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# Phrasal Verbs in Applied Linguistics Research Articles: A Corpus-Based Study of Their Distribution and Clause Structures

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**Abstract**

The research explores the way phrasal verbs are employed by the writers of applied linguistics research articles, analyzing their grammatical and lexical patterns, the structures that accompany them, and the distribution of phrasal verb types and tokens. While previous studies have examined phrasal verbs in isolation or across registers, little attention has been paid to how they function within verb complementation clause structures or how their use compares to other verb types in the same genre. The frequency of phrasal verbs and verb complementation patterns across the corpora was investigated using AntConc. The clause structure framework of Quirk et al. (1985) was employed to determine the syntactic roles of clause elements. Sixteen clause types were investigated, including copular, transitive, complex copular, and ditransitive structures, to analyze the deployment of both single-word and multi-word verbs. Verbs from the top 100 frequency list were classified into the 16 clause structures, normalized to 100,000 words, and analyzed using the measure of faithfulness (Römer et al., 2015) to determine verb-structure associations. The findings showed that the copular, transitive, and prepositional verbs were dominant, and that the phrasal verbs constitute a notable characteristic of contemporary academic discourse in applied linguistics. The study concluded by outlining theoretical and pedagogical implications that might support language instructors in teaching verb selection and phrasal verb use in academic writing courses.

## 1. INTRODUCTION

A phrasal verb (PV) includes a lexical verb combined with an adverbial particle. It is a challenging type of formulaic speech and is frequently used in informal spoken English ( Garbatovič & Grigaliūnienė, 2020; Liu, 2011). Traditionally, academic English has discouraged the use of PVs, favoring more formal single-word verbs. While PVs facilitate efficient and natural communication in spoken discourse, they are often perceived as informal and, therefore, less appropriate in

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academic writing. Indeed, PVs have frequently been described as problematic or even inappropriate in academic genres (Alangari et al., 2020). Expressions considered acceptable in informal conversation are often viewed as stylistically unsuitable in formal academic contexts. As a result, students are commonly advised to replace PVs with single-word equivalents, often of Latin origin (Bailey, 2003; Coxhead & Byrd, 2007; Swales & Feak, 2004). The presence of PVs in academic writing may, therefore, be interpreted as a deviation from established stylistic norms.

However, the frequent occurrence of PVs in informal discourse does not necessarily imply their absence from formal registers. Previous research investigating PVs has primarily examined their distribution across different registers (Biber et al., 1999), often treating them as isolated linguistic units without comparing their use to other verb types within the same genre. Examining the relative frequency of PVs alongside other verbs within a specific register can provide valuable insights that challenge the assumption that PVs are rare or inappropriate in academic writing. Another challenge in studying PVs lies in their definition and classification. Some researchers group them under broader categories such as verb–particle constructions or multi-word verbs (Breeze, 2012; Liu, 2012). These broader categorizations may obscure important distinctions between PVs and other multiword verb structures. Multiword verbs are generally made up of a lexical verb and a preposition or an adverbial particle (e.g., *look at*, *consist of*). Moreover, phrasal-prepositional verbs combine both an adverbial particle and a preposition (e.g., *look forward to*, *get away with*) (Quirk et al., 1985). Such constructions are widely recognized as particularly challenging for English language learners, yet they have received comparatively limited attention in research on PVs (Alsakran, 2011; Hauken et al., 2019; Nesselhauf, 2005).

Verb complementation structures pose a similar challenge for learners because they involve both lexical and syntactic knowledge and often appear unpredictable (Faulhaber et al., 2014; Kartal, 2018). This unpredictability arises from the fact that certain verbs occur in specific clause structures, but not in others. Therefore, analyzing PVs from a syntactic perspective, particularly through verb complementation clause structures, may provide deeper insights into their patterns of use. Integrating lexical and syntactic analysis makes it possible to have a more comprehensive awareness of the structure and usage of language. (Leal et al., 2018; Stefanowitsch & Gries, 2003).

For language learners, PVs present a significant challenge. A PVis usually made up of a main verb combined with a following adverbial particle, and the combination may function as a single semantic and syntactic unit (Quirk et al., 1985). A range of semantic and syntactic criteria such as the degree of idiomatic meaning, the possibility of replacing the expression with a single verb, the ability to shift the particle, and how it behaves in wh-question formation can help differentiate PVsfrom other multi-word verb combinations (Greenbaum & Nelson, 2002). The present study adopted a syntactic approach to analyzing PVs. Specifically, it applied the Quirkian clause structure model (Quirk et al., 1985) because it provides a detailed account of verb complementation patterns. Investigating frequently-occurring verbs and the complements they select enables a systematic analysis of how PVs function within clause structures.

The relevance of this research is particularly evident in contexts such as Iran, where English academic writing plays a central role in higher education. There is a tendency among academic researchers to publish their research work. Their writing frequently involves complex sentence structures requiring accurate lexical and grammatical choices. Understanding how PV usage interacts with clause structures may, therefore, provide valuable insights that help academic researchers construct grammatically appropriate and stylistically acceptable sentences. Academic writing encompasses a wide range of genres, including journal articles, dissertations, examinations, essays, and other forms of scholarly writing (Bhatia, 2002). Although research articles are often regarded as prototypical examples of academic writing (Swales, 1990), they may not always represent the writing practices expected from less experienced student writers.

PVsalso present comprehension challenges for second language learners because they vary in degrees of idiomaticity and transparency (White, 2012). Many PVs have multiple meanings, which further increases their complexity (Gardner & Davies, 2007; Garnier & Schmitt, 2016; Oflaz, 2019). Moreover, many languages lack verb–particle constructions comparable to those found in English, creating additional difficulties for learners whose first language does not contain similar structures. Another complicating factor is the dynamic nature of PVs, as new forms and meanings can be readily created (Bolinger, 1971; Darwin & Gray, 1999).

This study examined PVs within the broader context of clause structures and verb–particle combinations, including phrasal-prepositional verb constructions. By comparing the frequency of PVs with other verb types used in the corpus, the study aimed to determine the way PVs are used in applied linguistics research articles.

The following research questions were examined:

1. What types and tokens of PVsare most frequently used in the different sections (abstract, introduction, literature review, method, discussion, and conclusion) of applied linguistics research articles?
2. What are the similarities and differences between the most frequent types and tokens of PVsin different sections of applied linguistics research articles?
3. What proportion do PVstake up compared to other verb types in different sections of research articles?

## 2. LITERATURE REVIEW

### Definitions and Classifications of Phrasal Verbs

Phrasal verbs (PVs) have been defined in various ways across linguistic frameworks. Quirk et al. (1985) describe PVs through both syntactic and semantic criteria: syntactically, a PV combines a lexical verb with a particle; semantically, its meaning extends beyond the literal combination of its parts. Similarly, according to Biber et al. (1999, p. 404), PVs are "verb phrases with meanings beyond those of their individual elements" and they classify multiword verbs into four main categories:

- PVs (e.g., *pick up*) – verbs combined with one or more particles;
- Prepositional verbs (e.g., *look at*) – verbs followed by prepositions;
- Phrasal-prepositional verbs (e.g., *get away with*) – verbs combining a particle and a preposition; and,
- Other multiword verb formations – such as *take a look at* (verb + noun phrase + preposition) or take into account (verb + prepositional phrase).

As Liu (2011) notes, determining whether the meaning of a PV transcends the literal meanings of its components is often subjective (p. 663). This interpretive ambiguity complicates clear linguistic classification.

### Clause Structure Frameworks

The present study investigates PVs, adopting the Quirkian model (Quirk et al., 1985). This approach allows detailed examination of how verbs, particularly PVs, function syntactically within specific clause patterns. Studying verb clause structures requires analyzing commonly occurring verbs alongside their preferred complements, which enables systematic comparison across syntactic types.

For this purpose, the study focuses on copular, transitive, ditransitive, and complex copular clause forms. Copular clauses link a subject to a complement (e.g., *He was hungry* or *He was a poor man*). Transitive clauses include a direct or indirect object, which may take the form of a noun phrase, finite clause, or non-finite clause. Complex copular clauses involve two post-verbal elements linking object and predicate (e.g., *They consider her intelligent*). Ditransitive clauses contain both an indirect and a direct object, as in *I gave Mary the book*. By examining these structures, the study distinguishes among phrasal, prepositional, and phrasal-prepositional verb constructions, thereby offering a more nuanced perspective on verb complementation patterns in academic English. The Quirkian framework is especially suitable for this analysis because it emphasizes the verb as the clause's central element and highlights how its complement choices shape meaning and grammatical correctness—factors that are particularly important in writing academic texts.

## Academic Writing

Academic writing encompasses a variety of written genres, including articles, dissertations, examinations, and other scholarly assignments (Bhatia, 2002). Academic writing is often regarded as a unified construct characterized by shared linguistic and rhetorical features across disciplines. Researchers have typically approached the study of academic writing from three main perspectives. Genre analysis examines the logical organization of ideas and the rhetorical structure of texts, focusing on the "generic elements" or "moves" that make up coherent discourse (Charles et al., 2009). The register analysis investigates the syntactic and lexical choices that distinguish academic writing from other registers.

In contrast, the contrastive analysis compares the writing of non-native (i.e., second language (L2)) learners with that of native speakers to identify cross-linguistic differences and developmental patterns. In corpus-based research, the most frequent quantitative approach to investigating PVsin academic English is frequency analysis. This method typically involves calculating the total number of PVs in a corpus and determining which PVs occur most frequently within that dataset (Badem & Şimşek, 2021).

Within academic writing, the research article is the prototypical genre through which scholars communicate new knowledge (Swales, 1990). Published research articles in applied linguistics are particularly appropriate for this study because they represent the most prestigious form of academic writing in the discipline. After all, scholars in this field are highly aware of their own lexico-grammatical choices, and they provide a representative sample of contemporary academic discourse. However, research articles are not monolithic; they comprise distinct sections abstract, introduction, literature review, method, discussion, and conclusion, each with different rhetorical functions. The introduction must establish a research niche, the method must describe procedures objectively, and the discussion must interpret findings and suggest implications. These differing purposes are likely to produce different patterns of verb use. For example, reporting verbs such as *suggest* and *propose* may cluster in the introduction and discussion, while activity verbs such as *use* and *apply* may dominate the method section. A section-based analysis, therefore, contributes to existing knowledge by acknowledging the internal diversity of the research article, by enabling more targeted pedagogical recommendations, and by revealing whether certain verbs or clause structures are section-specific or evenly distributed. This finer-grained understanding addresses a gap in the literature, which has tended to treat research articles as undifferentiated wholes.

## Definitions and Classifications of Phrasal Verbs

Within applied linguistics, research on PVs has primarily addressed their frequency and dispersion across registers. Gardner and Davies (2007), analyzing the British National Corpus, identified around 100 highly frequent PVs, which accounted for over half of all PV tokens in the corpus. Liu (2011) expanded on this work by examining the same PVs plus fifty additional ones across both British and American English, concluding that high-frequency PVs occur similarly across varieties, but predominantly in spoken and fictional texts.

Building on these studies, Garnier and Schmitt (2015) compiled the Phrasal Verb List (PHaVE) based on Liu's (2011) findings. This list, encompassing 150 PVs and their primary senses, demonstrated that roughly two meanings account for 75 % of all PV occurrences, indicating relatively limited semantic variability among high-frequency forms. Nevertheless, Gardner and Davies's (2007) list included only PVs whose verbs belong to the twenty most common English lexical verbs, omitting some less frequent, yet pedagogically relevant, PVs and providing no register-based distribution data.

In a subsequent comparative analysis, Liu (2011) employed both the BNC and the Corpus of Contemporary American English (COCA) to explore cross-register patterns, identifying striking parallels, but also substantial differences in academic subcorpora. Liu (2012) later extended this work to multiword constructions (MWCs), identifying 228 common academic MWCs, including idioms and lexical bundles. However, the corpora (BNC 1980–1993; COCA 1990–2010) may not fully capture developments in more recent academic discourse.

Liu and Myers (2018) refined this line of research by examining the 150 PVs from Liu (2011) and Garnier and Schmitt (2015) across COCA's spoken and academic written subcorpora. Their study, the Oral and Written PHaVE List (S&AW PHaVE), showed that 106 out of 150 PVs (≈ 96 %) exhibit distinct distributional differences between spoken and academic registers, underscoring the influence of genre on PV semantics. However, their focus was limited to two-word PVs, excluding phrasal-prepositional combinations.

Shouran (2021) examined Libyan students' use of PVs in English writing, identifying both syntactic and semantic difficulties and explaining how these two types of issues interact to influence learner performance. In another line of inquiry, Medina and Saraswati (2023) examined PVsused in Hillary Clinton's speech, focusing on the implied meanings conveyed and the types of PVs employed.

A large body of research has investigated PVs in both general and learner corpora, including studies by Akbari (2009), Gardner and Davies (2007), Trebits (2009), Waibel (2007), and Zarifi and Mukundan (2013). A review of this literature reveals that a group of studies concentrated on student production, and some others analyzed linguistic materials. However, few researchers have examined instructional materials to determine how complex multiword combinations, particularly those beyond simple two-word structures, are presented to learners (Gardner & Davies, 2007; Kamarudin, 2013; Zarifi & Mukundan, 2012).

Although numerous studies have explored PVs, most have concentrated on two-word PVs, leaving more complex verb–particle–preposition combinations underexplored (Garnier & Schmitt, 2015; Liu & Myers, 2018). Learners also tend to avoid PVs in academic writing, possibly due to the association of PVs with spoken or informal usage. A closer look at the existing research further reveals that Iranian learners' use of PVs across clause structures has received little attention, despite the importance of understanding how these constructions function in academic contexts. Very few studies have examined PVs in academic writing, particularly in M.A. research articles.

More recent research has begun to explore the diachronic evolution of PVsin scientific and academic discourse. Alves (2025) used the Information Theory methods to analyze PVs in

scientific writing from the mid-17th century to the end of the 20th century, identifying processes of conventionalization over the 20th century and peaks of diversification throughout the centuries. Liang (2025) conducted a corpus-based study on the use of PVs by first language (L1) users and Chinese English-as-a-foreign-language (EFL) learners, providing further evidence of crosslinguistic influences on PV production patterns. Lin (2024) explored crosslinguistic influence on learning particles in PVs through a cognitive linguistic approach, demonstrating that learners' L1 conceptual systems significantly affect their understanding and use of PV particles.

Research on learner difficulties has consistently identified PV avoidance as a persistent challenge. Ramadhan and Saaed (2024) examined PV avoidance among 120 Kurdish EFL students, confirming that the learners tended to avoid PVs due to semantic complexity and L1-L2 differences. Zhou and Thomas (2025) conducted a longitudinal study tracking 75 mixed-L1 foundation students in the UK over two academic terms, investigating PV development in a study-abroad environment. The findings revealed that participants made only small gains in PV knowledge over two terms, with larger gains in productive than receptive knowledge, suggesting that the learners consolidated existing PV knowledge more than acquiring new PVs.

Regarding pedagogical interventions, recent research has examined both instructional approaches and learner difficulties. Strong (2025) reviewed five strands of PV instruction: corpus-based studies, input-based, output-based, retrieval-based, and cognitive linguistic approaches and called for integrated instructional sequences that align corpus-informed selection with cognitive scaffolding and retrieval practice. Ibn Alameer (2024) investigated the effects of corpus-based activities on Arab EFL learners' PV acquisition with 76 female intermediate Saudi students. The findings suggested that explicit DDL instruction may be more effective for long-term retention of PV knowledge. Alhujaylan (2025) evaluated mobile-assisted language learning (MALL) for PV instruction in a 12-week study with 122 Saudi EFL students. This study provided empirical evidence for the effectiveness of technology-enhanced approaches to PV instruction and highlighted the potential of mobile learning in EFL contexts. Cognitive linguistic approaches have also gained empirical support. Fallah et al. (2024) demonstrated that a conceptual approach grounded in orientational metaphors significantly improved Iranian EFL learners' comprehension and production of PVs compared to traditional methods. This finding reinforces the value of helping learners understand the conceptual motivations behind PV meanings rather than relying solely on rote memorization.

Previous research has established that a small number of high-frequency PVs account for most PV usage (Gardner & Davies, 2007; Liu, 2011). PVs are more common in spoken and fictional registers than in academic writing and have traditionally been viewed as informal (Biber et al., 1999; Liu, 2011). Learners frequently avoid PVs, especially when their L1 lacks comparable constructions (Dagut & Laufer, 1985; Liao & Fukuya, 2004; Waibel, 2007). Textbooks often present PVs inadequately, selecting them based on intuition rather than empirical evidence (Kamarudin et al., 2017; Koprowski, 2005; Zarifi & Mukundan, 2012). PVs do occur in academic prose, though their distribution varies across registers and disciplines (Alangari et al., 2020; Liu, 2012; Liu & Myers, 2018). Recent studies have explored diachronic evolution, crosslinguistic influences, and pedagogical interventions (Alhujaylan, 2025; Alves, 2025; Fallah et al., 2024; Ibn Alameer, 2024; Liang, 2025; Lin, 2024; Strong, 2025; ).

Despite these advances, several questions remain unanswered. First, most studies have examined PVs in isolation without comparing their use to other verb types within the same genre. Second, academic writing has been treated as monolithic, with no systematic investigation of whether PV use varies across different sections of a research article. Third, the Quirkian framework of verb complementation clause structures has rarely been applied to PVs in academic writing, leaving it unknown which clause structures PVs most frequently occupy. The present study

addresses these gaps by investigating PVs within the broader system of verb complementation clause structures in applied linguistics research articles. Specifically, it examines the frequency and distribution of PVs across six sections of research articles, compares their use to other verb types, and applies the measure of faithfulness to determine verb-structure associations.

## 3. METHODOLOGY

This study employed a corpus-based descriptive and quantitative research design.

### Academic English Corpus

The researchers used a variety of English Language and Applied Linguistics academic sources. The corpus consisted of 40 empirical research articles published between 2020 and 2024 in eight leading applied linguistics journals: *TESOL Quarterly* (6), *Language Teaching Research* (5), *Applied Linguistics* (5), *Journal of English for Academic Purposes* (5), *English for Specific Purposes* (5), *Language Teaching* (5), *Studies in Second Language Acquisition* (5), and *System* (4). The 40 articles were selected using purposive sampling and based on relevance to applied linguistics, empirical methodology, and full-text availability in English. The review articles, editorials, and theoretical papers were excluded. The corpus included both qualitative and quantitative articles in approximately equal proportions, as well as articles by both L1 and L2 English writers. References, tables, figures, quotations, appendices, footnotes, and affiliations were excluded. The study type was not analyzed as an independent variable because the research questions concerned distribution across sections rather than differences between qualitative and quantitative research, and this is now noted as a limitation. After uploading *.txt* files to AntConc, the Academic English Corpus was created. The final corpus contained 216,690 words, distributed across six sections: abstract (12,450), introduction (38,920), literature review (42,310), method (35,670), discussion (48,230), and conclusion (39,110).

### Analytical framework

This study uses the Quirkian framework to identify and analyze PVs (Quirk et al., 1985). Using this approach, the study examines verb syntactic structures and their post-verbal arguments. The clause structures analyzed are based on the classifications proposed by Quirk et al. (1985). Multi-word verbs are analyzed in terms of phrasal, prepositional, and phrasal-prepositional constructions. This classification is necessary in order to distinguish different types of multi-word verbs systematically. Overall, the study investigated 16 specific clause constructions.

PVs were identified using Gardner and Davies's (2007) definition, with four criteria applied: particle movement, wh-question formation, single-word substitution, and idiomaticity. Ambiguous cases were classified as PVs only if they met at least two criteria; the remaining cases were resolved through consultation with reference works and discussion with a second coder. Classification was manual, with AntConc used only for generating concordance lines and frequency lists. A second coder independently analyzed 20% of the data, yielding a Cohen's kappa of 0.87. Clause structures were assigned based on Quirk et al. (1985) by identifying the main verb and its post-verbal complements and matching them to one of the 16 structures.

This study analyzes verb syntactic structure and postverbal arguments using the Quirkian approach. The clause structures used in this study are from Quirk et al. (1985) (Table 1).

**Table 1: Target clause structures (adapted from Quirk et al., 1985, p. 1171).**

| Verb Complementation Clause Structures | Examples |
|---|---|
| 1 Phrasal Type 1 SV (_VP AdvPart) | The two girls have fallen out. |
| 2 Phrasal Type 2 SVOd (_VP AdvPart NP) | Sam picked up the pen. |
| 3 Phrasal Prepositional Type 1 SVOp (_VP AdvPart PP) | The team came up against resistance. |
| 4 Phrasal Prepositional Type 2<br>SVOdOp (_VP NP AdvPart PP) | I look forward to your party. |
| 5 Phrasal Prepositional Type 3<br>SVOiOp (_VP NP AdvPart PP) | They put it down to chance. |
| 6 Copular SVC (_VP NP/ADJ)<br>subject complement SVC<br>1 Adjectival<br>2 Nominal | 1 The girl seemed restless.<br>2 She is a teacher |
| 7 Transitive SVO (_VP NP)<br>1 noun phrase (with or without passive)<br>2 finite clause: that-clause/wh-clause<br>3 nonfinite clause: wh-infinitive, to-infinitive, -ing clause<br>4 to-infinitive (+s), -ing clause (+s) | 1 Tom caught the ball/Paul lacks confidence.<br>2 I think that we have met.<br>3 I learned how to sail/She decided to move house/She enjoys playing squash.<br>4They want us to help/I hate children quarrelling. |
| 8 Prepositional Type 1 SVOp (_VP PP) | John looked at his watch. |
| 9 Complex copular SVOC (_VP NP NP/ADJ)<br>1 O+ adjectival<br>2 O+ nominal<br>3 O+ to-infinitive/as<br>4 O + bare infinitive<br>5 O +-ing clause<br>6 O + -ed clause | 1 That music drives me mad.<br>2 They named the ship ‘Zeus’.<br>3 They knew him to be a spy/He is known as a spy.<br>4 I saw her leave the room.<br>5 I heard someone shouting<br>6 I got the watch repaired. |
| 10 Complex transitive SVOA (_VP NP PP) | I left the key at home. |
| 11 Ditransitive<br>Double object (dative, benefactive and depriving clause structures) SVOiOd (_VP NP NP)<br>1 2 noun phrases: Oi and Od<br>2 Od + prepositional phrase<br>3 Oi + that-clause<br>4 Oi + wh-clause<br>5 Oi + wh-infinitive clause<br>6 Oi + to-infinitive | 1 They offered her some food.<br>2 They said something to us.<br>3 They told me that I was ill.<br>4 He asked me what time it was.<br>5 Mary showed us what to do.<br>6 I advised Mark to see a doctor. |
| 12 Prepositional Type 2a (alternating with SVOiOd)<br>SVOdOp (_VP NP PP) | He lent his bike to Sam.<br>(He lent Sam his bike.) |

| | |
|---|---|
| 13 Prepositional Type 2b (non-alternating) SVOdOp (_VP NP PP) | He donated £10 to charity |
| 14 Prepositional Type 3 SVOdOp (_VP NP PP) | I caught sight of him |
| 15 Prepositional Type 4a (animate indirect object) SVOiOp (_VP NP PP) | They told me about your success |
| 16 Prepositional Type 4b (inanimate indirect object) SVOiOp (_VP NP PP) | They based the findings on facts |

## Analytical Procedures

The analysis of PVs in applied linguistics research articles was conducted using AntConc. The researcher first opened the software and imported the Academic English Corpus. After loading the corpus, the “Word List” tool was selected and configured to generate a list of PVs. The researcher, then, identified the relevant sections of the abstracts, introduction, literature review, method, discussion, and conclusion of the research articles and used AntConc’s filtering options to limit the results to each section as required. Sections were identified based on both structural and rhetorical criteria. Structurally, sections were identified by their conventional headings (e.g., "Introduction," "Method," "Discussion"). Rhetorically, sections were identified by their communicative function within the IMRD framework (Swales, 1990). In the articles without explicit headings, sections were identified based on the rhetorical function and position within the article. Section boundaries were determined by headings or shifts in rhetorical function. Acknowledgments, footnotes, references, tables, figures, and appendices were excluded. Ambiguous cases were resolved through consultation with the second coder.

The generated word list was examined to identify the most frequent PV types and tokens within each section. To investigate the contextual use, the researcher utilized the “Concordance” tool, entering specific PVs to retrieve all instances in the context. The frequency of each PV type and token was then calculated, either manually or through AntConc’s built-in frequency functions. This procedure enabled a systematic and section-by-section analysis of PV usage in applied linguistics research articles. For statistical analysis, the frequency counts obtained from AntConc were exported to SPSS in a compatible format (e.g., .csv or .xlsx). After importing the data into SPSS, the researcher computed the total occurrences of PVs and other verb types (e.g., single-word verbs) in each section. Proportions were then calculated by dividing the frequency of each verb type by the total number of all verb types in that section.

The top 100 verb lemmas were selected using AntConc's Word List tool. First, a frequency-ordered list of all word forms was generated. Second, verb forms were manually identified using the COBUILD Grammar Patterns and the Longman Grammar of Spoken and Written English as references. Third, inflected forms were grouped into lemmas using the CELEX lexical database and the British National Corpus lemma lists. Fourth, lemma frequencies were calculated by summing the raw frequencies of all forms belonging to each lemma. Fifth, lemmas were ranked in descending order, and the top 100 were selected. A verb lemma is defined as a group of word forms sharing the same base form and word class (e.g., USE: *use*, *uses*, *used*, *using*). A verb type is a distinct word form (e.g., *used*). A verb token is every individual occurrence of a verb form.

Because different corpora vary in size, normalization was essential. Normalization adjusts raw frequencies so that meaningful comparisons can be made across corpora of unequal length. By standardizing frequencies and applying appropriate statistical tests, the researcher ensured the accuracy and reliability of the findings. A standard base of 100,000 words was used. The normalized frequency was calculated as:

Raw frequency ÷ corpus size × 100,000

Corpus size refers to the number of words, not the number of tokens.

To evaluate the degree of contingency, an additional measure was employed. This involved standardizing the frequency of the occurrence of a verb in a particular clause structure:

Raw frequency of the clause structure ÷ total frequency of the verb × 100

The Measure of Faithfulness (Römer et al., 2015) indicates the extent to which a verb is used within a particular clause structure compared with all its occurrences. For example, if *be* has a faithfulness score of 98 in copular clauses and *get* has a score of 35, *be* is more "faithful" to copular constructions, whereas *get* is more flexible and appears across a wider range of clause patterns.

## 4. RESULTS

### Analysis Relied on Total Frequencies

The concordance lines for the top 100 most-often-used verbs were categorized based on the chosen 16 clause structures. The clause structures that had been chosen were displayed in Table 2, together with their frequencies, both in their raw form and normalized. Brackets contained the normalized frequencies.

**Table 2: Chosen clause structure patterns and their occurrence frequencies in the AEC**

| | **Types** | | | | | | |
|---|---|---|---|---|---|---|---|
| | abstract | introduction | literature | method | discussion | conclusion | Total |
| Copular/Linking | 9 | 12 | 12 | 12 | 13 | 11 | 13 (6) |
| Simple Transitive | 71 | 85 | 86 | 84 | 86 | 82 | 86 (40) |
| Phrasal Type 1 | 2 | 3 | 10 | 3 | 7 | 6 | 19 (9) |
| Phrasal Type 2 | 4 | 5 | 10 | 8 | 9 | 7 | 20 (10) |
| Prepositional Type 1 | 17 | 39 | 50 | 41 | 50 | 37 | 64 (29) |
| Phrasal Prepositional Type 1 | 0 | 0 | 5 | 0 | 3 | 1 | 6 (3) |
| Complex Copular | 39 | 44 | 44 | 44 | 44 | 43 | 44 (20) |
| Complex Transitive | 3 | 4 | 4 | 3 | 4 | 4 | 4 (2) |
| Ditransitive/ Double object | 6 | 9 | 9 | 8 | 9 | 9 | 9 (4) |
| Prepositional | 3 | 3 | 5 | 4 | 5 | 4 | 5 (2) |
| Type 2a | | | | | | | |
| Prepositional Type 2b | 5 | 14 | 12 | 14 | 15 | 11 | 21 (10) |
| Prepositional Type 3 | 1 | 8 | 10 | 5 | 8 | 9 | 13 (6) |
| Prepositional Type 4a | 1 | 3 | 4 | 3 | 5 | 4 | 7 (3) |
| Prepositional Type 4b | 1 | 5 | 5 | 6 | 8 | 3 | 11 (5) |
| Phrasal Prepositional Type 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 (0) |
| Phrasal Prepositional Type 3 | 0 | 2 | 3 | 5 | 4 | 1 | 1 (0) |

| | **Tokens** | | | | | | |
|---|---|---|---|---|---|---|---|
| | abstract | introduction | literature | method | discussion | conclusion | Total |
| Copular/Linking | 111 | 562 | 1009 | 477 | 794 | 445 | 3398 (1567) |
| Simple Transitive | 881 | 2491 | 5996 | 2746 | 4001 | 1883 | 17998 (8307) |
| Phrasal Type 1 | 2 | 3 | 20 | 5 | 10 | 8 | 48 (19) |
| Phrasal Type 2 | 8 | 9 | 29 | 26 | 17 | 19 | 108 (45) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Prepositional Type 1 | 57 | 195 | 502 | 223 | 294 | 128 | 1399 (642) |
| Phrasal Prepositional Type 1 | 0 | 0 | 9 | 0 | 2 | 1 | 12 (3) |
| Complex Copular | 298 | 961 | 2411 | 1235 | 1711 | 788 | 7404 (3419) |
| Complex Transitive | 4 | 40 | 82 | 44 | 65 | 44 | 279 (129) |
| Ditransitive/ Double object | 9 | 56 | 112 | 68 | 104 | 48 | 397 (183) |
| Prepositional | 7 | 11 | 22 | 50 | 17 | 11 | 118 (55) |
| Type 2a | | | | | | | |
| Prepositional Type 2b | 7 | 31 | 72 | 37 | 59 | 21 | 227 (103) |
| Prepositional Type 3 | 3 | 15 | 26 | 16 | 14 | 15 | 89 (42) |
| Prepositional Type 4a | 3 | 10 | 39 | 7 | 9 | 8 | 76 (33) |
| Prepositional Type 4b | 3 | 11 | 18 | 7 | 17 | 9 | 65 (28) |
| Phrasal Prepositional Type 2 | 1 | 0 | 1 | 1 | 1 | 0 | 4 (2) |
| Phrasal Prepositional Type 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 (0) |

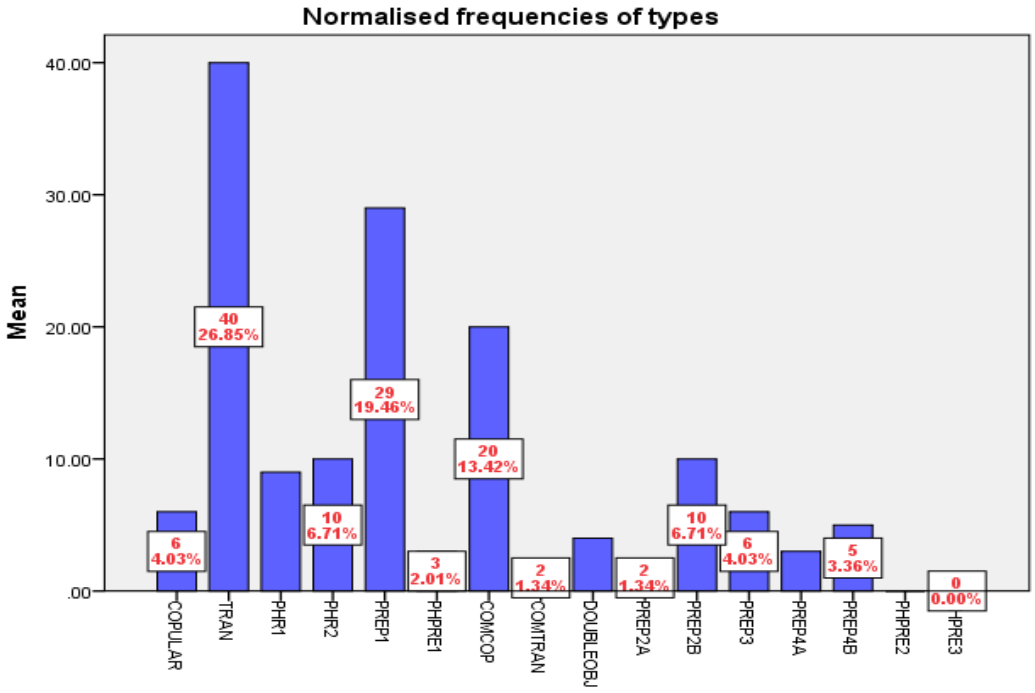


**Figure 1: Normalized frequency rates of types within the chosen clause structures in the AEC**

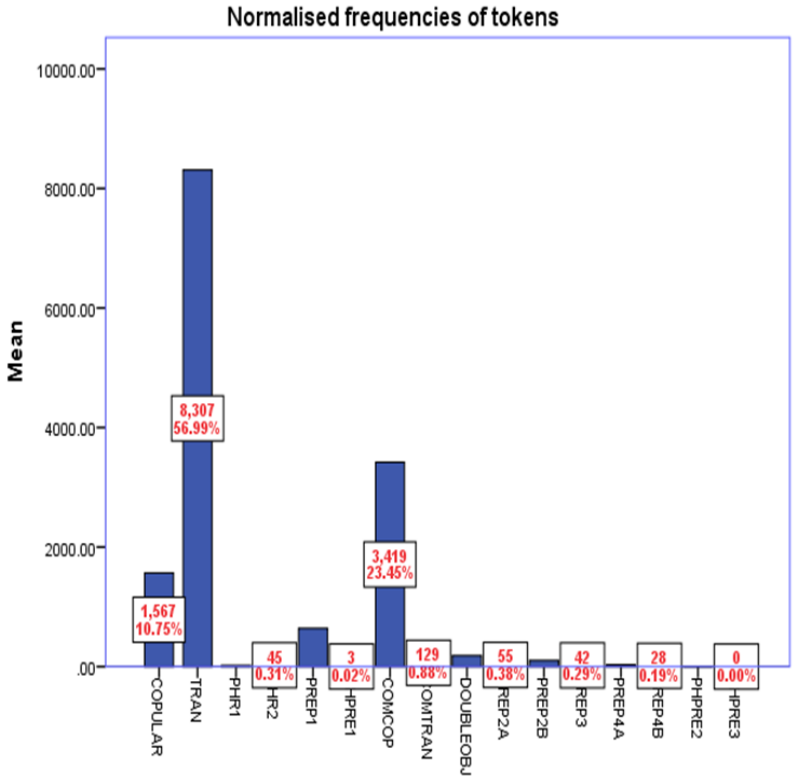



**Figure 2: Normalized frequency rates of tokens within the chosen clause structures in the AEC**

The analysis of the top 100 verbs showed that 86 verbs occurred within transitive clause structures, indicating that this structure was the most widely used across the six sections of academic writing examined. Writers rely heavily on transitive clauses when employing a broad range of verb types as well as a large number of verb tokens. The second most frequent structure was prepositional type-1, which contained 64 verb types, suggesting that writers also draw substantially on this construction. As illustrated in Figures 1 and 2, English academic writers employed a wide variety of clause structures, both in terms of verb types and tokens. Unexpectedly, the distribution of the verbs in the AEC highlighted the significance of PVs in applied linguistics research writing. The numerator was obtained by summing the PV types we had identified in each of the phrasal and phrasal-prepositional clause structures analyzed in the corpus. Phrasal Type 1 contributed 19 types, Phrasal Type 2 contributed 20 types, Phrasal Prepositional Type 1 contributed 6 types, and Phrasal Prepositional Types 2 and 3 contributed 1 type each, giving a total of 19 + 20 + 6 + 1 + 1 = 47 PV types. The total was, then, expressed as a proportion of the full set of verb types identified in the same top-100 lemma analysis across all 16 clause structures, which was 324. The top 100 AEC verbs contained 47 PV types, representing approximately 14.5% of all verb types. In terms of tokens, the AEC includeed 173 PV tokens within the 100 most frequent verbs. Their distribution was as follows: 48 in phrasal type-1 structures, 108 in type-2, 12 in another type-1 pattern, and 5 in mixed type-2/3 structures. Although PVs constituted only about .55% of the verb tokens in the remaining clause structures (totaling 31,623 tokens), their presence was still noteworthy. This

finding was both unexpected and significant. PVs have traditionally been described as far more common in fiction and conversational registers (Biber et al., 2002) and are often considered too informal for academic prose. However, the current results provided clear evidence that academic writing in applied linguistics did incorporate PVs more frequently than previously assumed, indicating a gradual shift in stylistic norms within the discipline.

## Analysis Relied on the Measure of Faithfulness

A highly faithful verb occurs predominantly, sometimes exclusively, in a particular clause pattern. For instance, a verb that has a faithfulness score of 100% in a given structure appears only in that structure across the corpus. Understanding such verb–structure contingencies has considerable pedagogical value, as it helps both learners and teachers identify the most prototypical and appropriate syntactic environments for specific verbs. In the present study, attention was given to clause structures whose verbs exhibited 90% or higher faithfulness, as these patterns best reflected strong verb–construction associations. The analysis showed that more complex copular constructions and prepositional type-1 tended to display the highest levels of faithfulness, indicating that verbs within these patterns had particularly strong preferences for their associated clause types.

**Table 3: Means of the measure of verbs' faithfulness**

| No. | Clause Structures | Mean of Faithfulness | Number of Verbs |
|---|---|---|---|
| 1 | Copular/Linking | 47 | 13 |
| 2 | Simple Transitive | 72 | 86 |
| 3 | Phrasal Type 1 | 3 | 19 |
| 4 | Phrasal Type 2 | 5 | 20 |
| 5 | Prepositional Type 1 | 14 | 64 |
| 6 | Phrasal Prepositional 1 | 1 | 6 |
| 7 | Complex Copular | 17 | 44 |
| 8 | Complex Transitive | 8 | 4 |
| 9 | Ditransitive/Double object | 6 | 9 |
| 10 | Prepositional Type 2a | 16 | 5 |
| 11 | Prepositional Type 2b | 7 | 21 |
| 12 | Prepositional Type 3 | 9 | 13 |
| 13 | Prepositional Type 4a | 5 | 7 |
| 14 | Prepositional Type 4b | 3 | 11 |
| 15 | Phrasal Prepositional Type 2 | 3 | 1 |
| 16 | Phrasal Prepositional Type 3 | 1 | 1 |
| The Mean of Means | | 13.56 | |

### *Copular*

Within the AEC, the verb *be* exhibits a faithfulness of 99% to the copular clause structure. In these clauses *be* was followed by a nominal or adjectival subject complement that characterizedor evaluated the subject, as in *The* results were consistent (S + V + Cs, adjectival) and *The* sample was a representative subset (S + V + Cs, nominal). In each case the post-verbal element ascribeed a property to the subject, which was the defining feature of the copular structure (Quirk et al., 1985).

### *Transitive*

In the AEC, 30 verbs demonstrated 90% or higher faithfulness to this structure, indicating that these verbs occur predominantly within transitive patterns.

**Table 4: The AEC's most faithful verbs' semantic classes for transitive clause structure**

| Semantic Class | AEC |
|---|---|
| Activity verbs | *provide, learn, use, do, develop, set, make, increase, play, apply* |
| Reporting verbs | *suggest, discuss, express, report, propose* |
| Mental verbs | *examine, observe, determine, reflect, understand, relate, see, allow, ask, compare, get, expect, mean* |
| Logical semantic relationship verbs | *include, present* |

Reporting verbs and verbs that encode logical–semantic relations were examined because of their central role in academic discourse. In the AEC, these verbs show a strong tendency to occur within transitive clause structures. Common reporting verbs such as *suggest*, *debate*, *express*, *report*, and *propose* frequently take a finite that-clause as their complement.

*Make* is a high-frequency activity verb in the AEC and occurs in transitive (SVO) clauses, as in *The* findings made an important contribution (S + V + Od) and *This* design makes a clear distinction (S + V + Od). Here the post-verbal NP is a direct object produced or created by the subject, not a subject complement

### *Prepositional Type 1*

The AEC uses the prepositional verb *contribute* to express logical-semantic links with 96% faithfulness. The verb *contribute to* emphasizes the uniqueness of research and contributions to knowledge/academic discussions.

### *Complex Copular*

It appears to be relatively non-restrictive, accommodating a broad range of verbs. This is evidenced by the fact that none of the verbs display more than 90% faithfulness to this structure.

## Lexico-grammatical Analysis of Chosen Clause Structures

This part examines the use of PVs in academic English writing across type-1 and type-2 phrasal constructions, as well as prepositional types 1, 2, and 3. The initial distributional analysis of verb-complementation clause structures shows that applied linguistics research writing employs PVs more frequently than commonly assumed. In fact, PVs constitute approximately 20% of the 100 most frequent verbs in the AEC. Among these structures, PVs type 2 emerges as the fourth pattern, while type 1 ranks as the sixth.

### *Phrasal Type 1*

Type 1 phrasal clauses are SV (_VP AdvPart). The initial analysis found 19 clause verbs (Table 5). Three were examined in detail here: *come up* (10), *turn out* (7), *set up* (7).

**Table 5: Phrasal type 1**

| Phrasal type 1 | Raw | Norm | Faithfulness |
|---|---|---|---|
| come up | 10.00 | 5 | 32 |
| turn out | 7.00 | 3 | 13 |
| set up | 7.00 | 3 | 4 |
| go through | 4.00 | 2 | 1 |
| go on | 2.00 | 2 | 1 |
| move on | 2.00 | 1 | 13 |
| take over | 2.00 | 1 | 1 |
| set out | 2.00 | 1 | 1 |
| go about | 2.00 | 1 | 1 |
| turn up | 1.00 | 0 | 2 |
| speak out | 1.00 | 0 | 0 |
| begin with | 1.00 | 0 | 2 |
| go back | 1.00 | 0 | 0 |
| go over | 1.00 | 0 | 0 |
| come across | 1.00 | 0 | 3 |
| go around | 1.00 | 0 | 0 |
| come together | 1.00 | 0 | 3 |
| get on | 1.00 | 0 | 1 |
| get by | 1.00 | 0 | 1 |
| Total | 48 | 19 | Mean=3 |

### *Phrasal Type 2*

The phrasal type-2 construction corresponds to the SVOd pattern, which precedes and complements the VP with nouns. Twenty verb types of the clause structure were initially discovered (Table 6). Four were examined in detail here: *take in* (37), *find out* (24), *give in* (11).

**Table 6: Phrasal type 2**

| Phrasal type 2 | Raw | Norm | Faithfulness |
|---|---|---|---|
| take in | 37.00 | 17 | 23 |
| find out | 24.00 | 11 | 5 |
| give in | 11.00 | 5 | 4 |
| set up | 4.00 | 2 | 4 |
| make up | 3.00 | 1 | 2 |
| work out | 3.00 | 1 | 1 |
| get in | 3.00 | 1 | 3 |
| write down | 3.00 | 1 | 5 |
| take on | 2.00 | 1 | 1 |
| set Out | 2.00 | 1 | 1 |
| get out | 2.00 | 1 | 2 |
| show off | 2.00 | 1 | 1 |
| take away | 2.00 | 1 | 1 |
| follow up | 1.00 | 0 | 1 |
| start out | 1.00 | 0 | 3 |
| turn up | 1.00 | 0 | 2 |
| turn back | 1.00 | 0 | 2 |
| get through | 1.00 | 0 | 1 |
| give away | 1.00 | 0 | 0 |
| give up | 1.00 | 0 | 0 |
| Total | 108 | 45 | Mean=5 |

### *Phrasal Prepositional Type 1*

It corresponds to the SVOp pattern (NP VP AdvPart PP), where the particle and the prepositional phrase come after the verb. This clause structure had 6 verb types as initially analyzed (Table 7). One was examined in full here: *come up with* (7)

**Table 7: Phrasal prepositional type 1**

| Phrasal prepositional type 1 | Raw | Norm | Faithfulness |
|---|---|---|---|
| come up with | 7.00 | 3 | 23 |
| follow up on | 1.00 | 0 | 1 |
| look forward to | 1.00 | 0 | 3 |
| refer back to | 1.00 | 0 | 1 |
| get on with | 1.00 | 0 | 1 |
| go out of | 1.00 | 0 | 0 |
| Total | 12 | 3 | Mean=1 |

### *Phrasal Prepositional Type 2*

It corresponds to the SVOdOp structure. In this pattern, the VP is followed first by an NP. Table 8 shows one verb type in this clause structure. *made up of* is more common than 5, so this section covers it.

**Table 8: Phrasal prepositional type 2**

| Phrasal prepositional type 2 | Raw | Norm | Faithfulness |
|---|---|---|---|
| *made up of* | 4 | 2 | 3 |
| Total | 4 | 2 | Mean=3 |

### *Phrasal Prepositional Type 3*

It shares the same basic syntactic pattern as type 2. It governs an indirect object, represented by the noun phrase. The analysis found 1 clause-structure verb type with a frequency below 5 (Table 9). However, they are not examined here. Verb combinations can represent metaphorical motions in academic writing, like phrasal prepositional type 2.

**Table 9: Phrasal prepositional type 3**

| Phrasal prepositional type 3 | Raw | Norm | Faithfulness |
|---|---|---|---|
| *take us away from* | 1 | 0 | 1 |
| Total | 1 | 0 | Mean=1 |

### *Prepositional Type 3*

Prepositional type 3 corresponds to the SVOdOp structure. In this pattern, the VP is followed by an NP and, then, extended by a fixed collocation such as *take part in*, which is completed by a prepositional phrase. This clause type can also appear in the alternative order NP VP PP NP, as in *take into account*, where the verb is followed by a prepositional phrase that forms part of a fixed

expression, which is then completed by a following noun phrase. Thirteen verb types of the clause structure were initially discovered (Table 10).

**Table 10: Prepositional type 3**

| Prepositional type 3 | Raw | Norm | Faithfulness |
|---|---|---|---|
| focus attention on | 30.00 | 14 | 7 |
| take part in | 15.00 | 7 | 9 |
| take sth into account | 13.00 | 6 | 8 |
| make use of | 10.00 | 5 | 6 |
| take sth into consideration | 6.00 | 3 | 4 |
| take advantage | 4.00 | 2 | 3 |
| take control of | 4.00 | 2 | 3 |
| take responsibility | 3.00 | 1 | 2 |
| get rid of | 3.00 | 1 | 3 |
| play a role in | 2.00 | 1 | 2 |
| draw attention | 1.00 | 0 | 2 |
| make sense of | 1.00 | 0 | 1 |
| take account of | 1.00 | 0 | 1 |
| Total | 89 | 42 | Mean=9 |

## 5. DISCUSSION

The present study investigated the use of PVs within verb-complementation clause structures from a usage-based perspective. It adopted a novel analytical approach that examined PVs within the broader system of verb-complementation clause structures. The analysis was based on published academic articles in applied linguistics and focused on six sections of research papers: the abstract, introduction, literature review, method, discussion, and conclusion. The primary objective was to identify how the sixteen clause structures were similarly and differently employed and how the verbs across these sections were selected. Identifying similarities may help reveal areas that are potentially easier for language learners, whereas differences highlight structures that may pose greater learning challenges.

The findings showed that transitive and copular clause structures were among the most frequently-used patterns in the AEC. In particular, the analysis highlighted the prominence of the complex copular, which exhibited a high number of verb types and tokens in the corpus. Previous research has indicated that non-native speakers often rely excessively on the verb *be* functioning as the main verb in copular constructions (Hinkel, 2003).

The application of the measure of faithfulness gives further insights into the copular, particularly those involving verbs such as *be* and *make*. The frequent occurrence of *be* with both nominal and adjectival complements highlights its important role in defining and characterizing concepts, which is a central function of academic discourse. The high frequency of *be* in the AEC confirms the observation by Biber et al. (1999) that this verb is extremely common in academic prose. The frequent use of *make* as a main verb supports Hinkel's (2002) claim that written discourse relies heavily on this activity verb; in the AEC it occurs predominantly in transitive (SVO) clauses.

With regard to the reporting verbs, writers appear to have a limited repertoire and often rely on more colloquial verbs such as *say*. In contrast, academic writers frequently employ more discipline-appropriate reporting verbs, including *suggest*, *discuss*, *report*, *propose*, and *express*. These verbs are crucial for academic argumentation because they allow writers to attribute claims and construct scholarly dialogue. In addition, logical–semantic relationship verbs play an important role in academic discourse, as they express relationships between pieces of knowledge and help structure complex arguments (Hinkel, 2004).

These findings extend previous corpus research in several ways. Gardner and Davies (2007) and Liu (2011) identified high-frequency PVs in general English corpora (BNC, COCA). Still, they did not examine PVs within clause structures or compare their use to other verb types. Liu and Myers (2018) examined PVs across spoken and academic written registers, but focused only on two-word PVs, excluding phrasal-prepositional combinations. The present study confirmed that PVs occur in academic writing (contra Biber et al., 1999, who described PVs as rare in academic prose) and extended this finding by showing that PVs occur within a range of clause structures, including phrasal-prepositional types that had been underexplored in previous research.

The analysis further showed that writers frequently employ complex copular, prepositional type 1, transitive, and copular structures. English writers display a particularly wide range of verbs in the complex copular, suggesting that this construction is a distinctive feature of academic English writing. Prepositional type 1 also appears frequently in the AEC. However, while English writers use a wide range of verb types in this construction, the relatively lower number of tokens suggests that individual prepositional verbs are not repeatedly used to the same extent. Using faithfulness, the study identifies four structures: the complex copular, prepositional type 1, transitive, and copular structures. In copular constructions, the verbs *be* and *make* show particularly strong faithfulness, occurring 99% and 94% of the time in this structure, respectively.

The results also revealed that several commonly-cited academic reporting verbs (Hinkel, 2004), including *suggest*, *discuss*, *express*, *report*, and *propose*, appear predominantly in the transitive. This pattern suggests a strong syntactic preference for these verbs. The high frequency of such reporting verbs contrasts with some earlier studies (Bloch, 2010; Manan & Noor, 2014). Writers also frequently use logical–semantic verbs such as *include* and *present*, while the phrasal-prepositional verb *contribute to* appears with notable regularity and high faithfulness in expressing logical–semantic relationships.

These findings extend previous research by showing that PV use is not uniform across sections of a research article. Previous studies (Garnier & Schmitt, 2015; Liu, 2011) treated academic writing as a monolithic entity, analyzing PVs across the entire articles or corpora. The present study differs from these studies by demonstrating that PV use varies systematically across sections, reflecting the different rhetorical functions of each section. For example, higher frequency of Phrasal Type 1 in the introduction and discussion may reflect the need to describe processes (*come up*, *turn out*) and interpret findings in these sections.

The study also examined clause structures involving phrasal-prepositional and PVs. The AEC contains 47 phrasal and prepositional verb types, accounting for approximately 14.5% of all verb forms. Notably, PV type 2 ranks as the fourth structure in the corpus, while type 1 ranks sixth. These findings challenge the widely-held assumption that PVs are rare in formal academic contexts (Biber et al., 2002; Liu, 2011). Instead, the results demonstrateed that PVs form a meaningful component of contemporary academic English writing in applied linguistics. Previous studies of PVs have largely focused on their overall frequency and usage patterns (Garnier, 2016; Garnier & Schmitt, 2015). In contrast, the present study examined PVs within the broader framework of

clause structures in academic writing. It compareed these patterns with findings from earlier research on English language use. Furthermore, cross-linguistic factors may influence learners' use of PVs. In languages that lack PVs, such as Hebrew, learners tend to avoid them or use them less frequently. This tendency has been documented in a study by Waibel (2007).

These findings confirmed previous research showing that single-word verbs (especially transitive and copular verbs) dominate academic writing (Biber et al., 1999; Hinkel, 2002). However, they extend previous research by showing that PVs account for a notable proportion of verb types, even if their token frequency is relatively low. This suggests that PVs are not a marginal phenomenon in academic writing, but a legitimate part of the verb repertoire of expert writers. This finding differs from the traditional view that PVs are rare or inappropriate in academic writing (Biber et al., 2002; Liu, 2011).

## 6. CONCLUSION

This study investigated the use of PVs within verb complementation clause structures in applied linguistics research articles. The analysis identified 47 PV types and 173 PV tokens in the top 100 most frequent verbs. PVs accounted for approximately 14.5% of verb types, but only about .55% of verb tokens. The transitive, copular, and prepositional structures were the most frequently used, with *be* and *make* showing particularly high faithfulness to copular clauses, and *suggest*, *discuss*, and *propose* showing high faithfulness to transitive clauses. Notably, PVs such as *come up*, *set up*, *take in*, *find out*, *give in*, *come up with*, and *made up of* occurred with notable frequency, challenging the traditional view that PVs are rare or inappropriate in academic writing.

Several limitations should be acknowledged. First, the corpus was restricted to applied linguistics research articles, so the findings may not generalize to other disciplines. Second, the study analyzed the top 100 most frequent verbs only, excluding less frequent verbs that might reveal different patterns. Third, the analysis focused on 16 clause structures and excluded the intransitive pattern, meaning that intransitive PVswere not examined.

Future research could address these limitations in several ways. First, cross-disciplinary studies could examine PV use in fields such as business, law, or science to determine whether the patterns observed here are specific to applied linguistics or more general. Second, future studies could include less frequent verbs to provide a fuller picture of PV use across the frequency spectrum. Third, research could incorporate intransitive PVs to complement the findings of this study. Fourth, a more robust semantic analysis could deepen understanding of how PVs contribute to meaning-making in academic discourse.

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