

Original Paper

Verb-Governor Based Comparative Analysis on the Move Structure of Abstracts in Six English Varieties

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Abstract

This study compares the move structure of abstracts in six English varieties based on verb-governors to explore their similarities and differences. In this study, we use English abstracts in journals published in six official languages of the United Nations as material, and follow the five-move model which is put forward by Santos in 1996 for move analysis. We found that the six English varieties have a general move structure: 1) All of the six varieties are composed of five moves and there is no move omission. 2) Research method usually occupies the largest proportion. 3) Research purpose usually occupies the smallest proportion. But there are also differences in the proportion of moves among the varieties, which may be influenced by the cultural background of L1, the subjective choice of the author, or the requirements of the journal publisher.

Keywords

move, research article abstract, English varieties, verb-governor

1. Introduction

The American National Standards Institute (ANSI) defines abstract as “an abbreviated, accurate representation of the contents of a document, preferably by its author(s).” (ANSI, 1979). Abstract usually summarizes the core content and main findings of the article, so it is usually concise, compact, and explicit (Cleveland, 2013). Abstracts need to provide enough information in a concise text so that the reader can understand the main content of the paper as much as possible. From this perspective, abstract is a decision-making tool which can help readers decide whether to read this paper further. Abstract has attracted more and more attention in recent years because of its particularity. Both the cross-language studies on English varieties of abstract and move structure in abstracts are the focuses of the research.

English is universally acknowledged as the most widely taught and spoken language in the world, and even used as a lingua franca for international communications (Jenkins, 2007). An increasing number of bilingual and multilingual English speakers have led to the emergence of different English varieties both from diverse linguistic and cultural backgrounds, which has been extensively investigated over recent decades (Seidlhofer, 2013; Kachru, 1986).

This study is a verb-governor based comparative analysis on the move structure of abstracts in six English varieties which adopts the five-move model. Specifically, this study aims to answer the following two questions:

- a) What are the similarities and differences on the move structure of abstracts in six English varieties?
- b) What are the possible factors for the move structure differences of abstracts in six English varieties?

2. Literature Review

2.1 Move

Move is always chosen as the unit of genre analysis on abstracts. A move is considered as a genre stage and usually identified or marked by its particular communicative purpose to fulfill (Santos, 1996). Therefore, scholars usually do a structural analysis on abstracts by moves to better understand the function and purpose of each move on a macro level.

Swales (1990) first studied abstracts as an independent genre. He found that the structure of the abstract was consistent with that of the paper, and accordingly proposed the famous IMRD-model: Introduction-Method-Result-Discussion. However, Santos applied the IMRD model to examine the abstracts in the field of applied linguistics, and found that the “Introduction” move was often preceded by another move, which he called “situating the research”. In 1996, Santos proposed the five-move model (B-I-M-R-CD): Background-Introduction-Method-Result-Conclusion & Discussion. B (Background) refers to the content which establish the status of current research, as well as summarize the research background, and highlight research motivations. I (Introduction) can explain the research purpose and questions, and present related previous research. M (Method) can provide information on study design, procedures, hypotheses, methods, data, etc. R (Result) presents key research findings and results. CD (Conclusion & Discussion) has four functions: drawing conclusions, interpreting and discussing results, evaluating and comparing, pointing out application value and implications. This model has been widely recognized by linguists since it was put forward (Swales & Feak, 2010; Ge & Yang, 2005).

Previous studies on the move structure in abstracts usually made a comparative analysis between abstracts in two languages of the same discipline, or between abstracts of two disciplines in the same language, which can be further grouped by the nationality of the author or that of the journal (Feng & Wu, 2016; Xiao & Cao, 2014; Yao, 2010).

2.2 *English Variety*

In sociolinguistics, “variety” refers to languages of different social or linguistic groups, or different forms of the same language in different countries or regions (Sun, 1989). As a language is adopted by speakers in a new region, a new variety of this language tends to emerge due to the influence of the linguistic features of L1 of those speakers (Endarto, 2020). English produces innovative, regionally distinctive forms and uses of its own, mingled with local languages and cultures in the process of spreading, therefore English varieties appeared (Stockton, 2018). Previous studies on English varieties can be classified into two groups in terms of language form and language function.

In terms of language form, there is a ready recognition that non-native English differ substantially from native ones at the phonetic and phonological level, which may show in one or several aspects such as accent, pitch, speed, intonation, fluency, etc. (Burdin, 2022; Grabe et al., 2000). At lexical level, some words may have new forms or meanings, and even new words and collocation patterns may come into being in the new variety which may triggered by sociolinguistic factors (Kiaer et al., 2021; Endarto, 2020). The third line of research on language form focuses on the grammatical features of English varieties, especially syntactical features. It has been found that varieties not only share some common features but also have their unique characteristics which differentiate it from other varieties (Schmied, 1991). The features can be explicit or implicit and are manifested to varying degrees through syntactical or pragmatical features.

As for language function, Kachru (1986) proposed a “Three Circles model” for the classification of English varieties, which includes the inner circle, the outer circle, and the expanding circle. This model was highly influential in the normativity of English, and the inner circle was always used as standard or goal for L2 learners (Bae, 2015). However, greater solidarity and a positive attitude towards their own country’s accent were still can be seen. Studies on the attitudes towards English varieties prove that the attitude could be affected by diverse factors, including linguistic factors, such as accent or the L1 background of the speaker (Buckingham, 2015), and non-linguistic factors, such as sex, ethnicity, patterns of immigration, and even stereotypes or biases (Babel & Russell, 2015; Kraut & Wulff, 2013).

2.3 *Verb-Governor*

Governor is one of the roles of words in a sentence which has been defined in dependency grammar. Dependency describes unequal syntactic relations between two words in a sentence, which is often used for syntactic parsing (Hudson, 2010; Nivre, 2006; Tesnière, 1959). One of the two words acts as the governor and the other as the dependent. In dependency analysis, a governor can have more than one dependent in a sentence at the same time, which can be either far or near from the governor. All words in a sentence are eventually connected by syntactic relations, and they can be linked directly or indirectly to the main verb that governs other elements of the sentence (Eppler, 2013). A syntactic dependency relation usually comprises three features, i.e., binary, asymmetric and labeled (Liu, 2008; 2010). Based on the three properties, a syntactic dependency tree or directed dependency graph could be built, and worked as a representation of the dependency structure of a sentence for dependency

analysis, and help identified the role of words in dependency.

2.4 Research Gap

Previous studies on the move structure of abstracts could be classified into two groups. One focus on the abstracts of different disciplines, and the other pays attention to the abstracts written in different languages. Few studies have looked at the move structure and features of several English varieties. In addition, moves were usually annotated and classified by the meaning of sentences in previous studies, whereas this study tries to classify them based on verb-governors, which could be of great significance to move studies. This is also the biggest difference between our study and previous studies on moves. Based on the five-move model, we classified move into five types by the meaning and function of verb-governors, and makes a comparative analysis on the move structure of abstracts in six English varieties.

3. Materials and Methods

3.1 Materials

The data were collected from linguistic journals of the six languages respectively as listed in Table 1. Six corpora were built of five journals in each of the six languages, which were chosen according to their impact factors, and a total of 600 English abstracts were randomly selected from 2017 to 2021.

Table 1. Source Journals of Abstracts of Six Languages

Primary Language	Journal (Original title)	Journal (English title)
Arabic	1) لعمدة في اللسانيات وتحليل الخطاب	1) El Omda in Linguistics and Discourse Analysis
	2) الممارسات اللغوية	2) Review of LPLA language practices
	3) مجلة اللغة الوظيفية	3) Journal of Functional Language
	4) اللسانيات التطبيقية	4) Applied Linguistics
	5) دراسات معاصرة	5) Contemporary Studies
Chinese	1) 外语界	1) Foreign Language World
	2) 现代外语	2) Modern Foreign Languages
	3) 外语教学与研究	3) Foreign Language Teaching and Research
	4) 中国外语	4) Foreign Languages in China
	5) 外语与外语教学	5) Foreign Languages and Their Teaching
English	1) Applied Linguistics	The same
	2) Modern language Journal	

	3) Language Teaching		
	4) Journal of Memory and Language		
	5) Linguistics and Education		
French	1) Langages	1) Languages	
	2) Langue française	2) Language in French	
	3) Langage et société	3) Language and society	
	4) Bulletin de la Societe de Linguistique de Paris	4) Bulletin of the Society DE Linguistic DE Paris	
	5) La linguistique	5) The linguistics	
Russian	1) Russian Journal of Linguistics	1) Russian Journal of Linguistics	
	2) Вестник Томского государственного университета. Филология	2) Tomsk State University. Arts and crafts	
	3) Сибирский филологический журнал	3) Siberian philological journal	
	4) Полилингвильность и транскультурные практики	4) Polylinguistics and transcultural practices	
	5) Филология и культура	5) Philology and culture	
Spanish	1) Porta Linguarum	1) Porta Lingua	
	2) Revista de Linguística y Lenguas Aplicadas	2) Journal of linguistics and applied languages	
	3) Círculo de Lingüística Aplicada a la Comunicación	3) Circle of linguistics applied to communication	
	4) Revista Española de Lingüística Aplicada	4) Journal of Spanish Applied Linguistics	
	5) Estudios de Lingüística del Español	5) Studies in Spanish linguistics	

However, the abstracts were not chosen completely at random. With the consideration of our research objectives, we try to ensure the abstracts are written by bilingual scholars except “English” corpus, whose abstracts are written by native speakers, so as to minimize the deviation of research results. After data collection, we have carried out some pre-processing of the data to make the data is more suitable for the software of dependency analysis, and improve the accuracy of the results as much as possible. The size of each corpus after pre-processing is listed in Table 2. We use AraE (Arabic English), ChiE (Chinese English), FreE (French English), NatE (Native English), RusE (Russian English), and SpaE (Spanish English) for ease of expression.

Table 2. Size of Corpora

	AraE	ChiE	FreE	NatE	RusE	SpaE	Total
Word	96,249	94,846	84,084	121,763	170,085	94,098	661,125
Dependency Relation	14,985	13,418	12,423	17,324	24,566	13,871	96,587

3.2 Methods

This study is based on move structure and dependency relations in English abstracts. First, the data were automatically parsed and annotated by the Jupyter Notebook (6.5.2) which is based on python for dependency analysis. It is a Web-based application for interactive computing, which can be applied to full-process computing: developing, documenting, running code, and presenting results (Note 1). After manually checking the results and making sure the corpora were annotated following the same standard, the dependency treebank of the six corpora was recorded into Microsoft Excel 2019 for subsequent procedures. Next, we selected all the verb-governors without inflectional morphemes and used Wordsmith (5.0) for generating wordlists based on their frequency. Although noun-governors accounted for the highest proportion and verb-governors only ranked second among all the governors, we still chose verb-governors for analysis in this study. This is mainly for the following two reasons. On the one hand, nouns in abstracts could show strong disciplinary characteristics. The focus of the natural science is usually different from that of the social science, and even if disciplines belong to the social sciences, there are still great differences between them. On the other hand, dependency grammar is a theoretical framework based on verbs, and dependency analysis is also carried out with verbs as the core. From this perspective, studies on verb-governors have more far-reaching significance. Then all verb-governors in wordlist are annotated and classified into different moves manually according to their meaning, function, and subsequent contents. In this study, we chose the five-move model (Santos, 1996) as the theoretical framework, which can provide more details compared with four-move model, and each move has a different role to play as listed in table 3. After move annotation, we could get the frequency of verb-governors and the proportion of each move in the total, which would be used for further analysis and discussion.

Table 3. Five-Move Model

Move	Function
Move 1 (M1)	Research Background (Situating the research)
Move 2 (M2)	Research Purpose (Presenting the research)
Move 3 (M3)	Research Method (Describing the methodology)
Move 4 (M4)	Research Result (Summarizing the results)
Move 5 (M5)	Research Significance (Discussing the research)

(Santos, 1996).

To illustrate the annotation results of the Jupyter Notebook, an example sentence selected from the data is given below, and the dependency relations between word pairs are demonstrated in Table 4. In this sentence, “communicate”, “without” and “with” are used as governors of different syntactic relations, but only “communicate” is a verb-governor, which will be further annotated and classified according to the five-move model.

Table 4. Dependency Relations of “Without language We Can not Communicate with People”

Governor	Position of the governor	the Dependent	Position of the dependent	Dependency Relation
communicate	6	Without	1	prep
Without	1	language	2	pobj
communicate	6	we	3	nsubj
communicate	6	can	4	aux
communicate	6	not	5	neg
communicate	6	with	7	prep
with	7	people	8	pobj

4. Results and Discussion

The result of move classification and distribution of abstracts in six English varieties are shown in Table 5. We firstly compared the frequency and proportion of each move in each variety, and found that the move structure is basically the same among the six varieties and there is no move omission as shown in Figure 1.

Table 5. Move Distribution of Abstracts in Six English Varieties

	M1		M2		M3		M4		M5	
	f	%	f	%	f	%	f	%	f	%
NatE	771	14.90	333	6.43	1804	34.85	1430	27.63	838	16.19
AraE	716	17.70	312	7.71	1271	31.41	936	23.13	811	20.04
ChiE	503	14.86	289	8.54	1084	32.03	952	28.13	556	16.43
FreE	511	15.92	264	8.23	1095	34.12	910	28.36	429	13.37
RusE	1004	18.48	235	4.33	1780	32.77	1693	31.17	720	13.25
SpaE	474	13.68	274	7.91	1319	38.08	936	27.02	461	13.31

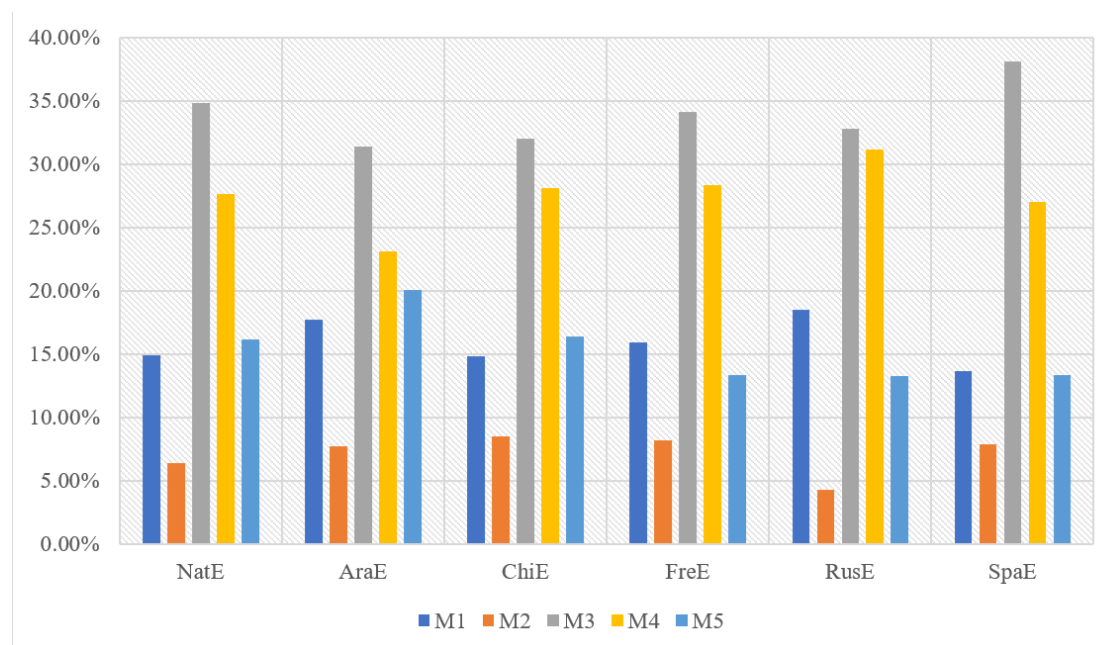


Figure 1. Horizontal Comparison of the Move Distribution of Abstracts in Six English Varieties

To be specific, the verb-governor belonging to M3 (research method) has the highest proportion, followed by M4 (research result), M5 (research significance), M1 (research background), and finally M2 (research purpose). It shows that the research method is usually the most crucial part of an abstract and the most concerned about by scholars, followed by the research results, and the number of verb-governor of research method and result can account for more than 50% and even 60%. Research purpose has the smallest proportion, which indicates that the author tries to explain the research purpose as concisely as possible, so as to devote limited space to other parts. Although each move has their own roles to play as listed in Table 3, they work together to fulfill one function of abstracts that is attract the target readers to further reading this paper. In order to achieve this purpose, the author needs to carefully arrange the structure of the abstract, and present the most crucial part of the article to the reader as far as possible. For an academic article, the most important part is the research method and results, which is also consistent with our results, which is reflected in our results as the highest proportion of research method and result in the whole.

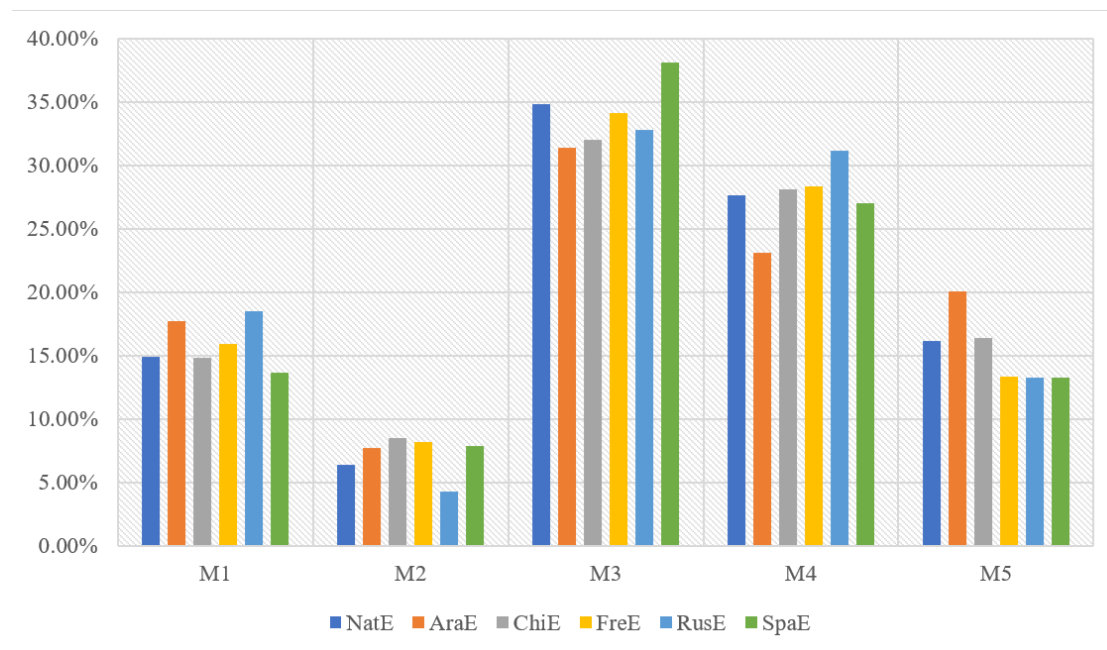


Figure 2. Longitudinal Comparison of Move Distribution of Abstracts in Six English Varieties

Although the move distribution of abstracts in six English varieties is roughly the same in general, the proportion of different moves in each variety is slightly different. From Figure 2, we can see that AraE has more M1 (research background) and M5 (research significance) compared with other varieties; ChiE has more M2 (research purpose); RusE has the highest proportion of M1 and the lowest proportion of M2, and the proportion of M3 (research method) and M4 (research result) is almost the same, it means that Russian author use almost the same number of words to describe research method and results. SpaE has the highest proportion of M3, indicating that Spanish author attaches great importance to the construction of research method. A high proportion of one move means that other moves must be compressed, so it can be seen that SpaE has minimal description on research background. However, it is worth mentioning that the differences do not subvert the overall move structure distribution of abstracts in six English varieties.

The overall move structure of the six English varieties may be explained as the general consensus of the authors in writing abstracts. The function and communicative purpose of the abstract determine that, regardless of the author's language background, they need to make a summary of the main content and innovation of the article in the abstract, which are usually contained in these five moves, so as to attract as many readers as possible. In addition, abstract is usually short and concise. As the core content of an article, the research method and results are usually stated in more space than other sections. Accordingly, the proportion of other parts in the abstract will be compressed. Therefore, the overall move structure of the abstract presents the characteristics shown in figure 1. However, this is not enough to prove that this abstract structure is the general consensus of the entire academia, because it has been found that there are cases of omission of research background in English biological abstracts

(Xiao & Cao, 2014). Abstracts in structural engineering and computer science abstracts, the frequency of M1 is generally higher (Maswana et al., 2015). Due to the differences in each discipline, we can only speculate that the consensus on the move structure of abstracts may only exist in the humanities.

Many previous studies have reached the same conclusion as this study on the overall move structure in abstracts. Jin (2023) compared the abstracts of academic papers in social sciences and natural sciences, and found that the move structure of the two are basically the same, but the social science abstracts pay more attention to research background, and the natural science abstracts mainly focus on research result. This preference may be determined by the empirical properties of the paper. Some studies conducted a comparative analysis on the languages of abstracts, and found that both Chinese abstract and English abstract are organized follow the five-move model. The difference is that the required move of English abstract is more than that of Chinese abstract (He & Cao, 2010). This result is consistent with previous studies on abstracts of applied linguistics (Santos, 1996), and also reveals a general consensus on the structure of abstracts among the authors (Tseng, 2011). Although previous studies on move analysis are conducted from sentence level, we reached a consensus on this issue, which is enough to show that move analysis based on verb-governor is also effective.

In addition, we speculate that the differences between abstracts in six English varieties may be influenced by the cultural background of L1 of that variety. For example, the proportion of M1 in RusE is significantly higher than that of other varieties, which indicates that the author spends much more space in describing research background in abstract. This may be due to the fact that English has been widely used in academia in Russia for only about 20 years, before which articles were usually published in Russian language (Saleh, 2021). It resulted in many articles previously published in Russian not being synchronized in academia worldwide. Therefore, Russian authors are required to summarize the research results previously published in Russian when the requirement of publication language changed from Russian to English. So, RusE showed a higher proportion of research background than other varieties. For AraE, we can see that it has a higher proportion of research significance than other varieties. We suspect that this may be due to the fact that Arabic is not a major language in academia compared to other languages, and its influence in academia is weak. Although the journal is published in Arabic, the English abstracts in it provide the author an opportunity to make the article have a worldwide impact. Therefore, they need to emphasize and highlight the research significance as much as possible in English abstract, in order to obtain greater academic influence and higher academic status in the world than before. Besides above reasons, the requirements of the publishing agency of the journal and the nature of the abstract may also cause the difference in move distribution of the abstract. According to various request, the author may flexibly adjust the proportion of each move, and the move structure could be changed accordingly.

Previous studies have found that there is a lack of moves in Chinese abstracts, which is mainly reflected in the omission of research background and method (Zhao et al., 2018; He & Cao, 2010). In addition, research result in Chinese abstracts is also significantly less than that of English abstracts.

Even if only focus on English abstracts, the author's cultural background and the publication institution of the journal will also affect the move structure of the abstract. On the one hand, English abstracts written by Chinese authors usually contain fewer move and thus lower structural integrity compared with those written by foreign authors (Li, 2011). On the other hand, English abstracts published in domestic journals use more M1 than that published in international journals, resulting in differences in move structure of abstract (Feng & Wu, 2016).

5. Conclusion

In summary, we compared the move structure of abstracts in six English varieties based on verb-governors, and found that the move structure of the six varieties is the same, but there are differences in the proportion of moves among the varieties. Abstracts in six English varieties are all composed of five moves and there is no move omission. As for the differences in the proportion of each move in varieties, it may be influenced by the cultural background of L1, the subjective choice of the author, or the requirements of the journal publisher. This finding can help authors to further clarify the characteristics of the move structure of abstracts and make full use of it in future writing. Regardless of the language background of the authors, they should follow writing conventions of the abstract, so as to better achieve the communicative purpose of the abstract.

Since move cannot be annotated automatically for now, and manual annotation is time-consuming and laborious, so previous studies usually only carried out small-scale manual annotation and analysis of moves in two corpora. This study compared six corpora of English varieties of abstracts, and firstly identified verb-governors automatically by software, and then make a move annotation and classification on the verb-governors. Compared with previous studies, the annotation based on word means easier to operate, less workload and higher accuracy. However, due to the large scale of our corpora, labeling errors will inevitably occur in manual labeling. We hope that there will be software or tools that can automatically and accurately annotate moves in the future, so that it can be studied on a larger scale.

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Note

Note 1. Jupyter Notebook 6.5.2 (jupyter-notebook.readthedocs.io)