

Verb-Noun Collocations In Newspaper Editorials In Ghana: A Corpus-Based Analysis

Hamidu Alhassan, Millicent Akosua Bosompemaa Quarcoo & Addae Aikins

Abstract

This paper is a corpus-based study which aims at profiling the most frequent verb-noun collocations and their communicative functions in newspaper editorials in Ghana. In all, a total of 92,927 running words were culled from 220 newspaper editorials from The Ghanaian Times and The Daily Graphic,

<https://dx.doi.org/10.4314/contjas.v9i2.4>

Hamidu Alhassan (alhasanhamidu29@gmail.com) is a PhD student at the Department of English Education, University of Education, Winneba. He is also a lecturer in English at St. Monica's College of Education, Asante Mampong and College of Distance Education and E-learning, University of Education, Winneba. His research focus is on Corpus linguistics, Critical Discourse Analysis, Pragmatics and English Pedagogy. His M.Phil. thesis was a corpus-based studies which focused on media discourse, specifically on newspaper editorials. He has so far published in the *International Journal of Basic Education Research and Policy*, and in a conference proceeding journal by Uhamka International Conference on English Language Teaching and Computer Assisted Language Learning (UICELL) Jakarta, Indonesia. He participated and presented a paper at the Uhamka International Conference on English Language Teaching and Computer Assisted Language Learning (UICELL), Jakarta, Indonesia.

Millicent Akosua Bosompemaa Quarcoo (akosquarcoo@gmail.com) is a Senior lecturer at the Department of English Education, University of Education, Winneba. Her areas of interest are Sociolinguistics, Grammar and Discourse Analysis. She teaches Sociolinguistics, Grammar, Corpus Linguistics, Critical Discourse Analysis and Pragmatics. She has published and also collaborated with colleagues to publish in many reputable international journals, e.g. *Journal of West African Languages* (JWAL), *Language Matters*, *Contemporary Journal of African Studies* (CJAS), *Legon Journal of the Humanities*, etc. She has also presented papers at international conferences, e.g. International Association of Applied Linguistics (AILA), West African Languages Congress/ Linguistics Association of Ghana (WALC/LAG), Association of Contemporary African Linguistics (ACAL), etc. Her current project is examining English as a first language and its effect on academic performance by students in some selected schools in Tema.

Mr. Aikins Addae (aikinsaddae3@gmail.com) is a Lecturer of English at the Department of Basic Education, University of Education, Winneba. He holds a Bachelor of Arts in English, an M.Phil. in English and a postgraduate diploma in teaching and learning in higher education. Aikins is currently a PhD candidate in English at the Department of English Education, University of Education, Winneba. He has published in the *International Journal of Basic Education Research and Policy*, and in a conference proceeding journal by Uhamka International Conference on English Language Teaching and Computer Assisted Language Learning (UICELL) Jakarta, Indonesia. He also participated and presented a paper at the Uhamka International Conference on English Language Teaching and Computer Assisted Language Learning (UICELL), Jakarta, Indonesia.

which were published in the 2016 and 2017 news years, for compilation of a specialised corpus for the study. From the collocation tab of the AntConc corpus software, sixty–seven Verb–Noun Collocations were found to constitute the most frequently occurring collocations in the newspaper editorials under study. The corpus revealed that both predictive and open Verb–Noun Collocations which alternate at the left and right sides on the collocation window span are mostly used by newspaper editorial writers in Ghana. Again, it was observed that phrasal patterns of a noun collocate differed according to its position on either the left or right side of a verb node. The semantic prosodies of the profiled verb–noun collocations revealed five major discourses which constituted the most discussed issues in the newspaper editorials published in 2016 and 2017 news years. These issues were governance, politics and elections, peace and security, law and order, and corruption.

Keywords: Corpus, Antconc, Collocation, Node, Collocate, Collocation tab, Predictive and Open, Newspaper editorials, discourses

Résumé

Cet article est une étude basée sur le corpus, ayant pour but de profiler les collocations verbo–nominales les plus fréquentes et leurs fonctions communicatives dans les éditoriaux de journaux au Ghana. Nous avons extrait un total de 92 927 mots courants de 220 éditoriaux des journaux Ghanaian Times et Daily Graphic publiés en 2016 et 2017, pour compiler un corpus spécialisé pour l'étude. À partir de l'onglet Collocation du logiciel de corpus AntConc, nous avons repéré soixante–sept collocations verbe–nom pour constituer les collocations les plus fréquentes dans les éditoriaux de journaux étudiés. Le corpus révéla que les collocations verbo–nominales prédictives et ouvertes, qui alternent à gauche et à droite de la fenêtre Collocation, sont principalement utilisées par les éditorialistes des journaux au Ghana. Par ailleurs, nous observâmes que les modèles phrastiques d'une collocation nominale différaient en fonction de la position de celle–ci à gauche ou à droite d'un nœud verbal. Les prosodies sémantiques des collocations verbo–nominales profilées révélèrent cinq discours majeurs qui constituèrent les sujets les plus discutés dans les éditoriaux des journaux publiés en 2016 et 2017 dont la gouvernance, la politique et les élections, la paix et la sécurité, la loi et l'ordre, et la corruption

Mots clés: corpus, Antconc, collocation, nœud, onglet Collocation, prédictif et ouvert, éditoriaux de journaux, discours.

Introduction

Collocations are integral part of any discourse whether written or spoken (Mehmet and Yildiz 2017; Manal 2019; Xu, Akhter and Qureshi 2020). Research on scholarly communication indicates that there is a strong correlation between newspaper editorials and collocations (Jafarpour et al. 2013; Manal 2019). Jafarpour et al (2013), for example, are of the view that most journalistic texts, especially, editorials rely heavily on verb–noun collocations which are pre-established in the language (ibid). It is estimated that about 40% to 60% of the linguistic items in editorials and other journalistic texts are pre-established verb–noun collocations, and that these collocations have meaning implications (Ngula and Nartey, 2014; Wiredu, 2012; Manal, 2019). In line with these assumptions, this study seeks to examine verb–noun collocations in newspaper editorials in Ghana, to profile the most frequent verb–noun collocations that played out in the 2016 and 2017 news years, determine the pre-established verb–noun collocations in these editorials, and examine how the collocations reveal the most discussed issues (discourses) in the editorial years under study, i.e. the communicative implications.

The concept of collocation first appeared in Firth (1957) to mean the co-occurrence of lexical items, and later broadened to cover several perspectives and approaches by formulaic language scholars (see Kjellmer 1982; Sinclair 1991; Cowie 1992; Howarth 1998; Kennedy 1998). For instance, subscribers to the frequency–based approach of collocation perceive it as two or more lexical items with a high probability to co-occur (Kjellmer, 1982; Hoey, 1991; Sinclair, 1991; Kjellmer, 1994). Additionally, most formulaic scholars have expanded the collocation boundary to cover grammatical association, idioms and phraseologies (Renouf & Sinclair, 1991; Howarth, 1998; Kennedy, 1998).

The present study is, therefore, analogous to the perspectives of Firth (1957) as well as the second generation of collocation studies. Thus, the study follows the perspectives of Manal (2019) and Ngula & Nartey (2014) who consider collocations as co-occurrence of two or more lexical items in a text. Generally, the study of collocation through corpus study has not gained popularity, especially in Ghana due to lack of attention to corpus linguistics which makes the study of formulaic language possible elsewhere (Manal, 2019; Lawrence, 2013; Ngula & Nartey, 2014).

This article therefore forms part of an ongoing project to profile the verb–noun collocations and their communicative functions in newspaper editorials in Ghana through a corpus–based approach. The underlying goal of the project is to offer an approach that will enhance reading and understanding of editorials in Ghana which have been found not to enjoy wider readership due to their complexity in nature (Wiredu, 2012).

Corpus study has become one of the most important tools for collecting and analysing authentic data in many areas of linguistic study, where several scholars like Manal (2019), Lawrence (2013), Mehmet and Yildiz, (2017), Xu, Akhter and Qureshi (2020) have explored. In the Ghanaian landscape, Frimpong (2017), Ngula & Nartey (2014), Wiredu (2012), and Sarfo–Kantanka (2021) have taken giant strides. Their studies have considered different areas like register analysis of editorials (Wiredu, 2012; Frimpong, 2017), linguistic complexities (Ngula 2014) and political manifestos (Sarfo–Kantanka, 2021). This study will add to the growth in yet another area of newspaper editorials that examine the discourses that inform the selection of collocates and their nodes.

Methodology

This study adopts a corpus–based approach to generate an inventory of language data where appropriate linguistic forms and other prefabricated forms are extracted to support intuitive knowledge, to verify expectations, to allow linguistic features to be quantified, and to find proof for pre–existing theories (Baker, 2006; Bennet, 2010; Gries, 2013; Ngula, 2017).

Data collection and Corpus compilation

In the views of Baker (2006) and Ngula (2017), a specialised corpus is required for a specific corpus study. In this study, a single specialised raw corpus was compiled from two newspapers in Ghana in an effort to get a general idea of the verb–noun collocations which were mostly used by editorial writers in the 2016 and 2017 news year. In all, 100 and 120 editorials were culled from The Daily Graphic and The Ghanaian Times respectively. The difference in numbers was because the editorials in The Daily Graphic were longer and to ensure balance in the corpus building process, the number of editorials from The Ghanaian Times was increased for equality in terms of size and representativeness. All the 220 editorials were published between 1st June 2016 and 1st June 2017.

The choice of the two newspaper editorials was based on credibility, coverage, readership and the fact that they were the most current at the onset of this study. It has been reported in Frimpong, (2016), Fosu (2016), Wiredu (2012) and Yankson et al. (2010) studies that The Daily Graphic and The Ghanaian Times are the two most credible and circulated newspapers that enjoy wider readership in Ghana. Finally, these two newspapers are free from political biases and individual idiosyncrasies since they are both state–owned media.

Corpus under study

The corpus being studied is a specialised corpus culled from 92,927 running words. The original text for the corpus compilation was in Word Document and PDF formats. Since these text formats cannot be read/annotated and queried for linguistic information by corpus tools, all the texts were converted into plain text to make them machine readable (Scott, 2004; Dickson, 2015), and also to avoid misrepresentation of the original texts. The corpus was then analysed for verb–noun collocations based on their frequency, using the AntConc 3.4.4w version of corpus tools. On a whole, 92,927 running words corpus, made up of 92,927 tokens and 8,192 types, were compiled. A summary of the corpus is tabulated in Table 1.

Table 1: Description of the corpus in terms of number of running words

	The Daily Graphic	Ghanaian Times	Total
Number of editorials	100	120	220
Number of types	4,126	4066	8,192
Number of tokens	46,964	45,981	92,927

Method of Analysis

To track the most frequent verb–noun collocations in the corpus, we first generated the wordlist for the most frequent verbs (nodes). However, the collocates were tracked using the collocation tab from the AntConc 3.4.4w Window version. A personal model was designed for the purpose of analysis in line with the model.

All the verbs with a frequency count below 34 were considered numerically insignificant for collocation analysis. The following verb types were also disregarded: i. Phrasal verbs – because the study focused on only lexical collocation; ii. modal verbs – because their determinacy in meaning is unclear (Coate, 1983); and finally, the particle ‘to’ in the to–infinitive and auxiliary verbs because they are not main verbs in a clause.

Regarding nouns (collocates), names of people and gerunds were not considered. Also, nouns with collocability rate below three were found to be numerically insignificant for a study of this nature. Finally, verb–noun collocations with a frequency rate below three were considered not numerically significant for the study. From this model, the verb–noun collocations were extracted from the corpus through the AntConc corpus tools with a collocation window span of 5R and 5L. This means that the nodes were set to co–select the first

to fifth most frequent collocates that occur either to the right or left of the node on the collocation span.

Analysis

Verbs (Node)

As noted by Scott (2001), the wordlist tab was used to track the most frequent verbs which constitute nodes for collocation analysis. In all, nineteen (19) verbs were found to have the most frequency of occurrences and constituted the nodes for the verb–noun collocation analysis for the study. These verbs were sorted based on their ranks and frequency of occurrences. From the wordlist tab, the verb ensure was found to have the highest frequency rate with a total of one hundred and thirty-nine (139) instances of occurrences and ranked the seventy-ninth (79th) most frequently occurring lexical item in the corpus. This was followed by take with a frequency rate of one hundred and two (102) ranking the ninety-ninth (99th) highest occurring lexical item in the corpus. Table 2 presents the nineteen most frequent verbs (nodes) identified in the corpus.

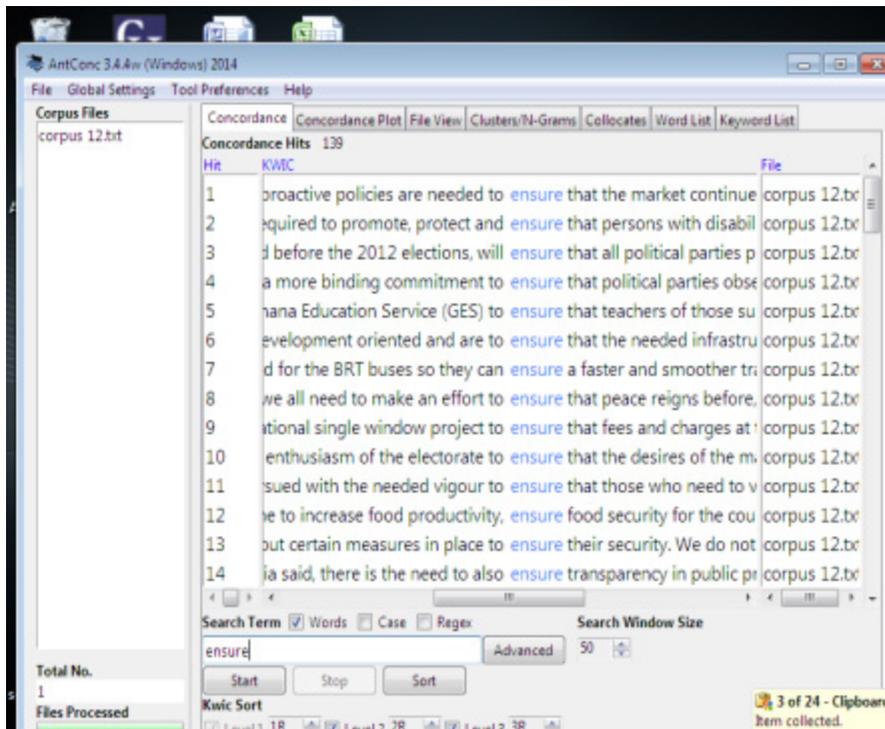
Table 2: A display of the most frequent verb nodes in the corpus

Verbs (Nodes)	Frequency	Rank
Ensure	139	79
Take	102	99
Made	86	121
Said	77	140
Urge	70	155
Go	66	163
Put	65	166
Believe	56	189
Taken	51	204
Find	50	208
Fight	48	220
Bring	46	232
Give	46	238
Prevent	44	254
Used	41	273
Deal	40	276
Given	36	332
Protect	32	348
Stop	32	349

Source: AntConc interface, 2018

See ensure displayed in the concordance lines in Figure 1 below.

Figure 1 Concordance hits of the verb (node) ‘ensure’ in the corpus



Nouns (collocates)

To analyse collocation, Stubbs (2001) contends that there should be concurrence of nodes and collocates which constitute ideological battle grounds. Against this perspective, collocates were generated through the collocation tab. The corpus evidence from the collocation tab revealed forty-three (43) nouns (collocates) which were found to have the highest probability to co-occur with the nodes profiled in Table 2. Collocations have been found to determine the probability of two or more lexical items co-occurring in a text in terms of their semantic prosody or by virtue of their semantic preference as noted by Louw (1993) and McEnery et al. (2006). Therefore, there was the need to profile the collocates which co-occurred with the nodes. The results from the collocate bar showed that the noun government demonstrated the highest collocability rate with forty-one (41) instances of co-occurrence with five nodes in the corpus. This was followed by law with nineteen (19) instances of co-occurrences with three nodes.

Elections and Ghanaians were found to be the third highest collocates with eighteen (18) instances each of co-occurrences with six nodes. Table 3 presents the first twelve and last five of the forty-three nouns which had the highest probability to collocate with the nodes.

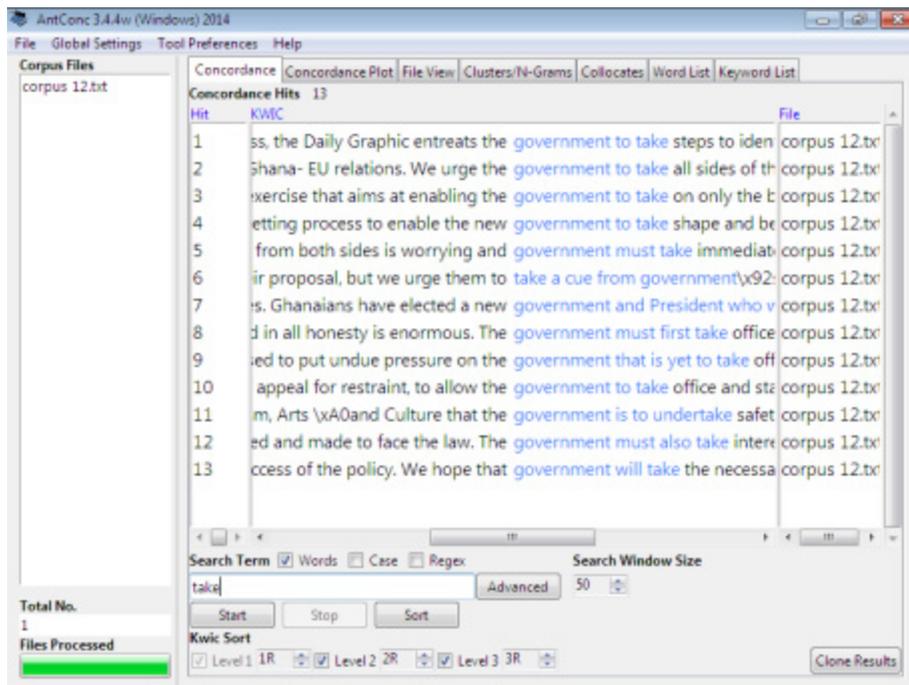
Table 3: The first 12 and the last five most frequent collocates (nouns) in the corpus

Collocate	No. of Frequency	Rank
government	41	106
steps	20	49
Law	19	49
Ghanaians	18	103
elections	16	34
place	16	34
security	16	37
country	14	26
corruption	11	27
efforts	11	12
mining	9	30
peace	8	18
Education	3	26
Purse	3	14
people	3	16
assurance	3	25
Hope	3	11

Source: AntConc interface, 2018

Figure 2 is the concordance hit of government as the most frequently occurring collocate on the collocate widow.

Figure 2: Concordance hits of government in the corpus



Most Frequent Verb-Noun Collocations in the Corpus

From the corpus, sixty-seven (67) verb-noun collocations were found to have the most frequency of occurrences in the editorial texts, with two hundred and thirty-eight instances of occurrences as displayed by the concordance hits on the AntConc. Cowie (1992) and Linebarger (2010) had earlier on claimed that verb-noun collocations constitute a chunk of linguistic resources in editorials. Among these sixty-seven (67) verb-noun collocations, government take was found to have the most frequency rate of collocability with a total of twelve (12) instances of co-occurrences and ranked the tenth (10th) highest collocation in the corpus. This was followed by ensure elections with eleven (11) instances of occurrences, representing the twelfth highest in the corpus. On the other hand, the verb-noun collocation protect people was found to have the lowest frequency of occurrences, with a frequency rate of three (3) and three (3) instances of occurrences.

See Table 4 below for the results of the most frequent verb–noun collocations.

Table 4: The most frequent verb–noun collocations in the corpus.

Node	Rank	Freq.	Freq. L	Freq. R	Statistics	Collocate
ensure	12	11	3	8	5.40136	election
ensure	14	9	6	3	5.51040	Law
ensure	15	9	6	3	3.49680	country
ensure	18	8	2	6	6.11808	Peace
ensure	24	7	2	5	4.97308	security
ensure	29	6	1	5	6.41524	Safety
ensure	30	6	2	4	8.64790	accountability
take	9	12	11	1	5.13558	government
take	17	8	0	8	8.92449	advantage
take	19	7	3	4	5.59435	Law
take	23	6	0	6	8.09442	Steps
given	11	5	3	2	9.65081	assurance
protect	14	3	0	3	9.62934	Purse
protect	16	3	1	2	4.94411	people
stop	12	4	0	4	7.29436	activities
stop	16	3	0	3	7.13458	mining

Source: AntConc interface, 2018

Refer to Figure 2 for the concordance hits of government take as the most frequent verb–noun collocation in the corpus.

Description of the Profiled Verb-Noun Collocations

As noted by Francis (1993), description of collocations is one of the most crucial factors in frequency–based approach to collocation studies. In tandem with the above, attention is focused on the description of the nature and types of the verb–noun collocations profiled. The positions of the collocates focused on those at both the left and right sides of the nodes as described in Sinclair (1991) and Stubbs (2005).

Left side collocates

The corpus evidence from the AntConc revealed thirty–six (36) collocates which consistently occurred at the left side of the nodes and constituted one hundred and eight (108) instances of occurrences from the concordance lines. Among the thirty–six (36) collocates, “government” was found to have the highest frequency with twenty–two occurrences at the left of six nodes,

namely take, made, urge, put, fight and deal. See examples 1 – 4 below:

1. Also, while we urge Parliament to hasten the vetting process to enable the new government to take shape and begin its work, we pray ... so that the nominees are grilled thoroughly.
2. But over the years, the government has made strenuous efforts to establish a cocoa processing factory to add value to the product that also happens to be the major foreign exchange earner for the country.
3. While we should be happy with the determination of the government to deal with the situation, we are rather skeptical because we heard similar pledges in the past.
4. All our past governments laid down plans to fight corruption, but the twin evils of bribery and corruption continue to limit our capacity to invest in national development efforts.

The position of the collocates in examples 1–4 shows that government consistently occurred at the left of the nodes take, made, deal and fight. Besides government, other collocates were captured occurring at the left side of the aforementioned nodes as in examples 5–7.

5. The only way out of this situation is to prevent waste in the form of embezzlement, misuse or misapplication of public funds.
6. We are told that the Bill, when it receives presidential assent into law, is expected to deepen transparency, accountability and ensure prudent management of the country's scarce resources.
7. The law should deal with it, irrespective of the colour of their skin, party affiliation or where they hail from.

As displayed in examples 5–7, the collocates situation, accountability and law all occurred at the left of the nodes prevent, ensure and deal indicating that nouns by default occur at the left side of verbs to negotiate for meaning in collocation associations, a situation which Louw (1993) and McEnery et al. (2006) described as semantic preference. This position of the collocates to the nodes further confirms the assertion of Hoey (1991), Sinclair (1991) and Stubbs (2005) that collocations are probability of occurrences of lexical items and therefore their associations are open to the left and right direction of nodes. Table 5 highlights the collocates which occurred at the left side of the nodes as displayed by the AntConc software.

Table 5: Some collocates (nouns) at the left of the nodes (verbs)

Nodes	Frequency	Freq. Left	Collocate
ensure	11	3	election
ensure	6	2	accountability
take	12	11	government
made	9	6	government
made	6	3	promises
Go	5	3	election
put	5	3	measure
believe	3	1	practice
taken	11	8	Steps
find	3	2	Ghanaians
fight	3	2	government
give	3	2	Ghanaians
prevent	4	1	situation
deal	3	2	Law
deal	3	3	government
protect	3	1	People

Source: AntConc interface, 2018

Right side collocates

The corpus evidence from the collocation tab revealed quite a substantial number of collocates co-occurring with the node at the right of the collocation window span as observed by Sinclair (1991) and Stubbs (2005). A total of fifty-seven (57) collocates were found to occur at the right side of seventeen (17) nodes with two hundred and thirty-eight (238) instances of occurrence on the concordance lines. Out of the fifty-seven (57) collocates, government again, was found to have the highest collocability rate at the right side of five (5) nodes – take, made, put, fight and urge with a frequency rate of nineteen (19) instances. Examples 8–10 in the concordance lines confirm this.

8. It is because of this reason that he made it clear to the government and people of Ghana that President Akufo–Addo has come at an important moment with great expectations from Ghanaians.
9. We urge the government to take all sides of the debate into consideration and examine how best it could secure a deal.
10. ... but that should not be used to put undue pressure on the government that is yet to take office.

Thus, government is seen to occur at the right of made, urge and put. Besides government, corpus evidence also revealed a chunk of collocates which occurred at the right of those same nodes as in examples 11–14.

11. An acceptable voters' register would no doubt ensure a credible election and that is what we must all work towards.
12. While we urge the leadership of all political parties not to stay silent when any of their members or leaders go vitriolic on other persons, ...
13. It is for these reasons that the Times supports the call by the EC to the security agencies, particularly the Police, to ensure adequate security before, during and after December 7 general election.
14. The Times is disturbed that since 2001, when Yaa Naa Yakubu Andani II was killed along with some elders of his court, the country has been unable to find a solution to the feud.

The occurrences of elections, parties, security and solution at the right sides of ensure, urge and find in the examples above indicate that, most nouns associate with verbs at their right sides in the process of collocation to reflect meaning preference, as described by Ngula (2018) and McEnry et al. (2006). This kind of association of the verb and noun in collocation bond, again, confirm Alangari (2019) and Fosu's (2016) allegation that a collocate can occur at either side of the node on a collocation span, to demonstrate that their association are not by grammatical cohesion but by probability for lexical items to co-occur. Table 6 presents the collocates which occurred at the right of the nodes to demonstrate possible co-occurrence.

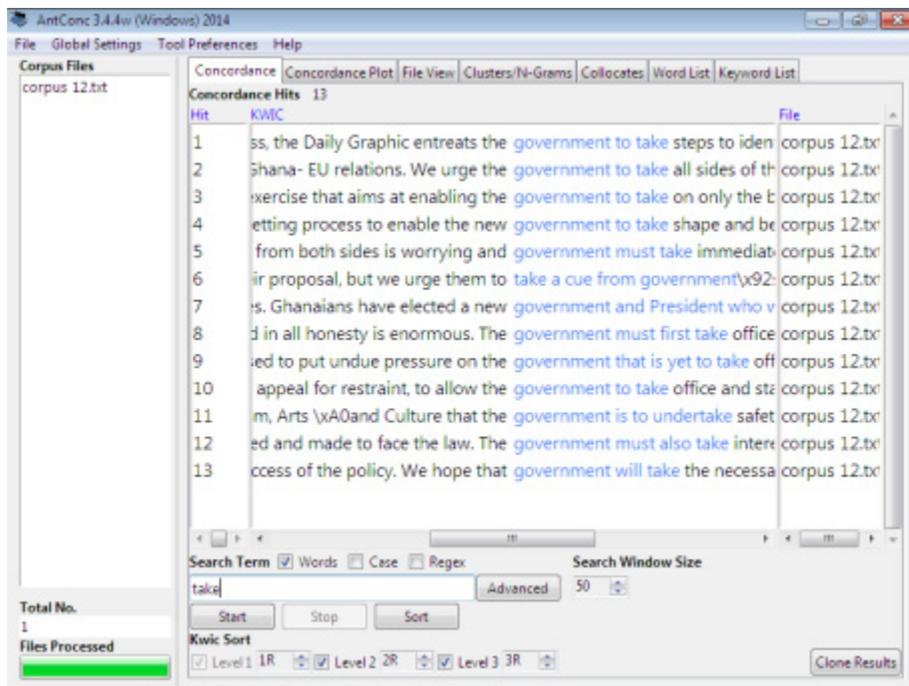
Table 6: Some collocates (nouns) at the right of the nodes (verbs)

Nodes (Verbs)	Frequency	Freq R	Collocate
ensure	11	8	elections
ensure	7	5	security
Take	11	8	advantage
made	10	3	government
made	4	3	promises
Urge	5	10	government
Urge	4	3	parties
Put	3	3	government
believe	6	2	practice
taken	6	3	Steps
Find	3	4	solution
fight	3	6	mining
Give	4	3	EC
prevent	4	4	country
prevent	4	4	violence
protect	3	1	People

Source: AntGonc interface, 2018

The concordance, as presented in Figure 3 shows the occurrences of the collocate “government” at the right side of the node “urge” to demonstrate verb–noun collocations.

Figure 3: Concordance display of ‘government’ at the right of ‘urge’ in the corpus



Types of Verb-Noun Collocations

The occurrences of some verb-noun collocations were found to deviate from the grammatical order of words in a paradigm as reported by Firth (1957), Stubbs (2005) and Ngula (2018), and that appeared unnatural to the speakers of the Language. However, there were a good number of the verb-noun collocations which sounded natural, and their occurrences could be predicted by speakers. This means that corpus evidence can be grouped under what Stubbs (2005) referred to as open and predictive collocations. Towards this end, we examine the predictive versus open collocations captured in the corpus, in an attempt to describe its nature within the framework of Ngula (2017).

Predictive verb-noun collocations in the corpus

Out of the sixty-seven (67) running verb-noun collocations captured, forty-two (42) predictive verb-noun collocations which constitute two hundred and twelve (212) instances of occurrences on the concordance lines were captured. This group of verb-noun collocation is pre-established as described by Manal (2019) in the language, and their probability of collocability can be predicted by speakers, and therefore considered natural to speakers.

These forty-two (42) verb–noun collocations by their nature are easily predicted in terms of meanings and associations, as well as proximity in association as pointed out by Louw (1993) and McEnery et al. (2006). Examples 15–17 illustrate this.

15. The UN member states were also urged to do their utmost to prevent violence against journalists and media workers to ensure accountability.
16. It is true that the in–coming government made promises but that should not be used to put undue pressure on the government that is yet to take office.
17. The Times is disturbed that since 2001, when Yaa Naa Yakubu Andani II was killed along with some elders of his court, the country has been unable to find a solution to the feud.

From examples 15–17, the occurrences of take office, made promises, find solution, ensure accountability, and put pressure demonstrate some form of pre–established association of words in paradigm, which are common to speakers of the English language. In furtherance to the above, the verb–noun collocations in the examples do not indicate any gap in association or in pronunciation, implying that the co–occurrences of the predictive verb–noun collocations are easily predictable by speakers as noted in Hoey (1991) and Stubbs (2005). It is therefore evident that in a text, where such verbs and nouns dominate, the probability for them to co–occur is highly possible for the simple reason that speakers and writers are naturally aware of them. For instance, in a text where the verbs prevent, ensure, find, made, etc. dominate, the possibility for them to co–select nouns such as violence, accountability, etc. which also occur in the same text is non–negotiable. Table 7 highlights the predictive verb–noun collocations in the corpus data.

Table 7: Some predictive verb-noun collocations in the corpus

Nodes	Frequency	Collocates
ensure	8	Peace
ensure	6	accountability
take	8	advantage
take	6	Place
take	11	Office
made	9	Efforts
made	6	Promises
urge	10	government
urge	3	stakeholders
Put	4	Pressure
believe	3	Practice
believe	4	Ghanaians
find	4	solutions
fight	6	Mining
prevent	4	violence
taken	4	Action

Source: AntConc interface, 2018

Open verb-noun collocations in the corpus

The second type of verb-noun collocations found in the corpus is termed ‘open’ because the collocation window span produced certain verb-noun collocations which appeared unpredictable in the English language. From the AntConc, eighteen (18) verb-noun collocations were found to demonstrate syntagmatic ‘absurdity’ and appeared unnatural in word-associations in the English language. One feature, though, of such groups revealed that they can only be predicted in phraseological and grammatical connected approaches of collocation studies where the lexical gaps are filled (Ngula, 2015, 2017, 2018). The co-occurrences of these atypical verb-noun collocations are referred to as semantic preference (Louw 1993; McEnery et al., 2006). This implies that the occurrences of these verb-noun collocations are due to meaning negotiation between the nodes and their collocates, to show semantic referent.

Their association is therefore described as open collocation (Stubbs, 2005) because their occurrences are due to the semantic bond that attract them to each other. See examples 18–20 from the concordance lines.

18. If, ... some of the cases are not dealt with and remain pending, will there be an understanding that the elections can still go on?
19. This piece of legislation has come at the right time to deal with the canker of corruption in the public sector resulting in huge sums of money that are expected to be used to finance the provision of public goods and service.
20. The law should deal with it, irrespective of the colour of their skin, party affiliation or where they hail from.

It can be observed that the association of the nodes and the collocates election go, deal corruption and law deal seems a random match and sounds synthetic as compared to prevent violence, ensure accountability, made promise, take office, find solution and give hope in examples 15–17. However, the occurrences of elections go, deal corruption and law deal show that the nodes selected the collocates based on meaning preference to demonstrate an action being performed by the animate noun. Another striking feature of prevent violence, ensure accountability, made promise, take office, find solution and give hope in examples 15–17 reveal proximity of meaning which Louw (1993) and McEnery et al. (2006) describe as semantic prosody, indicating that their meanings are easily known by speakers as compared to examples 18–20 which exhibited syntactic gaps in the association. Despite these gaps, these open verb–noun collocations exhibit some form of semantic referents to show meanings. This suggests that the occurrences of open collocations are not by virtue of grammatical cohesion but by meaning negotiation between the nodes and the collocates. Table 8 shows the open verb–noun collocations in the corpus.

Table 8: Some open verb–noun collocations in the corpus

Nodes	Frequency	Collocates
Ensure	9	Country
Ensure	7	Law
Put	10	Place
Put	4	Government
Prevent	3	Steps
Prevent	3	Measures
Deal	3	Situation
Deal	3	Government
Deal	5	Corruption
Deal	3	Law
Take	7	Law
Take	12	Government
bring	3	Control
Said	5	President
Said	4	Police
Go	5	Election
Go	4	Ghanaians

Source: AntConc interface, 2018

Discussions

This section discusses some observations made from analysing the corpus. It will first address some dominant linguistic patterns of the collocations and draw inferences. Secondly, it will examine the discourses that influenced the occurrence of these collocations in the corpus.

Linguistic patterns

The corpus revealed that phrase structures differed depending on whether the noun collocate occurred on the left or right of the verb node. Similarly, the same was observed in the predictive and open collocations.

Structure of Left side collocates

The corpus revealed that most of the noun collocates that occurred at the left side of the verb nodes had multiple modifiers even when they occurred as part of subordinate clauses. See examples 3, 4, 5, repeated in 21, 22, 23, 24.

21. Also, while we urge Parliament to hasten the vetting process to enable the new government to take shape and begin its work, we pray ... so that the nominees are grilled thoroughly.
22. All our past governments laid down plans to fight corruption, but the twin evils of bribery and corruption continue to limit our capacity to invest in national development efforts.
23. The only way out of this situation is to prevent waste in the form of embezzlement, misuse or misapplication of public funds.
24. It is true that the in-coming government made promises ...

On the other hand, most right node collocates were presented as objects of prepositions (e.g. 25– 29).

Structure of Right side collocates

25. It is because of this reason that he made it clear to the government and people of Ghana that President Akufo-Addo has come at an important moment with great expectations from Ghanaians.
26. ... but that should not be used to put undue pressure on the government that is yet to take office.
27. While we urge the leadership of all political parties not to stay silent when any of their members or leaders go vitriolic on other persons, ...
28. We urge all stakeholders in the elections – state agencies, as well as-the political parties ...
29. Enough of the rhetoric, we need to see some action that will show that we are indeed ready and willing to deal with the canker of corruption

In the predictive verb-noun collocations, it was observed that the nouns occurred as direct objects of their verb nodes (examples 30–32) while in the open collocations, that is, no particular pattern was dominant (examples 33–35)

Structure of Predictive collocations

30. The UN member states were also urged to do their utmost to prevent violence against journalists and media workers to ensure accountability.
31. It is true that the in–coming government made promises but that should not be used to put undue pressure on the government that is yet to take office.
32. The Times is disturbed that since 2001, when Yaa NaaYakubu Andani II was killed along with some elders of his court, the country has been unable to find a solution to the feud.

Structure of open collocations

33. If, ... some of the cases are not dealt with and remain pending, will there be an understanding that the elections can still go on?
34. This piece of legislation has come at the right time to deal with the canker of corruption in the public sector resulting in huge sums of money that are expected to be used to finance the provision of public goods and service.
35. The law should deal with it, irrespective of the colour of their skin, party affiliation or where they hail from.

An observation of the linguistic patterns shows a generous employment of adjective modifiers, e.g. new government, past government, in–coming government, this situation, undue pressure and prepositional phrases, e.g. of all political parties, in the elections, on the government, etc., indicating that editorial writers use more complex noun phrases in their writeups as many collocates occur with modifiers either at the pre– or post–position. The use of such complex noun phrases adds to the complexity of editorials. The liberal deployment of modifiers also shows that editorial writers’ aim is to vividly describe the most talked about issues within the period, confirming Bennet’s (2010) and Roth’s (2002) assertion that editorial writers are explicit on the presentation of topical issues in newspapers. It can also be confirmed from the AntConc file view tab that only abstract nouns played out even when they are direct objects, due to the abstract nature of the discourses that influenced the editorials, e.g. government, accountability, corruption, law, violence, pressure promises, solution, etc.

Discourses which Influenced the Occurrences of the Verb-Noun Collocations

From the corpus, five issues were found to receive editorial attention in Ghana. This has confirmed an earlier assertion by Bennet (2010) that corpus has the propensity to reveal the ‘aboutness’ of an editorial text. This ‘aboutness’ is what Gee (2011) refers to as discourses. The discussion again reflects Louw’s (2000) assertion that collocations have semantic prosodies which mirror issues that are addressed in a text. The semantic prosodies of the verb–noun collocation in the editorials revealed governance, politics and elections, peace and security, law and order, and corruption as the major issues discussed in the editorials published in the 2016/2017 news year. These five discourses are discussed in the next section.

Governance

A total of sixty-one (61) instances of verb–noun collocations from the concordance lines were found to have nodes (verbs) that presented discourses on the collocate ‘government’. This implies that those collocates have semantic prosody (Louw, 2000) which gave a detailed account on governance situation in Ghana between the 2016 and 2017 news year. Extracts on governance can be seen in examples 36–38 below.

36. We, therefore, appeal for restraint, to allow the government to take office and start the implementation of its programme before we demand the fulfillment of the promises.
37. It is true that the in-coming government made promises but that should not be used to put undue pressure on the government that is yet to take office.
38. As the years go by, the electorate keeps a watchful eye on the ruling government to find out how things are being done to fulfill the promises made to them during campaigns.

The collocations, that’s government take and government made suggest that the writers used them to refer to a new government that has taken over the reins of affairs in the country. In the same vein, some of the verb–noun collocations patterns also suggest government’s lack of commitment in dealing with some pressing challenges that confronted the country at the time as indicated by examples 39 and 40 below.

39. While we should be happy with the determination of the government to deal with the situation, we are rather sceptical because we heard similar pledges in the past.

40. All our past governments laid down plans to fight corruption, but the twin evils of bribery and corruption continue to limit our capacity to invest in national development efforts.

It is evident that the verb-noun collocations (government deal, deal situation, and government fight) highlight a discourse on government's poor show in handling pressing issues such as corruption, which is seen as a potential threat to the development of the country. The implication is that the collocate "government" which forms part of the theme (Halliday, 2004) of the text in the four cases of the verb-noun collocations and the verbs (nodes) which constitute the rheme (Halliday, 2004) presented a discourse on governance situations in Ghana. Some of the verb-noun collocations were also used to show that the government is really working towards shaping the economy. Examples can be found in the extracts 41 and 42 below.

41. The government made conscious efforts to create the enabling environment through the introduction of appropriate policies and the necessary incentives for the companies not only to thrive, but also compete in the global arena.
42. We wish the sector minister and the government well in their endeavour to deal with the galamsey issue.

Politics and elections

Politics has been found to be one of the most discussed issues in newspaper editorials (Van Dijk, 2006; Roth, 2002). A total of forty-four (44) instances of occurrences of the verb-noun collocations discussed the political and electoral situation in Ghana. Examine examples 43-46 below.

43. That, we believe will clear all doubts relating to the elections and ensure the full participation of all eligible citizens to ensure glitch-free and credible elections.
44. We urge all stakeholders in the elections – state agencies, as well as the political parties to get their act together and get going now that the December 7 date has been firmed up, and let us once again have clean, peaceful and credible elections.
45. All these activities, which are expected to ensure free, fair and transparent elections, will take place at all the 275 collation centers across the country.
46. If, ... some of the cases are not dealt with and remain pending, will there be an understanding that the elections can still go on?

The examples above clearly show that the occurrences of the nodes (ensure, urge, and take) and their collocates (election, stakeholders, and parties) in these editorials were solely to discuss politics and elections in Ghana in the year 2016 and 2017. Another idea that these verb–noun collocations seem to communicate is the expected role(s) of the major stakeholders in politics and elections in Ghana. This can be seen in the examples 47 and 48 below.

47. This is why we urge the EC to try as much as possible to ensure that many eligible voters are not disenfranchised.
48. We urge all stakeholders in the elections – state agencies, as well as the political parties – to get their act together and get going now that the December 7 date has been firmed up, and let us once again have clean, peaceful and credible elections.

The verb–noun collocations urge EC and urge stakeholders show the writers' commitment to ensure that the major stakeholders in the elections do their work well and conduct themselves diligently in order to ensure a good election that will produce results which will be acceptable to all Ghanaians. These collocates urge EC and urge stakeholders affirms Bennet's (2010) "aboutness" of the editorials; that is, the writers' intention to send a clear message to the EC which is the final determiner of elections' results, and the other players in the election such as political parties, chiefs, security, etc. to ensure fairness in the processes leading to the elections to avoid possible violence.

Peace and security

In a similar vein, some of the verbs (nodes) were found to have their collocates focusing on security. Corpus evidence revealed quite a number of collocates with semantic referents of peace and security, suggesting that their occurrences were as a result of the (in)security situation in Ghana which became a public concern during that period. See examples 49–52 below.

49. Strangely, these land guards operate with arrogance and it's baffling that the police have not been able to prevent them from perpetrating violence on people.
50. That is why we urge the security agencies, political parties and their leaders, supporters as well as community leaders to support the security agencies to identify and stop any disturbances in any locality in the country.
51. We are encouraged that the government has stepped up security across the country and at important public places, hotels, malls, among others to ensure security.

52. That is the only way we can keep society safe and ensure peace in the country.

A close examination of prevent violence, urge security agencies, ensure security and ensure peace shows that all the verbs (nodes) and their collocates have an inherent semantic referent to peace and security. The corpus evidence therefore confirmed the poor security situation in Ghana, explaining its attraction of so many publications in the editorials. A total of forty–three (43) instances of occurrences of verb–noun collocations discussed this idea.

Law and order

Law and order also found prominence in the concordance lines, suggesting that the semantic prosodies of some verb–noun collocations were influenced by some discourses on law and order. In the corpus, seventeen (17) verb–noun collocations were found to occur in thirty–one (31) sentences to reflect this discourse. Evidence of this claim can be found in the examples 53–56 below.

53. No individual or group of persons must take the law into their own hands, even if they suspect foul play by the police in the discharge of their duties.
54. Whichever way, there is the need to intensify public education on the law to ensure that both the public and the politicians do not violate the law.
55. The law should deal with it, irrespective of the colour of their skin, party affiliation or where they hail from.
56. To ensure orderliness around the project site, law enforcement agencies must deploy to the area, to ensure law and order and to deal with law breakers.

From these four examples above, it is clearly seen that all the verbs (nodes) which trigger the rheme (Halliday, 2004) are found to consistently say something about the noun (collocate) “law” which constitute what Halliday (2004) refers to as theme of a text. This shows that the writers used law take, law ensure, and law deal to present their opinions on the legal situations in the country. These five verb–noun collocations that publicised the state of the laws in Ghana emphasis what Hill (2000) and Nation (2001) describe as linguistic medium to highlight issues in texts.

Corruption

Lastly, corpus evidence revealed that the issue of corruption was among the topics in editorials published between the 2016 and 2017 news year. This revelation has already been echoed by Sarfo–Kantanka (2018). In the corpus, a total of twenty (20) verb–noun collocations with (28) instances of occurrences from the concordance lines highlighted corruption related issues in Ghana at the time these editorials were published. Consider examples 57–61 below.

57. All our past governments laid down plans to fight corruption, but the twin evils of bribery and corruption continue to limit our capacity to invest in national development efforts.
58. Unfortunately, the canker continues to hamper our attempts to protect the public purse for nation building.
59. Enough of the rhetoric, we need to see some action that will show that we are indeed ready and willing to deal with the canker of corruption, to make integrity in public office one of our cardinal rules in order to save the public purse for national development.
60. It is when the axe begins to fall heavily on those who steal state money that the fight against corruption will scare those who are bent on siphoning taxpayers' money for selfish gains.
61. Sometimes the citizens think our political leaders only pay lip service to the fight against bribery and corruption because of the lack of political will to deal with culprits, especially if it concerns members of the ruling government.

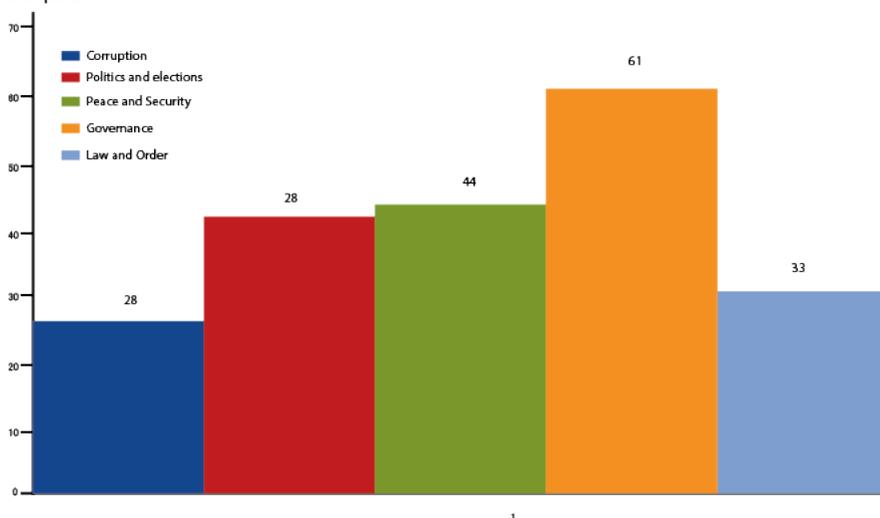
The perception of the writers in the examples creates an impression that government is unable to really deal with people who engage in corruption as a result of political affiliations. An examination of the occurrences of these verb–noun collocations exhibits verbs (nodes) that consistently talked about the collocate corruption.

Scale of dominance of the discourses in the editorials

The discussion so far has shown that, the occurrences of the verb–noun collocations in Table 4 of the study were as a result of publications on issues relating to governance, politics and elections, peace and security, law and order and corruption. Evidence from the corpus showed that these five topics dominated editorial discourse of The Ghanaian Times and The Daily Graphic published between 1st June 2016 to 1st June 2017 news year. In all, the corpus has shown that the issue of governance dominated the discourses in the editorials under study, followed by politics and elections, peace and elections, peace and security, law and order, and corruption in that order.

Interestingly, corruption was the least in ranking among the discourses. This indicates that the editorials were less interested in it though it is considered a major threat to Ghana’s democracy. This seemingly low percentage score in corruption issues in the editorials seems inconsistent with the rate of discussion it attracts in media space. This could be attributed to the fact that the editorials were written during the pre- and post-election period which focused on current issues at the time. Figure 4 provides a pictorial representation of the various issues and their dominance in the corpus as demonstrated by the number of occurrences of the verb-noun collocations.

Figure 4: A graphical representation of the dominance of the various issues in the corpus



Conclusions

The study has established the importance of verb-noun collocations in enhancing reading and understanding of media language, especially newspaper editorials in Ghana. Through the prosodies of the collocations, the study has established the themes in the newspaper editorials which Wiredu (2012) has described as a complex genre in terms of reading and understanding. This has confirmed the assertion by Nation (2001) that collocations have the propensity to deal with vagueness in language use.

Secondly, the findings confirm the deployment of predictive and open noun-verb collocations which scholars like Firth (1957), Stubbs (2005), Ngula (2018), Manal (2019), Louw (1993) and McEnery et al. (2006) agree as being part of editorials.

The study has added to existing claims that editorials constitute a communication between writers and readers which touches on current trending national issues (Miller, 2004; Roth, 2002) that occupy public space at any period in the history of a nation – in this instance, the importance of the media in discussing issues that seem to affect the lives of Ghanaians. The study revealed governance, politics and elections, peace and security, law and order, and corruption as critical issues in Ghana during that period. Again, the fact that such critical issues have been freely discussed shows the freedom that the press enjoys in Ghana. The study therefore contributes to the study of media discourse in Ghana.

The findings also showed that phrase structures differed depending on the position of the noun collocates, in relation to the verb node, i.e. either left, right, predictive or open, contributing to the complexity of the editorials. The findings also revealed that most of the collocates were modified, and abstract nouns featured prominently due to the nature of the discourse.

Furthermore, in terms of methodology and approach to language studies, the study has revealed that corpus-based approach offers an easier way of identifying and understanding collocations which have been found to be a major problem confronting non-native speakers of the English language (Nation, 2001). Finally, the study has given an insight into the empirical study of formulaic language and set a point of departure between intuitive approaches to language research. The assumption is that corpus has the natural tendency to reveal ‘aboutness’ of a text. The discourses that were identified re-echo the findings of earlier studies such as Sarfo-Kantanka, (2018), Roth (2002), and Van Dijk (2006).

References

- Alangari, A. M. (2019). *A Corpus–Based Study of verb–noun Collocations and verb complementation clause structures in the writing of Advance Saudi learners of English*. University of Reading, UK.
- Baker, P. (2006). *Using Corpora in Discourse Analysis*. London, Continuum.
- Bennet, G.R. (2010). *Using corpora in the language learning classroom: corpus linguistics for teachers*. Ann Arbor, MI: University of Michigan Press.
- Cowie, A.P. (1992). “Multiword lexical units and communicative language teaching” in Arnaud, P. and Bejoint, H. (Eds.) *Vocabulary and Applied linguistics*, London: Macmillan.
- Dickson, M. (2015). *Corpus Linguistics and Corpora Building*: Indiana University Press.
- Firth, J. (1957). *Papers in linguistics*. London: Oxford University Press.
- Fosu, M. (2016). *A Linguistics description of the language of Ghanaian Newspapers: Implications for the Readability, Comprehensibility and Information Function of the Ghanaian Press*. *Ghana Journal of Linguistics*, 5,1:1–36
- Frimpong, G.K. (2015). *A Comparative Register Analysis of Editorials from Ghanaian and British Newspapers*. University of Ghana, Department of English. Accra: Unpublished PhD Thesis
- (2017). Subordination Across Ghanaian and British Newspaper Editorials: A Register Perspective: *Ghana Journal of Linguistics*, 6, 76–119
- Gee, J. P. (2011). *How to do Discourse Analysis: A toolkit*. London: Routledge.
- Gries, S. T. (2013). Data in construction grammar. In G. Trousdale & T. Hoffmann (Eds.), *The Oxford handbook of construction grammar* (pp.93–108) Oxford: Oxford University Press.
- Hill, J. (2000). Revising Priority: from grammatical failure to collocation success in M. Lewis (ED), *Teaching collocation: Further developments in the lexical approach* (pp.47–69). Hove: Language Teaching Publication.
- Hoey, M. (1991). *Patterns of Lexis in Text*. Oxford: Oxford University Press.
- Howarth, P. (1998). *Phraseology and second language proficiency*. *Applied Linguistics*, 19(1),24–44
- Hunston, S & Francis, G. (2000). *Pattern grammar. A corpus–driven approach to the lexical grammar of English*. Amsterdam: Benjamins

- Hunston, S. (2002). *Corpora in Applied Linguistics*, Cambridge: Cambridge University Press. In Arnaud, P. & Bejoint, H. (Eds.) *Vocabulary and Applied linguistics*, London: Macmillan.
- Jafarpour, A.A., Hashemian, M. & Alipour, S. (2013). A Corpus –based Approach Towards Teaching Collocation of Synonyms. *Theory and Practice in Language Studies*,3(1), 51–60.
- Kennedy, G. (1998). *An introduction to corpus linguistics*. Harlow: Longman
- Kjellmer, G. (1994). A dictionary of English Collocations: Based on the Brown Corpus. Oxford: Clarendon Press. *Language Teaching* (pp. 25–43). Cambridge: Cambridge University Press.
- Lawrence, A. (2013). *AntConc: Design and Development of a Freeware Corpus: International Conference on Corpus Linguistics, 27–33*. Lancaster University, UK.
- Lineberger, G. (2010). An analysis of two American news editorials written on the current (2009) military situation in Afghanistan: Sage Publication Ltd.
- Louw, B. (1993). *Irony in the Text or Insincerity in the writer? The diagnostic potential of semantic prosodies*. In M. Backer, G. Francis & E. B. Tognini Bonelli (Eds), *Text and Technology* (pp.157–176). Amsterdam, Benjamins
- Louw, W.E. (2000). Contextual prosodic theory: Bringing semantic prosodies to life. In C. Heffer & H. Sauntson (Eds.), *Words in context*. In honor of John Sinclair. Birmingham: ELR.
- McEnery, T., Xiao, R. & Tono, Y. (2006). *Corpus-Based Language Studies: An Advanced Resource Book*, London: Routledge.
- Mehmet, A & Yildiz, S. (2017). Effectiveness of Corpus Consultation in Teaching verb– noun collocations to Advance ELT Students. *European Journal of Applied Linguistics* 3(1) 91–109.
- Nation, I. S. (2002). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- Ngula, R. S. & Nartey, M. (2014). ‘Language corpora: the case for Ghanaian English’, 3L. *The Southeast Asian Journal of English Language Studies*, 20(3), 79–92.
- Ngula, R. S. (2015). *Epistemic Modality in Social Science Research Articles Written by Ghanaian Authors: A Corpus-Based Study of Disciplinary and Native vs. Non-Native Variations*. Unpublished thesis. United Kingdoms: Lancaster University.

- (2017). ‘Corpus Methods in Language Studies’ in D.D Kuupole (ed.) Perspectives on conducting and reporting research in the Humanities, pp 205 – 223, Cape Coast: University of Cape Coast Press
- (2018). A Corpus–Based study of the phraseological pattern It + V–link + ADJ + That Clause in L1 and L2 Expert Academic Writing. *International Journal of Applied Linguistics and English Literature*, vol7, No. 5
- Roth, M. W. (2002). Editorial Power/Authorial Suffering. *Research in Science Education*, 32, 215–240
- Sarfo–Kantankah, K. S. (2018). It’s about people: Identifying the focus of parliamentary debates through a corpus driven approach. *Corpora*, 13 (3): 393–430.
- (2019). Discursive construction of the representative claim in UK and Ghanaian parliamentary discourse. In S.G. Obeng and E. Debrah (eds.). (pp.159–183). London/New York: Rowman and Littlefield International.
- Scott, M. (2004). *WordSmith Tools version 4*. Oxford: Oxford University Press.
- (2001). Comparing corpora and identifying key words, collocations, and frequency distributions through the Wordsmith Tools suite of computer programs. In M. Ghadessy, A. Henry & R.L. Roseberry, (Eds.), *Small Corpus Studies and ELT* (pp.47–67). Amsterdam: John Benjamin.
- Sinclair, J. (1991). *Corpus, concordance, collocation*: Oxford University Press.
- Stubbs, M. (2001). *Words and Phrases: Corpus Studies of Lexical Semantics* Oxford, Blackwell.
- (2005). Conrad in the computer: Examples of quantitative systemic methods. *Language and Literature*, 14,5–24.
- Van Dijk, T. A. (2006). Politics, Ideology and Discourse in Brown, K (ed), *The Encyclopedia of Language and Linguistics*. Oxford, New York: Pergamon Press. pp.728–740
- Wiredu, J. F. (2012). A Grammar of Newspaper Editorial Language: The Complex Sentence. *Legon Journal of Humanities*, 23, 75–96.
www.antlab.sci.waseda.ac.jp/research/ipcc_2005_anthony_antconc.pdf.
www.antlab.sci.waseda.ac.jp/research/ipcc_2013_anthony_antconc.pdf.
- Xu, D, Akhter, S & Qureshi, A. H. (2020). *Towards the importance of English collocations for L2 Learners: A Corpus–Based Study*. *Revista– Argentina de Clinica Psicologica*. Vol XXIX,no 3, 185–191.

Yankson, I. K., Browne, G. N. L, Tagbor, H, & Donkor, P (2010). Reporting on Road traffic injury: Content analysis of injuries prevention opportunities in Ghanaian newspapers. *Inj: Prev.* (16) 194–197.

Appendices

Appendix A: Source of the corpus data from Ghanaian Times Editorials



GTE- www.ghanaiantimes.com.gh

Appendix B: Source of the corpus data from the Daily Graphic Editorials

DGE– Editorials from Daily Graphic published between 1st June, 2016 and 1st June, 2017



Appendix C: Source of the AntConc Software

www.lawrenceanthony.net