

## Summary

# **The Schematic Structure of Computer Science Research Articles**

Submitted by:  
Pallavit Aggarwal  
Intelligent Systems – 22333721

This research paper investigates the structural organization of computer science research articles (RAs) and analyzes the schematic structure of these papers, focusing on the Introduction, Results, and Conclusion sections. It finds that computer science RAs lack a systematic pattern and have varying structures. However, some common features are identified in the introductory and concluding sections.

In this paper, the author uses Swales', Bret's and Thompson's models or "moves" to gain a better understanding of the schematic structure of the corpus and how they function in computer science research articles.

A move represents a specific rhetorical action or step that authors take to achieve their communicative goals and convey their intended message effectively. Moves can vary across different disciplines and research article sections, but they often include steps such as establishing a research gap, providing background information, presenting methodology, and discussing results. By analyzing and categorizing these moves, researchers can develop a clearer picture of the rhetorical strategies employed in computer science research articles and improve academic writing and reading comprehension for non-native English speakers in the field.

The concept of "move" in genre analysis can be traced back to John Swales, a linguist who made significant contributions to the study of English for Specific Purposes (ESP) and genre analysis. Swales introduced the idea of "move" in his influential work on research article introductions, particularly in his book, "Genre Analysis: English in Academic and Research Settings" (1990). Swales developed the Create-A-Research-Space (CARS) model, which is comprised of three main moves : 1) Establishing a territory , 2) Establishing a niche, 3) Occupying the niche.

Brett (1994) proposes a series of moves for results sections in sociology papers, classifying these moves into three main groups, Metatextual moves, Presentation moves, Comment moves. Thompson (1993) analyzes comment moves specifically in a sample of results sections from biochemistry research articles. Thompson's work complements Brett's model by providing a more in-depth examination of how authors interpret and evaluate their results in the context of biochemistry.

In the Discussion section, the author explains that computer science RAs generally begin with an introduction, followed by either the explanation of an algorithm or the process of implementing a system, program, or application. Results are presented in the form of descriptions of architectures, designs, or models, which are the consequence of the algorithms or applications explained in previous sections. Results may also appear in the Introduction or Conclusion sections. Most papers close with a conclusion section.

The paper finds that while the IMRD (Introduction, Methods, Results, Discussion) pattern is not as applicable to computer science RAs as a whole, Swales' CARS (Create A Research Space) model can be applied to the Introduction section with some variations. It also finds that computer science RAs often include results within the introduction, resulting in a combined "Introduction and Results" section.

Additionally, the paper identifies specific characteristics of computer science RAs, such as the less frequent use of references to previous research in both Introduction and Conclusion sections. The author suggests that this may be due to the relative newness and practical orientation of the discipline.

The paper highlights that computer science RAs still lack a systematic pattern and that authors are aware of this fact. Some computer scientists try to guide their readership through RAs with ambiguous structural models, while others attempt to follow more established models common in other disciplines, at least for the introductory and concluding sections. The analysis of these structural elements contributes to our understanding of how computer science research articles are written, and how they might differ from articles in other disciplines. This kind of text analysis is particularly useful for academic writing, as it can help researchers and students better understand the conventions and expectations within their field, ultimately improving their own writing and comprehension of academic texts.

## References

1. Posteguillo, S. (1999). The Schematic Structure of Computer Science Research Articles. *English for Specific Purposes*, 18(2), 139–160.
2. Brett, P. (1994). A genre analysis of the results section of sociology articles. *English/or Specific Purposes*, 13, 47-59.
3. Cooper, C. (1985). Aspects of article introductions in IEEE publications. Unpublished MSc Dissertation, University of Aston in Birmingham.
4. Hopkins, A, & Dudley-Evans, T. (1988). A genre-based investigation of the discussion sections in articles and dissertations. *English for Specific Purposes*, 7, 113-121.
5. Swales, I. M. (1990). *Genre analysis. English in academic and research settings*. Cambridge: Cambridge University Press.