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# CORPORUM

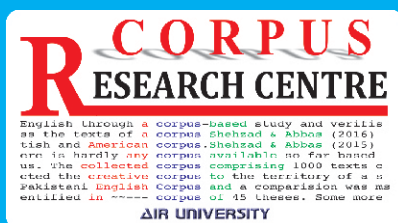
## JOURNAL OF CORPUS LINGUISTICS



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**Corpus Research Centre**  
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# Corporum

## Journal of Corpus Linguistics



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# **An Analysis of Writers' Moves and Authorial Stance in Research Papers' Abstracts**

**Amna Hafeez**

**MPhil Scholar, Air University, Islamabad**

**Zunera Malik**

**MPhil Scholar, Air University, Islamabad**

**Ahsan Naveed Javeed Cheema**

**Research Scholar**

**National Defense University, Islamabad, Pakistan**

## **Abstract**

Research papers' abstracts act as a window for the readers as they can peek through and establish a precise idea about what holds for them. One hundred research papers' abstracts were selected, fifty each from the genres of engineering and social sciences. Moves analysis was carried out in accordance with their linguistic realizations and the authorial stance of the writers. The theoretical framework consisted of Santos's (1996) postulation of move structure in research abstracts, in which he has mentioned five moves structure for writing an abstract. Whereas, Pho's (2008) model was selected for the linguistic realization of those moves and the analysis of the authorial stance. The writers while writing articles' abstracts for the genre of engineering, focus more on the methodology of their research, use minimal attitudinal linguistic items and claim no authority of the research. On the other hand, writers while writing the research papers' abstracts for the genre of social sciences focus more on the introduction of the research, frequently use attitudinal linguistic items and have adapted to claiming authority of their own research. These differences mark the difference of conventions set by the writers of both genres, for writing research papers' abstracts.

Key words: genre analysis, articles' abstracts, moves analysis, authorial stance, attitudinal adverbs, attitudinal adjectives

## **1. Introduction**

The twentieth century has brought with it the shift from focus on product to the process of writing (Gosden, 1995), and the trend continues till today. Research papers are one of the primary sources through which research can be publicized and shared with others, thereby making them a very important part of the research process. The research paper itself can be further divided into sections like introduction, literature review and each section holding its own significance and importance in the overall research paper. Of these parts, an abstract is the first section and consequently the first part of the article that is read or seen by the reader. Moreover, even on platforms with no open access, the

abstracts are still available so that the readers can assess accurately whether or not they really need the research paper. The abstracts, therefore, have the very important function of acting like magnets – so to speak – that will attract the readers towards the actual article (Sandor, 2007; Tseng, 2011). As such, there are certain conventions that need to be followed when penning down the abstract (Donesch-Jezo, 2011), and these conventions are genre-specific; they vary across genres and even across the branches of one genre (Samraj, 2005). Therefore, there is a need to analyze the genre or discipline specific details that an author should follow while penning down a research paper.

The existing research on the structures of abstracts analyzes them from the functional perspective, that is, they look at the different sentences and analyze the function they are performing (Swales, 1990; Santos, 1996; Martin, 2003; Pho, 2008; Tseng, 2011; Çandarlı, 2012; Suntara & Usaha, 2013). For instance, the opening sentence could be explaining what the basic premise of the research is, and thus the function would be something like building a foundation for the following research. An analysis of this kind is termed as moves analysis and the functions are called moves (Swales, 1990; Santos, 1996; Hyland, 2000). Little attention, however, has been paid to the actual linguistic features that exist within these moves (Pho, 2008; Tseng, 2011; Çandarlı, 2012). The linguistic structures and patterns that make a move are rarely explored. Even less likely is the exploration of the authorial stance in the abstract (Pho, 2008). Hence this study analyzes the moves present in abstracts taken from two overarching genres: Social Sciences and Engineering. In addition to this, we have also looked at the linguistic features that exist within these moves and act as indicators as to what function the move is performing. Lastly, we have also looked at how these linguistic features are signaling the authorial stance of the researcher in the abstract.

The world today is a place where publishing has become a mandatory work; it is needed for career advancement which will bring in more prestige and improve one's financial situation which will, ultimately, lead to better living conditions (Çandarlı, 2012). Moreover, even after publishing, the number of times the research paper has been cited in someone else's research goes a long way in establishing one's credibility and reputation in the research community. There is a need, therefore, to ensure that people read your work, and one way to do that is by writing a good abstract. The abstract becomes a kind of force that reels the reader in, and therefore it should be written according to some conventions, and these conventions are genre specific (Samraj, 2005). The exploration of the kind of language, linguistic items and devices, and grammatical patterns that constitute a 'good' abstract is a much-needed task, considering the relative lack of research in this area

This research is significant as it provides future researchers with the genre specific moves structures to be followed when writing an abstract, so as to ensure that their article can attract readership and thereby help enhance their credibility and reputation in their research community. Moreover, our study will help the future researchers to understand the subtle differences the choice of linguistic items can make in academic discourse, and thus aid them in choosing their words carefully and according to the genre in which their writing lies. Lastly, it will enable researchers to understand

whether or not even a small part like an abstract of an article can go a long way in establishing their authorial stance and thereby showing the extent of their own presence in the written discourse.

## 2. Literature Review

Genre analysis has been the field of interest since the early 20th century and has been developing ever since (Jensen, 2005), its prime focus being on generic constructs and discourse communities, it helps in analyzing the production of different genres within various contexts and their respective interpretations (Bhatia, 2015). All these definitions of genre analysis can be summed up in the idea that genre analysis looks at the linguistic items, features and structures used within different genre writings, and analyzes the functions that are being performed through the use of these devices, while keeping the audience in mind (Bhatia, 2015; Çandarlı, 2012; Jenson, 2005). Under the umbrella of genre studies, Swales' C.A.R.S model (1990) led to the study of 'moves' used by the authors in writing articles' abstracts and introductions. His model paved the path for understanding the certain pattern organized by the writers while introducing their articles (USC Libraries, 2018). Afterwards, research and work were put into the 'moves' analysis of the 'abstracts' of the articles in order to trace the conventional pattern used by the writers within the particular genre.

Research discourses, or analyses of researches themselves, have risen to the top very quickly because of the need for conducting and disseminating quality research, and because publishing is an important phenomenon in the professional world and a requirement for career advancement (Hyland, 2009; Çandarlı, 2012). Under this area of researching the research already done, research articles hold a central position as they are the main platforms where the research is disseminated and publicized (Çandarlı, 2012). Moving further, under the umbrella of research articles, the abstracts are of paramount importance, as it is through the abstract that the researcher will be able to attract the readers and to make them read the whole article and then cite it or use it in their own research (Hyland, 2009). Therefore, the importance of research abstracts within the dimension of the research on research writing cannot be refuted.

An abstract of a research article is the beginning of the 'body' of that article, summarizing it in a paragraph. "The abstract has increasingly become an essential part of a research article" (Pho, 2008, p.231) as it gives the readers an insight about what information the particular article will unfold. It summarizes the article followed, in such a manner so as to make it easier for the reader to make a decision on whether they need to read the article. For instance, they can decide whether the following article is relevant to their interests or whether it focuses on the information they are in search for or not, and if the reader is uncertain about whether the article will be of use to them, the abstract helps them make a decision (Santos, 1996). Santos (1996) also points out that for the readers who have already read the article, the abstract becomes a sort of brief handout using which they can remember the contents of the article without having to go through it again. Lastly, for readers only interested in one part of the research – for instance, the results – the abstract provides a brief description of that part so as to save the readers'

time (Santos, 1996). Other than these practical uses, the importance of abstracts can also be understood by considering the number of journals that publish only abstracts (Rey, 1978), thereby making the abstracts a “highly common and almost obligatory genre” (Santos, 1996, p. 482).

Another vantage point from where the study of abstracts is significant is that the writing of abstracts demands skill and expertise, for it is the abstract which reins in the reader and makes the research article attractive for them (Santos, 1996; Pho, 2008). Therefore, it is a requirement that a kind of convention or a set pattern be formed which the researchers have to abide by when they are writing the abstracts of their research (Harvey & Horsella, 1988). Considering that the rejection rate in some fields and disciplines is as high as seventy-five percent (i.e. 75%), the research abstract is essentially a highly promotional genre which will be the means to ‘sell’ one’s research to the audience, which is why there is a need to examine and analyze this genre and to study the structures of abstracts in different fields (Connor, Nagelhout & Rozycki, 2008). To this end, Harvey and Horsella (1988) have focused their attention towards the formation of a strategic approach to the reading of computational abstracts, where they highlight the structure of abstracts.

Salager-Meyer (1990) has focused on medical English abstracts and proven that even in one discipline, the genre sets vary in the way they structure their abstracts, thereby bringing to light the fact that even within one discipline, abstract writing can have significant differences from genre to genre. Donesch-Jezo (2012) has looked at abstracts from the pedagogical angle and concluded that there are certain rhetorical conventions that the abstracts of a genre follow, and thus abstract writing is something that can be learned and taught if one understands the conventional rhetorical patterns that they are supposed to follow in that specific genre. What these researches show is that there is a certain kind of skill that goes into the writing of a research abstract, and in order to ensure that one’s abstract is doing its job of attracting the readers, there is a need to study the conventions and patterns that are specific to your research genre.

The structure of an abstract can be typically studied by looking at the ‘moves’ it comprises. A move, in an abstract, is a communicative category (Hyland, 2004) that carries a certain kind of information about the article under study; in short, we can say that it fulfils a certain communicative purpose (Hwang, Nguyen, & Su, 2017). For example if a writer refers to the help that would be provided by the article to the readers, then maybe the purpose behind this ‘move’ is to highlight the significance of the study and to indicate the certain ‘gap/loophole’ that the article fills. A move is a ‘discursive’ or ‘rhetorical’ unit that has a particular communicative function within the particular discourse and these communicative functions (moves) are realized with the help of certain steps (Hwang et al., 2017). A move can be considered as a whole unit by itself, as Pho (2008) has done, or it can be divided into several sub-moves or steps, as has been done by Swales (1990) and Santos (1996).

Moves and steps, both, can be obligatory or optional (Hwang et al., 2017). Obligatory moves are more of the conventional or frequently used moves that occur within the abstract relating to a particular genre, whereas optional moves are ones that are

not frequently used in the abstract relating to that particular genre (Hwang et al., 2017). The prevalence in the study of genre analysis has enabled researchers to explore the differences between different academic/non fictional genres and the obligatory moves used by the writers while writing the separate parts of their work. A move analysis, therefore, aims at analyzing the kinds of moves that exist in the writings of a specific genre, thereby bringing to light the conventional move structure of genre-specific writings (Swales, 1990; Santos, 1996; Pho, 2008; Tseng, 2011). Such analysis has been carried out particularly for the ‘abstracts’ of research articles relating to different genres.

Santos (1996) has proposed a five move structure for abstracts, which is what this study will use as the theoretical framework. Using the same five moves structure, Pho (2008) analyzed fifty research abstracts. Pho (2008) extended the moves analysis to include the analysis of the kind of linguistic items and structures used within the moves as well. In this analysis, he explored the function of linguistic features such as verb tense and the modal verbs in identifying the moves that they are being used to represent. In other words, Pho (2008) studied the linguistic features inside each move and identified the typical linguistic markers that indicate certain moves, and penned down the linguistic features that he sees as being most helpful in the identification of moves. Lastly, Pho (2008) also analyzed the authorial stance in the abstracts under scrutiny, examining the move wherein the authorial stance can be most clearly identified. The results of Pho’s (2008) study show that the abstracts of the two genres differ in their moves structure, and that the linguistic items and features used within these moves can be used to distinguish the moves themselves. Lastly, authorial stance is realized in different ways in different moves (Pho, 2008).

In another study, a computational moves analysis of abstracts has been proposed wherein the moves are identified and labeled in light of various rhetorical functions by computer instead of a manual analysis and labelling (Wu, Chang, Liou, & Chang, 2006). Using Swales’ (1990) CARS model, the research puts forward a computational method for the identification of the moves that are there in research abstracts, thereby possibly removing the need for manual analysis. In another work, Suntara and Usaha (2013) have analyzed the subtle differences that exist between abstracts from two related genre systems: linguistics and applied linguistics. Using Hyland’s (2000) model, the study has revealed that there are three conventional moves in the linguistics abstracts while there are four in applied linguistics abstracts. On a similar strain, keeping Pho’s (2008) five move pattern as the theoretical backdrop, Can, Karabacak & Qin (2016) analyzed fifty applied linguistics research abstracts and studied their move structure. The results showed percentage evaluation for the analysis of each category. Their research revealed that the applied linguistics research abstracts omitted the moves of introduction of the topic and discussion of findings. These studies indicate that genre differences do manifest themselves in the abstract – a relatively miniscule part of a whole research article – and thus the analysis of abstracts holds implications – even if they might be small – for the understanding of the overall differences that are there between genres.

The addition of corpus tools in the research area of research on the writing of research has expanded the scope of this area even further and made it easier to handle

large amounts and analyze it. For instance, Ding (2007) conducted a multi-level discourse analysis focusing on a specific genre of application essays written for medical/dental schools. The study was corpus based and conclusions were drawn on the basis of rhetorical objectives of genre. Similarly, Hwang et al. (2017) analyzed scientific research article abstracts, related to nanoscience and nanotechnology, for moves analysis. Hyland's five move model (2000) was used as the theoretical framework, and corpus tools were used for analysis. Similarly, Upton and Cohen (2009) conducted a corpus based study in which they analyzed the rhetorical purpose of selected texts and used the Biber Connor Upton (BCU) Approach based on seven steps for particular discourse analysis. The BCU approach includes the corpus based analysis of the organization of discourse in texts.

The above discussion notifies that corpus based approach to genre study is not new, and has been widely used in the last decade. What's lacking, however, is that the above mentioned studies only analyze the moves and don't study the language within the moves themselves. . The research addresses the following questions:

1. What move structures is being followed in writing of the selected research papers' abstracts?
2. In what ways are the linguistic features within these moves act as indicators for the existence of the moves?
3. How is the authorial stance being reflected through the linguistic features within the moves studied above?

### **3. Research Methodology**

The theoretical framework chosen for our research is the moves structures given by Santos (1996), combined with the linguistic analysis of moves and authorial stance in abstracts given by Pho (2008). A move is considered as a part of a genre which has a certain "minor communicative" purpose which, in turn, fulfills the major communicative purposes of the whole abstract (Santos, 1996). Santos (1996) identifies five main moves in research abstracts: situating the research, presenting the research, describing the methodology, summarizing the results, and discussing the research. He further divides these moves into several sub-moves or steps, and realizes that it is not necessary that all the steps be present in every research abstract. In fact, the differences in the presence or absence of these moves and steps are exactly differentiate different genres from each other. A table explaining the moves' structure, proposed by Santos (1996), is given in table 1.

Table 1: Proposed pattern for research article abstracts given by (Santos, 1996, p. 485).

<b>Move 1</b>	<b>Situating the research</b>
	Sub-move 1A – Stating current knowledge and/or Sub-move 1B – Citing previous research and/or Sub-move 1C – Extended previous research and/or Sub-move 2 – Stating a problem
<b>Move 2</b>	<b>Presenting the research</b>
	Sub-move 1A – Indicating main features and/or Sub-move 1B – Indicating main purpose and/or Sub-move 2 – Hypothesis raising
<b>Move 3</b>	<b>Describing the methodology</b>
<b>Move 4</b>	<b>Summarizing the results</b>
<b>Move 5</b>	<b>Discussing the research</b>
	Sub-move 1 – Drawing conclusions and/or Sub-move 2 – Giving recommendations

Using this pattern, Pho (2008) has analyzed the research abstracts from the genres of applied linguistics and educational technology. Along with this generic moves analysis, Pho (2008) proposes a list of linguistic items that carry the potential to act as signifiers or identification markers for the moves they are a part of, as well as indicators of the authorial stance. The list, as given by Pho (2008), is as follows:

Table 2: List of linguistic structures to be analyzed given by (Pho, 2008, p. 235-236).

<b>Linguistic structures</b>	<b>Examples/explanations</b>
Grammatical subjects: Phenomenal classes (i.e. what the researcher studies)	
Class 1: Objects of research and their attributes	‘the participants in the study’, ‘the variables’
Epistemic classes (i.e. nouns “belonging to the researcher or referring to the reasoning of academics” (MacDonald, 1995, p. 158)	
Class 2: Self-reference	‘I’, ‘We’, ‘the author’,
Class 3: Other-reference	
Specific names of other researchers or citations of the author’s own previous studies	‘Swales, 1990’
Previous research or studies in general without referring to any specific	‘previous researches’, ‘research in the area’

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researchers	
General topics in the field	‘social issues’, ‘mechanics’, ‘automation’
Specific research objects or outcomes mentioned in previous research	‘the code was successfully written’
Class 4: Audience	The generic ‘we’ that includes both researcher and audience, ‘one’, ‘you’
Class 5: Reference to writer’s own work – macro-research outcome	‘this study’, ‘this research’, ‘this article’
Class 6: Reference to writer’s own work – micro-research outcome	Referring to the minor sections of the study, such as the research tools, and the like: ‘the findings’, ‘survey’, ‘conclusion’
Class 7: Anticipatory <i>it</i> and existential <i>there</i>	
Verb tense and aspect	Past tense; present tense
Voice	Active; passive
Modal auxiliaries and semi-modal verbs	Might, could, may, have to, need to
Epistemic adjectives, adverbs, and nouns	Likely, possibly, certainly, probably, assumption
Attitudinal adjectives, adverbs, and nouns	Important, significant, note-worthy, surprisingly
Self-reference words	I, we, you, our, my, the author (s)
Reporting verbs	Suggest, indicate, point towards
<i>That</i> -complement clauses	

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This list has been used to analyze the linguistic elements within the moves identified in the abstracts under consideration, to see how much – if any – potential they carry to act as signals for the moves and the authorial stance. However, the list has been delimited to only include the attitudinal adjectives and adverbs, and the authorial stance in our research. These aspects are the ones that can aid us in establishing any existing differences between the two genres selected for study, as the debate between natural sciences’ and social sciences’ authorial stance and opinion-sharing nature is a long standing one. Therefore, we will only be looking at the attitudinal adjectives and adverbs shortlisted from the two corpora under study, as well as the use of ‘I/we’ or ‘the researcher(s)’ that signifies the authorial stance.

Concerning the research design, the study is a qualitative and quantitative content analysis of texts; with corpus acting as a tool for data gathering and compilation and the data being interpreted using qualitative research method. The selected population contains the ‘shortlisted abstracts’ from the genres of social sciences and engineering, published on the Taylor and Francis database, and from this population the sample was chosen using systematic sampling technique. The years 2016 to 2018 was chosen as the time span for the articles. Every second research article was chosen from the results of the chosen time span. The article abstracts were then copied and pasted onto Microsoft Word. After that they were converted into \*.txt files and cleaned to remove any features which would act as obstructions for smooth analysis using different corpus software.

The names for the moves to be analyzed in the abstracts were suggested differently in AntMover 1.10 software than the ones suggested by Santos (1996) himself (Table 1) but the functions of the moves were the same. Thus we used moves' names as suggested by Santos (1996) and equalized them with the moves names that appeared in the AntMover 1.10 software on the basis of their functions (Table 3). The moves were analyzed using the software AntMover, which identified the different moves in each abstract. The labels provided by AntMover were then compared with the move structures given by Santos (1996), and were coded according to the labeling given by Santos (1996) by the triangulation method wherein three experts were asked to cross-check the labels we had interpreted for each move. The frequencies of moves were calculated from the articles' abstracts of each genre and chi-square test was run to find the significance of difference between the frequencies of all moves. An alpha of 0.05 was used as the significance's cutoff that is if the probability value was less than 0.05 then it would mean a significant difference in frequencies is present and if the probability value is greater than 0.05 then it would mean that a significant difference in frequencies is not present.

After the identification of each move, the list of linguistic items to be analyzed given by Pho (2008) was used as a guide and those items were analyzed within our chosen texts to see how the linguistic items act as signals for a particular move. In this procedure, the software LancsBox 3.0 was first used to shortlist all the adjectives in the two corpora, from which the attitudinal adjectives were filtered manually. The same procedure was used to shortlist the attitudinal adverbs from the two corpora. Attitudinal adjectives and adverbs are, as the name suggests, adjectives and adverbs that signify or point towards the writer's own personal assessment or opinion; that is, they reflect the writer's attitude towards the subject at hand (Pho, 2008). Items like this were selected from the wordlists of all the adjectives and adverbs present within the corpora. The selected items were then analyzed within their particular context and the differences in the inclusion or exclusion of such items between the genres of Engineering and Social Sciences were analyzed. Lastly, the use of 'I/we', and 'the researcher(s)' was also analyzed in both the genres under study and the usage was compared to establish whether or not any notable differences exist between their use for Social Sciences or for Engineering.

## **4. Data Analysis and Results**

The researchers have analyzed two corpora of fifty research papers' abstracts each, selected from the genres of Social Sciences and Engineering. The researchers have carried out a 'move analyses' by using the corpora and also focused on the linguistic realizations made by the writers in their respective article abstracts. The corpus tools (software) used for achieving goals was 'AntMover 1.10' and 'LancsBox 3.0'.

### **4.1 Moves Analysis**

The terminologies or names used for certain moves, suggested by Santos, differed from the names that the 'ant-mover 1.10' proposed but the communicative acts were the

same. So the researchers equalized the terminologies in accordance with their communicative acts. The following table represents the equalization.

Table 3: Names of Moves Given by AntMover 1.10 and their Equivalent in Santos’s (1996) Model.

Moves suggested by the Ant-Mover	Equals (=)	Moves used by Santos
Announcing present research	=	Presenting the research (PTR)
Making topic generalization	=	Situating the research (STR)
Announcing principle findings	=	Summarizing the findings (STF)
Claiming centrality	=	Discussing the methodology (DTM)
Evaluation of research	=	Discussing the research (DTR)

In this study, we shall refer to every move by using the terminologies suggested by Santos (1996).

#### 4.1.1 Patterns of Moves and their Frequency

Table 4 reveals the frequency of different moves used by the authors in the abstracts of individual genres. The abbreviations used to represent the moves have been discussed in table 3.

Table 4: Moves in the abstracts of the two Genres under study and their respective frequency.

Genre	Total no of abstracts	PTR (F)	STR (F)	STF (F)	DTM (F)	DTR (F)
Social Sciences	50	50	50	48	46	46
Engineering	50	50	42	44	50	47
<b>Grand Total</b>	<b>100</b>	<b>100</b>	<b>92</b>	<b>92</b>	<b>96</b>	<b>93</b>

Table 4 presents the frequency of moves used by the writers in the article abstracts. It shows that the writers use almost all the moves in the respective articles’ abstracts for the readers’ better understanding of the content held within the rest of the article. However, the move ‘discussing the methodology’ (DTM) was used more frequently in abstracts from the genre of Engineering as compared to those from Social Sciences. The reason is that the field of Engineering revolves around technicalities and mechanics that most of readers are not familiar with thus it’s important for the writer to thoroughly discuss the methodology used in the research including the tools and the algorithms. Moves’ analyses enlightened the researchers that the writers of the abstracts, in genre of Engineering, focused more on discussing the methodology as compared to the rest of the moves. In the field of Engineering, researchers rely on the methods of research so the strength of research depends almost completely on the machines used, the codes written, or the algorithms used. That is why the writers felt it necessary to provide full information about their methodology.

The moves PTR and STR were used frequently in the article abstracts of Social Sciences as the writers focused more on the hypotheses, features and objectives of their research. Thus, the researchers noticed the frequent use of the sub-moves ‘stating the problem’, ‘indicating main features’, ‘hypotheses raising’ and ‘indicating main purpose’ in the Social Sciences research papers’ abstracts. The strength of researches in field of Social Sciences, depends more on the hypotheses and the results and the social work the research can contribute to.

The grand total of the abstracts of both genres, in table 4, describes the total number of abstracts from both genres that is 100. All of the 100 abstracts include the move “Presenting the research (PTR)” which proves that it is one of the most important move observed by the writers while writing the articles’ abstracts. 96 out of 100 abstracts included the move “Discussing the Methodology (DTM)” as methodology binds the whole research together and creates the link between all the chapters in an article thus it is important to be mentioned in the abstract. 93 out of 100 articles’ abstracts observed the move “Discussing the Research (DTR)” and 92 out of 100 abstracts included the move “Summarizing the findings (STF)” as many researchers tend to discuss findings as less as possible so that the reader is compelled to read the whole article out of anticipation. The percentage of moves’ frequency is presented in the table 5:

Table 5: Percentage of moves’ frequency.

<b>Moves</b>	<b>PTR</b>	<b>STR</b>	<b>STF</b>	<b>DTM</b>	<b>DTR</b>
Percentage (Social Sciences)	100%	100%	96%	92%	92%
Percentage (Engineering)	100%	84%	88%	100%	94%

Table 5 presents the occurrences of moves and percentages in abstracts. Figure 2 represents the data of table 5 and the occurrence of moves in the articles’ abstracts of both genres parallel to each other. The percentage representation of data further clarifies the discussion above, regarding table 4.

Figure 2, we can see that the move 'situating the research' (STR) has been repeated after the move PTR, but as the goal of the researcher has been fulfilled by starting the abstract with which move once, the repetition has not been added to the

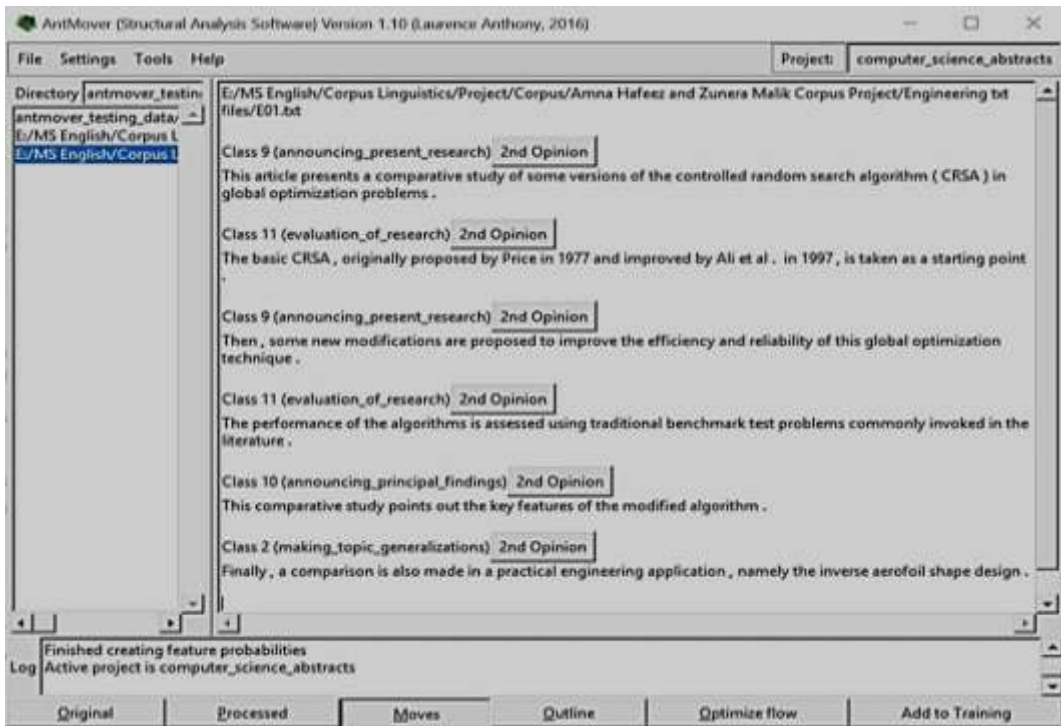


Figure 1: Moves analysis of an engineering abstract as shown by AntMover 1.10.

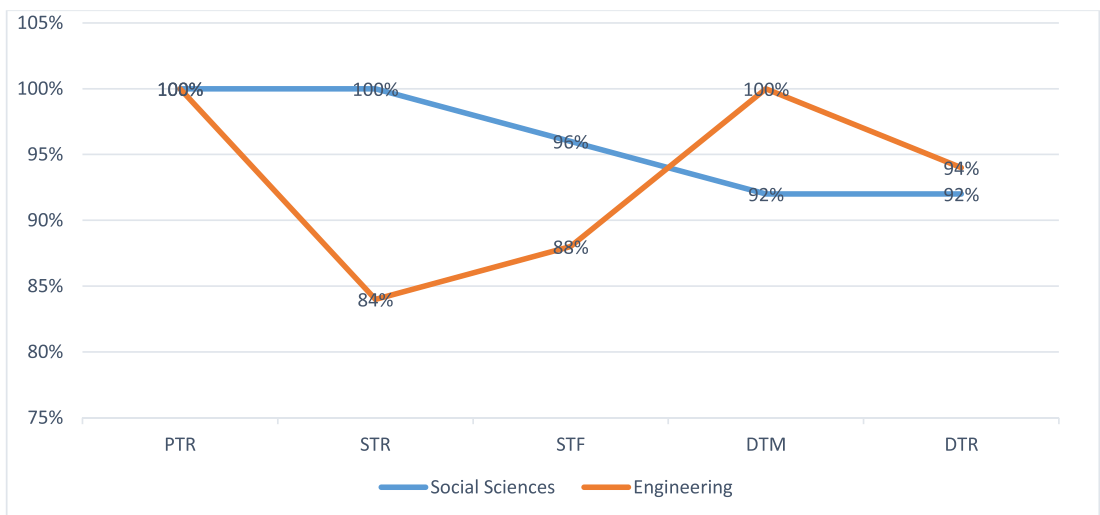


Figure 2: Percentage of moves' frequency

The most frequent patterns of moves found in all the article abstracts (both genres) are:

- a. STR-PTR-DTM-STF-DTR
- b. PTR-DTM-STF-DTR
- c. PTR-DTR-DTM-STF

Each pattern represents a unique structure of abstract as chosen by the writer. The pattern (a) includes all of the five moves making the abstract as comprehensive and understandable for the readers as possible. Patterns (b) and (c) do not contain the move STR as the writers preferred to focus more on the purpose and features of their research than to focus on previous literature and its citation or extension.

We found the repletion of moves embedded within the abstracts but the patterns were made analyzing the single usage of moves from start to the end of the abstract.

We applied the chi-square test to the data collected in order to find out whether the difference between the occurrence of moves in the respective genres significant or not. In order to run the test successfully, expected values of moves' frequencies was calculated using the following formula "no of moves occurring\*total no of moves in all abstracts/ total no of abstracts". After the calculation of expected values, the chi-square test was run on Microsoft Excel. It was interesting to find out that the probability of difference was greater than 0.05 that is 0.748631987 thus it means that there is no significant difference between the frequencies of moves recorded in the research papers' abstracts of respective genres. So the findings depict that almost all moves are observed and taken into account in the research papers' abstracts of both Social Sciences and Engineering but these moves exist in different patterns (as discussed above) . For different moves a genre based abstract is required.

## 4.2 Linguistic Realization of Moves

In order to analyze the linguistic realizations made by the writers in the research papers abstracts, we delimited Pho's (2008) framework and analyzed only the authorial stance including self or other reference, attitudinal adverbs and attitudinal adjectives present in the article abstracts.

### 4.2.1 Attitudinal Adjectives and Adverbs in the Social Sciences Abstracts

Attitudinal adjectives and adverbs were searched using LancsBox 3.0. Using the 'Smart Search' available in LancsBox 3.0, the researchers generated a list of all the adjectives used in the Social Sciences abstracts and Engineering abstracts separately. Out of the generated wordlist, the attitudinal adjectives were picked out manually. This process was repeated for the filtering of attitudinal adverbs. Some of the concordance lines that were picked out as examples of the use of attitudinal adjectives and adverbs are given below. The labels 'SS25.txt', 'SS26.txt' are the names of the individual text files that are present inside the corpus.

*SS25.txt: as 2 minutes of practice and practice narratives were particularly beneficial if a unique, rather than commonplace, experience was targeted for*

*SS26.txt: Tabloid headline descriptors of sexual offenders were also substantially more offensive than those used by broadsheets. In Study 2, tabloid readership*  
*SS26.txt: broadsheets. In Study 2, tabloid readership was associated with more negative attitudes and preferences for harsher punishments for sexual offenders*  
*SS30.txt: self-reported antisocial and psychopathic features in forensic samples, including a significant effect of the assessment instrument and subscale used.*

All of these adjectives have been filtered from the wordlist of all the adjectives in the Social Sciences abstracts' corpus. They signify the writer's own attitude towards something; for instance, calling something 'important' or 'significant' is largely a reflection of the writer's own opinion rather than an objective, unrefuted fact. Similarly, words like 'vulnerable', 'traditional', 'negative' are also words which have no definite universal standards or meanings and therefore, are essentially a matter of one's own subjective opinion. Lastly, although they do have a more or less fixed meaning, in the context they are in here, words like 'traditional', 'offensive', 'reasonable' and 'simpler' represent the writer's own attitude towards the subject. For instance, in the concordance line "We focused on how a new and simpler interview strategy, Category Clustering Recall, could increase recall in comparison", the adjective 'simpler' is representing something that is largely subjective and set according to the writer's own opinion.

There is one interesting attitudinal adjective used in the corpus under study: 'dramatic'. There is no doubt that this word is an attitudinal adjective, as dramatic is something which is completely subjective and self-opinionated.

Some concordances, containing attitudinal adverbs, chosen as examples are as follows:

*SS16.txt: Ex-intimate stalkers were more likely to be moderately persistent (versus low and high persistence)*

*SS37.txt: in treatment approach and impact. Effectiveness was primarily defined by reduction in further offending behaviors*

*SS39.txt: finding showed that the 'assisted' children were significantly more suggestible than the controls with a*

*SS39.txt: and total suggestibility. In addition, IS was negatively correlated with verbal memory and ability, but*

In the case of attitudinal adverbs, the most frequently used adverb is 'significantly', representing the researcher's own views about the subject in question rather than being an objective fact. This information reveals that the Social Sciences' abstracts are more inclined towards subjective, personal opinions rather than plain, objective facts. Consequently, there is more room for personal opinions in Social Sciences than there is in the natural sciences (a part of which is Engineering).

#### **4.2.2 Attitudinal Adjectives and Adverbs in the Abstracts of Engineering Research Papers**

The attitudinal adjectives and adverbs in the Engineering abstracts were picked out in the same way they were picked from the Social Sciences abstracts. Some

concordance lines, containing attitudinal adjectives, chosen as examples are as follows. Again, the labels ‘E15’, ‘E16’ and the like are names of the individual text files present in the corpus.

*E15.txt: automatic train operations, optimal trajectory design is significant to the performance of train operations in*

*E16.txt: an optimal train-speed trajectory which has equal satisfactory degree on both objectives, a fuzzy linear*

*E17.txt: It is very important for a manned environmental control system (ECS)*

The results indicate that the use of attitudinal adjectives in Engineering research paper abstracts are very low, and what use there is, is there to describe the study as either ‘significant’ or ‘important’. Other than this, the words that occur are ‘considerable’ and ‘useful’, which are related mostly to the findings and/or any, changes that happen during/after the experiment. This indicates that there is much less room for personal comments or attitudes to be reflected in the writings.

Some concordances, containing attitudinal adverbs, chosen as examples are as follows:

*E24.txt: In particular, the evolutionary game method has potentially faster convergence. This demonstrates the preliminary proof*

*E28.txt: the maximum fundamental frequency can be increased considerably using variable stiffness design as compared to*

*E36.txt: and super plasticizer content. The derived model provides sufficiently accurate results for the calibration and verification*

The attitudinal adverbs occur even less frequently than attitudinal adjectives. Moreover, the most common adverb is ‘significantly’ which, like the results for adjectives, relates to the results and/or any changes that occur during the experiment. ‘Importantly’, ‘considerably’, ‘often’, and ‘potentially’ are some other adverbs that have been used in the Engineering abstracts under study.

Overall, these results indicate that there is lesser room for attitudinal reflections in the abstract of Engineering research papers as compared to the research papers of Social Sciences. The Engineering genre prefers more objective fact sharing than opinionated discourse, while the Social Sciences genre seems more inclined towards the expression of personal opinions.

### **4.3 Authorial Stance**

The researchers analyzed the usage of first person pronouns I/We in the abstracts that indicated the author’s claim to his /her authority over the article that is the authorial stance in the abstract. In some abstracts, the writers did not claim their authority and communicated in terms of third person by using phrases like ‘the researcher(s)’ or ‘the writer of this article’.

When it comes to claiming the authorial stance, the researchers have found out that in the field of Social Sciences, 40% (16/40) of the writers claimed their authorial stance in their articles by using terms as 'I', 'we' and 'our'. Examples are as follows:

- i. I argue that seeking to understand...
- ii. Our findings provide no evidence that...
- iii. We also discovered an effect...
- iv. The results support our perceived...

On the other hand, in the field of Engineering, 0% writers claimed their authorial stance in their article abstracts rather they used sentences like:

- i. In this research, an efficient computational framework...
- ii. A gradient-based approach is then established...
- iii. In this article, a hybrid algorithm...
- iv. This article presents a comparative study...

These findings show that the trend of claiming authorial stance has started in the field of Social Sciences but has not yet been adapted by the researchers relating to the field of Engineering.

## 5. Conclusion

This research has given way to the understanding that researchers from both the academic genres (Social Sciences and Engineering) follow different conventions while writing abstracts for their articles. Although the difference in the frequencies of moves occurring in the abstracts of respective genres is not significant but it is clear from the results that the patterns of those moves differ in both genres. This difference, although small, is still indicating a difference in conventions set by the writers of the respective genres. Researchers, while writing article abstracts for the field of Social Sciences, focus more on the hypotheses and features of their research whereas the researchers from the field of Engineering focus more on the methodology used by them in their research and the results they accomplish. This is also the reason for the low rate of the usage of attitudinal adverbs and adjectives in the article abstracts of the field of Engineering. Thus, the researchers belonging to the field of Social Sciences use frequent attitudinal adjectives and adverbs while describing the features of their research works. Similar is the case with claiming the authorial stance that the researchers belonging to the field of Engineering do not see to but those belonging to Social Sciences have started the trend of claiming their authority and owning their work.

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