

METHODOLOGICAL PRINCIPLES AND APPROACHES TO CORPUS-BASED LINGUISTIC RESEARCH

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Abstract

This article examines the major types of linguistic corpora and the methodological principles governing their application in terminological research. Particular attention is given to corpus representativeness, balance, accessibility, and reliability. The study discusses the potential of quantitative, qualitative, and mixed-methods approaches, along with the role of contemporary corpus-analysis tools in processing linguistic data. It also highlights the importance of methodological transparency, data diversity, and ethical considerations in corpus compilation and analysis, emphasizing their contribution to the validity and reproducibility of corpus-based research.

Keywords: Corpus linguistics, terminological research, linguistic corpus, representativeness, corpus balance, corpus methodology, quantitative analysis, qualitative analysis, mixed methods, corpus design, linguistic data, corpus analysis, methodological transparency.

Introduction

The growing importance of corpus-based approaches in contemporary linguistics has created new opportunities for investigating language through authentic empirical data. In terminological research, linguistic corpora provide a valuable basis for examining specialized vocabulary, identifying patterns of term usage, and exploring the semantic and functional properties of terminological units across different contexts. But the reliability of corpus-based findings depends not

only on the volume of linguistic data but also on the methodological principles underlying corpus compilation and analysis. Representativeness, balance, accessibility, methodological transparency and ethical considerations are particularly important in ensuring the validity and reproducibility of research results. Furthermore, advances in computational linguistics and the development of corpus-analysis tools have expanded the possibilities for combining quantitative and qualitative approaches to linguistic investigation. Against this background, the present article examines the fundamental principles of corpus-based research, discusses the methodological challenges associated with corpus construction and analysis, and considers their implications for the effective application of linguistic corpora in terminological studies.

Corpus linguistics is founded on two key principles: representativeness and balance which are essential for the effective use of corpora and the reliability of corpus-based findings. These principles provide researchers with a sound methodological foundation for both corpus construction and subsequent analysis. Representativeness refers to the extent to which a corpus accurately reflects the linguistic characteristics of a particular speech community, genre, or register. In other words, a corpus should capture the actual patterns of language use by incorporating a sufficiently diverse range of written and spoken texts. If a corpus lacks representativeness, the findings derived from it may be biased or unreliable. It is therefore essential to collect linguistic data systematically from a variety of sources when constructing a corpus. Such an approach enhances the reliability of the corpus and ensures that it more closely reflects language as it is used in real-life contexts¹.

Methods

Computer-based corpora provide an empirical foundation for linguistic descriptions and analyses, considerably expanding the possibilities for language research. But for corpus-based findings to support generalizations about a language, the corpus must achieve an adequate level of representativeness. This involves ensuring that the sample adequately captures the diversity and range of the language under investigation. Corpus-based dictionaries, grammars, and

¹ McEnery T., Wilson A. *Corpus Linguistics: An Introduction*. – Edinburgh University Press, 2001. – P. 96.

general-purpose part-of-speech taggers, for example, are among the areas in which representativeness is particularly important.

When considering corpus representativeness, researchers often focus primarily on sample size, asking how many texts should be included in a corpus and how many words should be selected from each text. Research on sampling theory, however, suggests that sample size is not necessarily the most important consideration. Greater importance should be attached to clearly defining the population of texts that the corpus is intended to represent and establishing appropriate sampling procedures.

Representativeness can be understood as the extent to which a sample captures the full range of variation within the target population. In corpus construction, representativeness can be evaluated from both situational and linguistic perspectives, and both dimensions are equally important. Accordingly, corpus design should be assessed in terms of two main criteria:

1. The extent to which the corpus covers different text types within the language.
2. The extent to which the corpus captures the diversity of linguistic features found in the language.

Any selection of texts constitutes a sample. However, before the representativeness of that sample can be evaluated, the boundaries and composition of the target population must be clearly established. This involves two essential considerations:

1. The boundaries of the text population – determining which texts should be included in the corpus and which should be excluded.
2. The internal structure of the text population – identifying the categories of texts to be represented in the corpus and establishing how those categories should be defined.

These considerations are often given insufficient attention during corpus construction. Consequently, some corpora are developed without a clearly defined target population, making it difficult, if not impossible, to assess their representativeness. In such cases, the intended purpose of the corpus and the population it is expected to represent remain insufficiently specified².

²Biber D., Conrad S., Reppen R. *Corpus Linguistics: Investigating Language Structure and Use*. – Cambridge University Press, 1998. – P. 148.

Results

The principle of balance concerns the distribution of linguistic materials across different genres and registers within a corpus. This principle is particularly important when linguistic phenomena are examined across a range of communicative contexts. For example, a balanced corpus may contain comparable proportions of spoken and written language, academic articles, news reports, and transcripts of everyday conversations. If a corpus is disproportionately dominated by particular genres or registers, certain linguistic features may be overrepresented, while others may be underrepresented or entirely absent³. Such imbalances can lead to misleading interpretations of the complexity and diversity of language.

Corpus balance should, however, be understood in relation to the purpose for which a corpus is designed and the ways in which it is intended to be used. General-purpose corpora that incorporate both written and spoken data, such as the British National Corpus (BNC), may be considered balanced in relation to their broad research objectives. At the same time, written-language corpora, such as the Brown and LOB corpora, spoken-language corpora, such as CANCODE, and specialized corpora, such as the HKUST Computer Science Corpus, may also achieve an appropriate degree of balance within the scope of their respective research purposes.

A balanced corpus typically includes a variety of text categories that reflect the language or language variety under investigation. These categories are established through the proportional selection of text samples for inclusion in the corpus. This approach allows the corpus to serve as a small-scale model of the linguistic diversity found in the target language. However, corpus balance is still largely determined by assumptions and informed intuition rather than clearly established scientific criteria. A reliable method for measuring corpus balance has yet to be developed. Nevertheless, the study of text typology, which involves the classification and description of different text categories, plays a crucial role in achieving an appropriate balance. It should also be recognized that different classification methods may produce different text typologies.

³ Scott M., Tribble C. *Textual Patterns: Key Words and Corpus Analysis in Language Education*. – John Benjamins, 2006. – P. 48.

One widely adopted approach to achieving corpus balance is to follow the design of an existing corpus. The British National Corpus (BNC), for example, is generally regarded as a balanced corpus. Consequently, several other corpus projects, including the American National Corpus, the Korean National Corpus, the Polish National Corpus, and the Russian Reference Corpus, have been developed using the BNC as a model⁴. Given the influence of this model, examining the design criteria of the BNC can provide valuable insights into the principles underlying corpus balance.

Accessibility and openness are fundamental principles that facilitate the effective use of corpora by researchers. When corpora are readily accessible and easy to use, they can support a wider range of research activities and encourage greater collaboration within the field of linguistics. Standardized formats, comprehensive metadata, and clear documentation make it considerably easier for researchers to locate, retrieve, and analyze relevant linguistic data⁵. Furthermore, well-documented corpora enable researchers to verify findings and allow other scholars to replicate or reassess previous analyses.

Metadata and documentation are also essential to the reliability of a corpus. Metadata provide supplementary information about a corpus, including how it was compiled, the period it covers, the methods employed in its construction, and the genres represented in its contents. Such information helps researchers determine whether a particular corpus is suitable for their research objectives⁶. Without sufficient information about the composition and development of a corpus, the findings derived from it may be inaccurate or difficult to interpret. Proper documentation also facilitates the verification of research results and enables meaningful comparisons across different studies.

Discussion

The methods employed in corpus-based research are equally important in corpus linguistics. For instance, quantitative analysis makes it possible to examine the frequency of words and expressions in a corpus and identify the contexts in which they occur. Software tools such as AntConc considerably facilitate and accelerate

⁴ Atkins S., Clear J., Ostler N. *Corpus design criteria. Literary and Linguistic Computing*, 1992, 7(1). – P. 1-16.

⁵ Biber D., Conrad S., Reppen R. *Corpus Linguistics: Investigating Language Structure and Use*. – Cambridge University Press, 1998. – P. 196.

⁶ Aijmer K., Litzler M. Metadata in Corpus Linguistics: Definitions and Elements // *Corpora*, 2016, 11(1). – P. 1-16.

this process⁷. Quantitative methods are particularly valuable when dealing with large datasets, as they help researchers identify recurring patterns and regularities in language use⁸. These methods also contribute to a deeper understanding of the complexity of linguistic data and open up new possibilities for linguistic inquiry. Qualitative analysis, by contrast, adopts an interpretive approach to language study, allowing researchers to explore the meanings and functions underlying linguistic phenomena⁹. Through approaches such as discourse analysis and narrative analysis, researchers can uncover subtle linguistic features and patterns that may not be immediately apparent in corpus data. Although qualitative analysis is often more time-consuming, it provides valuable insights into the complexities of language use, particularly the contextual information that purely statistical analyses may overlook.

A mixed-methods approach combines quantitative and qualitative analysis, enabling researchers to examine corpus data from a broader and more comprehensive perspective. Within this framework, findings obtained through one method can be supported, verified, or further developed through another. For example, quantitative evidence may strengthen qualitative observations, while qualitative analysis can help explain patterns identified through statistical procedures. J.Creswell and V.Plano Clark emphasize that combining these approaches can enhance the reliability and comprehensiveness of research findings. This approach is particularly useful in studies that investigate language in relation to its social and psychological dimensions¹⁰.

The tools and software used in corpus analysis also play a significant role in the research process. AntConc, for example, is a practical and user-friendly application that allows researchers to generate word-frequency lists, identify keywords, and examine collocational patterns¹¹. Its relatively straightforward interface makes it suitable for both novice researchers and experienced scholars. For studies requiring more advanced analytical functions, Sketch Engine offers a wider range of possibilities. In addition to supporting corpus analysis, it enables

⁷ Anthony L. *AntConc (Version 3.5.8) [Computer Software]*. – Tokyo, Japan: Waseda University, 2019.

⁸ Biber D., Conrad S., Reppen R. *Corpus Linguistics: Investigating Language Structure and Use*. – Cambridge University Press, 1998. – P. 196.

⁹ Gee J. P. *An Introduction to Discourse Analysis: Theory and Method* (4-е изд.). – Routledge, 2014. – P. 76.

¹⁰ Creswell J. W., Plano Clark V. L. *Designing and conducting mixed methods research* (3rd ed.). – Thousand Oaks, CA: SAGE Publications, 2018. – P. 330.

¹¹ Anthony L. *AntConc (Version 3.5.8) [Computer Software]*. – Tokyo, Japan: Waseda University, 2019.

researchers to compile specialized corpora tailored to their particular research questions¹². Such technological resources not only make corpus-based research more efficient but also contribute to the precision and depth of linguistic analysis. Overall, integrating quantitative and qualitative approaches, together with the effective use of contemporary corpus-analysis tools, enables researchers to investigate linguistic phenomena more thoroughly and from multiple perspectives. This combination can lead to more comprehensive findings and contribute to the development of new insights in linguistic research.

Successful corpus-based research also requires careful data selection and adherence to ethical principles. Researchers need to select representative samples that adequately reflect the linguistic phenomena under investigation, since poorly selected or biased corpus data may compromise the objectivity and validity of research findings¹³.

Methodological transparency, which involves thoroughly documenting corpus selection and analytical procedures, is essential for ensuring the reproducibility and reliability of research findings¹⁴. Effective corpus-based research therefore requires a combination of carefully planned methodological approaches, appropriate analytical tools, and adherence to ethical standards. Together, these elements provide a solid foundation for producing rigorous and meaningful linguistic research.

Nevertheless, corpus linguistics presents a number of challenges that may significantly affect the reliability and accuracy of research findings. One of the most important concerns is the lack of representativeness in corpus data. This problem arises when the materials included in a corpus do not adequately reflect the linguistic characteristics of the wider speech community. As a result, such imbalances may limit the extent to which research findings can be generalized¹⁵. For example, a corpus consisting predominantly of academic texts may provide insufficient coverage of informal spoken language, making it difficult to draw reliable conclusions about language use in everyday communication. Such

¹² Kilgariff A., Rychlý P., Smrz P., Tugwell D. The Sketch Engine. In Proceedings of the 11th EURALEX International Congress. – Lorient, France, 2004. – P. 105-116.

¹³ Biber D. University Language: A Corpus-Based Study of Spoken and Written Registers. – John Benjamins Publishing, 2006. – P. 183.

¹⁴ O'Connor B. Ethics in Corpus Linguistics: A Critical Review. Corpora, 2012, 7(1). – P. 1-15.

¹⁵ Biber D., Conrad S., Reppen R. Corpus Linguistics: Investigating Language Structure and Use. – Cambridge University Press, 1998. – P. 196.

limitations can lead to misleading interpretations of linguistic structures and patterns of language use.

A central objective of corpus-based research is to draw meaningful and reliable conclusions from linguistic data. However, findings may be misinterpreted when certain linguistic phenomena are overrepresented in a corpus while others receive little attention or are excluded altogether. For example, if a corpus fails to capture language use across different social contexts, the resulting analysis may overlook important dimensions of linguistic variation¹⁶. Furthermore, biased or unbalanced datasets may encourage researchers to formulate hypotheses on the basis of a limited range of evidence and, in some cases, reinforce inaccurate assumptions about language use within particular communities or communicative settings.

Addressing these challenges requires greater attention to the development of comprehensive and diverse corpus compilation methods. One possible approach is stratified sampling, which allows researchers to select texts systematically from different genres, social contexts, and types of communication. By ensuring that relevant categories are adequately represented, this method can improve the diversity and representativeness of corpus data. Such an approach contributes to the development of richer linguistic resources and supports research that more accurately reflects language as it is used in authentic communicative situations.

Another important step involves promoting open-data initiatives and expanding opportunities for data sharing among researchers. Access to publicly available corpora and the exchange of linguistic datasets within the research community can facilitate the creation and use of larger, more diverse collections of language data¹⁷. These practices not only improve access to valuable research resources but also encourage interdisciplinary collaboration by bringing together different theoretical perspectives and methodological approaches to linguistic investigation.

In conclusion, corpus linguistics continues to face challenges related to data representativeness and limited access to linguistic resources. However, these difficulties can be addressed through carefully designed corpus compilation procedures and greater collaboration in data sharing. Such measures can enhance

¹⁶ Gries S. T. Statistics for Linguistics with R: A Practical Introduction (2-е изд.). – De Gruyter Mouton, 2013. – P. 223.

¹⁷ McEnery T., Wilson A. Corpus Linguistics: An Introduction. – Edinburgh University Press, 2001. – P. 98.

the reliability of corpus-based findings and contribute to the development of more comprehensive and valuable knowledge in the field of linguistics.

Results

Advances in technology and the growing availability of linguistic data are opening up new opportunities for corpus-based research. The integration of computational linguistics and corpus-based methods now makes it possible to conduct complex analyses that were previously beyond the reach of researchers. Access to large-scale corpora, together with developments in artificial intelligence, is making linguistic investigation increasingly efficient and comprehensive. At the same time, researchers must adhere to ethical standards when compiling and using corpora. This includes ensuring that data collection procedures are representative and that different forms and varieties of language are adequately reflected in the corpus.

Researchers also need to follow clearly defined methodological procedures throughout the processes of corpus compilation and analysis. Such practices not only strengthen the reliability of research findings but also make it easier for other scholars to replicate and verify the results. Thorough documentation and methodological transparency further encourage scholarly collaboration, contributing to continued progress in linguistic research.

Overall, corpus-based research has considerable significance for linguistics and related disciplines. Well-designed corpora provide valuable resources for language teaching, the development of new technologies, and a deeper understanding of how language functions in different social and cultural contexts. Looking ahead, researchers should remain mindful of the broader implications of their work and strive to employ rigorous, high-quality research methods. Such an approach can open up new possibilities for addressing complex linguistic questions and advancing our understanding of language. Through their expertise, methodological choices, and continued contributions, researchers will play an important role in shaping the future direction of linguistic inquiry.

References

1. Aijmer K., Litzler M. Metadata in Corpus Linguistics: Definitions and Elements // *Corpora*, 2016, 11(1). – P. 1-16.
2. Anthony L. *AntConc (Version 3.5.8) [Computer Software]*. – Tokyo, Japan: Waseda University, 2019.
3. Atkins S., Clear J., Ostler N. *Corpus design criteria. Literary and Linguistic Computing*, 1992, 7(1). – P. 1-16.
4. Biber D. *University Language: A Corpus-Based Study of Spoken and Written Registers*. – John Benjamins Publishing, 2006. – P. 183.
5. Biber D., Conrad S., Reppen R. *Corpus Linguistics: Investigating Language Structure and Use*. – Cambridge University Press, 1998. – P. 196.
6. Creswell J. W., Plano Clark V. L. *Designing and conducting mixed methods research* (3rd ed.). – Thousand Oaks, CA: SAGE Publications, 2018. – P. 330.
7. Gee J. P. *An Introduction to Discourse Analysis: Theory and Method* (4-е изд.). – Routledge, 2014. – P. 76.
8. Gries S. T. *Statistics for Linguistics with R: A Practical Introduction* (2-е изд.). – De Gruyter Mouton, 2013. – P. 223.
9. Kilgariff A., Rychlý P., Smrz P., Tugwell D. The Sketch Engine. In *Proceedings of the 11th EURALEX International Congress*. – Lorient, France, 2004. – P. 105-116.
10. McEnery T., Wilson A. *Corpus Linguistics: An Introduction*. – Edinburgh University Press, 2001. – P. 96.
11. O'Connor B. Ethics in Corpus Linguistics: A Critical Review. *Corpora*, 2012, 7(1). – P. 1-15.
12. Scott M., Tribble C. *Textual Patterns: Key Words and Corpus Analysis in Language Education*. – John Benjamins, 2006. – P. 48.