

# A Corpus-Based Cross-Disciplinary Study of Unattended Anaphoric Pronouns in L2 Postgraduate Theses

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**Abstract.** This study examines unattended anaphoric pronouns in postgraduate theses across four academic disciplines (English, Economics, Biology, and Civil Engineering) from a Ghanaian public university, focusing on the period between 1980 and 2022. A corpus-based analysis and the analytical framework from Chang and Swales (1999), adapted by Hyland and Jiang (2017), was adopted to investigate the differences in the occurrence and use of unattended anaphoric pronouns across these disciplines. It also explored the verbs most commonly associated with unattended anaphoric pronouns within the theses. The findings revealed significant discipline-specific patterns in the use of unattended anaphoric pronouns, with distinct preferences in verb usage across English, Economics, Biology, and Civil Engineering. In the analysis of unattended anaphoric pronouns, “this” was the most frequently used across all disciplines, with Economics exhibiting the highest frequency at 15.95 per 10,000 words. The collocational pattern “this is/was” was the most frequently used in the corpora. The study concludes that the academic discipline influences reference strategies, offering insights into the structural and rhetorical features of postgraduate writing in these fields. The study contributes to a deeper understanding of how disciplinary discourse shapes academic writing practices in Ghanaian postgraduate education.

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## INTRODUCTION

In recent decades, academic writing has increasingly shifted from traditional prescriptive norms to a descriptive approach. This shift seeks to offer rhetorical insights that align with actual linguistic practices rather than rigid adherence to conventional stylistic rules. Within English for Academic Purposes (EAP), a significant attention has been given to examining features often labelled as informal in academic writing. For example, Chang and Swales (1999) examined ten informal features in thirty (30) research articles (RAs) across three academic disciplines (i.e., Statistics, Linguistics and Philosophy). Their findings revealed a notable divergence between prescribed norms and the writing practices observed in academic writing. Subsequently, Hyland and Jiang (2017) investigated informal features across a corpus of 360 RAs from four disciplines (i.e., Applied Linguistics, Sociology, Biology and Electrical Engineering) over a 50-year period. Their analysis showed that these informal features are highly prevalent across disciplines,

thereby challenging the prescriptive stance on academic writing. Moreover, they identified a gradual trend toward increasing informality in academic writing practices over the past five decades. This trend suggests that contemporary academic discourse is evolving to emphasise clarity, reader engagement, and accessibility rather than strict adherence to conventional stylistic norms. Informal features in academic writing encompass various linguistic features that deviate from traditional norms of formality. These include the use of first-person pronouns, contracted forms, sentence-initial conjunctions, second-person pronouns/determiners, exclamations, sentence fragments and unattended anaphoric pronouns. Unattended anaphoric pronouns refer to the use of demonstratives such as “this,” “that,” “these,” and “those,” without explicitly stating the nominal referent. They are among the most commonly used and investigated informal features in academic writing (Galti et al., 2018; Gray, 2010; Kyei et al., 2025; Swales, 2005; Wulff et al., 2012).

Unattended anaphoric pronouns in academic writing have garnered significant scholarly attention. Jin (2019), for instance, examined the use of unattended “this” and “these” in the writing of students across varying proficiency levels. She observed a notably higher frequency of these demonstratives among more advanced learners. The study highlighted a substantial preference for unattended “this” and “these” in the students’ writing. Similarly, Lee et al. (2021) analysed the attended and unattended “this/these” in argumentative essays by high- and low-level Chinese undergraduate students. They found that high-level students preferred attended forms with lexical verbs and clausal referents which promote rhetorical cohesion. In contrast, low-level students used more unattended forms, copular verbs, and phrasal antecedents. The findings emphasised the importance of teaching “this/these” in writing courses.

Various interdisciplinary studies (e.g., Chang & Swales, 1999; Gray, 2010; Grigoriev & Sokolova, 2019; Kuhl et al., 2020; Kyei et al., 2025; Melissourgou & Maruster, 2017; Melissourgou et al., 2019) have examined the use of informal features in academic writing, with some focusing specifically on unattended anaphoric pronouns. Gray (2010) investigated the use of “this” and “these” in RAs in Education and Sociology. She found that pronominal forms often referred to entire clause antecedents. Gray and Cortes (2011) examined the use of “this” and “these” as determiners and pronouns in a corpus of RAs from Applied Linguistics, Materials and Civil Engineering. Their findings revealed that the disciplines investigated employed these structures in comparable ways. They even identified types of nouns – deictic, shell, adverbial head, concrete, and other abstract nouns – that commonly collocated with “this” and “these.” Wulff et al. (2012) explored the factors that influence the use of “this” with or without a noun phrase in students’ writing. It was noted that academic discipline, proficiency level, and writer traits affected the use of “this.” Jiang and Wang (2018) also analysed how academics across eight disciplines used “this” to structure arguments. They observed that in some cases “this” was used for rhetorical impact. In Nigeria, Galti et al. (2018) identified “this” as the most frequently occurring feature in academic writing among contributors to the *Journal of the Humanities, Law, Social, and Management Sciences* at a Nigerian university. Kyei et al. (2025) revealed that sentence-initial conjunctions/conjunctive adverbs, unattended anaphoric pronouns, and first-person pronouns accounted for 92% of all informal features in Ghanaian postgraduate theses written from 1980 to 2022.

While these studies have explored unattended anaphoric pronouns in academic writing across diverse geopolitical contexts, they remain under-researched in Africa in general, and Ghana in particular (contra Kyei et al., 2025; Galti et al., 2018). Consequently, this corpus-based study examines the use of unattended anaphoric pronouns in postgraduate theses written in a Ghanaian public university focusing on English, Economics, Biology, and Civil Engineering. This study focused on the unattended anaphoric pronouns “this,” “that,” “these,” and “those,” while excluding

"it" due to the difficulty of determining its informality, as "it" cannot function as a determiner preceding a noun phrase (Gao, 2020). Understanding how these unattended anaphoric pronouns are used, particularly in postgraduate theses, is essential for improving writing quality and ensuring alignment with disciplinary norms and expectations. The study was guided by the following research questions:

1. How are unattended anaphoric pronouns used in postgraduate theses across English, Economics, Biology, and Civil Engineering?
2. What verbs occur with unattended anaphoric pronouns in postgraduate theses across the disciplines?

## **METHOD**

This study analysed a corpus of postgraduate (MA/MSc and MPhil) theses from four disciplines (i.e. English, Economics, Biology, and Civil Engineering) from Kwame Nkrumah University of Science and Technology (KNUST), Ghana. In order for us to obtain sufficient and representative corpus for the study, we selected theses ranged between 1980 and 2022. The study applied Becher's (1989) model to categorise disciplines as soft and hard sciences. The disciplines were selected since there is a dearth of studies that provide variation in rhetorical features, particularly unattended pronouns, involving them. The theses from KNUST institutional repository (2009 onwards) were accessed digitally, while hard copies from earlier years were retrieved from the university's main library. ABBYY FineReader Professional Edition 9.0 was used to digitise and convert the hard copies into Word documents to facilitate text extraction for the analysis. The study focused on the main text of the theses, excluding paratextual elements (e.g., titles, abstracts, acknowledgments, keywords), visuals (such as tables and figures), and direct quotations to maintain consistency in the analysis. We selected two postgraduate theses from each discipline per decade, employing a combination of purposive and random sampling techniques, in line with the approach used in previous studies (e.g., Kuhi et al., 2020). The details of the corpus size are provided in Table 1.

**Table 1.** Corpus Size

	<b>Overall</b>
<b>English</b>	254138
<b>Economics</b>	189972
<b>Biology</b>	163792
<b>Civil Engineering</b>	179172
<b>Total</b>	787074

The corpus comprised 40 master's theses with a total word count of 787,074. Although there was a variation in corpus sizes, this did not impact the study's reliability, as informal feature frequencies were normalised per 10,000 words. The analysis was conducted using AntConc (Anthony, 2022) to search for "this," "that," "these," and "those" in the subcorpora. Each instance was manually verified to establish their "unattended" status. Rayson's Log-Likelihood (LL) calculator was employed to determine statistical significance, with a threshold of  $p < 0.05$ . This suggests that any value of 3.84 or higher was considered statistically significant (Baker et al., 2008; Rayson & Garside, 2000).

## RESULT AND DISCUSSION

### 1. Unattended Anaphoric Pronouns in Ghanaian Postgraduate Theses

The analysis reveals that "this" is the most frequently used pronoun across all disciplines, with Economics exhibiting the highest incidence at 15.95 per 10,000 words. "These" follows as the second most frequent, again with Economics leading with 4.47 per 10,000 words. In contrast, "that" and "those" demonstrate comparatively lower normalised frequencies across the disciplines (see Table 2).

**Table 2.** Unattended Anaphoric Pronouns by Discipline (per 10,000 words)

	Civil				
	English	Economics	Engineering	Biology	Total
This	11.88	15.95	11.94	11.23	51.01
These	2.95	4.47	1.62	2.14	11.18
That	1.10	1.63	0.89	1.34	4.97
Those	0.79	0.37	0.56	1.53	3.24
<b>Total</b>	<b>16.72</b>	<b>22.42</b>	<b>15.01</b>	<b>16.24</b>	<b>70.40</b>

Table 2 highlights disciplinary variation in the use of unattended anaphoric pronouns (i.e., "this", "these", "that", "those") across English, Economics, Civil Engineering, and Biology. Economics exhibits the highest total usage (22.42 per 10,000 words), particularly favouring "this" (15.95 per 10,000 words) to connect abstract concepts and arguments. English (16.72 per 10,000 words) also heavily uses "this" (11.88 per 10,000 words), reflecting its emphasis on textual analysis and theoretical discussion. Biology (16.24 per 10,000 words) demonstrates notable use of "those" (1.53 per 10,000 words), indicative of its need to differentiate groups or processes. Civil Engineering (15.01 per 10,000 words) relies primarily on "this" (11.94 per 10,000 words) for referencing prior elements but shows less overall use of such pronouns, likely due to its focus on concrete descriptions. These variations reflect the distinct rhetorical needs of each discipline.

Previous studies (Gray & Cortes, 2011; Swales, 2005) have demonstrated that academic writers often use unattended "this" in sentence-initial (subject) positions in RAs. Galti et al. (2018) observed similar trends in Nigeria, where unattended "this" was the most common feature in academic writing among selected writers at a Nigerian university. Additionally, Chang and Swales (1999) and Hyland and Jiang (2017) identified unattended "this" as the most frequent anaphoric reference in RAs. These consistent findings across studies, including the present one, indicate a common preference for the use of unattended "this" in academic writing, regardless of the writer's level of expertise.

The second most frequent unattended anaphoric pronoun was unattended "these". This finding indicates that Ghanaian postgraduate writers considerably use proximal demonstratives (i.e., "this" and "these"). This observation aligns with the finding that "this/these" frequently occur in academic writing (Biber et al., 1999; Swales, 2005). In contrast, the distal demonstrative pronouns "that" and "those" were less prevalent in the texts of Ghanaian postgraduate thesis writers, corroborating Biber et al.'s (1999) finding of the relative infrequency of the anaphoric use of "those" in academic writing.

These results differ from those of Lenko-Szymanska (2004), who found that EFL university writers preferred "that/those" over L1 writers who favoured "this/these." This discrepancy is not surprising, given the distinct contexts, particularly ESL versus EFL settings. The variation observed is consistent with studies showing that EFL learners from Chinese, Polish, and Swedish

backgrounds use "that" more frequently than native speakers (Lenko-Szymanska, 2004; Petch-Tyson, 2000). This difference may stem from EFL writer' limited use of unattended pronouns due to usage constraints (Ebrahimi & Fakheri, 2019) and their reliance on signalling nouns to convey and re-conceptualize ideas (Flowerdew, 2006). In this study, it is possible that Ghanaian postgraduate thesis writers recognised the distinction between proximal and distal demonstratives (Lenko-Szymanska, 2004). As a result, they may have chosen to emphasise, focus on, or evaluate an argument using the marked form. These findings align with literature that highlights subtle differences in academic writing between EFL and ESL contexts (Liu & Jiang, 2009).

Furthermore, the log-likelihood tests conducted on the occurrences of unattended anaphoric pronouns across disciplines revealed statistically significant differences.

**Table 3.** Log-Likelihood Test of Significance of Unattended Anaphoric Pronouns

	English vs Economics	English vs Biology	English vs Civil Engineering	Economics vs Biology	Economics vs Civil Engineering	Biology vs Civil Engineering
This	0.16	0.36	0.00	14.40	10.63	0.37
These	6.91	2.58	8.15	14.73	25.56	1.23
That	2.27	0.48	0.46	0.49	4.03	1.57
Those	3.31	4.91	0.81	13.59	0.72	8.06

The results in Table 3 reveal significant disciplinary variations in the use of unattended anaphoric pronouns. Specifically, the use of unattended "this" differs notably between Economics and Biology (LL=14.40) and Economics and Civil Engineering (LL=10.63). Similarly, unattended "these" shows a significant variation between English and Economics (LL=6.91), English and Civil Engineering (LL=8.15), Economics and Biology (LL=14.73), and Economics and Civil Engineering (LL=25.56). Furthermore, significant differences in the use of unattended "that" were found between Economics and Civil Engineering (LL=4.03), while unattended "those" varied significantly between English and Biology (LL=4.91), Economics and Biology (LL=13.59), and Biology and Civil Engineering (LL=8.06).

These findings highlight the influence of disciplinary norms on using unattended anaphoric pronouns in Ghanaian postgraduate writing. The results align with previous corpus-based studies (e.g. Chang & Swales, 1999; Hyland & Jiang, 2017; Yang & Pan, 2023), which emphasised the rhetorical choices and preferences inherent to specific disciplines.

## 2. Verbs Collocants of Unattended "This" Across the Disciplines

The study, among other things, sought to examine the verbs that collocate with unattended "this" across the disciplines. It was noticed that diverse verbs co-occur with unattended "this" as shown in Table 4. In terms of pattern, "this is/was" was identified as the most frequent, occurring 23.30 per 10,000 words. This finding corresponds with previous studies such as Wulff et al. (2012).



**Table 4.** Most Frequent Verbs Accompanying Unattended “This” (per 10, 000 words)

	English	Economics	Civil Engineering	Biology	Total
This is/was	224(8.81)	129(6.79)	81(4.52)	52(3.17)	486 (23.30)
This means	21(0.83)	22(1.16)	4(0.22)	3(0.18)	50 (2.39)
This makes	13(0.51)	27(1.42)	4(0.22)	3(0.18)	47 (2.34)
This shows/showed	13(0.51)	6(0.32)	2(0.11)	1(0.06)	22 (1.00)
This seems	6(0.24)	4(0.21)	5(0.28)	1(0.06)	16 (0.79)
This will	0(0.00)	4(0.21)	5(0.28)	3(0.18)	12 (0.67)
This indicates/indicated	0(0.00)	3(0.16)	5(0.28)	3(0.18)	11 (0.62)
This suggests	1(0.04)	3(0.16)	4(0.22)	1(0.06)	23 (1.04)
This implies	1(0.04)	3(0.16)	4(0.22)	1(0.06)	9 (0.48)
This confirms	2(0.08)	3(0.16)	0(0.00)	3(0.18)	8 (0.42)
This includes	1(0.04)	2(0.11)	0(0.00)	0(0.00)	3 (0.14)
This depicts	0(0.00)	2(0.11)	0(0.00)	0(0.00)	2 (0.11)

The antecedent content was typically expanded by a copular verb (e.g. “is”) followed by an adjective (e.g., “this is obvious/interesting/appropriate”), a clause (e.g., “this is because the child inherits paternally, especially in kingship”), or a noun/noun phrase (e.g., “this is the reason”). This observation is not new as both Jiang and Wang (2018) and Wulff et al. (2012) identified similar results.

Disciplinary differences are apparent in the distribution of “this is.” Writers in English (8.81 per 10,000 words) frequently used it most, followed by Economics (6.58), Civil Engineering (4.52), and Biology (3.17). This pattern suggests that English relies more heavily on this construction to emphasise the practical relevance of findings, as shown in Extract 1.

Extract 1: For question four the respondents said they didn’t need to use their local language at school. This is because the English language which is the official language used nationwide and advised to be used in schools for teaching and learning (sic). For question four the respondents said they needed to use their local language at school. This is because it makes them feel comfortable and welcomed. [English, 2022]

The use of “this is” in Extract 1 transitions between the reported responses to question four and the explanations behind those responses. It links the respondents’ statements on the necessity of using their local language at school with their preferences, aiding coherence and narrative flow. This usage ensures readers easily understand the relationship between ideas.

Writers in Economics used “this is” with notable frequency, though less consistently than in English. This suggests a discipline-specific style or rhetorical structure. Civil Engineering writers used “this is” less frequently, while Biology writers used it the least, possibly relying on alternative linguistic structures. These disciplinary differences emphasise the importance of recognising varied writing norms. The soft sciences tend to use “this is” more often than the hard sciences, possibly due to the more interpretative and reader-engaging nature of the soft sciences, as opposed to the more abstract, and impartial knowledge in the hard sciences (Hyland & Jiang, 2016a, 2016b).

As shown in Table 4, “this means” was the second most frequent pattern, occurring 2.39 per 10,000 words. The writers largely used “this means” to explain their findings and claims. This is congruent with Wulff et al. (2012) who discovered that “this means” operates as textual indicators which offer interpretation, evaluation, and discussion. The normalised frequency of “this means” exhibited disciplinary variation, with its highest usage observed in Economics (1.16 per 10,000 words), followed by English (0.83), Civil Engineering (0.22), and Biology (0.18). The higher frequency in Economics reflects a unique linguistic tendency aligned with the rhetorical conventions of the discipline, emphasising the articulation of significance or interpretation of data, as demonstrated in the extract below.

Extract 2:        That is, the concept of economic growth is usually measured as the annual percentage rate of growth of the country’s major national income accounting aggregates, such as the Gross National Product (GNP) or the Gross Domestic Product (GDP) with appropriate statistical adjustment to discount the potentially misleading effects of price inflation. This means economic growth occurs when a nation’s production possibility frontier shifts outward and this focuses on the expansion of productive capacity over time [Economics, 2016].

The construction “this means” in Extract 2 serves to clarify the preceding statement which emphasises the cause-and-effect relationship between economic growth and the expansion of a nation's productive capacity. It helps interpret complex economic concepts clearly and concisely, aligning with the discipline’s focus on precision in communication (Dahl, 2004, 2008; Greenlaw, 2003; Hunter & Tse, 2013). In English, the normalised frequency of “this means” was 0.83 per 10,000 words, lower than in Economics but still notable. This finding is consistent with the study by Yang and Pan (2023) which found that “means” was the second most common verb accompanying unattended “this” in Linguistics. Civil Engineering writers used “this means” far less frequently (0.22 per 10,000 words), likely due to the discipline’s emphasis on technical precision. Biology had the lowest frequency (0.18 per 10,000 words), suggesting minimal use of this structure to convey meaning.

The analysis also showed that the pattern “this makes” was most commonly used in Economics (1.42 normalised frequency), indicating a clear preference in the discipline. English followed (0.51), while Civil Engineering (0.22) and Biology (0.18) used this construction less frequently. This finding further underscores distinct disciplinary writing patterns, with Economics showing a preference for expressing implications through “this makes.”

Regarding “this shows/showed,” English exhibited the highest normalised frequency (0.51), followed by Economics (0.32), Civil Engineering (0.11), and Biology (0.06). This suggests varying disciplinary conventions for using this pattern, with English employing it most frequently to support arguments. These findings reflect the disciplinary variations discussed in the literature (Hyland & Jiang, 2017; Yang & Pan, 2023). As Hyland and Jiang (2017:45) note, “[a]rguments have to be made in ways that readers find most acceptable and convincing.”

Writers in Civil Engineering exhibited the highest normalised frequency of “this seems” (0.28), followed by English (0.24), Economics (0.21), and Biology (0.06). In English, the normalised frequency of 0.24 indicates a considerable usage, demonstrating that writers in this discipline also incorporate this expression into their research, albeit less frequently than their Civil Engineering counterparts. These findings are consistent with Yang and Pan's (2023) study which highlighted the frequent use of structures like “this seems” or “this shows” in Linguistics. The present study reveals that English writers use “this seems” as a hedging to withhold commitment to the preceding proposition as in Extract 3.

Extract 3: This process of internalizing is both conscious and unconscious. This seems to be the case with Nhamo. The process of internalizing his gender role as a male personality who automatically looks down on the female person has been done consciously and unconsciously while still young. [English, 2014]

In Extract 3, the writer suggests that the process of internalising gender roles, particularly in Nhamo's case, involves both conscious and unconscious elements. The pattern "this seems" plays a significant role in interpreting the propositions in the extract, serving as a marker for the writer's assessment or judgment. It indicates a degree of uncertainty, implying that the observation or conclusion is not an absolute fact but rather a perception or inference made by the writer. This use aligns with the English discipline's preference for acknowledging the interpretative nature of statements, fostering interaction in discourse.

Furthermore, Economics writers exhibited a normalised frequency of 0.21 for "this seems". Biology also had the lowest normalised frequency at 0.06. These differences highlight discipline-specific linguistic tendencies in academic writing.

In terms of "this will," Civil Engineering (0.28 per 10,000 words) most frequently employed it, followed by Economics (0.21 per 10,000 words), and Biology (0.18 per 10,000 words). Writers in English did not use "this will" in their theses. The occurrence of "this will" in Civil Engineering, Economics, and Biology suggests a common approach to making projections into the future. This construction reflects the tendency in these disciplines to convey certainty or make definitive statements about future events or outcomes, as shown in the extracts below.

Extract 4a: Small dams could be dug at Asuhyiae, Kunsu-Dotiem, and Sabronum where dry-season vegetable farming is done on a large scale. This will not only help irrigate the land to step up production, but it will also increase the incomes of the people and thus help to pool their resources for the development of their environment. [Economics, 1982]

Extract 4b: You are free to refuse to be tested for HIV infection. This will not involve any penalty or loss of benefits to which you/your child are entitled such as proper care and treatment. [Biology, 2022]

Extract 4c: There is therefore sufficient justification for a study into Fibre Reinforced Concrete made from recycled waste polyethylene bags to complement steel bars for reinforcement of concrete in the country. This will result in a reduction in the importation of steel for concrete reinforcement while at the same time making efficient use of the polyethylene waste. [Civil Engineering, 2016]

In Extracts 4a, b and c, "this will" is used to assert certainty and make definitive statements about future outcomes. In Extract 4a, it asserts that constructing small dams will improve irrigation, boost agricultural production, and increase incomes and resource pooling for environmental development. The use of "will" signals confidence in these projected benefits. Similarly, in Extract 4b, "this will" is used to affirm that refusing HIV testing will not result in penalties or loss of benefits, ensuring certainty about the consequences of the decision. Extract 4c employs "this will" to confidently state that a study on Fibre Reinforced Concrete will justify its purpose by reducing steel imports for concrete reinforcement and effectively using polyethylene waste. In each case, "this will" conveys clear expectation and certainty about the outcomes.



Regarding the use of “this indicates/indicated,” Ghanaian postgraduate writers in Civil Engineering (0.28 per 10,000 words) used it most frequently, followed by Biology (0.18) and Economics (0.16). Writers in English did not use this pattern. The frequent use of “this indicates/indicated” in Civil Engineering is linked to the discipline’s emphasis on precision, empirical analysis, and professional conventions, where it conveys interpretations related to structural components. This linguistic pattern allows Civil Engineering students to express insights on the behaviour of materials or structures, reflecting the technical nature of their work.

Extract 5: Mixtures 5, 6, 11, and 12 with 71.6, 64.0, 70.93 and 77.57%, respectively, had lower volatile matter than charred OPTB and PKS alone. However, these values were higher than volatile matter in charred plastic alone. This indicates that this mixture will have higher burning efficiency than OPTB and corncob alone but lower efficiency than the plastic alone. [Civil Engineering, 2022]

In Extract 5, the writer uses “this indicates” to interpret the volatile matter content in various mixtures. The focus is on mixtures labelled 5, 6, 11, and 12, each with different constituent percentages. The writer compares these mixtures to individual components such as charred Oil Palm Trunk Biomass (OPTB), charred Palm Kernel Shell (PKS), and charred plastic. The pattern “this indicates” introduces an interpretation, suggesting that the lower volatile matter content in Mixtures 5, 6, 11, and 12 implies higher burning efficiency compared to OPTB and PKS alone. Thus, “this indicates” effectively conveys the writer’s analysis of the data, linking volatile matter content to potential burning efficiency. In Biology, the frequency of “this indicates/indicated” is noticeable, though less frequent than in Civil Engineering. Economics writers also used this expression, though to a lesser extent than in Civil Engineering. Notably, English writers did not employ this construction.

Moreover, Economics (0.11 per 10,000 words) and English (0.04 per 10,000 words) are the only disciplines to use “this includes.” The study reveals that writers in Economics and English frequently employed “this includes” to highlight inclusivity or comprehensive discussions, as seen in Extracts 6a and b.

Extract 6a: A key element to planning for rural development is human resource development. This includes the participation of the local people in the conception, planning, and implementation of projects. This participation of the local people will be possible if (i) local wishes are taken into account, (ii) Local knowledge is made use of and (iii) local contributions are secured. [Economics, 1982]

Extract 6b: For this theory to survive in a distinctive group, three proposed variables are put together for the ethnolinguistic minority to happen. These variables are the status, demographic, and institutional support. The status variable shows the factors that relate to a particular speech community’s prestige. This includes their economic status, social status, sociohistorical status as well as the prestige of the language and culture, which exists inside and outside the territory. [English, 2022]

In Extract 6a, “this includes” serves as an exemplificatory marker which introduces and elaborates on specific aspects or concepts. Similarly, in Extract 6b, “this includes” enumerates factors under the “status variable,” such as economic, social, sociohistorical, language, and cultural prestige. In extracts 6a and b, “this includes” structures the information to enhance clarity to aid

the reader's understanding of the components related to the overarching concepts. The writers' use of this phrase reflects a focus on inclusive analysis of the relevant factors.

On "this suggests," Civil Engineering exhibits the highest normalised frequency (0.22) among the disciplines studied. This indicates that Civil Engineering writers commonly used this structure to imply potential outcomes or consequences based on presented data. The use of "this suggests" in Civil Engineering can be attributed to two key factors. First, the discipline often involves complex technical information (Hadgraft & Kolmos, 2020), and "this suggests" allows writers to clearly indicate possible implications or outcomes. Such precision is vital for communicating engineering concepts and findings. Second, due to the applied nature of Civil Engineering, the use of "this suggests" helps to highlight the practical, real-world applications of research, guiding practitioners, policymakers, and other researchers in implementing findings as in the extracts below.

Extract 7a: The failure modes of the compacted model sample in the loading test were observed during and after the test on top of the compacted sample. The failure surface did not intersect the compacted sample surface besides, significant punching of the footing into the sample occurred. There was not any significant bulging of the surface. This suggests that the modes observed in the model footing test were that of local shear. [Civil Engineering, 2005]

Extract 7b: Figure 4.12 shows the positive linear correlation of  $q_y = 6084 - 736$  between yield stress,  $q_y$ , and dry density with  $R^* = 0.98$ . This suggests that there is a linear relation between the yield stress and the dry density. [Civil Engineering, 2005]

In Extract 7a, the use of "this suggests" in Civil Engineering provides a clear interpretation of findings. The pattern acts as a transition from describing the observed failure modes to offering a logical conclusion, making the connection between the observed phenomena (e.g., lack of surface intersection, significant punching of the footing) and the interpretation of local shear. This aligns with Hyland's (2013) view that Engineering writing prioritises clear communication of observed facts. "This suggests" facilitates precise interpretation and guides the reader's understanding of the research outcomes.

In Extract 7b, "this suggests" highlights the practical implications of a positive linear correlation between yield stress ( $q_y$ ) and dry density. The correlation coefficient ( $R^* = 0.98$ ) indicates a strong relationship, suggesting that controlling dry density during construction may influence yield stress. In contrast, Economics shows a considerable normalised frequency (0.16) for "this suggests," indicating its use to imply connections or correlations, as seen in Extract 7c.

Extract 7c: However, the first-period lag of the relative prices of imports is negative but is statistically significant at a 5% level. This suggests that if last year's relative prices of imports increased, the current import demand will experience a decline of 1.34%. The second-period lag has an insignificantly positive impact on the current import demand. This shows that in the last two years the price of imports increased by 1 percent, and the current import demand will increase by 0.68% in the short run. [Economics, 2016]

In Extract 7c, the Ghanaian postgraduate writers in Economics used "this suggests" to infer a connection between the lagged relative prices of imports and current import demand. The writer highlights the negative and statistically significant first-period lag, suggesting that an increase in relative prices from the previous year leads to a 1.34% decline in current import

demand. The phrase "this suggests" serves as a marker to guide the reader through the implied relationship. Similarly, the second-period lag shows an insignificantly positive impact, with a 0.68% increase in demand. These expressions help clarify the inferred relationships between past price changes and present demand. In contrast, "this suggests" is infrequently used in English subcorpora, with a normalised frequency of 0.04, reflecting the influence of discipline-specific writing conventions in English academic discourse.

Regarding the use of "this confirms," Biology (0.18 per 10,000 words) shows the highest frequency, followed by Economics (0.16), and then English (0.08). Civil Engineering did not employ the pattern. These figures highlight how different disciplines, such as Biology and Economics, commonly use "this confirms" to validate research findings (see Extracts 8a, b and c), while Civil Engineering does not adopt this expression, revealing discipline-specific linguistic tendencies.

Extract 8a: Percentage solubility or digestibility of com dough at 0 hour was 2.51 percent mainly due to the milling of the grains. This percentage increased significantly ( $P < 0.05$ ) to 3\*50-3\*60 percent at the end of 96 hours, hence fermentation led to 39-43 percent solubility or digestibility of the dough. [This confirms](#) one advantage of fermented foods over unfermented. [Biology, 1989]

Extract 8b: The study finds that the income elasticity of imports is positive and significant. The significantly positive influence of domestic income on import demand is suggestive that consumers tend to increase their demand for foreign goods whenever they experience an increase in their income levels. [This confirms](#) economic theory which assumes a positive relationship between income and the demand for imports. Most of Ghana's imports are necessary and luxury commodities and are expected to be positive and highly income elastic. [Economics, 2016]

Extract 8c: The study is important because it showed how newly-elected presidents use their inaugural speeches to reveal their political ideologies and aspirations to the audience. [This confirms](#) Lawan's (2016: 78) claim that '... a new president normally takes the advantage of the speech to advertise his fundamental political life and belief'. [English, 2022]

In Extract 8a, the use of "this confirms" in Biology suggests that postgraduate writers in this discipline commonly employ the expression to affirm or validate their research findings. Similarly, in Extract 8b, "this confirms" in Economics indicates that writers in this discipline also use the pattern to assert the validity of their research results. In Extract 8c, the use of "this confirms" in English postgraduate writing implies that while it is present in this discipline, it is used to a lesser extent.

Finally, "this depicts" appears exclusively in postgraduate theses in Economics (0.11 occurrences per 10,000 words) and is entirely absent in the other disciplines (English, Civil Engineering, and Biology). This highlights a notable specificity in rhetorical choices, underscoring distinct disciplinary conventions. "This depicts" is employed to vividly portray or describe ideas, as exemplified in the following instance.

Extract 9: The processed and semi-processed sub-sector contributed an overwhelming 80.15 percent to the total volume of non-traditional exports in 2000 and rose further to 86.31 percent in 2014. [This depicts](#) the emphasis that is being placed on greater value addition to our export products through processing. The sector's contribution in 2000 as compared to 2014 registered an astronomical

increase of 575.61 percent from US \$321.142 million to US\$2,169.656 million. [Economics, 2016]

The use of “this depicts” in Extract 9 highlights the writer’s focus on vividly illustrating key developments within the non-traditional export sector. The phrase emphasises the remarkable increase in the processed and semi-processed subsectors’ contributions to non-traditional exports from 2000 to 2014. The statistics, which show a rise from 80.15% to 86.31%, are presented as a clear depiction of the sector’s strategic shift towards greater value addition through processing. The writer further underscores the magnitude of the change, noting a 575.61% increase in monetary value, reinforcing the importance of this trend. In this case, “this depicts” serves as a powerful tool for guiding the reader’s understanding of the data and its implications. Generally, these findings reinforce the importance of disciplinary awareness in postgraduate students’ writing. Writers must understand the rhetorical norms and social conventions of their discipline and follow established patterns of interaction to effectively communicate their findings (Hyland & Jiang, 2017; Yang & Pan, 2023).

## CONCLUSION

The study explored unattended anaphoric pronouns in postgraduate theses across four disciplines—English, Economics, Biology, and Civil Engineering—at a Ghanaian public university. Drawing on a corpus of 40 theses totalling 787,074 words, the study identified discipline-specific variations in the use of unattended anaphoric pronouns. The findings showed that unattended “this” was most frequently used across all disciplines, with Economics showing the highest normalised frequency. “This is/was” was also the most prevalent pattern within the corpus. The findings underscore how disciplinary conventions influence the reference strategies and verb choices in postgraduate thesis writing. The study offers valuable insights into the interplay between disciplinary discourse and academic writing practices in Ghanaian postgraduate education, contributing to a broader understanding of the linguistic norms that govern scholarly communication in diverse academic contexts.

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