

An Analysis of Modal Adverbs of Certainty in Linguistic Academic Discourse

Rui Deng and Yi Zhang

Abstract—Abundant interpersonal meanings are reflected in academic discourses. As an important means of performing interpersonal function, modality has drawn attention in the field of academic discourse. Based on Systemic Functional Linguistics (SFL) and with the help of LancsBox 5.0, this study identifies modal adverbs of certainty (MACs) in the 60 papers published in *The Modern Language Journal* and classifies them into 4 types according to MAC Theory introduced by Simon-Vandenberg and Aijmer, including epistemic, expectation, evidential and speech act MACs. The data are used to research on the features in the use of MACs in linguistic academic discourse and the factors which influence the features in the use of MACs. The research results show that epistemic, expectation and evidential MACs are used frequently, which occur 87, 85, 65 times respectively, while speech act MACs are not used frequently, occurring 22 times in total. Specifically, under the 4 classifications, the frequency of polysemous MACs and MACs which have various significant forms of manifestation is relatively high. At the same time, MACs occur frequently because their meanings are appropriate to the features of academic discourse. Therefore, this study believes that the features in the use of MACs are mainly influenced by polysemy, form of manifestation and stylistic feature. This study validates MAC Theory for analyzing linguistic academic discourse from the theoretical points of view as well as helps readers learn about the features in the use of MACs and apply them into actual academic reading and writing from the practical points of view.

Index Terms—Modal Adverbs of Certainty, linguistic academic discourse, systemic functional linguistics, *The Modern Language Journal*.

I. INTRODUCTION

The primary goal of academic discourse is to persuade readers to understand and accept the academic viewpoints and the research findings of authors, which determines that there are abundant interpersonal meanings between the lines of academic discourse [1]. According to SFL, modality is a major means to realize interpersonal function [2]. Therefore, modality is favored by researchers who study on academic discourse from the perspective of SFL. However, in the previous studies on modality in academic discourse, more attention has been paid to modal verbs. As one of the lexico-grammatical embodiments of modality that express authors' attitudes of certainty in propositions, MACs may be not a familiar concept, but at the same time they are needed in academic reading and writing. Therefore, the author of

this study thinks that MACs has received less linguistic attention than it deserves.

As a result, based on SFL and MAC theory, this study aims to explore the features in the use of MACs in linguistic academic discourse, which can validate SFL and MAC Theory for analyzing MACs in linguistic academic discourse as well as help readers learn, correct and vary the use of MACs and apply MACs in their practical academic reading and writing.

II. LITERATURE REVIEW

A. MACs and Their Classification

SFL thinks that modality system can express a major part of interpersonal meaning, namely speakers' judgement on the success and validity of their propositions, the obligation required by speakers in commands, or speakers' personal willingness expressed in proposals [2]. Modality refers to the area of meaning that lies between yes and no, therefore, 2 kinds of modalization occur: (1) degrees of probability and (2) degrees of usuality, which can be expressed by 3 ways: 1) by a finite modal operator in the verbal group; 2) by a modal adjunct of probability or usuality; and 3) by both together [3].

In SFL, modal adverbs are discussed in the category of modal adjunct. Based on SFL, Simon-Vandenberg and Aijmer define modal adverbs of probability with high value as modal adverbs of certainty and classifies them into four types (1) epistemic MACs, which express writers' high degree of commitment to the veracity of a certain proposition; (2) expectation MACs, which suggest certainty and indicate that this certainty meets writers' expectation; (3) evidential MACs, which imply that the certainty originates in the induction from available evidence; and (4) speech act MACs, which suggest that writers support certain viewpoints while recognizing that there is possibility to exist disagreement or other alternative viewpoints [4]. Table I shows the classification and word list of MACs.

TABLE I: MODAL ADVERBS OF CERTAINTY

Type	Examples
epistemic	certainly, definitely, undoubtedly, no doubt, indeed, surely, decidedly, for sure, for certain, assuredly, indubitably
expectation	of course, naturally, inevitably, necessarily
evidential	obviously, clearly, plainly, evidently, manifestly, patently
speech act	allowedly, admittedly, arguably, incontestably, indisputably, unarguably, undeniably, unquestionably, incontrovertibly

(cited from: [4])

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B. Previous Studies on Modal Adverbs and MACs

In the early 21st century, through studies conducted by scholars abroad like Holmes and Hermerren, scholars at home like Li realized that many other parts of speech express modality more frequently than MVs [5]. Even though, adverbs are regarded as “the most nebulous and puzzling lexical category” [6], and at the same time, some scholars such as Han and Zhang claimed that compared with modal verbs, modal adverbs stay in a subordinate position or play an auxiliary role [7]. Therefore, modal adverbs are discussed in some other frameworks in many cases.

For example, in the general framework of modality. Su analyzed modal verbs, modal adverbs and other modal parts of speech, finding that there are many expressions related to modality in academic discourse. As for modal adverbs, its frequency of occurrence is higher in social science discourse than in natural science discourse [8]. Zhao, Xue, Deng, Xu, and Ding mentioned, “Chinese students overuse and misuse several modal auxiliaries and modal adverbs with high-frequency” [9]. Besides, Xiao classified modal adverb satellites (adverbs which co-occur with modal verbs) and discussed their function in discourse like academic writing and public speeches based on interpersonal function of SFL, where modal adverbs are discussed in the framework of modal satellite adverbs [10]. In addition, modal adverbs can be concluded in modal adjuncts. Ren conducted research on the differences of the use of modal adjuncts between Chinese people and Americans [11]. Ren discussed the features of using modal adjuncts in academic discourse by establishing corpus [1], [12]. Li made comparisons of using modal adjuncts between Chinese and English political news reports [13]. What’s more, modal adverbs also have close relations with stance markers. Adams and Quintana-Toledo [14] explored writers’ attitudes by analyzing adverbial stance markers in the parts of introduction and conclusion in legal discourse.

However, studies on MACs are hardly seen at home. Related studies are relatively more abroad. Szczyrbak explored the interpersonal function played by MACs in oral and written legal discourse and the rhetorical significance of MACs in the legal discourse of the European Union [15], [16], [17]. Aijmer discussed the multifunctionality of MAC—“indeed” displayed in the inter-translation between English and Swedish [18].

III. RESEARCH DESIGN

A. Research Questions

Based on SFL and MAC Theory, this research aims to address the following 2 questions:

- 1) What are the features in the use of MACs in linguistic academic discourse?
- 2) What are the factors which influence the features in the use of MACs?

a) Corpus sources and research methods

Firstly, this research chooses 60 papers published in 2018 and 2019 from The Modern Language Journal (Volume 102 and Volume 103) and tags these 60 papers as Paper 1 to Paper 60, among which “Issue Information” “Critical Review Essay” “Notes from the Editor” parts and the like

are excluded. Finally, there are 521870 tokens in total.

Secondly, with reference to Table 1, this research utilizes LancsBox 5.0 to identify MACs from the corpus. LancsBox is a retrieval tool, the developer of which is Lancaster University (UK). At the same time, this research also manually identifies MACs in the corpus according to the MACs classification criterion summarized by Simon-Vandenbergen and Aijmer to reassure that all MACs are identified and counted in the process of data collection [4].

Finally, with the help of the analysis and examples given in The Semantic Field of Modal Certainty a Corpus-based Study of English Adverbs [4], this research describes and analyzes the MACs gotten in the corpus and summarizes the factors which influence the features in the use of MACs at last.

IV. RESULTS AND DISCUSSION

A. The Features in the Use of MACs

Table II displays the frequency of occurrence of each type’s MACs overall MACs, meanwhile, it shows their proportion, which indicates the features in the use of MACs.

Among all the types’ MACs, epistemic MACs are the most frequently used MACs followed by expectation MACs. Evidential MACs follow expectation MACs and speech act is the least often-used type, the frequency of which is much less than other 3 types’ frequency. It seems that the authors in the corpus are inclined to choose epistemic, expectation and evidential MACs, but seldom use speech act MACs.

Specifically, as the most often-used type, epistemic MACs are of great variety. There are 6 epistemic MACs in the 60 papers concerned, as shown in Table II. “Indeed” occurs most frequently, 60 times in total, much frequently than other 5 MACs—“certainly” “undoubtedly” “no doubt” “surely” and “decidedly”.

TABLE II: DISTRIBUTION OF EACH TYPE’S MACs AND EACH MAC

Type	MAC	Frequency
Epistemic	indeed	60
	certainly	14
	undoubtedly	6
	no doubt	4
	surely	2
	decidedly	1
	(total epistemic MACs)	(87)
Expectation	necessarily	49
	naturally	18
	of course	10
	inevitably	8
	(total expectation MACs)	(85)
Evidential	clearly	59
	obviously	5
	evidently	1
	(total evidential MACs)	(65)
Speech Act	arguably	19
	admittedly	3
	(total speech act MACs)	(22)
	(total MACs)	(259)

Expectation MAC is the second most often-used type. Among all the expectation MACs, “necessarily” occurs 49

times, ranking the first place in terms of expectation MACs' frequency. "Naturally" is in the second place and is used 18 times. Besides, "of course" and "inevitably" also occur in the corpus.

There are 3 evidential MACs occurring in the corpus. Among all of the evidential MACs, "clearly" makes up the majority of evidential MACs, occurring 59 times. "Obviously" and "evidently" occur much less frequently.

As the least often-used type, speech act MACs are also the least various ones since there are only 2 speech act MACs— "arguably" and "admittedly." They occur 19 times and 3 times respectively.

B. Factors which Influence the Features in the Use of MACs

Through analysis, this research finds that the frequency of polysemous MACs and MACs which have various significant forms of manifestation is relatively high, as shown in Table III.

Take "indeed" as an example, as the most frequently used MAC, it occurs 60 times, expresses 3 kinds of meanings and has 3 significant forms of manifestation.

As for meanings, according to *Oxford English Dictionary*, "indeed" can be used to 1) to emphasize a statement confirming something already suggested (see Example 1) or 2) to emphasize a statement confirming something already suggested (see Example 2). In addition, "indeed" is also used to introduce concession in the corpus, which becomes its third meaning in the corpus (see Example 3). "Indeed" often express the first meaning, 47 times in total. The second meaning and the third meaning are expressed by 6 and 7 times respectively (see Fig. 1).

TABLE III: FACTORS WHICH INFLUENCE THE FEATURES IN THE USE OF MACs

Type	MAC	Number of Meaning(s)	Number of Significant Form(s) of Manifestation
Epistemic	indeed	3	3
	certainly	2	1
	undoubtedly	2	0
	no doubt	2	1
	surely	1	0
Expectation	decidedly	1	0
	necessarily	1	3
	naturally	2	1
Evidential	of course	1	1
	clearly	3	2
	obviously	2	0
Speech Act	evidently	1	0
	arguably	1	0
	admittedly	1	0

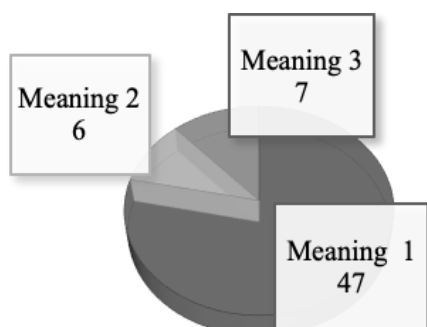


Fig. 1. Meanings of "indeed" and their frequency of occurrence

Example 1

Indeed, learners often report a high degree of anxiety when speaking in a FL (Phillips, 1992; Young, 1990) (Paper 54).

Paper 54 conducted a meta-analysis to investigate the relationship between foreign language (FL) anxiety and FL performance. Example 1 is located in the introduction part where the author of Paper 54 replies to earlier statement made by Phillips and Young by pointing out it is a common phenomenon that anxiety do exist when learners are speaking in a certain FL. "Indeed" indicates the author's confirmation.

Example 2

Indeed, the focal teacher expressed her struggle with these materials, and indicated that the difficult content and elevated political register were above her students' level and interest (Paper 20).

In Paper 20, one of the upper level foreign language class' coordinators choose some language learning materials to expose students to diverse accents, the speed of real-time speech and the like, but in practical teaching, the teacher finds that these materials are difficult and boring for the students. "Indeed" admits that compared with the coordinator's choice, it seems that the teacher's opinion is more convincing.

Example 3

Indeed, learners who received segmental pronunciation instruction (PI) did correct many of these errors, **but** not at rates significantly higher than the learners who did not receive PI (Paper 24).

"Indeed" in Example 3 is used to introduce a "but"-clause, its function is similar to "though." It is used to admit the correctness of the former statement but the main task of it is to highlight the content in the later clause.

As for the forms of manifestation, it often occurs solely in sentences, and significantly, it takes initial position in 31 cases (see Example 1, Example 2 and Example 3). At the same time, it also occurs in certain patterns in the corpus, including "and indeed" and "or indeed," as shown in Example 4 and Example 5.

Example 4

All language policy (Spolsky, 2004), **and indeed** all education policy (Freire, 1972) is inherently political (Paper 30).

In this context, "indeed" is used to reply to the previous statement made by Freire. What's more, "x, and indeed y" means "not only x but even y" (Marie et al., 2007), therefore Example 4 can be paraphrased as "not only all language policy but even all education policy is inherently political," which indicated that the information— "all education policy" is more important [4].

Example 5

For instance, one might argue that the overall weak policies and practices regarding language teaching in the United Kingdom are themselves a manifestation of linguaphobia, **or indeed** xenophobia (Paper 30).

In Paper 30, before Example 5, the authors of Paper 30

mentions “the reluctance to learn languages could be due to xenophobia.” “indeed” in Example 5 indicates that the statement about “xenophobia” follows the expectations raised by the preceding proposition. What’s more, “x or indeed y” means that “y” is focused more and becomes a stronger argument [4]. In Example 5, it seems that “linguaphobia” functions as a transition to “xenophobia” because “or indeed” indicates that “xenophobia” hits the nail on the head more than “linguaphobia” when they are used to describe the weak policies and practices.

Therefore, this research thinks that the features in the use of MACs are generally influenced by polysemy and forms of manifestation. But these 2 are not the only factors that influence the features in the use of MACs. For instance, though speech act MACs are chosen infrequently because of its lack of polysemy and significant forms of manifestation, the speech act MAC “arguably” is still used relatively frequently, 19 times in total. In the corpus, it suggests that authors’ intention to defend certain opinions whilst realizing and admitting that others may hold different opinions [4]. Besides, it does not significantly collocate or co-occur with significate words.

So, this research continues to explore other factors that influence the features in the use of MACs

Example 6

Intelligibility is arguably more important because it objectively measures learners’ ability to perform an important real-world task, which is to process target language speech, whereas comprehensibility is an impressionistic judgment that may have little bearing on intelligibility (Paper 24).

Paper 24 explores the effectiveness of pronunciation instruction (PI) on improving learners’ bottom-up processing of Spanish listening. The author draws a comparison between intelligibility and comprehensibility and holds the view that intelligibility is more important. Then, the author gives the summarized reason to support his or her opinion. Manifestly, the author is inclined to support intelligibility rather than comprehensibility though the author realizes that others may support comprehensibility more. In this case, “arguably” does not suggest absolute certainty of the truth on the statement. It is possibly true from the author’s point of view [4].

The corpus is made up of linguistic academic discourse, where academic debates exist and are often discussed, so words or expressions like “arguably” are needed to suggest authors’ orientation. From this case, the researcher agrees that different MACs may be appropriate in different genres or styles used by articles and some adverbs are more stylistically marked than others [4], which also has an effect on MACs’ frequency.

V. CONCLUSION AND IMPLICATION

The research results show that there are 259 MACs being used in the corpus, among which epistemic, expectation and evidential MACs are used frequently (occur 87, 85, 65 times respectively), while speech act MACs are not used frequently (occur 22 times in total). Specifically, under the 4 classifications, the frequency of polysemous MACs and

MACs which have various significant forms of manifestation is relatively high. At the same time, MACs occur also frequently because their meanings are appropriate to academic discourse. Therefore, the researchers believe that the features in the use of MACs are mainly influenced by polysemy, form of manifestation and stylistic feature.

This research validates the MAC Theory for analyzing linguistic academic discourse from the theoretical points of view as well as helps readers learn about the features in the use of MACs and apply them into actual academic reading and writing from the practical points of view. But the corpus’ volume may be not big enough, so some MACs’ meanings and forms of manifestation can’t be fully shown in the corpus. Besides, there can be more factors being used to explain the distribution features of MACs. Therefore, this research suggests future studies expand their volume of corpora. In addition, more factors need considering and discussing.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Rui Deng wrote the drafts; Yi Zhang revised the drafts; all authors had approved the final version.

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