The Manifestation of Mood and Modality in Texts

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Abstract

There is a dearth of studies on mood and modality as a focus. This study examines the manifestation of mood and modality in texts. It identifies their pattern of occurrence, compares their frequency, and accounts for possible differences between their manifestation and reported norms. The data comprise 3 069 verbal groups. It was obtained by orthographically transcribing Christian Religious Knowledge, Geography, Physics, and Chemistry lessons recorded in schools in Lagos State, Nigeria and identifying all the verbal groups therein. The topics taught were respectively The Mission of the Church, The Drainage System, Electric Field, and Nitrogen. The scale-and-category version of the systemic grammatical model, complemented by simple percentages, served as analytical tool. Results show that mood represents 72 per cent of the data and 81 per cent of the finite verbal groups. Declarative mood, interrogative mood and imperative mood represent 55 and 62, 10 and 11, and 7.4 and 8.3 per cent respectively of the data and finite. Verbal groups marked for imperative mood occurred most frequently in segments of the Physics lesson involving strict computation. The non-polar interrogative mood dominated (73 per cent) its polar counterpart. Modality accounted for 13 per cent of the data and 14 per cent of finite. Root modality and Epistemic modality manifested at a ratio of 3:2 in favour of Root meaning. Only in Physics was Epistemic modality (63 per cent) higher than Root meaning. *Will* and *can* exceeded the reported 4.2 and 3.5 in 1 000 word-occurrence by 67 and 46 per cent respectively. PREDICTION was the most recurring specific modal meaning. The fact that every verbal group in predicator function selects from the system of mood partly explains mood's dominance over modality in the texts analysed.

Keywords: Imperative mood, Interrogative mood, Declarative mood, Epistemic modality, Root modality

1. Introduction

There is a dearth of studies focused on mood and modality together as systems in the English verbal group (VBG). Although there are works and symposia titled "Mood and Modality", their thrust is on modality, not mood, or mood and modality. For as Palmer (2001) states, the inclusion of mood in *Mood and Modality* is for its informative value, since the subject of modality "was fairly unfamiliar" (p. xv). Modality is the more studied of the two, probably because it is problematic and difficult (Quirk *et al.*, 1985; Huddleston,1984). Despite the enormous literature on the subject, however, there does not seem to exist any corpus-based study characterising modality in texts. For example, Coates (1983) and Palmer's (1990) book-length studies on the modals are not textual. Though Coates provides statistical information and characterises the modals in terms of spoken/written and formal/informal usage, the size and heterogeneity of the corpora mean generalisations on modal behaviour in particular text types does not emerge. But that is not the goal of her study, which establishes the differences in modal usage between spoken and written language. Palmer (1990) does not characterise modal uses or provide statistical information, since the Survey material serves "heuristic and exemplificatory purposes only" (p. 29). So there is only general information on the relative frequency of modal meanings in the language.

Mood has attracted little attention as a system in its own right, and there does not appear to be a corpus-based study either. Outside the subjunctive accorded a short section under "Verbs and Auxiliaries", there is nothing explicitly on the subject in the reference book *A Comprehensive Grammar of the English Language*. For instance, Chapter 11, titled "Sentence Types and Discourse Functions", treats questions and directives.

The foregoing forms the background against which this study examines the manifestation of mood and modality in texts. Specifically, the study identifies the pattern of occurrence of mood and modality as separate systems in the

VBG in terms of form and meaning, compares the frequency of both systems in the corpus, and accounts for possible differences between their pattern of occurrence and reported norms.

2. Description of Mood and Modality

One justification for examining mood and modality together is their relatedness. Quirk *et al*. (1985) point out that VBGs marked for modality are also indicative and that they syntactically resemble imperative and subjunctive moods by lacking person, number and tense contrasts. Although VBGs marked for imperative mood do not mark modality, there is a semantic connection between imperatives expressing "command" and modals expressing obligation. Both impose an obligation on the addressee because, as Halliday and Matthiessen (2004) put it, modulation "was characterized as the 'imperative type' of modality" (p. 627). Quirk *et al*.(1985) show rare instances where *would* and *should* mark subjunctive mood. Palmer (1990) similarly demonstrates an instance where *can* conveys a (brusque) command. Apart from belonging to the VBG and sometimes converging on the same form, Halliday (1976) note that mood and modality both deal with the interpersonal function of language. But there are differences between them, which Huddleston (1984) likens to differences between tense and time. Mood is a category of grammar that deals with the differences in the morphology of the verb, whereas modality is a category of meaning that deals with the proposition's status (Lyons, 1977; Palmer, 2001).

Possibly because of the connection between mood and modality, both terms are sometimes used interchangeably, and in a somewhat confusing manner, with mood often used as a cover term for both, or *vice versa* (Huddleston, 1984; Greenbaum,1996). For example, Lyons (1968) uses the adjective *modal* and the noun *modality* in respect of mood when he states that "interrogative sentences are quite clearly modal and are characterised by additional modalities which indicate the expectations of the speaker" (p.308). Strang (1969) talks of a binary modal system comprising non-modal (mood) and modal (modality), akin to Huddleston's "analytic mood" (1984, p.164), and adds that modals function to indicate mood. Palmer (2001) asserts that because modality is concerned with the modal system and mood, it is difficult to distinguish between mood and modality. For Halliday and Matthiessen (2004), the term modal is ambiguous because it corresponds to both mood and modality. Given this confusion, a separate review of existing descriptions of each system is necessary.

2.1 Mood

The Oxford English Dictionary defines mood as "any of the several groups of forms in the conjugation of a verb which serve to indicate…whether it expresses a predication, a command, or a wish, or the like" (p.1844). Mood is therefore a category of grammar that deals with the differences in the morphology of the verb. As Lyons (1977) puts it, mood is the grammaticalisation of the differences between "mands" and statements (p.746). It is concerned with the speaker's attitude towards the proposition, and this is reflected in the form of the verb (Greenbaum & Nelson, 2002). Thus mood is situated in the verbal group, not in the clause, or both the clause and the verbal group, as Berry (1975) and Strang (1969) respectively suggest.

There are two terms in the system of mood (imperative and indicative), although some grammarians like Greenbaum (1996) recognise a third, the subjunctive mood. Imperative mood and indicative mood are differentiated semantically on the basis of the contrast between factuality and non-factuality (Huddleston, 1984; Quirk *et al*.,1985). For Lyons (1977), imperative mood is "ontogenetically more basic than the indicative, the mood of statement" (p. 746); it is the mood of the verb and the "principal mood of will and desire" (p. 746). This makes imperative mood the marked term in the system of mood. Verbal groups marked for imperative mood are finite, base form verbs; they do not mark modality, occur with an auxiliary (except in negation), or make tense, person and number contrasts. Imperatives are typically used in commands, requests and directives, and do not occur in subordinate clauses or questions because they are performative (Palmer, 1987, 2001; Halliday & Matthiessen, 2004).

The interrogative and declarative, into which the unmarked indicative mood subdivides, lack the inflectional forms that relate imperative to "mands". Although both make tense, person and number contrasts, they differ syntactically, phonologically and semantically. For instance, the declarative is the mood of statement and so gives information, whereas the interrogative is the mood of questions and thus seeks information. The interrogative subdivides into polar and non-polar subtypes (Quirk *et al*., 1985).

The account of mood made in this study is based on the two-term system of imperative and indicative. The subjunctive is outdated (Palmer, 2001).

2.2 Modality

Quirk *et al*.(1985) define modality as the "manner in which the meaning of a clause is qualified so as to reflect the speaker's judgment of the likelihood of the proposition it expresses being true" (p.219). As a semantic feature of the

verbal group, modality is marked by modal auxiliary verbs, although Halliday (1976), Greenbaum (1996) and Palmer (2001) separately note that it may also be marked by non-verbs such as *possibility* and *perhaps*. Modal meanings are variegated, which probably explains their diverse classificatory criteria.

Palmer (1987,1990) classifies modality into epistemic, deontic (discourse-oriented) and dynamic (subject-oriented) subtypes. Epistemic modality is concerned with the speaker's attitude to the factuality of the proposition, deontic modality relates to the subject, and dynamic modality relates to participants' roles. Epistemic and deontic modals are the "true" modals because they have illocutionary force. Palmer (2001) further describes epistemic modality as propositional modality because it has an illocutionary force of referring to judgemental connotations, and deontic and dynamic modality as event modality because they refer to un-actualised, potential events, such as obligation or permission, and ability or willingness, respectively.

Coates (1983) categorises modality into Epistemic and Root, akin to Quirk *et al.*'s (1985) extrinsic-intrinsic, Greenbaum's (1996) epistemic-deontic, and Halliday and Matthiessen's (2004) modalisation-modulation, categorisations. Coates (1983) prefers Root to the modal logic term deontic because it is not limited to obligation and permission. Root modality encompasses deontic and dynamic modality. Although Palmer (1990) agrees that the binary distinction between Epistemic and Root modality is "both formally and semantically the clearest" (p.8), he insists on the validity of the deontic-dynamic dichotomy, which, Coates (1983) admits, has some merits in certain contexts. Leech's (1987) distinction between "factual possibility" and "theoretical possibility" (p. 81) with respect to *may* and *can* is a tacit recognition of the Epistemic-Root distinction.

Coates (1983) characterises Epistemic modality as subjective because it involves human judgement and expresses the speaker's reservation about the truth of the proposition. Epistemic modals lack the past tense form and are generally unaffected by negation and aspect (Lyons, 1977; Quirk *et al.*, 1985; Palmer, 1990). In contrast, Root modality involves human control. Although Root modals are more difficult to characterise, Coates (1983) adds that they can be identified using such features as occurrence with animate subject, agentive verb, passivization, and stress and intonation. With the notable exception of *can*, which expresses Epistemic meaning only as the negative form of *must*, all modals make the Epistemic-Root distinction (Coates, 1983; Quirk *et al*., 1985; Palmer,2001). This Janus-like feature of the modals is one reason why modal meanings are difficult to describe.

One of the most comprehensive, large-scale, corpus-based studies of the English modals, Coates'(1983) study aimed at establishing the differences in modal usage between written and spoken language. It is based on the Lancaster (1 000000 words) and Survey of English Usage (725 000 words) corpora. Coates first classifies the modals into Epistemic (e.g., *must*, *should, ought, may, might, will*, *could*, and BE GOING TO) and Root (e.g., *must*, *may*, *should*, *ought*, *can*, *could*, *will*, *would*, *shall*, and BE GOING TO), before sub-classifying them into more specific meanings, or what Palmer (1990) calls "degrees of modality" (p.36). Thus there are modals of obligation and necessity (*must*, *need*, *should*, and *ought*), ability and possibility (*can* and *could*), Epistemic possibility (*may* and *might*), volition (willingness and intention, e.g., *will* and *shall*) and prediction (*will* and *shall*), and hypothetical modals (*would* and *should*). Among other findings, Coates reports that whereas Epistemic modality is higher in informal speech, Root meaning is higher in formal written language and formal spoken language. Modals occur more frequently in spoken language than in written language. Prediction is the most recurring modal meaning while permission is the least. *Will* and *can* are the most recurring modals in spoken language, with a respective frequency of 4.2 and 3.5 in 1 000 words. Coates' framework is adopted for this study.

3. Method

3.1 The Data, Setting and Participants

The data for this study comprise 3 069 VBGs. It is data on spoken instructional texts produced in the Nigerian English as a second language use classroom. Four teachers participated in the study conducted in selected secondary schools in Lagos State, Nigeria.

3.2 Data Collection

Lessons on Christian Religious Knowledge (CRK), Geography, Physics, and Chemistry were tape recorded. The four lessons lasted 196 minutes. While the CRK and Geography lessons lasted 40 minutes each, the Physics and Chemistry lessons were of 56 and 60 minutes duration respectively. *The Mission of the Church*, *The Drainage System*, *Electric Field*, and *Nitrogen* were respectively the topics taught. Each lesson was orthographically transcribed, and the clauses and VBGs therein were identified and numbered. The CRK, Geography, Physics and Chemistry texts yielded 780, 668, 757 and 864 VBGs respectively. The corpus size was 17 600 words.

3.3 Analytical Procedure

The scale-and-category version of the systemic grammatical model, complemented by simple percentages, served as analytic tool. The finite VBGs were identified first, followed by VBGs functioning at the primary degree of delicacy in the clause structure as predicators. Each VBG was carefully examined in its clause context to determine its mood status. The frequency of each term was determined, among others. Verbal groups marked for modality were similarly identified and examined to determine the modals involved, their frequency, and their meanings. The manifestation of mood and modality in the texts analysed was then compared against existing norms, where available. Both systems were subsequently compared and the differences in their frequency of occurrence were accounted for.

4. Data Analysis

There were 2 739 finite VBGs and 2 221 VBGs functioning at the primary degree of delicacy. These respectively represent 89 per cent and 72 per cent of the data. The CRK, Geography, Physics and Chemistry texts manifested 732, 615, 597 and 795 finite VBGs and 545, 496, 519 and 661 VBGs functioning at the primary degree of delicacy respectively. All the 2 221 VBGs in primary syntactic function as predicators made selection from the mood system. Thus mood represents 72 per cent of the data, 81 per cent of the finite VBGs and 100 per cent of VBGs functioning at the primary degree of delicacy in the clause structure. In contrast, there were 384 VBGs marked for modality, which represents 13 per cent of the data, 14 per cent of finite, and 17 per cent of VBGs in predicator function. Each system is accorded a separate attention in the presentation that follows. Numbered excerpts, each beginning with the letter code for the source text (e.g., R for CRK), followed by the letter K for clause and the clause's number, are provided. The VBG under focus is italicised and its number is enclosed in brackets. Where audible, pupils' responses are enclosed in brackets after the symbol (R:).

4.1 The Manifestation of Mood

Of the 2 221 VBGs implicated for mood, 221 (10 per cent) selected imperative mood while 2 000 (90 per cent) were indicative. The 2 000 indicative mood verbal groups comprise 310 (16 per cent) interrogative mood and 1 690 (85 per cent) declarative mood. The rest of this section examines imperative mood, interrogative mood, and indicative mood in that order.

4.1.1 Imperative Mood

There were 221 VBGs marked for imperative mood. This represents 7.4 of the data, 8.3 of finite, and 10 per cent of VBGs functioning at the primary degree of delicacy. Thirty-five VBGs were marked for imperative mood in CRK, 46 in Geography, 82 in Physics, and 58 in Chemistry. In Physics where they recurred the most, verbal groups marked for imperative mood represent 11 per cent of the data, 15 per cent of finite, and 16 per cent of VBGs in predicator function. Its proportion in respect of all three parameters was 7, 8 and 9 per cent in Geography, 7, 7.2 and 9 per cent in Chemistry, and 5, 5 and 6 per cent in CRK. Relative to the duration of the lessons, an imperative mood verbal group occurred every 53:2 seconds; its frequency was 1 in 41 seconds in Physics, 1 in 52:2 seconds in Geography, 1 in 62:1 seconds in Chemistry, and 1 in 69 seconds in CRK.

Structurally, the VBGs marked for imperative mood manifested as H-Type (135 or 61 per cent, e.g., *read*R350, *ignore*P651, *give*C50, *compare*G620), MH-Type (2 or 1 per cent, e.g., RK450 *Don't be* (566) selfish)), HQ-Type (83 or 38 per cent), and MHQ-Type (1 or 0.5 per cent: CK119 *Don't let* her...(138)). The HQ-Type VBG featured both the catenated (73,e.g., *keep standing* R157,158, *let assume*G392, *let talk about*P411, and *let continue*C193) and particled (11,e.g., *go on*R134, *look at*G609, *think back*P694) subtypes. Verbal groups marked for imperative mood indicate order as an underlying semiotic function and were associated with textual functions such assigning tasks, admonishing pupils, and expressing intention. Excerpts [1]-[3] illustrate.

[1] RKII What is the mission of the Church?…K18 Just *summarise* (21) it.

[2] GK534 Yes *drop* (579) the chalk there...K536 *Move* (581). K537 *Go* (582) and K538 *listen* (583).

[3] CK595 *Let* me *ask* (652) you a question.

Because of its high frequency and peculiar pattern of occurrence in Physics, the rest of this examination of imperative mood marking in the data centres on that text. It was stated above that the 82 VBGs marked for imperative mood represent 11 per cent of the data and 15 per cent of finite and that they occurred at a frequency of 1 in 41 seconds in the 56-minute lesson. The rate however differed according to the activities in each lesson's segment as would be seen later. The topic *Electric Field* required solving mathematically-related problems for its explication, and four such problems were worked. With the exception of Worked Problem1V, all began with an imperative VBG. Moreover, the intention to solve the problems was expressed using verbal groups marked for imperative mood as [4] below illustrates.

[4] PK33 So *let*'s *take* (44) an example under Coulomb's law…K158 So *let*'s *take* (185) our second example…K428 *Let* 's *take* (452) a question on electric field intensity…K524 So *let* 's *take* (581) question number two on electric field intensity.

The four worked problems lasted approximately 47 minutes, during which 668 VBGs, including 75 marked for imperative mood, were produced. The order rate was 1 every 38 seconds, but it again differed according to the worked problem. For instance, Worked Problem II, the second on Coulomb's law used to explain the concept of electric field, lasted 16 minutes (the longest:K158-K382) and produced 228 VBGs (the highest). Twenty-six VBGs marked for imperative mood occurred at a frequency of 1 in 37 seconds in this segment. Worked Problem IV(K524-K678) took 12 minutes to conclude and it accounted for 167 VBGs,14 of which indicated order at the rate of 1 every 51:43 seconds. Worked Problem 1(K33-K157) recorded the highest rate of imperative mood manifestation; it lasted 10 minutes and produced 20 imperatives out of 143 VBGs at a frequency of 1 every 30 seconds. The shortest was Worked Problem III (K428-K523); it lasted 9 minutes and produced 130 VBGs, including 15 imperatives that occurred at the rate of 1 in 36 seconds. In the first, second, third and fourth worked problems, therefore, an imperative mood VBG occurred every 30,37, 36 and 51:43 seconds respectively. This gives a percentage deviation of 21.05, 2.63, 5.26, and -35.34 respectively from the group mean of 38 seconds. An abridged version of Worked Problem 1 is reproduced as follows.

[5] PK33 So *let's take* (44) an example under Coulomb's law. K34. Question number one. K35 *Find* (45) the force of repulsion between two protons…K40 *Let* me *repeat* (52) the question…K47 Now, the first thing you have to do is to write down the given values…K63 From the question we are being asked to find the force of repulsion, K64 which is the electric field...K66 *Look at* (86) the question again. K67 Q_1 and q_2 is (are) known. K68 The value of distance is known. K70 So *plug in* (90) the value… K72 This should give us one point six times ten raised to power nineteen bracket squared…K79 That's where you got confused…K87 Now, from here *let's see* (109) the value here…K89 Now, *look at* (111) this. K90 Is this not k?...K112 So, from here *use* (126) your calculator to…K114 What's the value? K115a *Press* (129) the magic button…K138 Using indices, K139 this will be plus twenty-two. K140 So *add* (108) and K141 *subtract* (169). K142 What do you have? (R:Minus zero) K143 Minus zero. K144 So whatever answer you get should be minus zero…K157 Any question?

Nine minutes and 89 VBGs (including 7 marked for imperative mood) remain to be accounted for. These lie in the pieced segments of the lesson outside the four worked problems. The order rate here was 1 in77 seconds (twice as infrequent as in the worked problems). Indeed 5 of the 7 VBGs occurred in the process of deriving formulae for Coulomb's law and electric field intensity. As [6] below shows, only *let talk about* (411) occurred in a strictly non-computational context.

[6] PK13 If we combine these two formulae, K14 *call* (18) this equation one and this equation two…K384 So *let*'s *talk about* (411) electrical intensity... K393 So that's the force per unit charge. K394 Okay. K395 And the equation is given as e is equal to f over q…K397 *Call* (421) this equation one. K398 From our earlier definition we do know that f is equal to q_1 q_2 raised to power k over r squared. K399 *Call* (426) this equation two.

In summary, VBGs marked for imperative mood were more frequently occurring in Physics, and the rate was higher in segments of the lesson involving strict computation. Since this could not have been coincidental, it must be the case that VBGs marked for imperative mood facilitate the attainment of pedagogic goals in mathematically-oriented subjects in more profound ways.

4.1.2 Interrogative Mood

With 310 occurrences, interrogative mood represents 10 per cent of the data,11 per cent of the finite VBGs, and 14 per cent of VBGs functioning at the primary degree of delicacy. Over one-third occurred in CRK, where it accounted for 14,15 and 21 per cent of all three parameters. In general, an interrogative mood VBG featured every 38 seconds; it manifested every 21:43, 35, 56, and 66 seconds in CRK, Chemistry, Geography, and Physics respectively. BE-headed (106 or 34 per cent) and DO-modified (93 or 30 per cent) forms were prominent as the figures in brackets show. The non-polar interrogative was dominant (225 or 73 per cent), and *what* (158 or 72 per cent) was the *wh*-item.

Although the dominance of the non-polar interrogative suggests that advanced cognitive skills in listening comprehension were more greatly tested than the mere ability to recall, questions conveyed by the polar interrogative were no less tasking. An attestation is the DO-*think* VBG in introspective questioning in [7] below. The co-occurrence of polar and non-polar interrogatives in the excerpt also served to disambiguate questions.

[7] RK238 But when Simon saw this, K239 he thought it was something very simple…K245 He wanted to give them money so that he could receive this gift also. K246 *Do* you *think* (318) he had the right motive…? (R:No.)...K248 What *would have been* (323) his motive? (R: Inaudible).

Furthermore, there was the repetitive use of interrogative mood which served as technique for introducing new terms and concepts and transiting from one segment of the lesson to another. These are illustrated in [8] and [9] respectively.

[8] GK12 How *do* you *discover* (13) that this is (the) particular drainage system that we are discussing? K13 *Is* (16) it trellised? K14 *Is* (17) it centripetal? K15 *Is* (18) it radial? K16 *Is* (19) it dendritics? K17 *Is* (20) it centrifugal? K18 *Is* (21) it bar bed ?

[9] RK421 But when Philip left Samaria, K422 what *was* (533) his next destination? K423 Where *did* he *go* (534)… K425 and who *directed* (537) him? K426 *That's what we want to find out* now.

4.1.3 Declarative Mood

With 1 690 VBGs declarative mood represents 55 per cent of the data, 62 per cent of finite VBGs, and 76 per cent of the VBGs in primary syntactic function as predicators. The indicative declarative mood VBG shares some functional similarity with the data base for this study. Declarative mood VBGs are primarily information-giving and spoken instructional texts are essentially knowledge-imparting texts. Both features appear to merge in the excerpts below.

[10] CK189 Nitrogen *occurs* (215) abundantly in the atmosphere...K192 Yes we *have* (215) about 78 per cent of nitrogen in the atmosphere. K193 It *is* (216) relatively inert…K196 It *doesn't react* (220) easily…K199 It *is* (223) colourless, odourless and K200 it *is* (224) neutral to litmus…K203 It *is* (227) almost insoluble in water.

[11] RK141 As he *preached* (184) the word, K142 the power also *was demonstrated* (185). K143 There *were* (186) signs. K144 There *were* (187) miracles. K145 So the people *had* (188) no option. K146 They *saw* (189) the power of God. K147 So they *accepted* (190) his message.

Another feature of the declarative mood VBG identified is its occurrence in declarative clauses phonologically realised as interrogatives. These are echo questions and 45 VBGs representing 3 per cent of the total manifestation of the unmarked declarative mood were involved. Apart from marking the data as spoken natural language data, echo questions served as technique for revising taught processes. Excerpt [12] illustrates.

[12] CK257 Somebody said hydrogen is used to fill balloons…K262 simply because hydrogen *is* (283) what? K263 is less dense than air…K264 The balloon *will do* (287) what? K267 It will rise up.

The foregoing shows that mood represents 72 per cent of the data, 81 per cent of finite, and 100 per cent of VBGs functioning at the primary degree of delicacy in the clause structure. Declarative mood was dominant; it accounted for 55, 62 and 76 per cent of the data, finite VBGs and VBGs functioning at the primary degree of delicacy as predicators. Interrogative mood and imperative mood accounted respectively for 10, 11 and 14, and 7.4, 8.3 and 10, per cent of all three parameters. The non-polar interrogative was dominant. A VBG marked for imperative mood occurred every 53:2 seconds, but its frequency was higher in Physics (41 seconds) and was highest (38 seconds) in segments of the lesson involving strict computation (It was 30 seconds in one segment).

It is not known how frequently imperative mood, interrogative mood, or declarative mood manifests in natural language; it is also not known what proportion of a corpus of VBGs each term constitutes. So the figures found here are tentative and require further confirmation. However, a pattern of occurrence seems to have emerged. Declarative mood is dominant, and this seems to be in order because the spoken instructional texts analysed are knowledge-giving texts and the declarative mood VBGs that occurred in them are information-giving structures. Furthermore, its dominance suggests that in everyday life activity, far more information is given than sought, and fewer orders are issued than the information given or sought.

4.2 Modality Marking

Modality was marked in 384 verbal groups. This represents 13 per cent of the data, 14 per cent of finite and 17 per cent of VBGs functioning at the primary degree of delicacy. In Chemistry, Physics, CRK and Geography modality marking represents 19 (152 VBGs), 15 (89 VBGs), 12 (87 VBGs) and 9 (56 VBGs) per cent of the finite VBGs respectively. What follows covers modals and their frequency, Epistemic and Root modality, and specific modal meanings.

4.2.1 Modals and their Frequency

Sixteen modal auxiliary verbs marked modality in the texts. These are listed with their frequency in descending order of magnitude in Table 1 below.

Table 1. Modals and their frequency

Modals	Total Occurrence	Frequency per 1 000 words
Will	121	7
Can	90	5.11
BE GOING TO	49	3
HAVE TO	35	2
Should	21	1.19
Would	17	0.97
BE ABLE TO	12	0.68
Could	10	0.57
Must	9	0.51
BE TO	9	0.51
BE ABOUT TO	3	0.17
BE SUPPOSED TO	2	0.11
May	2	0.11
Might	2	0.11
Shall	1	0.1
BE MEANT TO	1	0.1

As Table 1 above shows, *will, can,* BE GOING TO, *should,* HAVE TO and BE ABLE TO were significantly more frequent, and *would*, *could*, *must*, *may*, *might* and *shall* less frequent, than reported. The high frequency of *will* and *can* supports the finding that both modals and their past forms are more frequent in spoken language. However, they each exceeded the reported 4.2 in 1 000 words and 3.5 in 1 000 words by 67 per cent and 46 per cent respectively. Only in CRK was *will* relatively infrequent (2.13 in 1 000 words). In Chemistry, *will* and *can* had a respective frequency of 11 in 1 000 words and 10 in 1 000 words, which translates to a percentage deviation of 162 and 186 respectively from the reported norm. With a frequency of 1 in 10 000 words, *shall* was rarer than its reported 3 in 10 000 word-occurrence in normal written English. The non-occurrence of *ought, need* and *dare* could be evidence that they are, as Quirk *et al*. (1985) report, truly "strikingly less frequent than *shall*" (p.136).

4.2.2 The Epistemic-Root Distinction

Epistemic modality and Root modality manifested at a ratio of 3:2 in favour of Root meaning. Epistemic modality accounted for 40 per cent with 154 VBGs, while Root modality accounted for 60 per cent with 230 VBGs, of modality marking. This supports Coates'(1983) finding that there is a higher proportion of Root meaning in formal written and formal spoken language than Epistemic meaning. (The texts are spoken instructional texts and are therefore a form of formal spoken language.) Root meaning was dominant in CRK (78 per cent) and rightly higher in Chemistry (63 per cent) and Geography (66 per cent). Physics was the only text in which Epistemic modality (63 per cent) was higher than Root modality.

Fourteen specific modal meanings were identified. These are listed with their frequency and percentage enclosed in brackets as follows: possibility (104 or 27), prediction (73 or 19), predictability (70 or 18), necessity (43 or 11), intention (38 or 10), obligation (25 or 6.3), ability (9 or 2.1), hypothetical (5 or 1.3), willingness (4 or 1), planning (4 or 1), permission (3 or 0.8), destiny (3 or 0.8), compulsion (2 or 0.5), and habitual (1 or 0.3). While possibility, prediction, predictability, necessity, obligation, and hypothetical were both Epistemic and Root, intention, ability, willingness, planning, permission, destiny, compulsion and habitual were expressed in the Root sense only.

PREDICTION (comprising prediction and predictability) was the single most recurring specific modal meaning (143 or 37 per cent). It was largely Epistemic (80 per cent) and *will* (84 per cent) was the modal. Possibility followed with 27 per cent; it was 91 per cent Root and *can* (85 per cent) was the modal. The dominance of Epistemic *will* supports Leech's (1987) claim that *will* meaning PREDICTION is more common in scientific or quasi-scientific statements. This explains its high occurrence in Physics, where relationships and results of mathematical operations had to be constantly predicted. But it is rather ironical because Epistemic modality is subjective whereas objectivity is a cardinal principle of science. Four instances of dual modality were found (see [13] below).

4.2.3 Modal Meanings Illustrated

Possibility was expressed in both the Root (95) and Epistemic (9) senses by *can*, *may*, BE ABLE TO, *could* and *might*. However, while *can* (81) was characteristically Root, and *may* expectedly Epistemic, the other modals indicated possibility in both senses. Here are examples (The letters E and R in front of an excerpt stand for Epistemic and Root respectively).

[13] RK93 We are going to read a little before we go to the actual story...K97 Act 8. K98 Let's read...K101 We *may not be able to finish* (131) everything. (E−possibility, possibility)

[14] PK128 You *can use* (145) indices to solve this, K129 then use your calculator to divide.(R)

[15] CK415 What did we do to the air before we *could liquefy* (457) it? (R)

PREDICTION was expressed by *will* (113), BE GOING TO (23), and *would* (7) as Epistemic prediction (51,e.g., [16]), Root prediction (22, e.g., [17]), Epistemic predictability (63, e.g., [18]), and Root predictability (7,e.g., [19]). The excerpts are reproduced accordingly.

[16] CK17 What is the atomic number of nitrogen? (R: Seven.) K18 And then the atomic mass is what? K19 Fourteen... K21 What *will be* (23) the electronic configuration?

[17] PK543 Now I want you to take a look at the diagram and K544 tell me whether we *are going to have* (606) a force of attraction on P or a force of repulsion.

[18] PK8 If you have two charges, K9 an electric field *will exist* (13) between the two charges.

[19] RK544 You know the characteristics of a sheep... K546 It's meek, isn't it?...K548 Whatever you tell the sheep is what it *would do* (679)...K554 They *will* just *go* (686) calmly.

Whereas necessity was almost evenly distributed between Epistemic (22) and Root (21) meanings, obligation was slanted towards the Root sense (19). Both meanings were expressed in both senses by HAVE TO, *must*, and BE SUPPOSED TO. While HAVE TO dominated Root necessity (17) and obligation (9), and *should* (13) Epistemic necessity, the single occurrence of BE MEANT TO expressed Root obligation.

[20] GK7 The river is flowing on laterite soil, K8 the lower land system then *must be* (8) on laterite.(E−logical necessity)

[21] PK112 So from here use your calculator to K113 You *should get* (127).(R−necessity)

[22] PK15 If you combine the two equations, K16 you are going to have e is equal to q_1q_2 all over r squared and K17 you *have to add* (23) k, K18 where k is the constant of proportionality. (E−obligation)

[23] RK82 And look at the qualities of the men to be chosen.K83 Yes, they *must be filled* (111) of the Holy Spirit...K86b They *must be* (113) men of good repute. (R−obligation)

Would expressed hypothetical meaning in both the Epistemic and Root senses, e.g.,

[24] RK374 What if he had not obeyed the angel of the lord, K474 *would* anything *have happened* (591)? (R)

Root intention was expressed by BE GOING TO (26)*, will* (6)*, would* (2), *shall*, and BE ABOUT TO. Contrary to Quirk *et al*.'s (1985) report, BE ABOUT TO indicated fulfilled future intention in the past (see [26]).

[25] CK330 We liquefy the air through a series of compression and expansion. K331 I'*m going to explain* (361) that…K812 Alright, sit down everybody. K813 I *will take* (864) your attendance.

[26] RK80 So they decided they *would choose* (107) seven men...K556 And that was what Jesus *was about to do* (689). K557 He *was about to die* (690) for the world (Jesus did die).

Ability, willingness, permission, destiny, compulsion, and habitual were all Root meanings. Root ability was expressed by *can, could* and BE ABLE TO while willingness was indicated by *will* and *would*. Permission was expressed by *can*, habitual meaning by *would*, and planning, destiny and compulsion by BE TO.

[27] RK351 The lame *could walk* (453)...K369 Who do you think exposed the motive of Simon? ...K371 It was the Holy Spirit. K372 The Holy Spirit *can look into* (474) the heart of a man (Ability)

[28] GK418 When I gave this question to that class...K420 only two students *were able to satisfy* (469) me...(Ability)

[29] RK313 She started going all over the place, K314 looking for somebody that *would deliver* (409) her. (cf. CK270 Why *would* you *use* (293) hydrogen to cut metals?)) (Willingness)

[30] RK206 They *were to go* (257) and complement the work that Philip was doing among the Samaritans. (Planning)

[31] CKIII Please look for ammonia there for that girl and K112 give it to her. K113 You *can open* (132) it. (cf. RK508 You *can sit down* (628) my dear)) (Permission)

[32] RK27 To go into all the world, K28 which means that the gospel *was* now *to go* (35) beyond the regions of the Jews. (Destiny)

[33] RK486 You listened when she was reading. K487 You *are to tell* (603) me what you've just enjoyed. (Compulsion)

[34] RK548 Whatever you tell the sheep is what it *would do* (679).(Habitual: Predictable habit)

In summary, modality accounted for 13, 14 and 17 per cent of the data, finite VBGs and VBGs functioning at the primary degree of delicacy as predicators respectively. *Will, can*, BE GOING TO, *should,* HAVE TO and BE ABLE TO were significantly more frequent, and *would*, *could*, *must*, *may*, *might* and *shall* less frequent, than reported. The Epistemic-Root distinction was made at a ratio of 3:2 in favour of Root meaning. Only in Physics was Epistemic meaning significantly higher (63 per cent) than Root meaning. PREDICTION was the most recurring specific modal meaning (37 per cent); it was Epistemic (80 per cent) and *will* (84 per cent) was the modal. Possibility followed with 27 per cent. That Epistemic possibility and Root necessity were comparatively low occurring is explainable. Both are respectively the primitive meanings of Epistemic modality and Root modality (Lyons,1977; Huddleston, 1984; Palmer, 1990, 2001) and core meanings occur less frequently than peripheral ones (Coates,1983). The supremacy of Epistemic meaning (particularly Epistemic *will*) over Root in Physics was because of the constant need to predict relationships and results. The high occurrence of BE GOING TO in Chemistry was somewhat idiosyncratic.

5. Mood and Modality: A Comparison

Mood occurred far more often than modality. It accounted for 72 per cent of the data and 81 per cent of finite as opposed to modality's 13 and 14 per cent respectively. Significantly, all the VBGs in predicator function selected from the mood system whereas only 17 per cent made selection from the system of modality. Modality was however slightly higher than imperative mood and interrogative mood. Three factors explain the dominance of mood over modality in the data. First, modality is either marked or unmarked in a given VBG whereas every VBG in predicator function selects from the mood system. Second, with the exception of VBGs marked for imperative mood which do not also mark modality, all VBGs marked for modality are either declarative or interrogative in grammatical orientation. Third, modal auxiliary verbs, markers of modality, are a closed system whereas lexical verbs implicated in mood belong to an open set. These factors both reinforce and undermine the acclaimed similarities and differences between mood and modality.

6. Conclusion

It is not known what proportion of a corpus of VBGs manifests mood (or any of its terms),or mood and modality, due to the dearth of studies on the subject earlier mentioned. So the figures reported in this study are tentative and need further confirmation. However, there are established reports on the subject of modality which the current study supports or refutes. Thus this study confirms Coates' (1983) finding that there is a higher proportion of Root meaning than Epistemic meaning in formal spoken language; it also confirms the rarity of *shall* and the high occurrence of PREDICTION and *will* and *can*, among others.

Contrary to existing reports, however, the study found an instance where Epistemic modality was significantly higher than Root modality. It also found that, with a frequency of 7 in 1 000 words and 5.11 in 1 000 words, *will* and *can* far exceeded the reported 4.2 and 3.5 occurrences in 1 000 words by 67 and 46 per cent respectively and that *shall* was rarer still with a frequency of 1 in10 000 words. As Physics shows, there are strong indications that a text's subject matter dictates the pattern of modality marking. The need to predict relationships and results of mathematical operations made the choice of Epistemic modality imperative. This is where textual analysis as undertaken in this study comes in. Examining mood and modality together has revealed fresh facts about the similarities and differences between both systems. This should be consolidated.

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