Scheme</b>       | 515.Hazard              | <b>538.Challenge</b>     |
| <b>469.Circumstances</b>  | <b>492.Site</b>         | <b>516.Highlight</b>    | 539.Contingent           |
| 470.Winsorized            | 493.Payout              | <b>517.Subsidiary</b>   | 540.Officers             |
| <b>471.Proceeds</b>       | 494.Flexibility         | 518.Characteristic      | <b>541.Confirm</b>       |
| 472.Lawsuits              | 495.Geographic          | 519.Baseline            | <b>542.Estate</b>        |
| 473.Archival              | <b>496.Somewhat</b>     | 520.Vesting             | 543.Materiality          |
| 474.Goods                 | 497.Respective          | 521.Opacity             | 544.Macroeconomic        |
| <b>475.Nevertheless</b>   | 498.Retain              | 522.Penalties           | <b>545.Commit</b>        |
| 476.Retail                | 499.Allowance           | <b>523.Aware</b>        | <b>546.Interval</b>      |
| <b>477.Specified</b>      | <b>500.Intervention</b> | <b>524.Grade</b>        | <b>547.Anticipate</b>    |
| <b>478.Welfare</b>        | 501.Namely              | <b>525.Diversity</b>    | 548.Competence           |
| <b>479.Phase</b>          | 502.Chairman            | <b>526.Subordinates</b> | <b>549.Stable</b>        |
| 480.Inflation             | 503.Null                | <b>527.Ultimately</b>   | 550.Thresholds           |
| <b>481.Mental</b>         | 504.Inherent            | <b>528.Dominant</b>     | <b>551.Format</b>        |
| 482.Scrutiny              | <b>505.Exceed</b>       | <b>529.Illustrate</b>   | 552.Tendency             |
| 483.Extant                | 506.Fraudulent          | 530.Monetary            | 553.Severance            |
|                           | <b>507.Coordination</b> |                         | <b>554.Practitioners</b> |

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|-------------------------|------------------------|-------------------------|--------------------------|
| <b>555.Exploit</b>      | <i>579.Intuition</i>   | <i>603.Mortgage</i>     | <i>627.Incumbent</i>     |
| <i>556.Dense</i>        | <i>580.Congress</i>    | <b>604.Temporary</b>    | <i>628.Retrieved</i>     |
| <i>557.Moody</i>        | <b>581.Transition</b>  | <i>605.Talent</i>       | <i>629.Insolvency</i>    |
| <b>558.Alter</b>        | <i>582.Dye</i>         | <i>606.Sociology</i>    | <i>630.Frank</i>         |
| <b>559.Academy</b>      | <b>583.Remove</b>      | <i>607.Numerous</i>     | <i>631.Bureau</i>        |
| <b>560.Style</b>        | <b>584.Concurrent</b>  | <i>608.Regress</i>      | <i>632.Headquarters</i>  |
| <b>561.Schedule</b>     | <b>585.Apparent</b>    | <b>609.Contrary</b>     | <i>633.Hereafter</i>     |
| <b>562.Integrated</b>   | <i>586.Premiums</i>    | <b>610.Phenomenon</b>   | <b>634.Legislation</b>   |
| <i>563.Deficiencies</i> | <i>587.Brevity</i>     | <i>611.Confounding</i>  | <i>635.Minority</i>      |
| <i>564.Subset</i>       | <i>588.Slack</i>       | <b>612.Promotion</b>    | <i>636.Corollary</i>     |
| <b>565.Forthcoming</b>  | <b>589.Ambiguity</b>   | <i>613.Personnel</i>    | <i>637.Convey</i>        |
| <i>566.Outliers</i>     | <i>590.Recurring</i>   | <i>614.Skewness</i>     | <b>638.Substitute</b>    |
| <i>567.Affiliated</i>   | <b>591.Guidelines</b>  | <i>615.Covariance</i>   | <i>639.Plausible</i>     |
| <b>568.Duration</b>     | <i>592.Stewardship</i> | <b>616.Extract</b>      | <i>640.Divisions</i>     |
| <i>569.Internet</i>     | <i>593.Statutory</i>   | <b>617.Chartered</b>    | <i>641.Skepticism</i>    |
| <i>570.Software</i>     | <i>594.Proximity</i>   | <i>618.Exit</i>         | <i>642.Vector</i>        |
| <i>571.Essentially</i>  | <i>595.Corruption</i>  | <i>619.Cell</i>         | <i>643.Hybrid</i>        |
| <i>572.Outsourcing</i>  | <i>596.Narrative</i>   | <i>620.Cutoff</i>       | <i>644.Divergence</i>    |
| <i>573.Workshop</i>     | <b>597.Intrinsic</b>   | <b>621.Topic</b>        | <b>645.Symbolic</b>      |
| <i>574.Backdating</i>   | <i>598.Collateral</i>  | <b>622.Ongoing</b>      | <b>646.Assistance</b>    |
| <i>575.Vice</i>         | <b>599.Energy</b>      | <i>623.Electronic</i>   | <i>647.Dissemination</i> |
| <i>576.Setters</i>      | <b>600.Oriented</b>    | <i>624.Amortization</i> | <i>648.Certified</i>     |
| <b>577.Foundation</b>   | <i>601.Embedded</i>    | <b>625.Stress</b>       | <b>649.Normative</b>     |
| <b>578.Preliminary</b>  | <i>602.Aversion</i>    | <i>626.Justice</i>      | <i>650.Alignment</i>     |

651.*Hail*

**652.Visible**

653.*Consecutive*

654.*Era*

**655.Obvious**

656.*Pessimistic*

657.*Comply*

658.*Handbook*