KEYWORD ANALYSIS IN CORPUS LINGUISTICS

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Annotation: This article explores the concept and applications of keyword analysis in corpus linguistics, an essential method for identifying words that are statistically significant or unusually frequent in a particular text or corpus compared to a reference corpus. Keyword analysis provides insights into the distinctive features, themes, and communicative focus of texts, genres, or registers. It helps linguists discover patterns of lexical variation, ideology, and discourse structure that cannot be observed through intuition alone. The paper discusses how keyword analysis is conducted using statistical measures such as log-likelihood and chi-square tests, implemented through corpus tools like WordSmith Tools, Sketch Engine, and AntConc. It also demonstrates how keywords reveal linguistic and cultural tendencies—for example, political speeches emphasizing freedom and nation, or academic writing featuring research and evidence. Furthermore, the study highlights the pedagogical and sociolinguistic applications of keyword analysis, including genre comparison, discourse analysis, and educational material design. Ultimately, keyword analysis provides a bridge between quantitative data and qualitative interpretation, enabling linguists to understand how lexical choice reflects meaning, purpose, and ideology

Key Words: Keyword analysis, corpus linguistics, frequency, log-likelihood, chi-square, concordance, corpus comparison, lexical pattern, discourse analysis, genre variation, register, collocation, frequency profiling, corpus tool, stylistic analysis, data-

driven learning, thematic focus, computational linguistics, text analysis, keyword extraction.

KEYWORD ANALYSIS IN CORPUS LINGUISTIC

Keyword analysis is one of the most powerful techniques in corpus linguistics used to identify the most characteristic words of a text or group of texts. A keyword is defined as a word that appears with significantly higher or lower frequency in one corpus compared to another, known as the reference corpus. This difference in frequency provides valuable clues about the text's main themes, stylistic tendencies, and communicative goals. The concept was first popularized by Scott (1999) with his WordSmith Tools software, which remains widely used for keyword extraction.

In simple terms, keyword analysis helps answer the question: What makes this text special in terms of vocabulary? For instance, in a corpus of political speeches, words like freedom, justice, people, and nation may appear as keywords, revealing the ideological and emotional focus of the discourse. Similarly, in scientific research papers, keywords such as methodology, data, analysis, and results dominate, reflecting an objective and evidence-based register. Thus, keyword analysis captures the lexical fingerprint of a text.

The process of keyword extraction is usually based on statistical tests, most commonly log-likelihood and chi-square. These tests compare the observed frequency of each word in the target corpus with its expected frequency in the reference corpus. Words whose occurrence exceeds statistical thresholds are identified as positive keywords (unusually frequent), while those that are significantly less frequent become negative keywords. This quantitative approach makes linguistic research more empirical and replicable.

Modern corpus tools such as AntConc, Sketch Engine, and WordSmith Tools allow researchers to perform keyword analysis efficiently. These programs automatically calculate keyword lists, generate concordance lines, and visualize collocations. For example, using Sketch Engine's Keyword Analysis function on the British Academic Written English Corpus (BAWE) reveals that frequent academic keywords include

analysis, research, method, and findings, while in the British National Corpus (BNC) of spoken English, typical keywords include yeah, I mean, really, and you know. Such differences illustrate clear register variation between spoken and written communication.

Despite its advantages, keyword analysis also faces several challenges that researchers must consider to ensure accurate interpretation. One limitation lies in its dependence on statistical frequency alone, which may not always capture semantic or pragmatic meaning. A word can be frequent in a corpus simply because of topic repetition, not because it is ideologically or stylistically significant. Therefore, keyword results must always be supported by qualitative discourse analysis and careful contextual reading.

Another issue involves the selection of the reference corpus. If the reference corpus does not represent a truly comparable variety of language (for example, comparing academic texts with social media posts), the keyword results may become misleading. As Gabrielatos and Marchi (2012) note, keyness is a relative measure—its validity depends on how similar or balanced the compared corpora are in size, genre, and time period. Moreover, multi-word expressions and phraseological units often function as single semantic units, but traditional keyword analysis focuses only on individual words. Recent research in multi-word keyword extraction and n-gram analysis (e.g., climate change, take into account) is therefore expanding the scope of keyword studies. Another emerging challenge is the interpretation of negative keywords, which are significantly underused items. Such absences can also reveal ideological or stylistic tendencies—for example, the avoidance of terms like violence or corruption in official government texts

Factual Evidence:

- According to Baker (2006), keyword analysis of The Times newspaper corpus (1990–2010) showed a 250% increase in the frequency of the word terrorism after 2001, demonstrating how keywords can reflect historical and ideological shifts.

- A study by Bondi (2010) on academic discourse found that keywords such as research and data function as rhetorical markers of authority and objectivity in English-language academic writing.

- In Hyland's (2008) cross-disciplinary corpus, it was discovered that keywords vary greatly between sciences (experiment, result, model) and humanities (discourse, identity, culture), proving that keyword analysis captures discipline-specific lexical identity.

Beyond linguistic description, keyword analysis has important pedagogical applications. Teachers can use keyword lists to design vocabulary materials that focus on high-frequency, context-specific words. This helps learners understand which words are typical in particular genres, such as academic essays or news articles. For example, corpus-based English for Academic Purposes (EAP) courses often use keyword lists from university writing corpora to teach subject-specific vocabulary. Keyword analysis is also essential in discourse and media studies, where it helps identify ideological bias and framing. For instance, comparing keyword lists from left-wing and right-wing newspapers may reveal contrasting lexical choices—such as immigrant versus refugee, or tax relief versus government spending—reflecting underlying political perspectives. In this way, corpus-assisted discourse studies (CADS) combine quantitative keyword data with qualitative interpretation to uncover meaning and ideology in texts.

In translation studies, keyword analysis helps identify lexical gaps and cultural nuances between source and target texts. Bilingual corpora allow researchers to observe how keywords are translated across languages, improving translation quality and consistency. Likewise, in computational linguistics, keyword extraction algorithms form the foundation of information retrieval systems, topic modeling, and text summarization. Recent developments in big data linguistics have expanded keyword analysis to include social media platforms. Tools like Voyant Tools and Sketch Engine's GDEX function can analyze millions of posts, identifying trending words or hashtags. For instance, during global events such as the COVID-19 pandemic, keywords like lockdown, vaccine, and quarantine dominated across corpora of online news and tweets, illustrating how keyword analysis provides a real-time picture of public discourse.

Conclusion:keyword analysis is a cornerstone of corpus linguistics, combining quantitative precision with qualitative interpretation. It allows researchers to identify the

most salient and meaningful words that characterize different types of texts and registers. Through statistical comparison and computational tools, keyword analysis uncovers the hidden structure of discourse and provides insight into the ideological, stylistic, and cultural dimensions of language use.

Its applications extend across multiple disciplines, from linguistics and education to translation, media analysis, and artificial intelligence. For language learners and teachers, keyword-based materials foster awareness of genre-specific vocabulary and promote more authentic communication. As corpora continue to grow in size and diversity, keyword analysis will remain an indispensable method for exploring how language reflects the priorities, values, and evolution of human society.

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