

## **A generic analysis of academic written discourses: TEFL and Astrophysics in contrast**

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### **Abstract**

Disciplinary difference brings about genre discrepancies which should be taken into consideration in language teaching. Aiming at clarifying these generic distinctive points in abstracts of the two fields of TEFL (Teaching English as a Foreign Language) and Astrophysics, the present study dealt with 80 research article abstracts of these two disciplines. The study integrated syntactic and pragmatic analysis with rhetorical move analysis. Abstracts were analyzed rhetorically, using IMRC model and/or Swales' (1990) CARS (Create-A-Research-Space) model; then the move and abstract length was estimated. To probe the syntactic and pragmatic aspects of the abstracts, the amount of pronoun application, aspects of tense, voice and conjunction usage were taken into consideration. Additionally, Wordsmith Tools was applied for more detailed analysis. The results indicated the pronoun and passive applications to be the main disparities of the two fields though differences in the rhetorical move structure and dominant tenses

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existed, too. These can have implications especially with regard to the ESP.

**Keywords:** disciplinary difference, genre, move analysis, ESP

## 1. Introduction

One of the most determining factors in defining genre is the speech community, as can be detected from numerous definitions rendered for genre; for instance, Richards, Platt, & Platt (1992) defined genre as a particular class of speech events, considered by the speech community as being of the same type. According to Mauranen (1993, p. 4), “genre is a social activity of a typical recognizable kind in a community, which is realized in language [and] can be distinguished by reference to social rather than linguistic parameters”. Generic constraints on academic papers regulate the activities of its members. The most prominent and workable definition of genre is put forward by Swales (1990, p. 58):

A genre comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognized by the expert members of the parent discourse community, and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constrains the choice of content and style.

It can also be implied that prior knowledge has an effective role in the recognition and application of appropriate genre. According to Swales (1990, p. 84), our prior knowledge consists of two main components that are assimilated direct experiences of life and its manifold activities and assimilated verbal experiences and encounters.

Both content and formal schemata can contribute to recognition of genres and so guide the production of exemplars. Schema theorists have so far been most concerned with the cognitive aspects of text processing. This significant orientation has made the putative distinction between content and form a more manageable distinction

than what genre analysts can easily maintain, for as Swales (1990, p. 88) believes, 'the nature of genres is that they coalesce *what* is sayable with *when* and *how* it is sayable'. Additionally, as maintained by Bhatia (1993), the schema theorists' emphasis on cognition has tended to isolate texts from its environment. In the former case, the reader's first attempts to match formal schemata are more likely to be a search for genre identification and placement. In the latter case, the environment sets up powerful expectations. To put it in other words, schemata alone reflects a microcosmic cognitive world dangerously adrift from communicative purpose and discursal context.

Considering the distinction of genres, caused by the difference in the speech community and cognitive structure, genre analysis is invaluable, as according to Bhatia (1993), the most important applications of genre analysis are for consciousness-raising in the field of second or foreign language acquisition and for grammatizing the process of developing the learner. Lewin, Fine, and Young (2001) mention genre analysis to be centered primarily in four areas of research that are systemic linguistics, genre studies, writing and English for Specific Purposes (ESP). Consequently, researches done on genre analysis can further contribute to the developments of these areas. For instance, in the domain of writing, genre analysis in the present study can demonstrate the discipline discrepancy and how writings may evolve to answer the social needs. Meanwhile, the foremost area of application of the results of such studies on genre analysis is the ESP; as such interdisciplinary differences need to be taken into account when teaching students entering academic discourse community.

Lewin et al. (2001) believe that communicative events are accomplished by interlocking acts, realized linguistically. As a result, in ESP it is not sufficient to teach students to encode and decode individual units of meanings in sentences. Genre awareness also facilitates students' recognition of how texts accomplish personal and social purposes. This knowledge, as a kind of meta-awareness, as Ramanathan and Kaplan (2000) put it, is particularly important, given the increasing number of non-native speakers, learning to read and often write scientific works in English.

Researchers have done genre analysis on different disciplines using move analysis: Fiangol (1997), Kanoksilapatham (2005), Halleck and Connor (2006) and Ding (2007), using some criteria such as citation patterns, personal pronouns, amount of comment, modal verbs, lexical aspects, voice and meta text, analyzed writings from humanities (including literature, language and linguistics, history, psychology, sociology ...), biochemistry, TESOL and Medicine respectively. Also, Babaii and Ansari (2005) investigated the effect of disciplinary variation on transitivity in the case of academic book reviews.

Researchers carried out studies on proposals and research articles. Kanoksilapatham (2005) found fifteen distinct moves for the whole research article in Biochemistry; Connor and Mauranen (1999) and Halleck and Connor (2006) worked on proposals in TESOL, each finding ten recurrent moves that reflect the generic affinity of grant proposals to the academic research articles and promotional genres. Ruiying and Allison (2003) analyzed research articles in Applied Linguistics from a functional perspective.

Other researchers like Maher (1986), Hewings and Henderson (1987), Dubios (1988) and Malclom (1987) also performed studies on scientific texts in Medicine, Law, Economics and Biomedicine.

Some investigators have compared two or more disciplines to show the distinction of academic writing in them. Swales (1990) worked on the Method section of different research articles. For example, the Method in TESOL has careful, step-by-step description, massively supported by anaphoric reference and lexical repetition which leads to the kind of explicitness associated with the standard academic description. In contrast, Method sections in the physical and life sciences are enigmatic, swift, presumptive of background knowledge, not designed for easy replication, and with little statement of rationale or discussion of the choices made. Swales believes that these differences can presumably be related to a number of sociological and intellectual phenomena, such as the nature of the discourse community, the level of agreement about appropriate methodology, the extent to which a demonstrably adequate methodology is deemed necessary, and the role assigned to controlled experiment in the discipline. Presumably, it is parameters

such as these that explain why Method section assumes great importance in most psychological and educational research, but can be assigned scant attention and space in areas such as biochemistry.

Shadkam (1999) analyzed research articles in physics, chemistry, biology, mathematics, geography, computer science, architecture, civil engineering, metallurgy, agriculture and veterinary, using some criteria such as citation patterns, personal pronouns, amount of comment, modal verbs, lexical aspects, voice and meta text.

Samraj (2008) analyzed thesis introductions in biology, philosophy and linguistics and found some differences with regard to authorial presence and intertextual links to previous research by analyzing citation pattern and the use of first person pronoun. Additionally, Samraj and Monk (2008) searched through the statement of purpose in linguistics, business administration and electrical engineering and concluded that although statements from the three disciplines may contain the same rhetorical moves, they differ in the constituent steps used to realize some of the moves. Busa (2005), employing move analysis as the analytic framework, investigated abstracts in economics and psychology. Samraj (2005) investigated the relationship between the abstracts of what he believed to be two related genres from different disciplines, namely, Conservation Biology and Wild life Behavior, then, she extended this study to the relationship between abstracts and introductions in the two fields.

Even sub-disciplines of one discipline may have different genres. Ozturk (2007) found differences in genres of introductions between two disciplines of applied linguistics, namely, Second Language Acquisition and Second Language Writing Research and showed that they seemed to employ different and almost unrelated move structures. These differences could be explained in terms of the concept of "established" and "emerging" field. He believed that Second Language Acquisition was more "established" than Second Language Writing Research.

Not only have various disciplines undergone studies of genre, but also different parts of the research article, amongst which abstracts are chosen in the present study due to their significance.

According to Swales (1990), abstracts have become a tool of mastering and managing the ever increasing information flow in the scientific community. They have the main function of serving as a time-saving device by informing the readers about the exact content of the article, indicating in this way whether the full text merits further attention. Additionally, abstracts constitute a genre in its own right while the other parts of research article, for example, the introduction is a part-genre. Graetz (1985) reported some characteristics for abstracts from a corpus of 78 abstracts from various fields as:

The abstract is characterized by the use of past tense, third person, passive, and the non-use of negatives. It avoids subordinate clauses, uses phrases instead of clauses, words instead of phrases. It avoids abbreviation, jargon, symbols and other language shortcuts which might lead to confusion. It is written in tightly worded sentences, which avoid repetition, meaningless expressions, superlatives, adjectives, illustrations, preliminaries, descriptive details, examples, footnotes. In short it eliminates the redundancy which the skilled reader counts on finding in written language and which usually facilitates comprehension. (Graetz, 1985, p. 125)

Many of these would appear to be supportable. According to Swales (1990), the claim about the absence of negatives is particularly of interest, and informal surveys indeed suggest that the restricted length of the abstract rarely permits the luxury of including statements of what has not been done either by the author or by other researchers. On the other hand, there are many abstracts that do not fit the picture. For instance, abbreviations may be common, complete sentences may not be used, active verbs, sometimes subjectless, may be a preferred style. The most egregious of her claims is the abstracts being characterized by the use of Past tense. The tense widely used and detected in abstracts is seen to be the Present tense as abstracts tend to occur in commentary rather than in narrative of what has been done. They opt for the Present tense because it animates the writing and give the sense that the research reported is *alive*.

Keeping into consideration the impact of genre studies on ESP and also the significance of abstracts, the present research intended to give a view of the distinction in genres caused by disciplinary

difference. Hence, abstracts of TEFL as the representative of Humanities and Astrophysics as the representative of hard sciences were chosen.

## 2. Method

The present study consisted of 80 research article abstracts, selected randomly from four journals, two of which were TEFL journals, namely *TESOL Quarterly* and *Language Learning*; and the other two were Astrophysics journals, that were *Astrophysics and Space Science* and *The Astrophysical Journal*. Forty abstracts were chosen from each journal from the years 2007 and 2008. To give a comprehensive view of the genres under investigation, a multi-level analysis procedure was applied. The study integrated lexical, pragmatic analysis with rhetorical move analysis. In line with the recent tendency to use computerized corpus analysis, (Upton & Connor, 2001; Xiao & Mc Enery, 2005; Feng, 2006; Wu Chang, Liou & Chang 2006), Wordsmith Tools (version 5) (Scott, 1996) was used. It is an integrated suite of programs for looking at how words behave in texts.

Move analysis was applied for analyzing abstracts rhetorically. The purpose of move analysis was to identify the semantic/functional units of texts. The analysis was mainly based on the Introduction-Method-Result-Conclusion (IMRC) model:

### Move 1 Introduction (**I**)

Step 1A claiming centrality (**IA**)

Step 1B topic generalizations and reviewing of previous research (**IB**)

Step 1C indicating a gap (**IC**)

Step 1D outlining purpose (**ID**)

Step 1E announcing present research (**IE**)

### Move 2 Method (**M**)

### Move 3 Results (**R**)

### Move 4 Conclusion (**C**)

Step 4A commenting on results (**CA**)

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- Step 4A i interpreting results (**CAI**)
- Step 4A ii comparing results with literature/ previous findings (**CAC**)
- Step 4A iii accounting for the results (**CAA**)
- Step 4A iv evaluating results (**CAE**)
- Step 4B commenting on the study (**CB**)
  - Step 4B i indicating significance/ advantage (**CBI**)
  - Step 4B ii deduction from the research (**CBD**)

However, it was counter-intuitive that writers always conform to a universal 'ideal' of move structuring. Additionally, traces of other models were found by other researchers; for instance, in Martin's (2003) analysis of English and Spanish research article abstracts in experimental social sciences, a coding scheme was used incorporating Swales' (1990) Create-A-Research-Space (CARS) model into the introduction move of the IMRC structure; Similarly, Samraj (2005) noticed in her study that abstracts from Biology and Wildlife Behavior, in addition to the traditional IMRC move structure, also contained moves from the CARS model. Loes' (2004) study of abstracts from linguistics journals further revealed that even if the majority of abstracts display the IMRC structure, mirroring the macro-organization of the research article, about one third of the sample displayed the CARS structure mirroring the organization of the introductory sections of the research articles. Moreover, there was a "combinatory type", which mixed both types. Loes believed that the three types fulfilled three different functions: the informative (IMRC type), the indicative (the more 'interactional') (CARS type), and the informative-indicative (Combinatory type). Consequently, Swales' CARS model was used as a basis, too.

Move 1 establishing a territory (**A**)

- Step 1 claiming centrality (**AA**)

- And/ or

- Step 2 making topic generalization(s) (**AB**)

- And/ or

- Step 3 reviewing items of previous research (**AC**)

- Move 2 establishing a niche (**B**)
- Step1A counter claiming (**BA**)
  - Step1B indicating a gap or (**BB**)
  - Step1C question-raising or (**BC**)
  - Step1D continuing a tradition (**BD**)
- Move 3 occupying a niche (**C**)
- Step1A outlining purposes (**CA**)
  - Or
  - Step1B announcing present research (**CB**)
  - Step2 announcing principal findings (**CC**)
  - Step3 indicating research structure (**CD**)

Although it was possible to identify elements of the classic four-move structure of IMRC model (though, not necessarily all four moves in a single text might exist), identifying these moves were far from easy, particularly if the abstracts were read in isolation. Hence, reference to the full article was valuable in identifying moves. In order to increase the reliability of the analysis, the texts were approached recurrently for three times. Also as determining the boundaries was not always a straightforward task, experts of the field were consulted in problematic cases for clarifying the boundaries, semantically and functionally. Having decided on the sequence of move and step of each text, they were saved as a .txt file, with moves simplified in a code (as is shown in bold in figures 1 and 2). The following abstract is presented as an example of how moves were determined and presented in codes:

**(Outlining purpose)** The purpose of this study is to evaluate the effects of classwide peer tutoring (CWPT), a peer-mediated teaching approach, on the social interaction behavior of children who are English language learners and children who are native English speakers. **(Method)** Two second-grade classrooms from an elementary school were selected as the research setting. CWPT was the independent variable, and children's frequency of social interactions was the dependent variable. All children from the two settings were observed and videotaped during the study. **(Result)** Findings of this study indicated that CWPT was as effective for English language learners as it has been for native English speakers in shaping positive

social interactions. In both groups, children engaged in very few negative behaviors. Questionnaires from the teachers and students indicated that both groups enjoyed the CWPT process, and they intended to continue using CWPT. (**Deduction from the research**) The findings encourage teachers of English language students to implement CWPT regularly in their natural classroom settings. The results also indicate that the appropriate arrangement of learning environments is critical for children's social interactions. The opportunities provided for social interactions contribute significantly to the educational success of English language students despite their limited English proficiency.

The moves were presented as **ID M R CBD** and saved in a .txt file for this abstract. Then the Wordlist function of the Wordsmith Tools was used to calculate the frequency of the moves. Henceforward, the Concord function was applied to see the co-occurrence and relative positions of the moves.

Abstract and move length, in terms of the number of words, was found out using the Wordcount function of the Microsoft Office Word. For analyzing texts linguistically and pragmatically, pronoun application, aspects of voice, tense and conjunction application were taken into consideration. To investigate the use of the personal pronouns a list of the subjective, objective, reflexive and possessive of first and second person pronouns was prepared in .txt format and the Keyword function was run. The frequency of them was found for each abstract. The location of the pronouns in the abstract, in terms of the move position, was deemed to be significant as it could indicate in which move the author felt more librated to use the pronouns, and for what purposes the pronouns might be applied. Consequently, their locality in the abstract was probed manually. In order to find the dominant voice in the two fields of Astrophysics and TEFL, abstracts were analyzed manually and to further illuminate the above-mentioned point of difference, abstracts conforming to each model were probed separately. Tense application was inspected, separately for each field and each move, based on four dominant tenses: Present, Past, Present Perfect and Future. Finally, to investigate the conjunction application, four lists of different sorts of conjunctions (additive, adversative, causal and

temporal) were prepared based on the conjunction list of Halliday and Hasan (1976). The Concord function was then applied by each of these four files separately, on each discipline. Care was taken as in some cases the word in the list could have several functions. For example “for” not always acted as a causal conjunction. Therefore, after getting the result from the concord function, each instance was inspected in context.

### 3. Results and Discussion

#### 3.1 Rhetorical Analysis

In this part of the analysis, two models, IMRC and CARS, were used. There were two reasons why two models were used not just one. First, it was counter-intuitive that writers always conformed to a universal 'ideal' of move structuring. Additionally, traces of other models were found by other researchers. In TEFL 87.5 % of abstracts were analyzed by IMRC model, 12.5 % by CARS model and no abstract conformed to both structures. In Astrophysics, however, the amount of abstracts with IMRC (62.5%) model was less than TEFL and consequently the amount of those with the CARS (37.5%) was more. 7.13% of abstracts conformed to both models; hence the number of abstracts with the macro structure of the research article exceeded that of those with the macro structure of the introduction. This was in line with Lores (2004) who found out that less than one third of abstracts in linguistics conformed to the CARS model. According to Lores (2004), it could be concluded that, on the whole, abstracts were more informative rather than indicative and the amount of informative abstracts in Astrophysics was more than in TEFL. Having a closer look at the content of abstracts further confirmed this, for abstracts with the CARS model were mostly non-experimental. As stated by Tarone, Dwyer, Gillette, and Icke (1998), Astrophysics papers typified a previously unidentified type of research article, the *logical argument scientific paper* in which the rhetorical structure was different from that of the 'standard scientific' experimental paper. Therefore, the extent of their adherence to the CARS was more than TEFL's.

Only 51.16% and 21.5% of the total articles in TEFL and Astrophysics (respectively) had the IMRC structure exactly; others had cyclic patterns or lacked some moves. Ayers (2008), who investigated the evolution of headings and abstracts from the scientific journal *Nature*, found that until 1996 only 18% of abstracts had the IMRC structure exactly and later on they started to become more standardized in structure.

### ***3.1.1 IMRC Structure***

In TEFL abstracts, I was the only obligatory move, occurring in all abstracts while R was the least frequent. The only cyclic pattern was IMRCRC, with the results being presented in two parts, having mentioned the first part of the results, an account was given for it and after mentioning the second part, the significance of the results and the advantage of the study were elaborated on.

In Astrophysics abstracts, an exceptional case, occurring twice, was IMC pattern in which the result was presented simultaneously with the comment on it, hence no separate Result move was present, and in line with Ayers' (2008) demonstration of R being incorporated in C. Contrary to this pattern was the IMR pattern, appearing in two abstracts. Additionally, one of the abstracts lacked the Introduction move and its author directly embarked on the Method move, and then the result and finally the conclusion were given. The prominent cyclic patterns were IMRCRC, IMRIC, IMRIMRIR, IMIRC and IRCIR. The first one was previously discussed. In IMRIC, the conclusion was mentioned after bringing up the relevant point from the introduction. In the IMRIMRIR pattern, part of the study was announced, and then the method and the result were mentioned. This was done three times, with the third time having no mention of the method made of. In the IMIRC pattern, the centrality of the study was mentioned, then the study was announced and the method being used was introduced. When the literature was reviewed, the study was once more announced, taking the literature into consideration. These two steps, being parts of the Introduction move, made a fraction of the introduction being mentioned after the method. And finally, in the IRCIR pattern, the introduction was

broken into two sections. When the first section of it was mentioned, the relevant result and conclusion were stated, and then the second part of introduction was brought about and the pertaining result was presented.

Detailed rhetorical analysis demonstrated that IE was the most frequent step of the Introduction move. Actually, where there was an introduction, IE was present, in both fields. The Method move might be broken into three steps: Instruments, Participants and Procedures, among which Procedure was the most frequent step. Detailed move analysis of both fields is presented in Table 1.

**Table1:** Detailed move analysis

steps		I A	I B	I C	I D	I E	M	R	C A I	C A C	C A A	C A E	C BI	C B D	A D
No.	<b>TEFL</b>	0	6	4	0	1 6	2 0	1 7	5	1	2	0	2	10	7
	<b>Astrophysics</b>	3	3	0	2	2 0	1 4	1 7	4	1	1	0	2	5	3

According to the Wordlist function of Wordsmith Tools, the places of steps within moves were as the ones proposed in the models though the place of moves were not fixed in some instances.

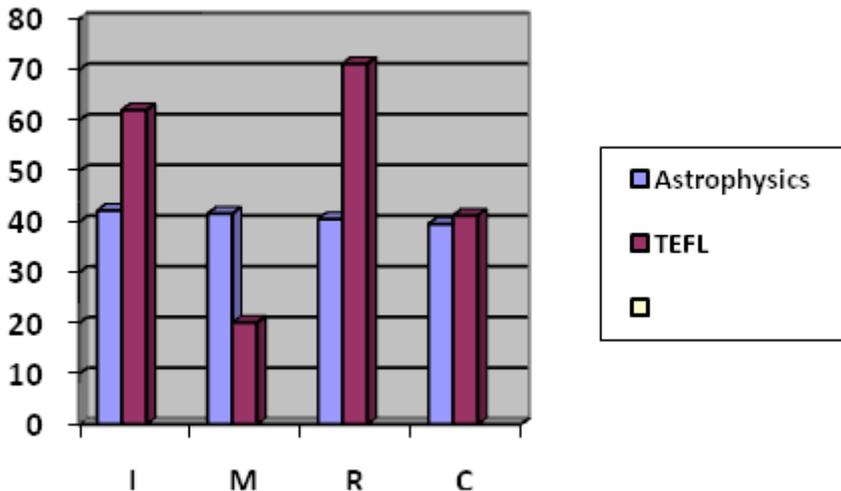
### **3.1.2. CARS Structure**

In abstracts with the CARS model, in both fields, move C was the dominant move, as in other studies, for example, by Samraj (2008) and Posteguillo (1999), with CB and CD occurring in nearly all the year-categories. The available CARS patterns in TEFL were C (twice), AB C (twice) and in Astrophysics were AC (6 times), C (4 times) and ABC (twice). The only obligatory move was move C, occurring in all abstracts with this model as all of these abstracts announced the study and most of them introduced the structure of the research article.

### 3.2. Length

Not much difference existed in the length of abstracts of the two fields. The average length of TEFL abstracts per word was 149.7 while it was 143.60 for Astrophysics. What is worthy of mentioning is that much fluctuations existed in Astrophysics abstracts' length as they could vary from 39 to 269 words! However, TEFL abstracts had more consistency in length.

Different moves in Astrophysics had roughly the same length, as roughly the same weight was attributed to each of them; however, in TEFL, the Results move was the longest and the Method was the shortest move, even in many cases in TEFL, M was a dependent move, occurring within I. All the moves in TEFL were longer than in Astrophysics, except the Method move. This could be attributed to the nature of the two disciplines, as in Astrophysics the methods were unique in each research and required more explanation than in TEFL, contrary to Swales' (1990) conclusion on Biochemistry research articles. Move length of the two fields is demonstrated in Graph 1.



**Figure 1:** Move length in abstracts with the IMRC structure in the two fields

### 3.3 Pragmatics Analyses

#### 3.3.1 Pronoun Application

The number of pronouns was counted with the Keyword function of Wordsmith Tools. Then these were turned into percentages and for a more accurate representation of them, their location in the abstracts, in terms of the moves, was detected. These are presented in Table 2.

**Table 2:** Pronoun application in different fields

<i>Field</i>	<i>I</i>	<i>M</i>	<i>R</i>	<i>C</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>Total</i>	<i>% Of abstracts</i>
TEFL	We:2 Our:1 I: 1	We: 2	Non e	We: 3				Subjective: 8 Possessive:1	23%
Astrophysics	We:15, our:1	We: 5, our: 1	We: 8	We: 5			We: 11 Our:1 I:3, My:5, myself :1	Subj: 47 Poss: 8 Reflexive: 1	80.22 %

No use of second person marker was detected. Second person pronouns could be used to show reference to the reader. Fiangol (1997) and Shadkam (1999) did not trace any second person marker, neither in the abstract nor in the whole article. Hence, the forms of address were removed. This could be indicated as the expiration of this aspect of epistolary convention of research articles, remarked by Ard (1983).

Authors in Astrophysics felt much freer to apply pronouns. 80.22% of abstracts in Astrophysics had pronouns and they amounted to 56 pronouns while only 23% of TEFL abstracts had pronouns and just 9 pronouns were used. Ard (1983) attributed this to the central role of the observer in scientific text; that is the author, as the experimenter or the observer of the phenomena, is more

physically present in the abstracts in scientific texts, whereas in humanities, the author stands aside and observes the results. Additionally, according to Samraj (2008), the first person pronoun is used to present the arguments of the author, among other discourse functions, thereby, establishing a strong authorial presence. These results could also be interpreted in the light of Yakhontova's (2006) study on Applied Mathematics. He found no instance of *I* occurring and the sole pronoun being used was *we*, surprisingly, in the single-authored articles! Yakhontova (2006, p.161) ascribed this to a specific type of *we*, nominated as "academic we". Hence, the abundance of this pronoun might not imply direct address to the authors in the present research, either. The present study, by demonstrating pronoun application in the two fields, and their relative abundance in Astrophysics, pointed at the disciplinary variation as the main source of disparity, as was deemed to be the reason by Yakhontova himself.

In Astrophysics abstracts with IMRC model, all the moves had pronouns with move I wielding pronouns more than the others. Tarone, Dwyer, Gillette and Icke (1981), analyzing the Astrophysics abstracts came to the conclusion that applying pronouns in Astrophysics in the Method section was for making the reader feel able to do the research by himself/herself, and its not being exclusive to that specific author. They found first person pronouns anywhere in the article, but less frequently in the I and C moves.

### 3.3.2 *Voice*

The number of passives in abstracts with the IMRC model in TEFL exceeded those of Astrophysics though inverse was the case for abstracts with the CARS model. The larger amount of passives in TEFL was due to the exigency the authors felt for not applying pronouns which led to the higher application of passive voice. The main reason for the fewer amount of passives in TEFL in abstracts with the CARS model, regarding the available data, was the move B's having no passive in TEFL. What intensified this is the fewer amount of abstracts with the CARS model in TEFL compared to

Astrophysics. Active voice was dominant in both fields but when the number of abstracts was much less, no place for the occurrence of passive was provided. In abstracts with the IMRC model in TEFL the move with the highest application of passives, was the Method move, while the same move had the least amount of passives being applied in Astrophysics. The reason could be again attributed to the tendency of Astrophysics authors to use pronouns and refer to themselves while explaining what was done.

Both fields had the passives applied the most in move C in abstracts with the CARS model. Passive application was highly dependent on the nature of the move and the steps in that move. Move C had Announcing the present research and Indicating the research article structure as its main and most recurrent steps, in which passives might be applied more freely.

On the whole, in line with Fiangol (1997), the number of passives was significantly less than the active verbs, with 49% in the highest case and 13% in the lowest, in Humanities. In the present study, passives in TEFL (24.06%) were more than in Astrophysics (20.69%) as was a direct consequence of TEFL authors' resignation to use pronouns though Tarone et al. (1998) found that passive verbs occurred as frequently as active verbs in Astrophysics.

### 3.3.3 *Tense*

The most prominent tenses applied for abstracts were Present and Past tenses with casual appearance of other tenses such as Present Perfect and Future. The diversity of tenses in Astrophysics was more than in TEFL.

In abstracts with the IMRC structure, the dominant tense in Astrophysics was Present while in TEFL Past tense was more highly used. Hence, TEFL abstracts conformed more to the rules of abstracts presented by Graetz (1985) and applying the Swales` (1990) assumptions on the tense applications, Astrophysics abstracts were more alive due to their usage of Present tense, they were also more in the commentary form while the Past tense in TEFL abstracts made the reader feel them to be more narrative. A pressure to retreat to the Past tense was observed in TEFL especially in the Method

move, in which the authors described what they *used* to implement the research. Also Ayers (2008), while analyzing the scientific abstracts, found the Past tense to be dominant in the Method move.

In abstracts with the CARS model, the dominant tense was Present in both fields. As the macro structure of abstracts with the CARS model was like the Introduction, the researchers tended to introduce their research, with a live sense, rather than to give an account on what was done.

### 3.3.4 Conjunctions

No stark difference could be seen either in the amount of conjunctions being applied or in the order of their frequency. The most frequent conjunctions were additives in both fields, amongst which *and* was the most recurrent, then, were adversatives, after them were causals and temporals, having the same amount of occurrence. Feng (2006) found *and* to be one of the most prevalent words in the whole article, not just among conjunctions. Graph 2 compares conjunctions in the two fields and Table 3 presents them in detail.

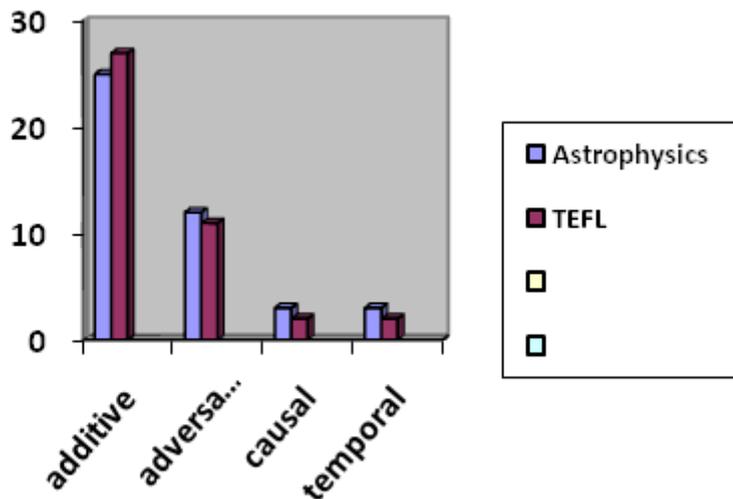


Figure 2: Conjunction categories in the two fields

**Table 3:** Conjunctions in the two fields

Conjunction field	Astrophysics	TEFL
Additive	and (24), or, furthermore	and (25), or, also
Adversative	only (4), however (5), nevertheless, rather, but	but (7), only, rather, yet, however, though
Causal	for, so, for this purpose	for, because
Temporal	finally, then, previously	then (3)

#### 4. Conclusion and Implications

As the results of this study indicated, there were differences between the two fields of Astrophysics and TEFL, with regard to the rhetorical moves, pronoun application, passive usage and dominant tenses. Rhetorically, TEFL abstracts increased in their adherence to the IMRC model and hence, the amount of abstracts with the CARS model decreased steadily. Additionally, the length of abstracts roughly decreased. Semantically speaking, more pronouns were being applied. With regard to tense, more Present tense was applied in abstracts with IMRC model whereas in those with the CARS model Past tense was applied more often. But in Astrophysics abstracts the total conformance to the IMRC model increased and then steadily decreased. They increased in their length. Pronoun application became more prevalent. Present tense was applied more and conjunctions used less often. But both disciplines had some similarities. The method move was a dependent one and move C increased in length. Pronoun application increased in both fields, more noticeably in Astrophysics. Similar trends, in both fields, with regard to Present tense application and conjunction usage were

observed, with Astrophysics having more dramatic changes in the conjunction application.

Such results can provide course designers with a manageable and meaningful framework within which to construct courses that can offer the learner tools with which to engage in any of the structurable aspects of the professional life. The result of this study can also help second and foreign language learners not only to read more effectively and get more out of the text but also provides them with a framework to write like the native speaker of that language and helps them in writing (Freedman, 1993; Baram-Tsabari & Yarden, 2005; Beck, 2004; Cheng, 2006, 2007 & 2008; Hyland, 2002; Ramanathan & Kaplan, 2000; Swales, 1985, 1990; Zhu, 2004). One needs to be familiar with the conventions of the genre before being able to exploit them for special effects. The results of genre analysis are particularly helpful for the reader accessibility, usability, simplification and facilitation. However, as Swales (1990) states the results of the genre analysis are clarificatory, not classificatory; hence their values lie in their descriptive use, and not prescriptive application. Additionally, Fairclough (2003) mentions that we need to look for staging in analyzing texts and interactions, but not expect to always find that they are recognized in terms of a clear generic structure and link analysis in these terms to the question of ritualization.

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