

## Using COHA to Explore the Usage of Accounting

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### ABSTRACT

*Accounting* is a significant discipline in social science. This paper sets out to investigate the matching strings of *accounting* by examining a 400-million-word Corpus of Historical American English (COHA), enabling us to have better understanding about how *accounting* has gone through three processes and evolved into a discipline. The results show that 1) the frequency of *accounting* follows an upward but a little fluctuating trend from 1810s to 2000s; 2) in 1810s-1890s, *accounting* was in its infancy, the major searching results of COHA reveals a high frequency of the expression “accounting for”, which has little connection with a discipline; 3) in 1900s-1940s, the usage of *accounting* has become enriched, with a large number of diversified expressions like “the system of accounting, the accounting division, the accounting department, financial accounting” are quite common in COHA; 4) in 1950s-2000s, *accounting* has gradually been regarded as a discipline: students start to learn accounting lessons or major in accounting.

**Keywords:** Accounting, Matching string, the Corpus of Historical American English (COHA)

### INTRODUCTION

Different organizations or textbooks define accounting in a slightly different ways: “Accounting is an information system that measures, processes, and communicates financial information about a business.” (Needles, Powers & Crosson 2012: 2). International Accounting Standard (IAS) defines *accounting* in more detail, that as “a service activity, whose function is to provide quantitative information, primarily financial in nature, about economic entities that is intended to be useful in making economic decisions, in making reasoned choices among alternative courses of action”.

Even though the modern field of *accounting* was established by the Italian mathematician Luca Pacioli in 1494, *accounting* has gone through a lot to transform into a discipline of social science we are now familiar today. The time when George O. May and his team dedicated to their Institute-sponsored “Search for Accounting Principles” in the early 1930s in the United States, which is described by Storey (1964), and Bell (2010: 343) even commented that “In a sense these men were early seekers of a conceptual framework for accounting.”, from which we can infer that the accounting system was not been well built in 1930s.

In view of the significance of *accounting* as a discipline and driven by the curiosity of finding out the usage changes of *accounting*, this paper thus aims to explore the usage of *accounting* by using authentic data from the Corpus of Historical American English (COHA), containing 400 million words in more than 100,000 texts which date from the 1810s to the 2000s.

### RELATED STUDIES

*“Accounting history is a growing and influential field of studying.” (Carnegie & Potter 2000:178)*

Miller, Hopper & Laughlin (1991: 395) discusses the significant change of accounting history over the last decade, entailing both a pluralization of the methodologies and a change in the position of history within the discipline of *accounting*, which entitle us to speak of the “new accounting history” as a loose assemblage of diverse research questions and issues.

The study of Carnegie & Porter (2000) not only surveys publishing patterns in the three specialists, inter-nationally refereed, accounting history journals in the English language during the period 1996 to 1999, but also provides a promising guide for scholars working on accounting history, i.e., “1) perform a similar analysis on a larger sample that would also capture the discipline in general accounting journals, as well as in sociological, interpretative, and critical journals; 2) research might elucidate why historical researchers located in different countries are prone to publish their outputs in locally based journals and whether this inclination is, in any way, linked to perceptions of journal quality; 3) delve further into the reasons for a broad focus in accounting history on the 19<sup>th</sup> and 20<sup>th</sup> centuries, and why certain categories of research remain totally or virtually ignored.” (Carnegie & Potter 2000:196-197), which has stimulated numerous studies:

“The prestige of individual journals (using peer review and citation indices to produce rankings of leading journals); analysis of contributors, to measure individual and institutional productivity; quality of doctoral programmes; factors contributing to published research; measures of research productivity; time-delay in doctoral productivity; bibliometric distributions; promotion; realistic research expectations; origin of research, data and journal; and finance professors’ research standards.” are the themes in prior studies of the general accounting literature summarized by Jones & Roberts (2000: 1) .

Concerning the researchers of major accounting history researches, Carmona (2002: 3) shares a unique cut-in perspective and points out straightly, “everyone knows that Anglo-Saxon scholars dominate research published in ‘international’ journals.” Meanwhile, Carmona (2002: 1) strongly appeals that “accounting history research would gain in strength if other scholars, settings, and periods of study were added to those regularly reflected in ‘international’ journals. I contend that such broadening of the discipline represents the most important challenge for accounting historians in the years to come.”

The development of accounting as a discipline is a tough process. Unlike Whittington (1986) has recently likened accounting thought historically to layers of geological strata and surveyed these strata, category by category, Bell (2010: 340) views the strata as a whole—“in the way they mesh together, and how the resulting land can be made more useful to society as a source of minerals and timber and as a place for back-packing.” Driven by such perception, Bell (2010: 343) regards the team searching for accounting principles in the early 1930s as, “early seekers of a conceptual framework for accounting” and summarizes two ways establishing accounting principles of May’s team: 1) an approach wherein principles would be based on “what is”—on simply codifying existing practice, which is termed an “empirical inductive approach” by Whittington (1986); 2) a more dramatic deductive approach to the establishment of principles, based on finding, through logic and right reason, a set of fundamental truths for accounting - notions that would not evolve with time.

“The year 1968 can be thought of as an important dividing year in accounting thought” (Bell 2010: 346), as three significant studies help guide new orientation of accounting:

Feltham (1968) is the first of the three revolutionary studies, pointing to the need for broadening the information context of accounting and for developing a rigorous notion of Information Theory toward this end if accounting was to be useful in the decision making process. Moreover, the evaluation function of information, particularly in the managerial

sphere, is highly emphasized. One of the two new categories of information Feltham saw as being needed was anticipatory data, as opposed to data in the past. Building on the study of Feltham, Beaver, Kennelly & Voss (1968) goes deeper: They believe that accounting must concern itself primarily with *ex ante* information which is useful for purposes of prediction. "Only then can accounting serve decision making needs, since decisions are inevitably based on estimates about the future. The emphasis was on prediction *per se*, rather than on forecasts and evaluation of those forecasts." (Bell 2010: 347) And the third crucial study is Ball & Brown (1968), suggesting that the usefulness of accounting information might be empirically determined by ascertaining whether security markets reacted to publication of the data.

Even though abundant studies focusing on the history of accounting and how *accounting* gradually develops into a discipline of social science have been well conducted, there's still a lack of researches using corpus methods to explore the matching strings of *accounting*, which turns out to be the aim of this study, identify *accounting* in COHA to find out the changes of *accounting* from authentic data.

## METHOD

### Corpus Data: COHA

The Corpus of Historical American English (COHA) contains 400 million words in more than 100,000 texts which date from the 1810s to the 2000s. The corpus contains texts from fiction, popular magazines, newspapers and non-fiction books, and is balanced by genre from decade to decade. It has been carefully lemmatized and tagged for part-of-speech, and uses the same architecture as the Corpus of Contemporary American English (COCA), BYU-BNC, the TIME Corpus and other corpora. What's more, COHA allows for a wide range of research on changes in lexis, morphology, syntax, semantics, and American culture and society (as viewed through language change), in ways that are probably not possible with any text archive (e.g., Google Books) or any other corpus of historical American English. (Davies 2012: 121)

Davies (2012: 122) points out that "COHA differs from all other corpora of historical English in that it is quite large – 100 times larger than any other structured corpus. But it is also well balanced by genre and sub-genre in each decade, and it has been carefully lemmatized and tagged for part-of-speech. As we will see, the unique balance of size, genre and corpus architecture with COHA results in a resource that allows us to carry out research on many types of language change – lexical, morphological, syntax and semantic – that could not be studied otherwise. As a result, it significantly expands our horizons about what can be done with historical corpora, when we no longer operate within the artificial constraints of small one- to five-million word corpora."

### Analytical Procedure

The present study follows three steps: search the word *accounting* in COHA (Step 1); interpret the searching result of *accounting* in COHA (Step 2).

Firstly, to search the word of *accounting* in COHA, we need to click the "List" button as Figure 1 indicates.

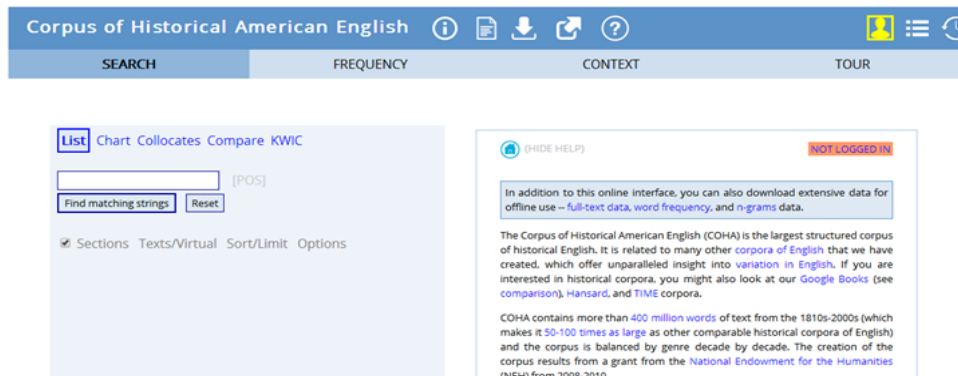


Figure 1. Enter the page of searching for “List”

After entering the page of searching for list, input *accounting* and click on “Find matching strings” as Figure 2 indicates.

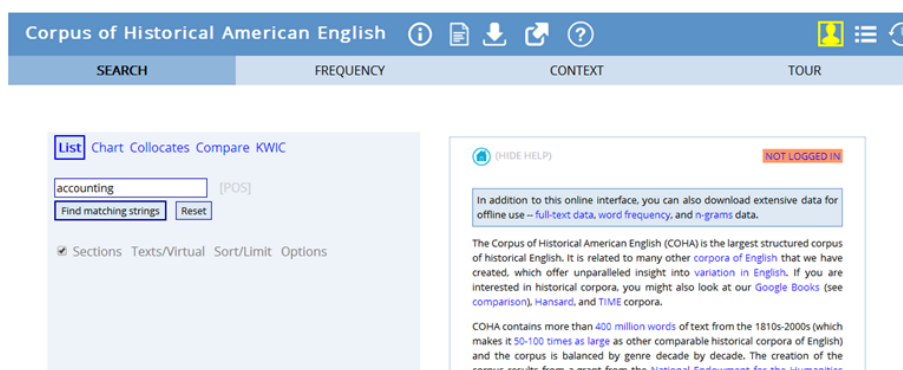


Figure 2. Input *accounting* and find matching strings

The results will be shown as Figure 3 presents.

		CONTEXT	ALL	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
1	ACCOUNTING	3303		30	37	40	49	27	45	55	50	73	106	144	324	138	191	215	320	432	434	593	

Figure 3. Output of the matching strings of *accounting*

Secondly, interpret the searching results of the matching strings of *accounting* from Figure 3. The table heading represents time, from 1810s to 2000s, and the content shown below each year is the frequency of *accounting*. “ALL” refers to the total frequency of *accounting* in COHA is 3,303, and there shows zero frequency in 1810s.

## RESULTS AND ANALYSIS

## Frequency Trend of Accounting in COHA

Figure 4 reveals a frequency trend of *accounting* in COHA:

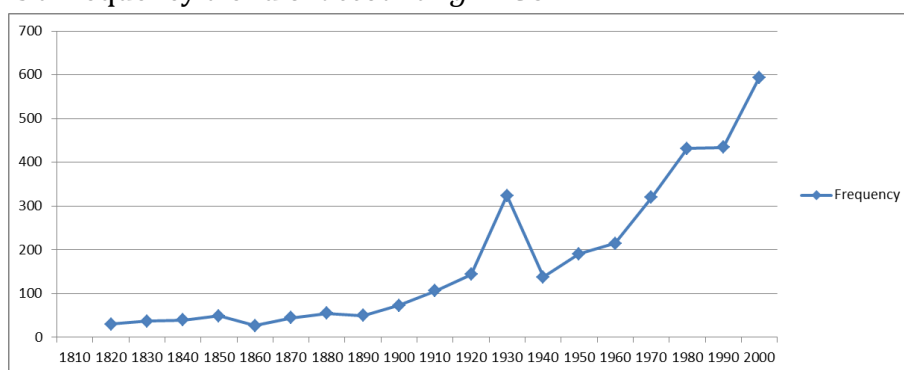


Figure 4. Trend of frequency of *accounting* in COHA

Figure 4 shows the frequency of *accounting* follows an upward but a little fluctuating trend from 1810s to 2000s, the year 1930 seems to be a dividing year, as George O. May and his team dedicated to their Institute-sponsored “Search for Accounting Principles” in the early 1930s in the United States, which is described by Storey (1964), and Bell (2010: 343) even commented that “In a sense these men were early seekers of a conceptual framework for accounting.”

### The First Stage of the Usage of Accounting: 1810s-1890s

When *accounting* first occurred in 1820s, it was mostly collocated with “for”, making up the phrase of “accounting for”, which has nothing to do with the *accounting* as a disciplinary we now understand (example 1-2). Whilst in the contexts of 1830s, “accounting officer” has been mentioned for several times, which usually stands for the financial executive of government in USA, whose right is just lower-grade than that of mayor. Another thing is also worth our attention: even though the expression of accounting officer is scratched from the contexts of 1830s, accounting officer appeared earlier than 1830s, as “But from this sum, ascertained and admitted to be due by the United States, the accounting officers of the Treasury deducted the sum of one million of livres, with interest from the 10th of June, 1776.” this piece of information indicates. Nonetheless, whenever this profession appeared for the very first time, the usage of *accounting* is still a little far from our perception today.

- (1) To-day the course of the river has been a little south of west: its windings are very frequent and sudden, fully *accounting for* the apparent heights of the floods, of which marks were observed about thirty-six feet above the level of the stream. At six o'clock the boats had not arrived; and as I had given directions on no account to attempt to proceed after dark, I ceased to expect them this evening. (COHA\_1820\_NF\_Journals of Two Expeditions into the Interior of New South Wales)
- (2) There is indeed another way of *accounting for* this blind and deceptive statement we have been examining. (COHA\_1827\_NF\_Journals of Two Expeditions into the Interior of New South Wales)
- (3) The United States, by their *accounting officers*, then acknowledged a balance due to the estate of Caron de Beaumarchais of two million seven hundred thousand livres, or about half a million of dollars. This debt was for the supplies furnished by Beaumarchais, and admitted never to have been paid for, by the United States. But from this sum, ascertained and admitted to be due by the United States, the *accounting officers* of the Treasury deducted the sum of one million of livres, with interest from the 10th of June, 1776. (COHA\_1831\_MAG\_Diplomatic Correspondence of the Revolution)

Even though the frequency of *accounting* has shown an increasing trend from 1820s-1850s, the *accounting* shown in the context of these years did not reveal any sign of getting closer to today's *accounting*, some even reflects going backwards, as example (4) indicates. Moreover, example (5) and (6) hold the same expression as the example (3).

- (4) That catalogue doubtless we all have memoriter. I leave out the Philistine phalanx of editors, *accounting* them rather our debtors than creditors. (COHA\_1846\_FIC\_The miscellaneous writings)
- (5) They never remit their exertions, and never despair; for experience has taught them, that some time or other, chance, management or good fortune will befriend them; and that a new Secretary, a new *accounting officer*, or a new Congress, a thin House, or a last night's Session, will at length reward their labor and perseverance. Like the King of England, a claim never dies. (COHA\_1850\_MAG\_Military Presidents)
- (6) An adroit system of accountability was established by which no property return, abstract of issues, account current, or voucher, was understood to mean what it expressed upon its face, so that no *accounting officer* possessing a clew to the policy adopted could be deceived by the figures. (COHA\_1861\_MAG\_Coast Rangers of California)

From 1870s to 1890s, the main matching strings of *accounting* remain almost the same as that of 1850s-1860s, as example (7) to (9) presents.

- (7) The story of Butler's perfidy and the manner in which it was disclosed form an interesting narrative which has hitherto been untold. The suit of Messrs. Childs and Southern, which has resulted in making public the facts connected with Butler's venality, was begun in the Supreme Court in this City for the purpose of having an *accounting* in regard to the venture in South Carolina bonds which has been referred to. (COHA\_1878\_NEWS\_NYT-Reg)
- (8) The result of this not infrequent clash of authority between the administrative and the *accounting officers* is that the Agent or his bondsmen suffer. The Agent, being advised of the disallowance at the Treasury of items in his accounts which had been fully authorized by his superiors, very naturally ignores the demand of the *Accounting Officers* that he deposit money to make his accounts good. (COHA\_1887\_MAG\_Administrative Difficulties of the Indian Problem)
- (9) As matter of general law, it is believed that, within the United States, even where the sale of lottery tickets is not made a criminal offense, it is at least an act not sanctioned; and lottery managers could not support against each other an action for *an accounting* in respect to their demoralizing gains any more than could thimble-riggers or associated prostitutes. (COHA\_1892\_MAG\_Federal Taxation of Lotteries)

### **The Second Stage of the Usage of Accounting: 1900s-1940s**

When entering 1900s, the usage of *accounting* has shown great changes. These expressions, including the system of accounting, the accounting division, the accounting department, and major branches as financial accounting have been well-established as example (10)-(15) displays. Moreover, people even start to have troubles if without daily accounting (example 16).

- (10) The new president finds also that nearly every detail of administration must be submitted to his faculty for its approval. If the manager of a railroad desires to increase the speed of his trains or to make other changes in the time schedule, or change a curve or establish new grades, or improve the rolling stock, or set new requirements for entering the service of the company or for continuing in the same, or improve *the system of accounting*, he very properly consults those who are most directly interested in the particular matter in hand; but he is not bound by the advice given, much less is he

compelled to call a mass meeting of all employees and abide by a majority vote. (COHA\_1900\_MAG\_Federal Taxation of Lotteries)

- (11) Theoretically, every intelligent farmer believes in the value of a good system of *bookkeeping and accounting*, but nine out of ten of these same intelligent farmers find it an extremely difficult thing to do. Why not put accounts on a community basis? The community accountant might be an employee of a local bank or the business agent of the local cooperative system, or a farmer's daughter who has the training and the time. Rules safeguarding the privacy of accounts could easily be made. (COHA\_1919\_NF\_The Farmer and the New Day)
- (12) Its *accounting division*, in particular, ought now to be laying securely the foundations of the future rate structure, but it will not be allowed to do so if its work is transferred to untrained accountants outside the commission, as was proposed in the notorious confidential memorandum of last summer and as has been urged by the commission's executive secretary. (COHA\_1929\_MAG\_Editorial Paragraphs)
- (13) Mr. Smith, a mild-mannered man with thinning hair who works in the *accounting department*, got together with Stanley for a drink after banking hours and told him about the corporation. (COHA\_1939\_MAG\_Talk of the Town)
- (14) Soon they began to demand a *financial accounting* from Dean Russell, charging that the college had saddled their school with excessive "service" charges, had compelled it to provide free tuition for T. C. faculty members' children, had thus created an artificial deficit. Horace Mann, they reminded Dr. Russell, was a year older than T. C. itself, had in fact fathered the college. (COHA\_1940\_NEWS\_“Murder!”)
- (15) This is quite in agreement with the spirit of the Czechoslovak nationalization law which aims at the creation of economically sound units based on the principles of *business accounting*. (COHA\_1946\_NEWS\_Letters)
- (16) Why, in one 14-month period, had Roy E. Livingston, union treasurer, been paid \$4,400 and Irving \$3,800 for "overtime"? Why, in approximately the same period, had \$16,762 been paid to "cash" without *accounting*? Why had the union's bank balance dropped by \$37,000 in five months? (COHA\_1949\_MAG\_Trouble at Home)

### The Third Stage of the Usage of Accounting: 1950s-2000s

The concept of *accounting* goes stable gradually. *Accounting* has been regarded as a discipline: many students begin to major in accounting, or learn accounting lessons and when they graduate, they choose to be an accountant and thus work in the accounting firm (example 17-25). *Accounting* has been a term with almost fixed meaning, "Accounting is an information system that measures, processes, and communicates financial information about a business." (Needles, Powers & Crosson 2012: 2)

- (17) Lucky I took the course in *accounting* at college. It was something to which to hold tight. I had to work or I would have been dropped from the class. I was determined to be trained for a job in case the bottom fell out of the oil holdings completely. (COHA\_1950\_FIC\_To love and to honor)
- (18) He must learn *accounting* and management as well as marketing. He must learn the geography of the country until he knew it as he knew the palm of his own hands, so that he could see what harvests could be expected from every part of it. (COHA\_1951\_FIC\_God's Men)
- (19) "I understand *Accounting* is going to bill you for the prorated extra labor cost on those four banged-up jobs," the quality-control man said. (COHA\_1957\_FIC\_On the Line)
- (20) After a lively term as dean of social sciences at the University of Chicago from 1931 to 1933. Ruml became treasurer of Macy's, overhauled its *accounting* system. (COHA\_1960\_MAG\_[Milestones])

- (21) The Communications Act of 1934 does give the commission considerable indirect regulatory influence within state jurisdictions by enabling it to establish *accounting* procedures and to allocate for rate-making purposes capital and costs involving both interstate and intrastate service. (COHA\_1967\_MAG\_Who Will Bell the Colossus?)
- (22) The study, conducted by the *accounting* firm of Arthur Andersen, was a significant measure of the actual financial impact of regulation as experienced by companies. (COHA\_1979\_MAG\_Expensive Rules)
- (23) In the cold blast of air that accompanied Michael's departure, Martin emptied the last of the whiskey. He didn't understand the high *accounting* of a professional. (COHA\_1989\_FIC\_ Fine Line)
- (24) The General *Accounting* Office and Congressional Budget Office suggest one or more of the three programs could safely be delayed or canceled without any damage to U.S. security. (COHA\_1998\_MAG\_First, the bad news)
- (25) At the time, I couldn't imagine saying good-bye to Toby, to my friends at the *accounting firm* where I worked, to our fieldstone house overlooking the lake, to the small, Wisconsin town where I'd been raised. (COHA\_2006\_FIC\_Blue water)

### CONCLUSION

So far, we have studied the matching strings of *accounting* in COHA. The changing process of *accounting* from a phrase appearing in the form of “accounting for” to today’s discipline can be summarized as Table 1 displays.

**Table 1. Accounting in COHA from 1810s to 2000s**

Time	Process	Examples
1810s-1890s	infancy	accounting for, accounting officer
1900s-1940s	growth	the system of accounting, the accounting division, the accounting department, financial accounting
1950s-2000s	maturity	major in Accounting; work in an accounting firm

As Table 1 suggests, in 1810s-1890s, *accounting* was in its infancy, the major searching results of COHA shows high frequency of the expression “accounting for”, which has nothing to do with a discipline. While in 1900s-1940s, the usage of *accounting* has enriched greatly, expressions like “the system of accounting, the accounting division, the accounting department, financial accounting” are quite common in COHA. When entering 1950s, *accounting* has gradually been regarded as a discipline: as students has started to take accounting lessons and even majored in accounting.

*Accounting* is a significant discipline in social science. This paper has set out to investigate the matching strings of *accounting* by examining a 400-million-word Corpus of Historical American English (COHA), enabling us to have better understanding about how *accounting* has gone through three processes and evolved into a discipline.

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