

# The Use of Modal Adverbs of Certainty in Linguistic Academic Discourse: Case Study of Empirical Research Articles in *Language Learning and TESOL Quarterly*

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**Abstract**—Attitude and disciplinary culture are 2 frequently discussed topics among the studies on academic discourse. To explore the use of modal adverbs of certainty in linguistic academic discourse from the macro structure perspective, 9 kinds of modal adverbs of certainty which occur 56 times in 10 linguistic empirical research articles (Ras) with ILMRDC structure published in 2 high—Quality journals (*Language Learning* and *TESOL Quarterly*) are analyzed. The research results show that these modal adverbs of certainty are mainly located in Literature Review and Discussion Part. As for the communicative functions, modal adverbs of certainty are generally used to express certainty towards propositions. Specifically, in Literature Review Part, they can also be used to show authors' appreciation of other scholars; in Discussion Part, they are also used to hedge the certainty in both authors' and previous studies' proposition. This research hopes to help its readers better understand modal adverbs of certainty in academic reading and accurately use modal adverbs of certainty in academic writing.

**Index Terms**—Modal adverbs of certainty, linguistic academic discourse, macro structure, research articles

## I. INTRODUCTION

Attitude and disciplinary culture are 2 frequently discussed topics among the studies on academic discourse. There are increasingly studies on authorial stance and interaction with readers in academic discourse [1]. As for attitude, scholars claim that academic discourse is not only a report but also vehicle of persuading related scientific community to accept authors' opinions and research results [2]. As for disciplinary culture, it is implicit in disciplinary discourse, different disciplines shape different discourse [3]. Among related research on attitude and disciplinary culture in academic discourse, though many languages meaning, such as stance markers (e.g., [1, 2, 4], etc.) are analyzed, and linguistic academic discourse is often used as research materials (e.g., [5–8], etc.), there is a lack of discussion on modal adverbs of certainty which can be also regarded as a kind of stance markers in linguistic academic discourse.

Previous studies discuss modal adverbs of certainty in corpora which cover a wide range of fields, finding that modal adverbs of certainty aren't always used to express probability with high degree in practical application (e.g., [4, 9, 10], etc.). However, few studies shift their focus from general corpora to specific ones. As Hyland and Milton mention, "A major problem for second language learners

writing academic essays in English is to convey statements with an appropriate degree of doubt and certainty [11]," this research believes that it is necessary to explore the features in the use of modal adverbs of certainty in linguistic academic discourse.

Therefore, this research aims to explore the use of modal adverbs of certainty by discussing the features in the use of modal adverbs of certainty in linguistic academic discourse and its different parts as well as the communicative functions performed by modal adverbs of certainty so that its readers can better understand modal adverbs of certainty in academic reading and accurately use modal adverbs of certainty in academic writing.

## II. LITERATURE REVIEW

### A. Related Studies on Modal Adverbs of Certainty

From systemic functional linguistic (SFL) perspective, modality refers to the area of meaning that lies between yes and no [12]. Modality can express a major part of interpersonal meaning, including speakers' or writers' judgement on the success and validity of their propositions, the obligation required by speakers or writers or their personal willingness expressed in proposals [13]. In propositions, 2 kinds of modalization occur: 1) degrees (low, median and high) of probability and; 2) degrees of usuality [12]. According to SFL, modal adverbs of certainty refer to modal adverbs of probability with high value [14].

Besides being treated as one of modality forms, modal adverbs of certainty also belong to one kind of interactional resource, namely booster, which perform the function that involve the reader in the text. Specifically, modal adverbs of certainty as boosters emphasize certainty in what writers say [15]. In addition, modal adverbs of certainty are discussed in the framework of surely adverbials [16], adjuncts [12], stance markers [15], intensifiers [9], modal satellite adverbs [17], etc.

Modal adverbs of certainty generally express a meaning towards the high probability extreme [14]. On the other hand, as Halliday mentioned, "We only say we are certain when we are not [12]." Similarly, Simon-Vandenberg and Aijmer admitted, "We only express certainty if it cannot be taken for granted. Thus an utterance containing the highest degree of modal certainty still conveys less certainty than an unmodalized one [14]." For instance, researchers like Szczyrbak [18], Deng and Zhang [19] and so on noticed that modal adverbs of certainty like "necessarily" occurs more commonly in the negative (e.g., "not necessarily"). What's more, researchers like Simon-Vandenberg found that

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“certainly” is sometimes preceded by the degree modifiers — “most” and “almost” pushing up and lowering the degree of certainty [9].

Among the studies on modal adverbs of certainty, the corpora usually cover a wide range of fields. For example, Downing analyzed “surely” in British National Corpus (BNC) [4]. Simon-Vandenberg discussed the differences between “almost certainly” and “most definitely” based on the data from BNC [9]. Using the data from Freiburg—LOB Corpus of British English, Freiburg –Brown Corpus of American English and Australian Corpus of English, Pan made a comparison of the meanings and functions expressed and performed by “certainly” “surely” and “no doubt” [10].

**B. Related Studies on Academic Discourse**

Attitude and disciplinary culture are 2 frequently discussed topics among the studies on academic discourse. Xu showed the properties of judgment of the attitude system in the appraisal theory in scientific texts through analysis of boosters, modal verbs and so on in scientific research articles [20]. In terms of Hyland’s stance and engagement framework, McGrath and Kuteeva analyzed the stance markers and engagement markers in pure mathematics research articles [1].

Besides, linguistic academic discourse is often used as research materials. Yang and Allison discussed the how the macro –structure of research articles in applied linguistics both draw upon and vary from the conventional Introduction – Method – Results – Discussion (IMRD) framework [5]. Four journals were selected for their study, including *Applied Linguistics*, *TESOL Quarterly*, *English for Specific Purposes* and *English Language Teaching Journal*. Yang also selected the four journals above to investigate the macro structure and micro –structures of RAs in the field of applied linguistics [6]. Xu selected RAs published in *Language Learning*, *Studies in Second Language Acquisition* and *Applied Linguistics* as research materials to learn the types and functions of authorial stance markers [7]. Hu and Chen analyzed surprise markers in RAs published in *Applied Linguistics*, *The Modern Language Journal*, *TESOL Quarterly* and *Language Learning* [8].

**III. METHODOLOGY**

**A. Theoretical Framework Modal Adverbs of Certainty**

According to Simon-Vandenberg and Aijmer, Modal adverbs of certainty refer to modal adverbs of probability with high value [14]. Modal adverbs of certainty are further classified into 4 types — Epistemic, expectation, evidential and speech act modal adverbs of certainty. Table I shows the the modal adverbs of certainty list.

Different modal adverbs of certainty types have different focuses, which shapes different classification criteria. Epistemic modal adverbs of certainty like “certainly” and “no doubt” suggest speakers’ or writers’ high degree of commitment to the veracity of certain propositions. Expectation modal adverbs of certainty like “naturally” and “inevitably” imply that speakers’ or writers’ certainty is in terms of the fact that the condition of certain affairs meet their expectation. Evidential modal adverbs of certainty like

“evidently” and “patently” indicate that the certainty is based on speakers’ or writers’ induction from available evidence. Speech act modal adverbs of certainty like “admittedly” and “indisputably” show that speakers’ or writers’ viewpoints can be seen among many alternative voices which are either agreed on or countered [14]. As for the classification of modal adverbs of certainty, this research thinks that further discussion or debate is needed to test it.

TABLE I: MODAL ADVERBS OF CERTAINTY LIST

Types	Words
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	Avowedly, admittedly, arguably, incontestably, indisputably, unarguably, undeniably, unquestionably, incontrovertibly

(Cited from: Simon-Vandenberg and Aijmer, 2007 [14])

**B. Research Article Structure Macro Structure**

Bruce introduced IMRD framework in 1983, holding the view that a RA consists of 4 Parts, including Introduction, Method, Results and Discussion [21]. It is the conventional macro structure of empirical RAs [22]. Yang and Allison found that based on IMRD framework, there are some other optional elements such as Conclusion (C), (Results and Discussion ((RD))) and Pedagogical Implication (PI) in linguistic primary RAs [5].

**C. Micro –Structure**

In Introduction part, Swales introduced Create a Research Space (CARS) model, which covers 3 Moves — 1) Establishing a territory; 2) Establishing a niche; 3) Occupying the niche, as shown in Fig. 1 [21].

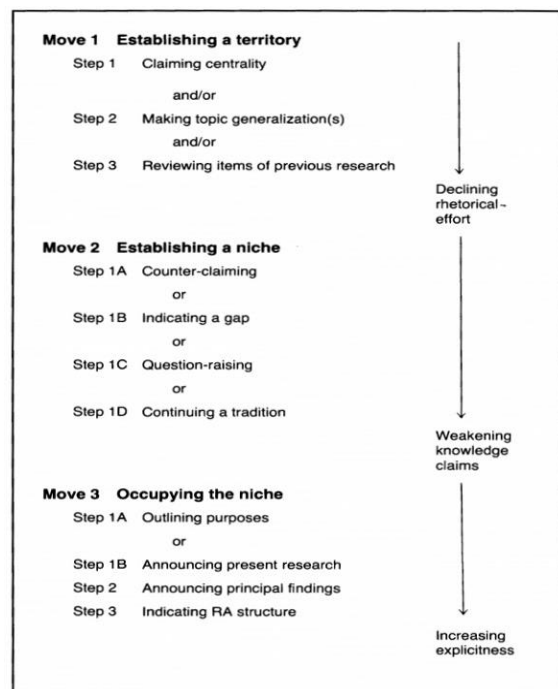


Fig. 1. CARS model. (Cited from: [21]).

In Method part, few scholars discuss its steps. Paltridge

and Starfield mentioned the typical components in this part, including methodology, methods and materials (see Fig. 2) [23].

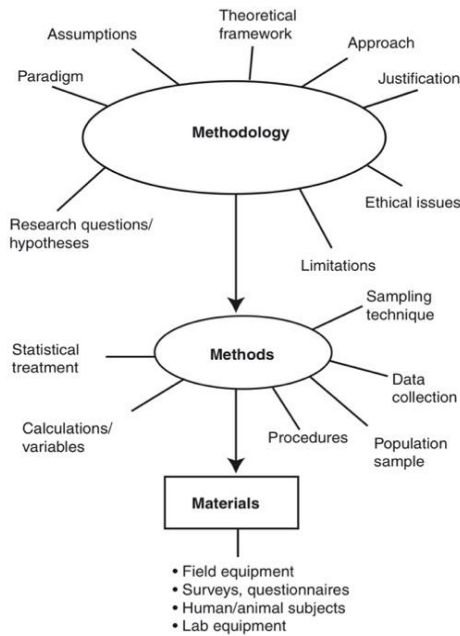


Fig. 2. Typical components in method part. (Cited from: [23])

In Results part, Yang and Allison specifically summarized 6 steps in the Result part of linguistic RAs—1) Preparatory information; 2) Reporting results; 3) Commenting on results; 4) Summarizing results; 5) Evaluating the study; 6) Deductions from the research, as shown in Fig. 3 [5].

In Discussion part, Yang and Allison introduced 7 moves in the Discussion part of linguistic RAs [5]. They are 1) Background information; 2) Reporting Results; 3) Summarizing results; 4) Commenting on results; 5) Summarizing the study; 6) Evaluation the study; and 7) Deductions from the research (see Fig. 4).

Moves	Steps
(R) Move 1—Preparatory information	
<b>(R) Move 2—Reporting results</b>	
(R) Move 3—Commenting on results	Interpreting results Comparing results with literature Evaluating results Accounting for results
(R) Move 4—Summarizing results	
(R) Move 5—Evaluating the study	Indicating limitations Indicating significance/advantage
(R) Move 6—Deductions from the research	Recommending further research

Fig. 3. Moves in result part of linguistic RAs. (Cited from: [5]).

In Conclusion Part, Yang and Allison summarized 3 steps in the Conclusion part of linguistic RAs, including 1) Summarizing the study; 2) Evaluating the study; and 3) Deductions from the research, as shown in Fig. 5 [5].

Moves	Steps
(D) Move 1—Background information	
(D) Move 2—Reporting results	
(D) Move 3—Summarizing results	
<b>(D) Move 4—Commenting on results</b>	Interpreting results Comparing results with literature Accounting for results Evaluating results
(D) Move 5—Summarizing the study	
(D) Move 6—Evaluating the study	Indicating limitations Indicating significance/advantage Evaluating methodology
(D) Move 7—Deductions from the research	Making suggestions Recommending further research Drawing pedagogic implication

Fig. 4. Moves in discussion part of linguistic RAs. (Cited from: [5]).

Moves	Steps
(C) Move 1—Summarizing the study	
(C) Move 2—Evaluating the Study	Indicating significance/advantage Indicating limitations Evaluating methodology
(C) Move 3—Deductions from the research	Recommending further research Drawing pedagogic implication

Fig. 5. Moves in result part of linguistic RAs. (Cited from: [5]).

#### D. Research Design Research Questions

This research aims to answer the following 3 questions:

- 1) What are the modal adverbs of certainty in linguistic academic discourse?
- 2) Is there any difference of modal adverb of certainty's distribution in linguistic academic discourse's different parts?
- 3) What communicative functions do modal adverbs of certainty perform in linguistic academic discourse?

#### E. Corpus Sources and Pilot Study

In order to select the RAs that have the same macro structure, a pilot study is conducted to analyze the macro structure of linguistic empirical RAs published in 2021, as shown in Table II.

TABLE II: EMPIRICAL RAS PUBLISHED IN LINGUISTIC JOURNALS

Journal name	Empirical article number	The most frequent —use structure	frequency of the most frequent—use structure
<i>Applied Linguistics</i>	43	ILMRDC	6
<i>English for Specific Purpose</i>	35	ILM(RD)C	10
<i>Language Learning</i>	18	ILMRDC	13
<i>Studies in Second Language Acquisition</i>	32	ILMRDC	10
<i>TESOL Quarterly</i>	36	ILMRDC	11
<i>The Modern Language Journal</i>	32	ILMRDC	9
Total	196		

According to Table II, the most frequent –use macro structure of the 196 empirical RAs in the 6 journals above is ILMRDC. This research then chooses *Language Learning* and *TESOL Quarterly* as the corpus sources, where many empirical RAs have relatively obvious ILMRDC structure. Then, this research conducts stratified sampling to select 10 empirical RAs (7 in *Language Learning* and 3 in *TESOL Quarterly*) as the research materials to analyze the use of modal adverbs of certainty in linguistic academic discourse.

F. Methods

First, with the help of the new—generation corpus analysis tool LancsBox, this research will find out all modal adverbs of certainty in the 10 empirical RAs in terms of the modal adverbs of certainty list summarized by Simon -Vandenberg and Aijmer [14]. Next, modal adverbs of certainty’ frequency in different parts will be calculated to learn the difference of distribution based on the ILMRD macro structure. Finally, the communicative functions of modal adverbs of certainty in linguistic academic discourse will be discussed with the reference of the micro –structure of RAs.

IV. RESULTS AND DISCUSSION

As we can see in Table III, there are 9 kinds of modal adverbs of certainty, totally occurring 56 times in the 10 linguistic empirical RAs with ILMRDC macro structure. Among the 5 parts, modal adverbs of certainty are mainly used in Discussion part. In other parts like Literature Review and Conclusion, modal adverbs of certainty occur relatively often.

TABLE III: MODAL ADVERBS OF CERTAINTY IN LINGUISTIC ACADEMIC DISCOURSE

Type	Token	Part (Frequency)
indeed	16	I (1); L (2); M (2); R (2); D (6); C (3)
necessarily	16	I (2); L (2); M (1); R (1); D (8); C (2)
clearly	11	L (3); M (1); R (2); D (4); C (1)
arguably	6	L (2); D (4);
certainly	2	D (2)
of course	2	L (1); D (1)
naturally	1	M (1)
no doubt	1	D (1)
undoubtedly	1	D (1)
Total: 9	56	I (3); L (10); M (5); R (5); D (27); C (6)

Generally speaking, modal adverbs of certainty usually express certainty in sentences. Specifically, in Literature Review part, modal adverbs of certainty can also be used to show the acceptance of other scholars. In Example 1, “most clearly” are used to show author’s appreciation of Bauer and Nation’s definition of word family and indicates author’s humbleness at the same time.

Example 1

The concept of a word family is **most clearly** defined by Bauer and Nation (1993), who divide words into six cumulative levels: a base word (Level 1), plus inflected forms of the base word (Level 2), and four groups of derived forms (Levels 3–6).

In Discussion part, the researcher discovers a trend of modal adverbs of certainty from certainty to doubt. In

Example 2, “clearly” co –occurs with “could”, lowering the degree of author’s certainty.

Example 2

As the current study has shown, this could explain why auditory integration (rather than acuity) abilities **could clearly** predict L2 lexicogrammar (rather than phonology) proficiency among our participants who had been through years of EFL experience.

Besides, the doubt is clearly embodied in “necessarily”. Among the 16 tokens of “necessarily”, there are 13 times “necessarily” occurring in the negative – “not necessarily,” and 7 times “not necessarily” occurring in the Discussion part. In Example 3, necessarily in the negative hedges the certainty of the proposition according to previous research findings.

Example 3

We wanted to investigate this because statistical learning is **not necessarily** implicit in nature, although many scholars seemingly assume it is.

However, as for the Introduction, Method, Results, and Conclusion part, no special functions are found mainly because of the small amount of research materials.

V. CONCLUSION

In conclusion, 9 kinds of modal adverbs of certainty which occur 56 times in the 10 linguistic empirical RAs with ILMRDC macro structure are found in this research. These modal adverbs of certainty are mainly located in Literature Review and Discussion Part. As for the communicative functions, modal adverbs of certainty are generally used to express certainty towards propositions. specifically, in Literature Review part, they can also be used to show authors’ appreciation of other scholars; in Discussion part, they are also be used to hedges the certainty in both author’s and previous studies’ proposition.

As for the significance of this research, this research proves Lin and Evans’ [22] results among the debate on the major structural patterns of linguistic empirical research articles. The present research finds that the major structural patterns is ILMRDC, and the finding is different from Yang and Allison’s [5] (which is IMRD, IMRC, etc.), but same with and Lin and Evans’ [22] (which is ILMRDC) in the discipline of applied linguistics. Besides, analyzing the communicative function of modal adverbs of certainty may help readers understand them better in future academic reading and use them more precisely in future academic writing.

As for the limitations, the most obvious one must be the small number of research materials, because of the time limitation, the research only selects 10 linguistic empirical RAs, which can be much more for further study to learn more about modal adverbs in linguistic academic discourse.

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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