Comparative Study Of Logical Meta-Functions In Pakistani High And Low-Graded Argumentative Essays

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Abstract

This comparative corpus-based research aims to investigate the taxis and logico-semantic relations in Pakistani High-graded argumentative essays (HGAEs) and Low-graded argumentative essays (LGAEs). The study utilizes Halliday & Matthiessen's (2004) system of clause complexes as the analytical framework and collects 100 argumentative texts from the International Corpus of Learner English (ICLE). The texts are categorized into high and low-graded argumentative essays by using the Cambridge O-Level rubric, and the annotation task is conducted by employing the UAM corpus tool. The findings reveal that Pakistani writers of both datasets employ a combination of paratactic and hypotactic taxis and utilize various logico-semantic relations. The comparative analysis demonstrates that high-graded argumentative essays exhibit prevalent clause complexes, a balanced mix of paratactic and hypotactic relations, with a notable emphasis on mental processes and causal relations. In contrast, low-graded argumentative essays favour clause simples, lean towards hypotactic constructions, and demonstrate a higher usage of conditional relations. Noticeably, both datasets did not show significant differences except hypotactic, hypotactic negative and paratactic causal relations. These findings provide valuable insights into the writing patterns of Pakistani students in argumentative essays and help to improve the ESL written discourse.

keywords: SFL, Argumentative Essays, Taxis, Logico-semantics Relations.

Introduction

1.1 Systemic Functional Linguistics

Halliday's Systemic Functional Linguistics (SFL) theory, proposed in 1978, is distinct from formal systems of grammar as it views language not as a rigid set of rules, but rather as a versatile communicative resource employed by individuals within a speech community to create meaning and exchange information. According to Halliday (2019), language serves as a means of expression and communication, allowing people to convey various meanings and information by making deliberate choices within different social contexts. Moreover,it employs a social semiotic framework to systematically analyze and structure language, enabling it to serve as a tool for meaning-making that interacts within social contexts

(Schleppegrell, 2004, p. 18). This social semiotic theory of language is designed to effectively accommodate the needs and address the challenges associated with written language, empowering its users to navigate and engage with written communication.

SFL covers three meta-functions of language: ideational (transitivity), interpersonal (mood) and textual (theme-rheme) that build up the clause. The concept of textual meaning encompasses the theme-rheme structure, which is realized through the use of lexico-grammatical resources. However, there is an alternative approach to studying the relationships between clauses at the meta-function level. This approach focuses on identifying logical components within clauses and building semantic relations based on them.

While a clause complex is considered a structural entity, it also reveals the functional organization of a sentence. In simpler terms, it describes how multiple clauses within a sentence are logically and semantically connected. Halliday (1994) referred to this as "the functional semantic relations that constitute the logic of natural language" (p. 216). These logical relations are directly related to the propositions, their components, constituents, and the relationships between them (Ellis, 1987, p. 108).

The clause complexes constitute an interdependent system comprising two subsystems: "taxis" and "logico-semantic relations." These two systems work together simultaneously to advance the discourse, thereby providing a functional framework for describing the clause complex (Halliday & Matthiessen, 2004). The figure 1.1 illustrates the interdependency network of this system.

Figure1.1: System of Clause Complexes (Halliday & Matthiessen, 2004)
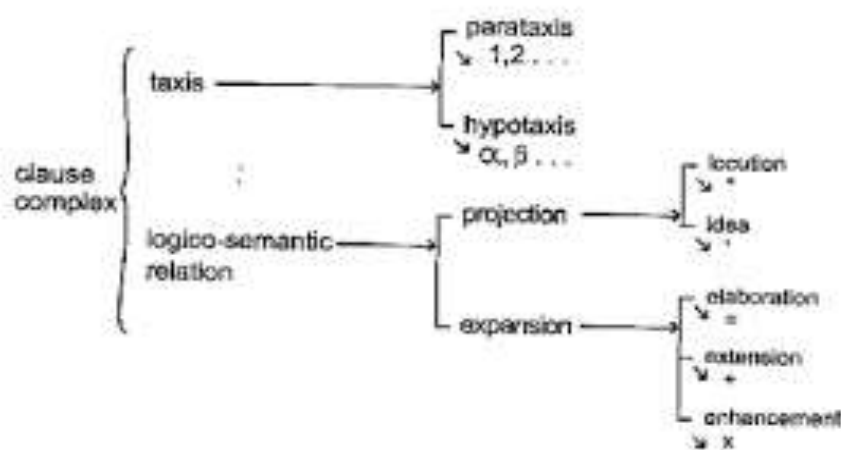
1.2 Previous Studies

Although literature extensively covers the study of argumentative essays using the SFL approach, which examines and analyzes all three meta-functions at various levels, the present study specifically focuses on the logical meta-function in the Pakistani ESL context. Therefore, this literature review aims to outline and discuss several research studies that have investigated the analysis of taxis and logical meta-function in argumentative essays in different contexts and backgrounds.

Saet (2004) explored argumentative essays by adopting an action research framework, implementing a genre-based approach to teach argumentative writing to a group of 20 students at the secondary school level. This genre-based approach encompassed various aspects, including the teaching of

generic structure, modality, connectives, passives, and nominalizations. Although the study did not report significant improvements in subject-verb agreement and spelling, it revealed that students gained more confidence in their writing and expressed a positive perception of this approach, considering it an interesting one.

Similar to Saet, Cullip (2009) conducted experimental research and it revealed that essays under this controlled condition exhibited clearer and more coherent positions, with less emphasis on defining the issue. Furthermore, these essays contained a higher proportion of clause complexes compared to simple clauses. Notably, the patterns observed in these essays included a significant use of nominalizations, grammatical metaphors, and internal conjunctions. These linguistic resources were employed

strategically to construct logically ordered arguments and convey the temporal progression of events. Ping and Bee (2005) examined 20 exposition-type essays written by upper-secondary school students. The findings revealed that both proficient and weaker writers extensively employed main clause complex relations. Additionally, the study observed that hypotactic enhancement and paratactic extension were the two predominant patterns identified, with hypotactic enhancement occurring more frequently than paratactic extension in the writings of the students. Likely Nesbit and Plum (1988) found a similar result and claim that there is no statistically significant difference between good and poor writers regarding clauses complexes. They claimed that "the mastery of clause complex structures cannot be equated with unnecessary complexity, but with one's ability to present information in a way that is easily accessible, whether in terms of a clause complex or simplex"(Ping & Bee 2005, p68).

Moreover, Srinon and White (2011) conducted a longitudinal genre-based course and found a positive correlation between taking the course and an increased utilization of logico-semantic resources. The study revealed that when logico-semantic relations were underused, the essays lacked communicative effectiveness and appeared underdeveloped. Conversely, a higher frequency of logico-semantic relations usage was associated with positive development in the student's academic literacy. Notably, the study identified the high use of projection as a positive outcome, enabling the writers to achieve more effective communicative effects, which are typically expected in various text types.

Recently, Ibrahim (2019) examined the corpus of argumentative essays written by Malaysian students to study the taxis and logico-semantic relations generally as well as at intricate levels of schematic structure. Hypotactic complexing was favoured as compared to paratactic complexes. In terms of logico-semantic relations, the non-finite causal-conditional purpose relation was the most preferred, followed by the finite causal-conditional cause relation. The least favoured option was the causal condition causing negative relations. Overall, the most frequently employed enhancing relation was the causal-conditional relation, while the least utilized was the manner relation.

In light of all previous research, it can be claimed that there is no such comparative research in Pakistani ESL context in which taxis and logic-semantic relations have been studied between high and low-graded argumentative essays. So, current research provides new information and contributes to the existing body of knowledge in the understudied area and context.

1.3 Research Questions

The aim of the present study is to investigate the distinctions between High-Graded Argumentative Essays (HGAEs) and Low-Graded Argumentative Essays (LGAEs) based on their taxis and logico-semantic relations constructed during argumentation. The research intends to address the following research questions and null hypothesis and provides corresponding findings.

1. What kinds of taxis are constructed in Pakistani HGAEs and LGAEs?

2. What kinds of logico-semantic relations are composed in Pakistani HGAEs and LGAEs?

1.4 Null Hypothesis

1. There are no significant differences between Pakistani HGAEs and LGAEs regarding paratactic and hypotactic and their logico-semantic relations (overall).

Research Methodology

2.1 Type of Study

The system of clauses complexes (Halliday & Matthiessen, 2004) was employed as theoretical

farmwork and the Cambridge O-Levels rubric was considered during marking to categorize the essays into HGAEs and LGAEs to find out the answers to research questions with a quantitative approach.

2.2 Data Collection

The 100 argumentative essays from ICLE, written by Pakistani writers were collected.

2.3 Tool

1. The UAM tool was employed to annotate these Pakistani argumentative essays.
2. The SPSS tool was also utilized to conduct the statistical analysis to test the null hypothesis.

2.4 Research Procedure

The comparative study between High-Graded Argumentative Essays (HGAEs) and Low-Graded Argumentative Essays (LGAEs) regarding taxis and logico-semantic relations was conducted systematically, employing the following steps:

1. The said corpus was collected from the International Corpus of Learner English (ICLE).

2. Classification of the corpus into two major datasets: HGAEs and LGAEs, based on the marking and grading process. This classification was done using the Cambridge O Level rubric and involved the assessment of essays by two O-Level English instructors.

3. High-Graded Argumentative Essays (HGAEs) achieved a minimum of 63% marks, corresponding to a band 6 score and a C grade, while Low-Graded Argumentative Essays (LGAEs) were below the set margin of HGAEs.

4. Manual annotation of the corpus by using the UAM tool and the theoretical framework of the system of clause complexes .

5. Utilization of quantitative analysis to examine the taxis and logico-semantic relations within each dataset.

6. Conducting a comparative analysis of these features between two datasets by employing the SPSS tool for conducting the Mann Whitney U Test.

By following this systematic approach, the study aimed to provide detailed and comprehensive information regarding taxis and logico-semantic relations in Pakistani argumentative essays.

Findings and Results

3.1 Types of Clauses in HGAEs and LGAEs

Current research started with analysis of types of clauses: clause simplexes or clauses complexes. The findings showed that Pakistani writers used both clause simplexes and clauses complexes but the ratio of clause complexes was comparatively high in both high-graded and low-graded essays as noted in the following table 3.1.

Table 3.1: Type of Clauses Boundaries and their Percentages

Clause Boundary	Occurrences in HGAEs	Percentage in HGAEs	Occurrences in LGAEs	Occurrences in LGAEs
Clause Complexes	932	38.9%	682	35%

Clause Simplexes	1067	44.6%	900	49%
Clause Embedded	313	13.5%	87	4.7%

Furthermore, the comparative study highlighted that Pakistani low-graded argumentative Essays (LGAEs) exhibited a higher percentage of clause simplexes, while high-graded argumentative essays (HGAEs) displayed greater use of clause complexes. These findings referred that HGAEs demonstrate a higher level of syntactic complexity and sophistication in their argumentation. This disparity in the syntactic system reflects the different levels of proficiency and proficiency growth in argumentative writing among the two groups.

Few examples of clause simplexes and complexes have been displayed in table 3.2

Table 3.2: Examples of Clause Complexes and Clause Simplexes

Essays Code	Clause Complexes	Clause Simplexes
PAAO1014.txt	She treats all the members of her family equally <u>and</u> give importance<u>.</u>	She has a major personality in a house
PAAO1018.txt	This shows <u>that</u> in Islam a woman enjoys great status.	This quote also enhances the value of women.

3.2 Taxis in HGAEs and LGAEs

After identifying clause boundaries, Halliday & Matthiessen's (2014) system of clause complexing is employed to study the taxis and logico-semantic relations. The table 3.3. demonstrates that HGAEs predominantly utilize the parataxis clause while LGAEs display a high proportion of hypotactic constructs, although these differences are relatively minor.

Table 3.3: Occurrences and Percentage of Taxis

Kind of taxis	Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Paratactic	1064	50.7%	769	48.6%
Hypotactic	1034	49.2%	813	51.3%

A few occurrences related to taxis mentioned in following table 3.4 which showed the combination of two or more than two equal and unequal clauses.

Table 3.4: Examples of Paratactic and Hypotactic

Essay Code	Paratactic	Hypotactic
PAAO1022.txt	On the other hand, the women are all the time home in the eastern system, and in this way, she is more time with the children	if a parent is able enough only then he or she is more successful or better parent.
PAGF1040.txt	They try to give their children best clothes to wear, provide good food to eat, and compete in the world later on.	I would definitely say that fathers and mothers are significantly important in the growth of child.

3.3 Findings and discussion on Projection Relations

The projection relations are necessary element that highlights the writer's intellectual maturity regarding utilization of the others' words, resources and references in their writing to justify his/her propositions. Pakistani HGAEs and LGAEs compose these kinds of logico-semantic relations with both paratactic and hypotactic clauses to give a solid justification to their claimed proportions as shown in table 3.5 and exemplified in table 3.6.

The findings indicate that there is a similar ratio of paratactic projection and hypotactic projection in both groups. This suggests that there is no significant difference between the two groups in terms of their ability to construct projections based on logico-semantic relationships. It implies that both groups have a comparable understanding and usage of these constructions, regardless of their proficiency level. This finding suggests that the development of this aspect of writing may not be solely dependent on proficiency level alone.

Table 3.5: Occurrences and Percentage of Projection Relations

Projection Relations	Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Paratactic	39	1.45%	27	1.35%
Hypotactic	126	4.68 %	91	4.53%

Table 3.6 Examples of Paratactic Projection and Hypotactic Projection

Essay Code	Paratactic Projection	Hypotactic Projection
PAAO1014.txt	It is well known saying "There is hidden great struggle of a woman behind	We can discuss this topic in these words that a child who is completely unaware about good or bad, right or wrong and

	every successful person".	also does not know a...
PAGF1020.txt	I think (;) <u>this is an admitted fact Women devote their all ambitions, emotions and live their life only for her new home with childrens and her husband.</u>	Main duties of the women I want to illustrate in my own words, <u>that women face first of all their new relatives after a marriage and then adjust herself with them</u>

3.3.1 Paratactic Projection Relations

The findings in table 3.7 highlight that learners of both Pakistani HGAEs and LGAEs tend to construct more clauses with hypotactic projection relations as compared to paratactic projection relations. In high-graded Pakistani argumentative essays, the occurrences of paratactic projection relations are minimal, representing only 0.52% of idea cases and 0.93% of locution cases. This indicates that learners in high-graded essays do not frequently use equal-ranked clauses with verbal and mental relations. Conversely, low-graded Pakistani argumentative essays show a total of 1.35% paratactic projection occurrences, consisting of 0.45% of idea cases and 0.90% of locution cases. This suggests that writers of high-grade essays use more mental content constructs compared to verbal content constructs. Inductively, this points out that both groups tend to avoid the use of direct speech or may be hesitant in using proper punctuation marks in their writings. This could indicate a lack of confidence or familiarity with the conventions and potential inconsistencies or errors in the usage of direct speech and punctuation rules among Pakistani writers.

Table 3.7: Occurrences and Percentage of Paratactic Projection Relations

Paratactic Projection Relations		Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Idea		14	0.52%	09	0.45%
Locution		25	0.93%	18	0.90%
	Verb say	16	0.59%	12	0.60%
	Statement	02	0.07%	1	0.05%
	Question	0	0	1	0.05%
	Offer and command	03	0.11%	0	0
	Verb says with circumstance	03	0.11%	1	0.05%
	Verb associated with speech connotation	01	0.04%	1	0.05%
	Verbal processing	0	0	1	0.05%

	use of writing verb				
	Verb embodied with circumstances or semantic features	0	0	1	0.05%

3.3.2 Hypotactic Projection Relations

In the case of high-graded argumentative essays (HGEAs), hypotactic projections accounted for 4.67% of the total, which was comparatively higher than the paratactic projection. Hypotactic projection comprised 2.15% of idea-based relations and approximately 2.5% of locution relations, with the highest ratio of verb-based relationships using the word "say" (1.71%). On the other hand, hypotactic projection accounted for 4.53% of cases in the dataset of low-graded argumentative essays

(LGAEs), with 1.84% representing ideas and 2.69% representing locutions. These findings suggest that writers of LGAEs may have been less inclined to employ the mental process in their writings. Instead, they focus on providing more references, quotes, sayings, and statements from external sources to support their arguments. In contrast, HGEAs demonstrate a higher level of critical thinking and engagement with the topic by incorporating their own thoughts and analysis alongside external sources.

Table 3.8: Occurrences and Percentage of Hypotactic Projection Relations

Hypotactic projection Relations		Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Idea		58	2.15%	37	1.84%
Locution		68	2.52%	54	2.69%
	Verb say	46	1.71%	35	1.74%
	Statement	06	0.22%	04	0.20%
	Question	05	0.19%	03	0.15%
	Offer and command	05	0.19%	06	0.30%
	Verb says with circumstance	04	0.15%	04	0.20%
	Verb associated with speech connotation	01	0.04%	0	0
	Verbal processing use of writing verb	0	0	02	0.10%
	Verb embodied with	0	0	0	0

	circumstances or semantic features				

It is worth noting that both High-graded Argumentative Essays (HGAEs) and Low-graded Argumentative Essays (LGAEs) utilized discourse markers such as statement, offer, and command, along with the verb "say" in various circumstances, as indicated in Table 3.8 This type of projection nexus suggests that writers adopt a conversational and dialogue-based approach to present their propositions. They employ a scientific approach by incorporating expert opinions, institutional reports, and beliefs through indirect and passive clause constructions. This indicates their intention to support their arguments with authoritative sources and establish a strong discourse.

3.4 Finding and Discussion on Expansion Relations

Similar to the previous relationships, the expansion relations with paratactic and hypotactic constructions also demonstrate differences between high-graded argumentative essays (HGAEs) and low-graded argumentative essays (LGAEs). The table below illustrates that both HGAEs and LGAEs utilize all three sub-types of paratactic and hypotactic expansion, although with slight variations. HGAEs exhibit a higher proportion of paratactic expansion, while LGAEs show a slightly higher preference for hypotactic cases, as indicated in table 3.9. However, the difference between the two datasets is minor, suggesting that both groups employ a range of expansion strategies in their argumentative writings.

Table 3.9: Occurrences and Percentage of Expansion Relations

Expansion Relation		Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Paratactic		569	21%	412	20%
	Extension	470	17.4%	358	17.8%
	Elaboration	43	1.6%	22	1.10%
	Enhancement	52	1.9%	32	1.59%
Hypotactic		448	16.6%	345	17.1%
	Extension	26	0.9%	19	0.95%
	Elaboration	15	0.56%	11	0.50%
	Enhancement	407	15.1%	316	15.7%

3.4.1 Paratactic-Extension

As previously mentioned, the extension relation encompasses three types: additive, variation, and alternation. The table below

highlights that occurrences of paratactic addition, variation, and alternation are significantly higher in low-graded argumentative essays (LGAEs) compared to

high-graded argumentative essays (HGAEs), as shown in Table 3.10.

Conversely, within the sub-categories of this paratactic relation, positive additive and

subtractive marks are slightly more prominent in the dataset of HGAEs.

Table 3.10: Occurrences and Percentage of Paratactic Extension Relations

Paratactic Extension Relations		Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Additive		438	16.2%	333	16.5%
	Positive addition	361	13.4%	263	13.1%
	Adversative addition	67	2.8%	67	3.34%
	Negative addition	01	0.04%	03	0.15%
Variation		15	0.56%	12	0.6%
	Replacive	13	0.48%	11	0.55%
	Subtractive	02	0.07%	01	0.05%
Alteration		17	0.63%	13	0.65%

Furthermore, the study reveals that positive addition in the paratactic cases commonly occurs with the conjunction "and" and is accompanied by the punctuation mark comma (,). On the other hand, adversative addition is employed through the use of the conjunction "but," which explicitly signifies a difference or opposite information and content in the following clause.

3.4.2 Hypotactic Extension

Unlike paratactic extensions, hypo-extension relations are less commonly employed by both groups of writers. This study reports that hypotactic additive constructions are more prevalent in HGAEs, accounting for 0.74% of the constructions. Notably, the sub-types of addition and adversative additions exhibit

significant variations. Both groups tend to use adversative additive relations more frequently than positive additions, which are more commonly found in paratactic constructions. This suggests the preference of Pakistani writers to express contrasting or opposing information in their arguments. Based on this study, it can be concluded that hypotactic adversative additives are a preferred construction for Pakistani writers when composing texts in this genre, regardless of the type of writing. Furthermore, the other two extension relations, variation and alternation, are comparatively less frequent in hypotactic constructions for both groups. Additionally, it was found that there were no cases related to hypotactic subtractive constructions in the writings of either group, as indicated in table 3.11.

Table 3.11: Occurrences and Percentage of Hypotactic Extension Relations

Hypotactic Extension Relations		Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage

Additive		19	0.74%	13	0.65%
	Addition	06	0.22%	02	0.10%
	Adversative addition	13	0.52 %	11	0.55%
Variation		06	0.19 %	05	0.25%
	Replacive	06	0.19%	05	0.25%
	Subtractive	0	0%	0	0
Alterations		01	0.04 %	01	0.05%

There are few examples of extension relations, exemplified in table 3.12

Table 3.12: Examples of Paratactic Extension and Hypotactic Extension

Essays Code	Paratactic Extension	Hypotactic Extension
PAGF1042.txt PALW1037	Mothers can easily understand the nature of child perfectly <u>but a father can't</u>.	In good family normally father is provider <u>while the mother is the one taking care the children</u>.
PACJ1009.txt	Nothing is hidden <u>or noting is hidden in the world.</u>	We see the useful uses of media, <u>as well as there are many harmful uses of media</u>

3.4.3 Paratactic Elaboration

The findings in table 3.13 indicate that less frequently occurred, three types of elaborative relations—clarification, exposition, and exemplification—are observed in HGAEs at rates of 1.8%, 0%, and 0.52% respectively. In comparison, LGAEs have occurrence rates of 0.65%, 0%, and 0.45% for the same relations, as shown in table 4.9. Writers of HGAEs tend to construct their arguments with elaborative propositions, employing examples and clarification to some extent. However, they do not favour exposition relations as much, likely due to the nature of the genre. Exposition typically involves providing detailed explanations, descriptions, or definitions to support an argument or convey information. In argumentative writing, the focus is often on presenting and defending a specific point of view or making persuasive claims, rather than providing extensive explanations or descriptions. Therefore, writers of both HGAEs and LGAEs may prioritize other types of relations, such as additive or adversative causal-conditional, which are more directly relevant to advancing their arguments and addressing counter-arguments.

Table 3.13: Occurrences and Percentage of Paratactic Elaboration Relations

Paratactic-Elaboration relation	Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Clarification	29	1.08%	13	0.65 %
Exposition	0	0	0	0
Exemplification	14	0.52%	09	0.45%

3.4.4. Hypotactic Elaboration

Unlike paratactic constructions, these types of relationships involve the use of descriptive clauses, which are not part of paratactic elaboration. Writers employ hypotactic clauses specifically for clarification purposes, often using that-clauses and wh-clauses, which can sometimes create ambiguity with embedded clauses. The elements of description and clarification appear in both groups of writings at a similar ratio. However, it is important to note that this type of content is mostly constructed using embedded clauses to provide additional details, descriptive information, and explanations as exemplified in table 3.15 . These clauses contribute to enhancing the overall clarity and specificity of the argument. The distribution of these constructions is presented in table 3.14.

Table 3.14: Occurrences and Percentage of Hypotactic Elaboration Relations

Hypotactic Elaboration Relations	Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Clarification	11	0.41%	07	0.35%
Description	04	0.15%	03	0.15%

The genre of argumentative writing may be a probable reason for the limited use of descriptive clauses. Descriptive reports, on the other hand, are more suitable for providing detailed descriptions and explanations (Srinivas, 2004; Brisk & Rosa, 2014). In argumentative writing, the focus is primarily on addressing the "why" and "what" aspects rather than providing extensive descriptions or introducing new perspectives that strengthen the content of the primary clause (Ibrahim, 2019).

Table 3.15: Examples of Paratactic Elaboration and Hypotactic Elaboration

Essays Code	Paratactic Elaboration	Hypotactic Elaboration
PAGF1006.txt PARJ1007.txt	Rich people can buy anything <u>what they want</u>	They manipulate many people <u>which is subject of much research and discussion</u>

3.4.5 Paratactic Enhancement

The data presented in Table 3.16 indicates that paratactic clause constructions account for only 1.9% and 1.5% of occurrences in HGAEs and LGAEs, respectively. In these constructions, one clause qualifies or provides information about another clause in terms of time, place, manner, cause, or condition. Pakistani writers, as observed in the study, do not demonstrate a high preference for constructing these logical relations using equal-ranked clauses. However, it is worth noting that writers of high-graded essays tend to use more temporal and causal constructions in their arguments, while low-graded essays exhibit a higher percentage of paratactic manner relations.

Table 3.16: Occurrences and Percentage of Paratactic Enhancement Relations

Paratactic Enhancement Relations		Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Temporal		10	0.37%	06	0.30%
	Same time	04	0.15%	02	0.10%
	Later time	06	0.22%	04	0.20%
Spatial		0	0	0	0
Manner		01	0.04%	03	0.15%
	Means	0	0	00	0
	Comparison	01	0.04%	03	0.15%
Conditional		04	0.15%	03	0.15%
	Positive	01	0.04%	01	0.05%
	Negative	0	0	0	0
	Concession	03	0.11%	02	0.10%
Causal		37	1.37%	20	1.0%
	Cause	09	0.33%	05	0.25%
	Effect	28	1.04%	15	0.75%

3.4.6. Hypotactic Enhancement

According to following table 3.17, Pakistani writers predominantly utilize hypotactic expansion clause constructions for enhancement relations in their writings. In high-graded essays, these constructions occur 407 times, while in low-graded essays, they occur 316 times. Among the enhancement relations, cause and condition relations are the most frequent in both types of writing, as indicated in table 3.17. Interestingly, the occurrence of reasons-based relations is relatively higher in both datasets compared to purpose and result relations for argumentation. However, high-graded essays exhibit a greater number of results and purpose-based clauses compared to low-graded essays. Furthermore, low-graded essays feature a higher proportion of positive and negative conditional constructions, whereas high-graded essays predominantly employ concessive constructions for justification purposes. These findings suggest that both groups of Pakistani writers demonstrate a tendency to utilize various logico-semantic relations to justify their arguments within this genre.

Table 3.17: Occurrences and Percentage of Hypotactic Enhancement Relations

Hypotactic Enhancement Relations		Occurrence in HGAEs	Percentage	Occurrence in LGAEs	Percentage
Temporal		86	3.19%	77	3.84%
Spatial		01	0.04%	02	0.10%
Manner		48	1.78%	20	1.0%
	Means	34	1.26%	13	0.65%
	Comparison	07	0.26%	05	0.25%
	Quality	07	0.26%	02	0.10%

Conditional		82	3.04%	89	4.43%
	Positive	61	2.26%	67	3.34%
	Negative	05	0.19%	17	0.85%
	Concessive	16	0.59%	5	0.25%
Cause		190	7.05%	128	6.38%
	Result	63	2.34 %	36	1.79%
	Purpose	33	1.22%	19	0.95%
	Reason	94	3.49%	73	3.64%

Additionally, students also employed temporal and manner relations in their constructions, with temporals being more frequent in low-graded essays and manner relations being more prevalent in high-graded essays. One plausible explanation for these findings is that the nature of the genre, which is argumentative writing, requires and favours the provision of justifications and reasons. Students often utilize conjunctions and binders such as "because," "therefore," "due to," "for," and "by" to establish a logical flow of reasoning and support their arguments as notified in table 3.18. These linguistic devices help to enhance the coherence and persuasiveness of the essays, allowing students to present their viewpoints effectively.

Table 3.18: Examples of Paratactic Enhancement and Hypotactic Enhancement

Essay Code	**Paratactic Enhancement**	**Hypotactic Enhancement**
PALW1041 PAVL1018	She bears the rudness and harsh words from her in laws and her husband and at the same time she has to look after her children	He can save that money for future but man's curios nature urges him to spend that money then he uses to male his life style better and competent as compared to the other people.
PAGF1008	Family is shattered and thus society is also shattered	When the hope from both sides do not fulfill , they hurt
PASU 1006 PAPL1001	Media plays live discussion on TV channels , sometimes it creates bad effect on our new young generation	Most of Pakistani media provides sensational news because our people are unwilling to learn new good ideas.
PAGF1042 PAMJ1001	Wise mother can handle a child according to his nature and psychology but as compare to mother father can't not perform this role effectively	Money can buy men as it does things

The analysis of the findings presented reveals several insights regarding the use of logico-semantic relations in Pakistani students' argumentative essays. Both high-graded and low-graded essays demonstrated the utilization of various types of relations, including

paratactic and hypotactic constructions, to support their arguments.

3.5 Study of Null Hypotheses Between HGAEs and LGAEs Regrading System of Clause Complexes

The taxis and their major logico-semantic relations were studied using the Mann-Whitney Wilcoxon test due to the non-normal distribution of the data (Eddington, 2016; Corder, & Foreman,2014). The findings indicate that the majority of cases failed to reject the null hypotheses, as evidenced by higher p-values (p > 0.05). This suggests that there is no significant difference between HGAEs and LGAEs regarding studied variables in terms of their schematic structure and logico-semantic relationsre. However, it is important to note that there are a few cases that did show significant differences, indicated by lower p-values (p < 0.05), indicating that there may be variations in these specific aspects (Dodge,2008).Overall, these findings provide insights into the distribution and patterns of schematic structures and logico-semantic relations in the Pakistani argumentative essays as represented in following table 3.19.

Table 3.19 Significant Difference Between HGAEs and LGAEs Regrading System of Clause Complexes

	System of Clause Complexes				
	Mann-Whitney U	Wilcoxon W	Z	Asymp.Sig (2 tailed)	P ≤ 0.05 Null Hypotheses
1. Paratactic	1149.000	2424.000	-.696	.486	Not Rejected
2. Embedded	1025.000	2300.000	-1.551	.121	Not Rejected
3. Para-Expansion	1181.500	2456.500	-.472	.637	Not Rejected
4. Para-Projection	1132.000	2407.000	-.907	.365	Not Rejected
5. Para-Elaboration	1029.500	2304.500	-1.665	.096	Not Rejected
6. Para-Extension	1222.000	2497.000	-.193	.847	Not Rejected
7. Para-Enhancement	1232.000	2507.000	-.132	.895	Not Rejected
8. Para-Additive	1215.500	2490.500	-.238	.812	Not Rejected
9. Para-Variation	1154.000	2429.000	-.988	.323	Not Rejected
10. Para-Alternation	1154.000	2429.000	-.988	.323	Not Rejected
11. Para-Temporal	1246.000	2521.000	-.049	.961	Not Rejected
12. Para-Conditional	1198.000	2473.000	-.762	.446	Not Rejected
13. Para-Causal	946.000	2221.000	-2.322	**0.020**	**Rejected**

14. Para-Spatial	1250.000	2525.000	.000	1.000	Not Rejected
15. Para-Manner	1173.000	2448.000	-1.406	.160	Not Rejected
16. Para-Idea	1239.000	2514.000	-.109	.914	Not Rejected
17. Para-Locution	1194.500	2469.500	-.477	.633	Not Rejected
18. Hypotactic	965.000	2240.000	-1.965	**0.049**	**Rejected**
19. Hypo--Expansion	1180.000	2455.000	-.483	.629	Not Rejected
20. Hypo--Projection	1169.000	2444.000	-.563	.574	Not Rejected
21. Hypo-Elaboration	1224.000	2499.000	-.262	.793	Not Rejected
22. Hypo-Extension	1126.500	2401.500	-1.018	.309	Not Rejected
23. Hypo-Enhancement	1134.500	2409.500	-.796	.426	Not Rejected
24. Hypo-Addition	1217.000	2492.000	-.295	.768	Not Rejected
25. Hypo-Variation	1218.500	2493.500	-.400	.689	Not Rejected
26. Hypo-Alternation	1226.000	2501.000	-.560	.576	Not Rejected
27. Hypo-Temporal	1164.000	2439.000	-.603	.547	Not Rejected
28. Hypo-Causal condition	999.000	2274.000	-1.757	.079	Not Rejected
29. Hypo-Cause and Condition	1205.000	2480.000	-.310	.756	Not Rejected
30. Hypo-Manner	1036.000	2311.000	-1.625	.104	Not Rejected
31. Hypo-Spatial	1201.500	2476.500	-.985	.325	Not Rejected
32. Hypo-Positive Condition	1018.000	2293.000	-1.672	.094	Not Rejected
33. Hypo-Negative Condition	986.500	2261.500	-2.654	**0.008**	**Rejected**
34. Hypo-Concession	1174.500	2449.500	-.795 .	.426	Not Rejected
35. Hypo-Idea	1198.000	2473.000	-.382	.703	Not Rejected
36. Hypo-Locution	1077.000	2352.000	-1.239	.215	Not Rejected

It is worth noting that the majority of Pakistani High-Grade Argumentative Essays (HGAEs) and Low-Grade Argumentative Essays (LGAEs) do not exhibit significant differences in the system of clauses, as per the analysis conducted based on Halliday and Matthiessen framework (2014). This is evident from the p-values greater than 0.05. However, there are three specific cases, namely hypotactic (p < 0.02), paratactic causal (p < 0.04), and hypotactic negative conditions (p < 0.008), where the p-values are below the significance threshold (p < 0.05). These cases reject the null hypotheses and indicate significant differences in the use of these relations between HGAEs and LGAEs. Overall, the findings of current research align with previous research (Ping and Bee, 2005; Ibrahim, 2019)

The lack of significant difference between Pakistani HGAEs and LGAEs regarding the system of clause complexes, except for the three mentioned cases (hypotactic structures, hypotactic negative conditions, and paratactic causal relationships), suggests that the overall structure and organization of clause complexes are relatively similar between the two types of adverbial elaborations.

Conclusion

The findings revealed that HGAEs and LGAEs utilized taxis and logico-semantic relations collectively and nearly in equal proportion, with minor differences. However, their sub-categories exposed the variations. In high-graded argumentative essays (HGAEs), clause complexes were more commonly observed, while low-graded argumentative essays (LGAEs) tended to use clause simples more frequently. HGAEs achieved a balanced integration of paratactic and hypotactic relations, whereas LGAEs leaned towards a higher usage of hypotactic constructions. The proportions of locution relations were similar in both HGAEs and LGAEs, but HGAEs exhibited a comparatively higher occurrence of mental processes. Regarding expansion cases, LGAEs placed greater emphasis on conditional relations, whereas HGAEs emphasized causal relations. HGAEs employed concession conditional relations, while LGAEs exclusively constructed positive conditional relations.

Additionally, the test of the null hypothesis did not indicate any significant difference between HGAEs and LGAEs concerning the system of clause complexes, except for three instances: hypotactic structures, hypotactic negative conditions, and paratactic causal relationships.

It is important to note that these findings provide valuable insights into the writing patterns of Pakistani students in argumentative essays. Further research could delve deeper into the specific linguistic and contextual factors that influence the use of logico-semantic relations and their impact on the overall effectiveness of the essays. Such investigations can contribute to the enhancement of writing pedagogy and curriculum development, ultimately fostering stronger argumentative skills among students.

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