A contrastive study of hedging in English and Chinese academic spoken discourse

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This study sets out to discuss the distribution and linguistic features of hedging strategy, investigating how they are realized in L1 English, English as a lingua franca (ELF), and L1 Chinese within the academic spoken genre. To this end, a systematic procedure for identifying hedging devices was developed, applied to two languages and an international variety. Results indicate functional diversity in hedging conventions, with L1 English exhibiting a colloquial propensity compared to ELF and L1 Mandarin. Conversely, ELF speakers display the highest frequency of hedges but with less diversity. L1 Mandarin speakers show a preference for author-oriented hedges, while L1 English speakers favor audience-oriented ones. The findings are interpreted considering language differences, linguacultural practice, cognitive interpretations, and socio-pragmatic awareness within academic communities. The study also contributes to further discourse analysis and scholarly peer communication by highlighting the importance of hedging in usage-based research.

Keywords: contrastive approach, hedging, academic spoken discourse, L1 English, L1 Chinese, English as a lingua franca

1. Introduction

Hedging involves the use of linguistic means to express uncertainty, caution, hesitation, and at times, even scepticism about one's propositions. Its significance is particularly pronounced in academic settings, where scholars refrain from being overconfident by softening their claims. Available research indicates that hedges are commonly present in various language environments, each with its own culturally specific traits (Hinkel 1997; Vassileva 2001), thereby playing a role in shaping intercultural discourse. Against this background, investigating the use of hedging and the associated differences among scholars with diverse stances from a linguacultural perspective is of significant importance. Broader in scope,

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hedging falls within the fields of vagueness and fuzziness in language, be it from a semantic or pragmatic standpoint. Semantic hedging pertains to the inherent vagueness in the meaning of language itself, while pragmatic hedging depends on contextual factors, whereby specific words engender indeterminate effects upon undergoing modification and constraint. The use of hedging, whether in the semantic or pragmatic domain, involves the engagement of human cognition.

Comparative studies on hedging have largely focused on its pragmatic dimension within scientific discourse, mainly in European languages. There is limited attention to research examining hedging in Asian languages, such as Chinese, despite the substantial presence of Chinese scholars in the global academic arena. Understanding the nuanced similarities and differences in hedging between Chinese and European languages is crucial for effective cross-cultural communication. Mastery of language rules must be complemented by an awareness of the use of relevant pragmatic devices, such as hedges, whose inappropriate use may lead to miscommunication (Vassileva 2001). The inherent traits of hedging, its recurrent occurrence in human discourse, and its distinctive role collectively serve as the primary impetus for this study.

Academic spoken discourse, as a distinct genre in scientific communication, shares the purposes of academic writing, including scholarly exchange, debate, persuasion, and field-specific dialogue. However, unlike the objective, impersonal, and informational nature of academic writing (Recski 2005), academic spoken discourse is characterized by dynamic complexity, (potential) informality, dialogic interaction, sender/receiver-orientation, and a high degree of context dependence (Berman et al. 2002). The exploration of how language shapes this genre is gaining interest. Additionally, the growing diversity of international academic exchanges has enhanced interactions between Western and Asian researchers, promoting mutual understanding and collaborative learning. This trend highlights the pivotal role of academic oral presentations in fostering scholarly relationships. As key players in the academic community, scholars face the challenge of effectively articulating their ideas and integrating with peers in a diverse academic landscape. One effective strategy for achieving these communicative goals is the use of hedging. Accordingly, this contrastive study considers semantics, pragmatics, cognitive, and sociocultural aspects that may interact with the use of hedging strategy[1] in academic communication.

1. In this paper, the terms hedging strategy, hedging devices/elements/techniques/items/markers, and hedges are used interchangeably to denote hedging and its linguistic manifestations, ensuring conceptual consistency throughout.

2. Hedging in semantics and pragmatics

2.1 Previous studies on hedging usage

The study of hedging emerged from the lens of logics and semantics. Foundational studies of hedging from Zadeh's (1996) concept of fuzziness and Lakoff's (1973) philosophical approach mark significant early efforts to understand hedging as a linguistic strategy for managing semantic ambiguity. Subsequent research on hedging has spanned various dimensions of semantics. For instance, early research by Prince (1976) laid the groundwork for understanding hedges in communication, followed by Channell's (1994) extensive investigations, which explored the semantic nuances and functions of hedges in spoken and written discourse. Wu (2000) explored the intersection of fuzzy linguistics with lexicology, rhetoric, and pragmatics, providing methodological insights for the study of hedging in Chinese. Some Chinese scholars (Xiao 1990; Zhou 2008) have questioned Zadeh's notion of fuzziness, arguing that combined hedges can make the meaning more precise. These studies underscore the semantic complexity of hedging, positioning it as a tool for negotiating meaning and managing discourse relationships. The study draws upon these theories as conceptual underpinnings, yet acknowledges that both are limited by their emphasis on semantic implications without fully addressing how hedging functions in dynamic, pragmatic contexts.

In response to the limitation, pragmatic investigations of hedging have examined its role in managing communicative uncertainty, especially within metadiscursive frameworks. Since Weinreich's (1966) categorization of hedges as 'metalinguistic operators', research on the pragmatic dimension of hedging has expanded to include its functions in structuring academic discourse, managing speaker stance, and conveying intersubjective relations. For example, Varttala (1999) emphasized the functions of hedging in research articles for textual precision and interpersonal relationship, while Biber (2016) viewed them as tools for avoiding full responsibility for the message. By and large, there is broad consensus that hedging can alter the truth value of discourse. Their appropriate use provides insight into minimizing misunderstandings and highlights the interaction between discourse participants. The foregoing discussion on hedging is instrumental in elucidating its concept. Based on previous work, this study defines hedging as a linguistic strategy used to introduce tentativeness, uncertainty, or a lack of absolute commitment to assertions, thus contributing to purposive fuzziness or precision of language itself.

Earlier cross-cultural/-linguistic studies investigated how culture, linguistic variations and scientific paradigms influence hedging use. For instance, Yang (2013), in an examination of hedging in English and Chinese scientific discourse,

posited that non-native English speakers often invest effort in mastering the strategic acceptance or rejection of propositions. Chen and Zhang (2017) attributed the higher frequency of hedges among English academic writers, compared to their Chinese counterparts, to differences in cross-cultural rhetorical conventions and the pragmatic competence of second-language scholars. Similarly, Gong et al. (2021) found a higher incidence of hedges in English research articles authored by Chinese scholars than in their Chinese counterparts, attributing this difference to writing conventions and literacy traditions rooted in the distinct sociocultural contexts of China and Anglophone countries. Mur-Dueñas (2021) observed that cultural practices and traditions partially explain variations in hedging between English and Spanish academic discourse, indicating that hedging is deeply intertwined with cultural rhetorical norms. Despite this extensive body of research on hedging in scientific writing, comprehensive studies into its use within academic spoken discourse, particularly in terms of both function and form, remain limited. Recent investigations offer insights into this domain. For instance, Jovic et al. (2023) analyzed the persuasive power of hedges in TED Talks, while Kashiha (2021) examined the use of personal metadiscourse in monologic and dialogic academic speech. His findings reveal that hedges occur more frequently in seminars (monologue) than in discussions (dialogue). Additionally, Duan (2015) identified hedges as effective strategies for facilitating oral communication, while Johansen (2021) conducted a cross-linguistic comparison of hedging practices in Norwegian and English informal conversations. The results showed that speakers of both languages mainly use pragmatic particles, adverbs, and first-/second-person pronouns with cognitive verbs [1/2 pers. + cog. v] to express hedging. Building on this, the critical role of hedging in real-time academic discourse, along with the paucity of inquiry into their cross-linguistic and cross-cultural manifestations, serves as a principal impetus for undertaking this investigation. The purpose of this study, therefore, is to fill this gap by presenting an in-depth analysis of hedging mechanisms in academic spoken Chinese and English (as L1 and as Lingua Franca). Specifically, two major research questions will be addressed:

a. How is hedging strategy manifested in the L1 English, ELF, and L1 Mandarin academic spoken discourse?
b. What factors might account for the hedging distribution and realization across these linguistic contexts?

2.2 Various taxonomies of hedging devices

According to Brown and Levinson (1987), hedging can be achieved in various language forms. Taxonomies of hedging devices have evolved over the years, including lexical and grammatical perspectives (Crompton 1997; Salager-Meyer 2000; Varttala 2001), as well as semantic and pragmatic aspects (Chen and Li 1994; Hyland 2011; Martin 2003). Crompton's (1997) taxonomy is grounded in the form and structure of hedges within academic discourse, identifying elements such as epistemic copulas/modals and non-factive verb phrases. His approach emphasizes the role of language form in hedging while avoiding category overlap. Martin (2003) categorizes rhetorical hedging strategies into indetermination, camouflage, subjectivization, and depersonalization. These approaches have inspired the present study, particularly in designing a framework tailored to spoken discourse.

Hyland (2011) put forth an influential taxonomy from a pragmatic perspective, dividing hedges into content-oriented and reader-oriented devices. Content-oriented hedges, further classified into accuracy-oriented and author-oriented, express a writer's precision and connection to their claims. The use of content-oriented hedging markers might diminish the impact of the writer's presence in the discourse. Reader-oriented hedges, on the other hand, engage the reader as knowledgeable peers (Hyland 1996), suggesting uncertainty and inviting further confirmation. To conclude, a fundamental difference can be made between content-oriented hedges and reader-oriented hedges. While the former is concerned with the accuracy of information regarding the world, the latter is concerned with establishing a rapport with the audience and adhering to the conventions of the academic community. From a formal perspective, Hyland (2011) further distinguished between lexical and strategic hedges, aligning with Varttala (2001), who found that 85% hedge items were lexical. In addition, Wu (2000) provided a different classification based on grammatical forms. Despite criticisms regarding overlaps and identification challenges (Diewald 2006), these classifications underscore the role of hedging devices in mitigating personal opinions and conveying precise meanings in specific context. In reviewing previous studies, it is clear that identifying linguistic expressions that conform to hedging conventions in authentic data is intricately tied to semantic, syntactic, and pragmatically motivated criteria. Be that as it may, the aforementioned findings play a complementary role in shaping the analytical framework for this study.

Operationally, the study identifies hedging devices based on their linguistic forms (Section 3.2.2) and reclassify them according to three functional-oriented uses (Section 3.2.3). Adjustments have been undertaken to accommodate the specific nuances of spoken academic discourse. Specifically, an emphasis revolves around the categorization of epistemic hedging devices, in the form of (a) hedging

function words, (b) hedging content words, (c) hedging phrasal structures, and (d) introductory syntactic hedges, drawing on Crompton (1997), Hyland (2011), and Varttala (2001). The model accommodates a diverse array of interpretations of hedging devices. Explicit hedges, primarily manifested through lexical form, are discernible through part-of-speech, regular expressions and keyword identification. However, it is imperative to underscore the significance of phrase-type hedges, which, when used individually, fail to convey vague meanings; their nuanced implications become apparent only when they are intricately combined. The challenge lies in identifying such expressions at the lexical, syntactic, semantic, pragmatic, and discourse levels, wherever explicit information is available.

3. Data and methods

3.1 Empirical material

To conduct a contrastive analysis of hedging use in spoken academic discourse, three self-compiled corpora were created from publicly available academic video materials.[2] The spoken Chinese corpus (henceforth, AL1C corpus) includes thirty transcripts totaling 102,535-word tokens, covering academic talks in education, sociology, psychology, economics, and linguistics. Likewise, the spoken L1 English corpus (henceforth, AL1E corpus) comprises thirty transcripts (144,104-word tokens) of academic speeches in the same disciplines delivered by L1 English speakers. Additionally, the academic English as a Lingua Franca corpus (AELF) consists of thirty transcripts (133,352-word tokens) of contributions from scholars with various L1 backgrounds in the same fields. The choice of these domains is driven by the presence of more complex and varied metadiscourse in the humanities and social sciences compared to the natural sciences (Hyland 2006; Sun et al. 2024). To ensure representativeness, the data was refined based on research area (uniform distribution across subjects), document type (transcriptions of semi-prepared talks), language background, event purpose (expert to expert or non-expert), and speaker gender distribution. As the study focuses on academic talks, audience influence is limited, and audience size remains consistently similar across all scenarios. Variations in word count and recording duration among transcripts reflect differing lecturing styles; however, these differences are unlikely

2. The video recordings, accessible on public platforms like YouTube.com, Bilibili.com, and weixin.qq.com between 2012 and 2022, form the basis of research corpora. All recordings were transcribed orthographically following the transliteration system of the Academic Discourse Verbal Interactions Corpus (ADVICe) (Brezina 2012).

to impact the study significantly, as comparisons are based on relative frequency. Further details about the datasets are provided in Table 1.

Table 1. Description of the corpora (quoted from Duan and Degand 2024)

Corpus	Number of the talks collected	Tokens	Av. tokens talk	Types
AL1E	30	144,104	4,803	30,047
AELF	30	133,352	4,445	27,492
AL1C	30	102,535	3,418	18,931

3.2 Operationalization of hedging

3.2.1 *Hedging identification*

Numerous studies have extensively focused on detecting hedges and expressions of uncertainty in textual data (e.g., Farkas et al. 2010; Raphalen et al. 2022). However, computational linguistics approaches primarily address semantic ambiguity and often overlook the context-sensitive and individual-dependent nature of hedges. This study considers hedging on a broad level as a type of rhetorical strategy and involves a multi-step data annotation process. Initially, the transcribed corpora are segmented into T-units,[3] each averaging approximately eighteen words in length (range word [1, 28]). Adhering to the established criteria, 180 T-units (two randomly selected from each academic talk in every corpus) were manually tagged and scanned by the first author as a pilot labelling. Following the initial analysis, a unified annotation scheme was developed for the entire dataset. This scheme operated at the word, phrase, and clause levels.

Recognizing the subjectivity of annotation, two trained coders independently coded the data using UAM Corpus Tool 3.3, Sketch Engine, and Microsoft Excel to ensure validity and reliability. Manual double-checking remained essential for verifying hedging in specific contexts, further enhancing coding accuracy. The coding process includes two stages: First, we designed a core set of tags comprising four fundamental types of hedging usage, along with an extended tag set to capture various subtypes. As illustrated in Figure 1, the tag set is hierarchical, allowing annotators to choose broader tags from the core set (HFW, HCW, HPS, HSI), while more fine-grained subtypes can be addressed by the extended set. Second, the extracted hedging markers are classified into three functional categories — accuracy-oriented, author-oriented, and audience-oriented — depending

3. T-unit (Hunt 1965) is defined as the shortest grammatical unit that comprises a dominant clause along with any attached dependent clauses. It conveys a single main meaning and includes all directly related supplementary information.

on their intended target. These categories form the basis of a specialized tagging system.

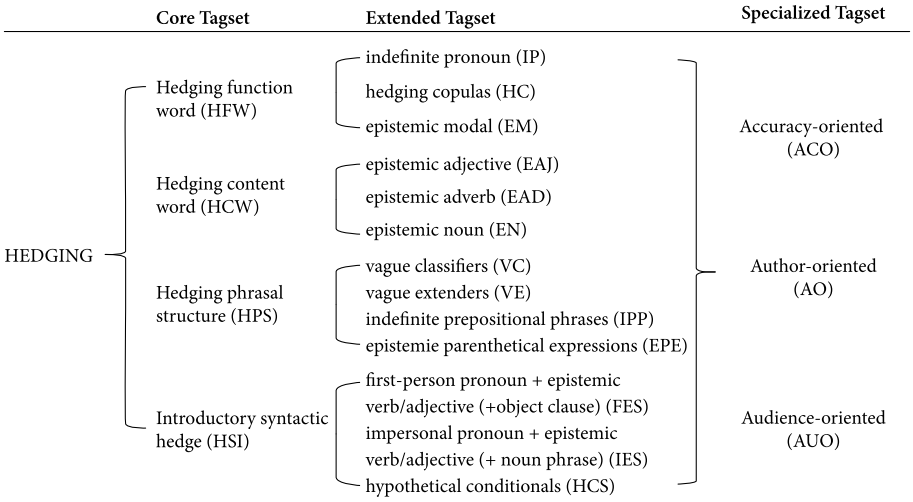

Figure 1. Linguistic tagset for hedging identification

During the process of identifying hedging tags, the annotators must first identify each T-unit within the discourse. The discernible scenarios include: (a) Determining whether the discourse subject is the speaker or a third party, ensuring all elements are directly related to the speaker. (b) Disambiguating each item, if needed, to confirm that retrieved keywords, phrases and expressions perform at least one of the hedging functions rather than factual statements. (c) Considering unconventional hedging devices, such as phrasal expressions (e.g., *in my opinion, as far as I know*), spoken-mode transcriptions (e.g., *not sure*), and syntactic hedges. (d) Evaluating the use of two or three consecutive potential cues to distinguish between definitive statements and uncertain conjectures. (e) Paying attention to devices conveying complete affirmation (e.g. *always, certainly*) or complete negation (e.g., *never, impossible*). These should be excluded unless they convey speculative meanings and exhibit vagueness. (f) Identifying the presence of nested relationships within the discourse. Beyond identifying keywords, careful consideration should be given to the uncertain or negotiated meaning embedded in the phrase or clause pattern where the keywords are situated. Throughout the annotation, principles of minimum (min) and maximum (max) are applied to ascertain keywords and define their corresponding scope.[4] Notably, as per

4. Speculative keywords are marked by angled brackets (e.g., <suppose>), while their scopes can be denoted by round brackets or braces.

Sanchez and Vogel (2015), phrasal hedges can appear discontinuously within a clause, as exemplified by the *I suppose* in instance (1).

(1) I didn't notice what it is behind the door, [.] but (<suppose> it <might> be […] a <little> dog or <something>) […] (AELF-06)

The identification process for potential hedging devices included the following steps: For the English items, lists by Varttala (2001) and Hyland (2011), with reference to Sanchez and Vogel (2015), served as the primary resource. For the L1 Mandarin corpus, which lacks a detailed list of potential hedges, we adapted existing English hedging lists and Chinese epistemic word-classes concepts to create a comparable list tailored for spoken hedging. For hedging function-word cues, a closed-ended lexical retrieval method was adopted, since limited auxiliaries, pronouns and copulas are available in our data that could be used as epistemic hedging options. On the other side, we identified the hedging potential of the remaining three subclasses (content words, phrasal structures, introductory syntactic forms with epistemic meaning) by means of an open-ended extraction. As Lindeberg (2004, 65) and Adamczyk (2015) remark, linguistic manifestations of hedging are poly-pragmatic, highly heterogeneous, and open-ended in forms. Therefore, it should be noted that the lists presented below might not involve all hedging items. After annotating the linguistic aspects, we classified the functional characteristics of hedges using the same methods. Detailed coding procedures for subcategories of hedging elements are in Sections 3.2.2–3.2.3.

3.2.2 *Linguistic hedging classification*

The first category involves grouping indefinite pronouns, hedging copulas and epistemic modals (HFW). Typically, the referenced entity is either explicated elsewhere in the clause or does not require precise identification. Non-restrictive indefinite pronouns considered are limited to those denoting an unspecified or unknown individual or object (e.g., *someone, something*) and those indicating general quantities and amounts (e.g., *more, half*).[5] Moving on, hedging copulas (other than *be*) are verbs that connect the subject of a clause with a complement, carrying vagueness or a tendency of change. The subtype includes copulas outlining the condition of the entity or individual referred to by the subject (e.g., *remain, seem*) and those expressing a change affecting the entity or individual

5. Owing to the fact that numerous tags within this category arise from the multifaceted nature in terms of parts of speech (illustratively, *more* has four distinct parts of speech, namely determiner, pronoun, adverb, and adjective), meticulous consideration is imperative throughout the coding procedure to avert redundancy.

(e.g., *become, grow*). Moreover, the hedging copulas scrutinized also encompass copular prepositional verbs such as *sound like, turn into*. While Mandarin lacks dedicated copulas analogous to those in English, certain verb-structures serve similar functions, such as *xiǎnde* ('seem'), *kànqǐlái* ('look like'). In the realm of epistemic hedging, modals convey tentativeness or the absence of absolute certainty regarding the information being presented. Modal auxiliaries generally fall into deontic, dynamic, and epistemic modalities (Lyons 1995; Palmer 2014). Mandarin Chinese and English exhibit notable commonalities in modal categorisation according to existing literature. For Mandarin, there is no complete consensus on the identification of modal words; thus, twenty-three modals widely recognized by previous scholars (Peng 2007) are considered and investigated. As a rule, Mandarin epistemic modality can be divided into three categories: possibility, probability, and inevitability (Peng 2001). It is crucial to differentiate between contextually univocal and polysemantic modals to extract the target hedges. This study focuses on epistemic modality, indicating the speaker's degree of confidence in the reliability of the proposition expressed (Coates 1983). Specifically, the following seven English modals (*should, may, might, can, could(n't), will, would(n't)*) and five Chinese modals (*yào* 'should', *yīng(gāi)/yīng(dāng)* 'should', *huì* 'might', *kěnéng* 'maybe', *néng(gòu)* 'could/can') occurring in the corpora are discussed in detail.[6] These modals have epistemic and non-epistemic uses, which necessitates manual identification based on lexical-grammatical features and pragmatic contexts.

Epistemic lexical words reflect human cognitive activities such as processing and evaluating information. The hedging content-word (HCW) category, including adjectives, adverbs, and nouns, enables the speaker to implicitly convey uncertainty or tentativeness when articulating opinions or disseminating information. Epistemic adjectives and adverbs are classified into: (a) uncertainty and frequency; (b) degree and approximation; and (c) quantity and size. Hyland (2011) and Varttala (2001) recognize different types of epistemic nouns: (a) non-assertive nouns relate to varying degrees of uncertainty and prediction of opinions; (b) nouns of tentative cognition, nominalized from tentative cognition verbs; (c) nouns of tentative likelihood express what the speaker deems possible. Special attention is given to polysemous cases, focusing exclusively on the target function in context. The third category, hedging phrasal structures (HPS), includes expressions that denote ambiguous quantities or hesitant opinions from speakers. It encompasses: (a) vague classifiers, (b) vague extenders, (c) indefinite preposi-

6. No instance of other modals (such as *shall, ought to, have to, need, dare, kěn* 'ought to', *gǎnyú* 'dare to', *yuànyì* 'would like', *lèyì* 'would like', *děi* 'should', *kěndìng* 'must', etc.) was found as realizations of hedging in the datasets.

tional phrases, and (d) epistemic parenthetical expressions. Vague classifiers are linguistic tools used to classify nouns without providing detailed or specific information about their characteristics. Vague extenders denote a linguistic phenomenon where speakers use specific words or expressions to extend or generalize their statements, conveying a sense of approximation or inclusiveness. Indefinite prepositional phrases lack specificity regarding location or direction, being imprecise about where or in what manner an action is taking place. Epistemic parentheticals are frequently incorporated into sentences with the purpose of furnishing a subjective assessment of an opinion, fact, or statement, introducing a degree of uncertainty or qualification. These linguistic tools contribute to softening the boundaries of assertions, allowing for flexible interpretations. The fourth category, introductory syntactic hedges (HSI), is used at the onset of clauses to introduce ideas, provide context, or transition seamlessly into the main content. The scope of HSI includes three subtypes: (a) first-person pronoun + epistemic verb/adjective (+object clause), (b) impersonal pronoun + epistemic verb/adjective (+noun phrase), and (c) hypothetical conditionals such as *if*-clause, *in case that*-clause. From a syntactic perspective, the epistemic verbs in the first two subtypes of structures, articulate the speaker's arguments grounded in available evidence, including speculative judgements, deductive inferences, quotative, sensory, and narrator verbs. Hypothetical conditionals establish a conditional context, rendering assertions non-absolute and dependent on specific conditions. Identification relies on whether the speaker posits allegations or possible conclusions about an event. These structures guide hearers with cues, set the tone for upcoming information, link different parts of discourse, and ensure a coherent flow of information.

3.2.3 *Functional hedging classification*

The pragmatic-functional take on hedges is to divide them into content-oriented and audience-oriented forms, where the former can be divided further into two types, accuracy-oriented and author-oriented, in line with Hyland (2011).[7] Audience-oriented hedges pertain to the dynamic between the speaker and audience. While it can be challenging to classify content- or audience-oriented hedges into distinct categories, as any given hedge may fall into multiple categories, Hyland's taxonomy provides a useful framework for understanding the functional

7. Accuracy-oriented hedges refer to the "writer's desire to express a proposition with greater precision"; and declare to what extent the certainty of the proposition is limited "by restricting the time, quality or generalizability" (Hyland 2011, 187). Author-oriented hedges signify the connection between a claim and the author rather than between "propositional elements" (Hyland 2011, 163).

expressions of hedging. Figure 2 depicts the interplay between hedging and pragmatic functions.

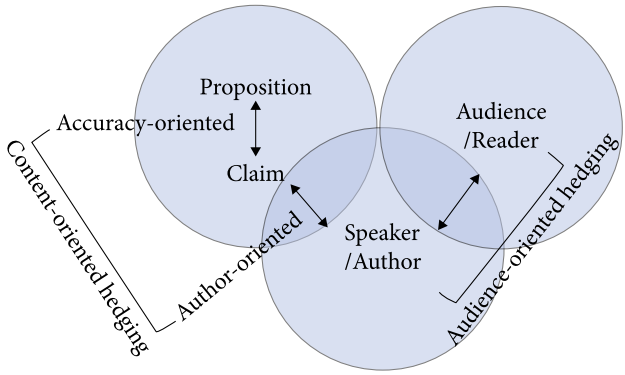

Figure 2. The functional model based on Hyland (2011)

Operationally, the task of categorizing based on pragmatic functions is straightforward. It entails revisiting the context, where the coders reassess the existing linguistic hedging cues from a pragmatic perspective discerning whether the extracted hedging elements in the text are directed towards propositions, the speakers or the audience. They then collaboratively discuss any contentious cases to achieve a consensus.

4. Results

4.1 Reliability analysis

Inter-rater agreement for the total dataset of linguistic hedges was assessed using Cohen's Kappa (2013),[8] a statistical measure designed to evaluate the degree of agreement between two annotators in identification and classification tasks. The results illustrate four good strengths of agreement between the coders (k_{HFW}=.762, p=.00; k_{HCW}=.836, p=.00; k_{HPS}=.795, p=.00; k_{HSI}=.849, p=.00). Following assessing inter-rater reliability for linguistic hedging identification, an additional evaluation measured agreement on the functional categorization of

8. Cohen's Kappa ranges from −1 to 1, where values ≤0 signify no agreement, 0.01–0.20 indicate slight agreement, 0.21–0.40 represent fair agreement, 0.41–0.60 denote moderate agreement, 0.61–0.80 suggest substantial agreement, and 0.81–1.00 imply near-perfect agreement.

hedges, yielding final inter-rater agreement scores of 0.826 for accuracy-oriented hedges, 0.733 for author-oriented hedges, and 0.781 for audience-oriented hedges.

4.2 Data analysis

We start by presenting a panoramic view of the frequencies and distributions of hedging markers used by different speaker groups. All the groups are compared for statistical differences by means of either one-way ANOVA or Kruskal-Wallis (K-W) H tests[9] on a dependent variable by a categorical independent variable to assess the variations in pragmatic-functional and linguistic categories of hedging devices. Post hoc tests, employing the Bonferroni-Holm method to adjust p-values, are implemented to ensure the validity of conclusions derived from multiple comparisons. Following the empirical overview, a contextual discussion of hedging follows, accompanied by typical examples to clarify its usage.

4.2.1 *Comparisons of pragmatic-used hedging*

This section is dedicated to investigating the pragmatic use of hedging strategy across the three languages (varieties). The K-W H test uncovered substantial distinctions in both frequency ($H=7.02$, $p=.54$, $\eta^2_H=.34$) and diversity ($H=3.48$, $p=.76$, $\eta^2_H=.28$) of hedges. Specifically, accuracy-oriented hedges emerge as the most frequently used category (M2: 18.05, IQR: 7.14), exhibiting the highest diversity (M2: 12.61, IQR: 5.33), aligning with the scientific properties of academic speech. In contrast, author- and audience- oriented hedges demonstrate comparatively minimal differentiation both in frequency and diversity. Table 2 delineates the descriptive statistics pertaining to distinctions among groups from a pragmatic-functional standpoint.

As can be seen from Table 2, regarding accuracy-oriented hedges, noteworthy differences are observable among the groups in both frequency and diversity. AELF (M1: 12.44, SD: 3.60) exhibits the highest frequency of accuracy-oriented hedges, while AL1E (M1: 5.70, SD: 2.89) demonstrates the greatest variety of hedging types. Concerning the author-oriented hedges, the frequency of hedging elements varies significantly across the groups ($H=27.49$, $p<.001$, $\eta^2_H=.55$), with AL1C (M2: 11.08, IQR: 1.20) exhibiting the highest usage. Notably, AELF (M2: 1.60, IQR: 1.38) manifests the lowest diversity, while the difference between AL1E

9. A one-way ANOVA is used to identify differences among three or more independent samples, with means (M1) and standard deviations (SD) reported. For datasets with non-normal distributions, the Kruskal-Wallis H test is used, accompanied by medians (M2) and interquartile ranges (IQR). Effect sizes ($\eta^2/_H$) are also reported: 0.04–0.25 for minimum, 0.25–0.64 for moderate, and > 0.64 for large effects.

Table 2. Means of normalized frequencies of functional hedges in the corpora

Category	AL1E	AELF	AL1C	F/H	*p*	$\eta^2/_H$
		Accuracy-oriented hedges				
Frequency	6.46 (2.18)	12.44 (3.60)	10.90 (1.24)	24.34	.000	.11
Diversity	5.70 (2.89)	3.30 (2.22)	2.07 (1.08)	28.78	<.001	.38
		Author-oriented hedges				
Frequency	3.87 (1.53)	9.85 (4.89)	11.08 (1.20)	27.49	<.001	.55
Diversity	2.57 (1.89)	1.60 (1.38)	2.37 (1.85)	5.31	.052	.25
		Audience-oriented hedges				
Frequency	4.78 (0.63)	4.16 (2.99)	2.65 (1.46)	10.23	.036	.31
Diversity	3.50 (2.15)	2.07 (1.72)	1.55 (1.19)	24.17	.023	.40

*M1 (SD) or M2(IQR) are presented in the table, with $\eta^2/_H$ representing Eta Squared, hereafter the same

and AL1C is negligible ($H=5.31$, $p=.052$, $\eta^2_H=.25$). It appears clearly that L1 Mandarin scholars tend to use author-oriented hedging techniques most frequently, whereas such rhetorical phenomena are relatively less common in the Anglosphere academic community. In terms of audience-oriented hedging usage, the Mandarin group (M2: 2.65, IQR: 1.46) exhibits a relatively lower frequency compared to the two English varieties ($H=10.23$, $p=.036$, $\eta^2_H=.31$). Hedging diversity in AL1E (M2: 3.50, IQR: 2.15) significantly exceeds that of other two groups ($H=24.17$, $p=.023$, $\eta^2_H=.40$). Audience-oriented hedges, described as those that "give deference and recognition to the reader/hearer and avoid unacceptable overconfidence" (Hyland 1996), see L1 English scholars employing the highest number of hedges, both in terms of types and tokens, whereas L1 Mandarin speakers do the least.

4.2.2 *Comparisons of linguistic hedging*

This section addresses the linguistic category distributions of hedges across the language (varieties). Interestingly, the one-way ANOVA test revealed significant differences in both frequency ($F=11.26$, $p<.001$, $\eta^2=.307$) and diversity ($F=21.27$, $p=.000$, $\eta^2=.65$) of hedges across four linguistic subcategories. Table 3 presents descriptive statistics of linguistic hedges identified in the datasets.

Precisely, within the category of hedging function-words, marked distinctions in frequency are evident between AELF (M1: 3.78, $SD=1.46$) and AL1E (M1: 2.65, SD: 2.05) ($F=7.36$, $p=.022$, $\eta^2=.38$). Scholars in the AELF group show a higher frequency of using modal verbs and hedging copulas. No statistically significant

Table 3. Means of normalized frequencies of linguistic hedges in the corpora

Category	AL1E	AELF	AL1C	F/H	*p*	$\eta^2/_H$
Hedging function-words (HFW)						
Frequency	2.65 (2.05)	3.78 (1.46)	2.91 (1.50)	7.36	.022	.38
Diversity	0.56 (0.07)	0.53 (0.03)	0.45 (0.06)	.12	.94	.28
Hedging content-words (HCW)						
Frequency	4.89 (2.14)	5.56 (4.70)	6.77 (3.73)	14.01	.09	.45
Diversity	2.93 (1.77)	1.43 (0.42)	1.38 (0.76)	.74	<.05	.51
Hedging phrasal structures (HPS)						
Frequency	2.99 (1.68)	3.09 (1.67)	2.22 (1.38)	21.66	.025	.34
Diversity	0.67 (0.37)	0.37 (0.04)	0.27 (0.11)	10.18	.006	.21
Introductory syntactic hedges (HSI)						
Frequency	3.79 (2.70)	4.88 (1.44)	3.46 (1.31)	17.62	<.001	.44
Diversity	1.17 (0.33)	0.67 (0.62)	0.53 (0.39)	11.24	.042	.33

differences in HFW diversity are observed among the groups ($F=.12$, $p=.94$, $\eta^2=.28$). Some modal hedging devices have corresponding equivalents in both English and Chinese languages. For example, common epistemic modifiers in the sample sets include *will, would, can,* and their Chinese equivalents *huì* ('may'), *kěnéng* ('could/can'), *néng(gòu)* ('could/can').

In terms of hedging content-words, there is no significant frequency difference among the groups ($F=14.01$, $p=.09$, $\eta^2=.45$). However, a marked variation is observed in the diversity of HCW usage between AL1E (M1: 2.93, SD: 1.77) and AELF (M1: 1.43, SD: 0.42) as well as AL1E and AL1C (M1: 1.38, SD: 0.76), respectively ($F=.74$, $p<.05$, $\eta^2=.51$). Specifically, the AL1E group exhibits a significantly higher vocabulary diversity compared to the other two groups. Table 4 lists an array of typical HCWs along with their relative frequencies in each corpus.

Different from earlier studies such as Hyland (1996), the statistical analysis demonstrates a predominant presence of epistemic adverbs across the examined spoken languages (varieties). The diversity of hedging adverbs varies, with L1 English showing the widest range. Significant differences are noted in HCW use between AL1E and AELF, with seven out of the top ten HCW differing. Additionally, L1 Chinese speakers frequently use epistemic nouns or nominalize verbs to add a layer of abstraction, making statements less direct. Their preferred HCWs notably differ from those of English speakers. Among the top ten HCW listed in Table 6, only four align with English HCW, namely, *kěnéng* ('maybe'), *hěnduō* ('many'), *dàgài* ('probably'), *jīběn(shàng)* ('basically'). Items of tentative cogni-

Table 4. Preferred forms of hedging content-words across language groups

AL1E		AELF		AL1C	
HCW	**Normalized ptw**	**HCW**	**Normalized ptw**	**HCW**	**Normalized ptw**
about	0.82	about	1.66	*kěnéng(xìng)* ('maybe/ possibility')	1.37
rather X	0.62	some	1.45	*hěnduō* ('many')	0.78
quite X	0.55	much X	0.84	*zhǔyào(de)* ('main')	0.72
sometimes	0.53	quite X	0.49	*(dà) bùfèn* ('most of')	0.66
many	0.50	often	0.49	*bǐjiào X* ('fairly X')	0.46
almost	0.48	around	0.49	*dàgài* ('probably')	0.23
maybe	0.44	probably	0.30	*zhìshǎo* ('at least')	0.22
apparently	0.41	basically	0.28	*gèngjiā* ('more')	0.21
probably	0.35	usually	0.25	*jīběn(shàng)* ('basically')	0.19
perhaps	0.34	general	0.23	*xiāngduì(de)* ('relatively')	0.17

*The English equivalent of each Mandarin hedge is provided in parentheses (similarly hereinafter)

tion are legion for both types and tokens, with L1 Chinese researchers using the most of these elements, as exemplified in (2).[10]

(2) *zhège yìbǎiwǔshíyì zì zì de huà <kěnéng> <dàgài> <xiāngdāngyú>*
This NUM words words NR maybe probably equivalent
yìbǎiyì en cí zhèyàngzi (AL1C-19)
NUM um lexical words like this
'This 15 billion words is probably equivalent to 10 billion, um, words'

Another overt feature concerns the use of hedging phrasal devices. Within the HPS subcategory, frequency distinctions are identified between AELF (M1: 3.09, SD: 1.67) and AL1C (M1: 2.22, SD: 1.38) ($F = 21.66$, $p = .025$, $\eta^2 = .34$). Table 5 lists the most frequently used HPS items in each dataset. Seven of the 10 most common HPS items overlap between L1 English and ELF, whereas the most frequently used HPS cues in Chinese differ from those in English. The occurrence frequency of the AELF group is rated highest. However, as Jucker et al. (2003) state, "it is a challenge to explain why so many vague expressions for describing frequency

10. The abbreviations used in the morpheme-by-morpheme glossing line are as follows: CLF = classifier; COP = copular verb; NEG = negative marker; NR = nominalization and relative clause marker; PRT = utterance final particle; NUM = number.

exist in English". There has not been a satisfactory explanation for the reason of the high-frequency use of English phrasal hedges so far (also see Johansen 2021).

Table 5. Preferred forms of hedging phrasal structures across language groups

AL1E		AELF		AL1C	
HPS	**Normalized ptw**	**HPS**	**Normalized ptw**	**HPS**	**Normalized ptw**
some (kind) of	0.37	a lot (of)	0.30	*jǐ* + quantifier ('some' + quantifier)	0.53
a little	0.35	some (kind) of	0.28	*yībān (láishuō/dejiǎng)* ('by and large')	0.17
at least	0.35	a little	0.26	*zài…tiáojiàn/zhuàngkuàng xià* ('in X condition')	0.12
a lot (of)	0.30	much more	0.22	*zài X chéngdùshàng* ('to X degree')	0.11
and so on	0.24	and so on	0.21	*zài X yìyìshàng* ('in a sense')	0.11
much more	0.23	more than	0.16	*zǒng (de/tǐ) láishuō* ('in short')	0.11
more than	0.21	at least	0.16	*bútài X* ('not too X')	0.10
most of	0.14	so to speak	0.13	*jìnyíbù* ('even further')	0.09
a few	0.12	look like	0.11	*duō fāngmiàn* ('in many ways')	0.08
something like	0.08	in a way	0.11	*xiāngbǐ (zhīxià)* ('by contrast')	0.08

With respect to introductory syntactic hedging usage, noteworthy differences are found in the frequency ($H = 17.62$, $p < .001$, $\eta^2_H = .44$) as well as in the diversity ($H = 11.24$, $p = .042$, $\eta^2_H = .33$) among the groups. Further comparisons confirm that HSI frequency in AELF (M2: 4.88, IQR: 1.44) slightly outnumber other two language groups; while AL1E demonstrates the greatest range of syntactic hedging forms (M2: 1.17, IQR: 0.33). These findings suggest that while AELF speakers use HSI more frequently, the AL1E group employs a broader array of these structures.

Table 6 illustrates the most frequently used HSI in the corpora, with similar types but varying frequencies. There are mainly five sentence patterns: (a) *I/we* + epistemic verb *that*-constructions; (b) it (be) epistemic verb/adjective to- clause; (c) it (be) epistemic verb/adjective that-clause; (d) conditional statements, such as *if, unless* or *in case* introduces a sense of dependency and contingency; (e) *what's supposed to*-clause. Verbs assume a pivotal role in this category. Specifically, speakers are inclined to use judgement verbs (e.g., *argue, suppose*) to convey epistemic meaning. There is no doubt that English researchers are more inclined to use such terms compared to their counterparts working with L1 Mandarin. The use of these

Table 6. Preferred forms of introductory syntactic hedges across language groups

AL1E		AELF		AL1C	
HSI	**Normalized ptw**	**HSI**	**Normalized ptw**	**HSI**	**Normalized ptw**
conditional statements	0.81	conditional statements	1.44	*rúguǒ*-clause (*if*-clause)	0.65
I/we think…	0.44	I/we think…	0.54	*wǒ juéde* ('I/we feel') …	0.60
It is assumed to/that-clause	0.25	I/we feel (like)…	0.24	*wǒ/men rènwéi* ('I/we think')	0.33
I/we feel (like)…	0.14	It's supposed to do	0.16	*S+yuè…(S)+yuè* ('the more, the more')	0.14
I/we argue…	0.12	I/we suggest…	0.15	*wǒ/men xiāngxìn* ('I/we believe')	0.12
I/we assume…	0.11	I/we guess…	0.11	*wǒ/men jiànyì* ('I/we suggest')	0.08
I/we suggest…	0.08	I/we argue…	0.08	*wǒ/men gūjì* ('I/we guess/ suppose')	0.06
(you can) imagine…	0.05	I/we assume…	0.05	*wǒ/men zhǔzhāng* ('I/we advocate that')	0.05
What's supposed to…	0.04	It is argued to/that-clause	0.03		
I guess…	0.01	I/we suppose…	0.02		

structures stresses the scholars' proficiency in drawing inferences. Conversely, L1 Mandarin speakers seldom use clause patterns like *I/we* + V to overtly articulate their personal viewpoints.

By and large, the comparison between L1 English and ELF highlights significant parallels in the type of epistemic function-words, phrasal hedges and introductory syntactic patterns. Approximately, at least seven out of ten items in the lists demonstrate identical features, albeit noteworthy variations in frequency are apparent. However, a slight divergence emerges in the typical cases of HCW, with around six out of ten items differing between the groups. The imprecision expressions used by L1 English speakers differ from those used by ELF speakers, especially when it comes to epistemic nouns.

5. General discussion

Hedging, as a communicative strategy, mitigates the assertiveness of a speaker's statements, allowing expression of varying degrees of certainty. The choice of

hedges depends on the author's internal language system (Taylor 2007), which includes an extensive network of associations acquired from (linguistic) experience with the field, encompassing word nodes and various linguistic structures (Nemickienė 2015). Comparing the above corpora unveils both similarities and differences in the use of linguistic and pragmatic hedges in scientific talks. Factors influencing these variations include linguistic attributes, cross-cultural practices, sociocultural awareness, cognitive-pragmatic flexibility, and academic conventions. Additionally, we briefly discuss features of hedging in spoken discourse that distinguish them from written mode.

5.1 Interplay between linguistic and cross-cultural attributes underlying the differences

5.1.1 *Linguistic attributes*

In examining linguistic variations between academic English and Chinese, a plausible explanation for the difference lies in the richness of imprecise expressions. Research on hedging has consistently highlighted the pivotal role of linguistic structure in shaping hedging expressions. English, with its rich inventory of epistemic modals, verbs, and adjectives, offers numerous avenues for conveying nuanced degrees of certainty, as seen in studies by Yang (2013) and Zhao et al. (2011). The broader lexical diversity of English, evident in resources like the English Wiktionary (comprising 578,707 term definitions), also supports a wider range of hedging expressions than Chinese, where the lexical inventory in resources such as Hanyu Da Cidian (including 378,103 hits on Hanyu Da Cidian)[11] is comparatively smaller. Notable differences emerge in the use of epistemic content-words. While both languages demonstrate a richness in hedges, L1 English speakers exhibit a more pronounced intensity in their utilization. Furthermore, the richness and density of phrase-type and clause-type hedges in English surpass those in L1 Chinese. Academic speakers in L1 Mandarin show a heightened awareness of epistemic adverbs and nouns, with epistemic adjectives being the least common. These observations underscore the importance of scrutinizing linguistic and cultural variations across languages and levels of socio-pragmatic awareness when studying discourse features such as hedging. The differences can be attributed to variations in grammar and syntactic structure. English, structured as a subject-predicate-object language, emphasizes verb relationships with other components. L1 English speakers are inclined toward diverse and rich hedging

11. Source of the glossary information: https://www.worddisk.com/wiki/List_of_dictionaries_by_number_of_words/

items in the content-word part to enhance sentence expressiveness. Conversely, L1 Chinese places emphasis on word order and collocation, which may limit the use of hedging expressions in certain contexts.

5.1.2 *Cross-cultural influence*

The contrasting use of hedging in English and Chinese academic discourse underscores the influence of cross-cultural factors on underlying scholarly values and reasoning processes. As observed by Thompson and Hopper (2001), speakers often employ hedging not only to express their individual viewpoints but also to navigate culturally embedded norms of academic interaction. In this context, English and Chinese academic communities demonstrate different priorities in their application of hedging, reflecting deeper cultural orientations toward expression, authority, and audience engagement.

English academic culture promotes expressive language that foregrounds individual identity and subtle nuance in word choice, which aligns closely with strategic hedging to convey intellectual openness. Euphemistic and varied hedging usage in English often serves as a tool for scholars to project epistemic humility while maintaining credibility (Burridge 2012). Contrary to traditional perspectives (e.g., Benton and van Elswyk 2020) suggesting that hedging weakens authority, English academics frequently use accuracy-oriented hedges to signify openness to alternative interpretations and to communicate a commitment to rigorous scholarly inquiry. By acknowledging the provisional nature of their claims, these scholars foster an environment of critical engagement, which is rooted in the philosophical traditions of Socrates and Aristotle (Hu and Cao 2011). Furthermore, the prevalence of audience-oriented hedging over author-centered forms in Anglo-sphere academia may be linked to English-speaking cultures' relative emphasis on confidence and fluidity in social interactions, where scholars are inclined to articulate propositions tentatively to encourage intellectual dialogue rather than assert hierarchical dominance.

In contrast, Chinese academic discourse often reflects a preference for author-oriented hedging, which serves to uphold implicit social hierarchies and maintain collective harmony (e.g., Gong et al. 2021; Yang 2013), principles rooted in Confucian values that stress respect, integrity, and face (miànzi) preservation (Chen and Zhang 2017). Shaped and reflected by these cultural values, Chinese rhetorical conventions tend to promote the articulation of ideas in non-confrontational terms (Fu and Wang 2022; Hu and Cao 2011). In contexts such as conferences or lectures where hierarchical relationships are prominent, Chinese scholars frequently employ indirect language to manage power asymmetries and adjust their tone to audience expectations. By minimizing personal accountability through hedging, they convey their insights with careful precision, thereby safeguarding

face and promoting a discourse style that emphasizes content accuracy over assertive stance-taking. The semantic and pragmatic dimensions of hedging within this context thus reveal how Chinese scholars navigate scholarly dialogue through deference, subtly conveying their viewpoints while preserving social harmony, as in (3). In this example, the consecutive use of three semantic hedge markers (*kěnéng* 'may', *kànqǐlái* 'apparently', and *méinàme* 'not that…') embodies a pragmatic ambiguity, showcasing the speaker's circumspect, while also refraining from assuming excessive responsibility and seeking approval from their audience.

(3) *zuò zài yìqǐ liáotiān de shíhòu, yí gè rén de yǎnshén yóuyí*
sit in together chat NR time one CLF person NR eyes wandering
<*kěnéng*> <*kàn qǐlái*> *shì*<*méi nàme*> *yǐnrén zhùyì de* (AL1C-09)
perhaps look like COP NEG that less noticeable PRT
'The act of eyes wandering may appear less noticeable in conversational interaction'

Further, the interplay between linguacultural and cognitive-pragmatic awareness sheds light on the variations in academic communication across these language groups. English-speaking academic communities, driven by a cultural epistemology that values constant questioning and reevaluation of truth, exhibit a distinctive openness to critical discourse between speakers and addressees. Within this framework, hedging often signifies provisionality and facilitates scholarly debate, allowing room for negotiation and collaborative exchange (Dontcheva-Navratilova 2016; Hyland 2005). By refraining from imposing perspectives on their audiences, English speakers acknowledge their audience's autonomy and foster a spectrum of interpretative possibilities that promotes intellectual inclusivity. In contrast, hedging in Chinese academic discourse aligns more closely with upholding hierarchical relationships within the scholarly community (Hu and Cao 2011). The relatively restrained use of audience-oriented hedges among Chinese academics may reflect a cultural emphasis on establishing authority through direct content and professional expertise, where a dialogic approach is often eschewed in favor of monologic presentations. This preference is indicative of a broader orientation toward consolidating knowledge within established frameworks, underscoring the cultural priority placed on cohesiveness and respect in communication.

5.2 Sociocultural awareness: Variations between the two English language varieties

Concerning differences between the two varieties of English, the hedging distribution in the AELF group suggests that ELF, as a variety of English, holds a unique status. Although ELF speakers demonstrate a narrower range of hedges than L1 English speakers, they use these devices more frequently. This contrast likely arises from several interconnected factors, particularly divergent communication awareness shaped by the linguistic and cultural frameworks of each group. L1 English speakers often prioritize emotional nuance (Nikula 1997) and social etiquette, contributing to a diversified hedging strategy that reflects the subtleties of native discourse. This preference is underscored by an attentiveness to stylistic variability, enabling L1 speakers to incorporate a broad array of linguistic cues. Conversely, ELF speakers often gravitate toward a more standardized use of hedges, with a focus on clear information transmission and precise expression to facilitate fluid communication. This tendency likely stems from their participation in an international communicative environment, where the focus is on minimizing misunderstandings and fostering mutual intelligibility.

The sociocultural underpinnings of hedging practices further elucidate the contrasts between L1 English and ELF. L1 English speakers, embedded in a native linguistic environment, generally exhibit a nuanced command of diverse grammatical structures and expressions, allowing for flexible use of hedges to convey complex or layered meanings. In contrast, ELF speakers, frequently interacting in a global English context, tend toward a more conservative application of hedges, which aligns closely with broader norms of academic English. This tendency supports an open, dialogic communicative space that prioritizes clarity and inclusivity. Given their diverse cultural backgrounds and the need to navigate peer feedback in an international academic setting, it is plausible that ELF speakers adopt hedging as a strategic tool to manage interpersonal relationships and mitigate potential conflict. Such hedging not only softens assertions but also protects speakers from potential criticism, as hypothesized by Myers (1989), by creating a balanced stance that accommodates varied perspectives within a multilingual, multicultural academic forum. This comparative view of hedging strategy between L1 and ELF speakers illuminates the role of hedging in academic discourse not only as a marker of linguistic choice but also as a reflection of intercultural communicative priorities, supporting effective and respectful knowledge exchange across linguistic divides.

5.3 Cognitive-pragmatic flexibility: Observation from linguistic variations

The ambiguity of human language mirrors the ambiguity of cognition. As a cognitive-pragmatic strategy, scholars' interpretations of viewpoints or events spans a continuous spectrum rather than fitting neatly into "certain" or "uncertain" categories. Instead, they navigate a spectrum of understanding shaped by context, purpose, and perceived reliability. This particular capacity, along with variations in metacognitive regulation, both within individual interpreters and across different interpreters, may contribute to shifts in the distribution of hedging devices (Ren and Wang 2023). In academic interactions, hedges reveal scholars' cognitive differences and how they manage information characterized by uncertainty, complexity, and diversity (Fronhofer 2020). An example is the following:

(4) But let's talk about taking up the challenge and why I think it is <possible> to do this sort of work and it is <very likely> to have good results (AL1E-23)

As demonstrated in Example (4), both *possible* and *very likely* express uncertainty, albeit to different extents. These differences reflect the human sense to finely distinguish levels of uncertainty, thereby enabling precise expressions of intent and judgement. This also renders statements more open and inclusive, allowing both parties in the conversation to consider a wider range of interpretations.

Furthermore, hedges serve to streamline communication by easing the cognitive demands on both speakers and listeners, especially when discussing intricate or ambiguous information. By modulating the precision and certainty required in discourse, hedges alleviate the cognitive load, enabling smoother and more efficient information exchange — an asset in academic contexts where the volume of information is significant, and time constraints are common (Hyland 2011). In this way, speakers can convey essential information effectively while allowing room for flexibility and alternative interpretations. As analyzed in Section 4.2, L1 English speakers demonstrate the broadest range of hedging strategy, highlighting a cognitive adaptability that hedges support in navigating academic discourse. Different language backgrounds, however, influence hedging proficiency and preference, with scholars varying in their ability to employ the nuanced strategies, reflecting a balance between rhetorical function and cognitive load management (Markkanen and Schröder 1997).

5.4 Academic consensus-building: Evidence from similarities between the languages

Prior research on hedging highlights its dual role: enhancing the accuracy of statements while maintaining a degree of flexibility to allow for alternative interpretations (Fu 2007; Hyland 2011). This study aligns with these observations, illustrating that both L1 English and L1 Chinese speakers use epistemic hedges to navigate the tension between commitment and caution, thus embodying a fundamental aspect of academic discourse: consensus-building through nuanced, tentative language. For instance, while English hedges do not entirely correspond to their Mandarin equivalents (and vice versa), both languages exhibit a similar diversity of author-oriented hedges and hedging function-words, and a similar frequency of hedging content-words. Despite structural and cultural differences, both English and Mandarin academic writing are shared to present findings with a balance of precision and openness, making claims robust yet adaptable to further scrutiny. This parallel to a certain extent suggests that English and Mandarin speakers consistently uphold the scientific and objective nature of academic discourse, while skilfully integrating individual stances with established scholarly knowledge. Their aim is to articulate findings with utmost accuracy and clarity, convincing the audience of the plausibility of the information provided, as exemplified in (5). This example illustrates, with varying degrees of precision, that *they said* is not entirely consistent but nearly identical in meaning.

(5) They <more or less> [.] said the same tactic about the division of assets
(AL1E-09)

These hedging devices not only safeguard the credibility and objectivity of academic arguments but also support the dynamic and iterative nature of scholarly knowledge. By enabling speakers to present complex ideas with nuance, they acknowledge inherent limitations and foster opportunities for ongoing dialogue within academic discourse.

5.5 Hedges in spoken genre vs. written genre

Contrary to earlier studies, the overall picture emerging from this study has indicated that hedging techniques used in speech are more intricate than those in written mode (Biber 2006), at least when it comes to academic discourse. The frequency of scientific hedging markers is strikingly high in the corpora. A key difference is that typical hedges identified in current study have a distinct colloquial tendency compared to those in previous studies on written scientific discourse. While epistemic modals have been extensively studied in written academic texts

(Hyland and Milton 1997; Lindeberg 2004), the study shows their limited usage in academic spoken English. This discrepancy may be attributed to the inherent differences between spoken and written language, as researchers use fewer epistemic modal verbs when explaining findings to a live audience. More to the point, given the pivotal role of hedging in scientific discourse (Salager-Meyer 2000; Skelton 1988), studying various types and applications of hedges holds immense importance for understanding language in interpersonal interactions.

6. Concluding remarks

The present empirical study reveals notable variations in hedging practices across L1 English, ELF, and L1 Mandarin Chinese spoken discourse, showcasing the sophisticated use of hedging as a mechanism in academic communication. Differences and similarities are shaped by linguistic and academic conventions of English and Chinese. L1 English speakers use the widest array of hedge types, reflecting their linguistic expertise and the dynamic manifestation of Anglophone culture. In addition, ELF speakers exhibit distinct patterns shaped by diverse cultural interactions and the demands of cross-cultural communication. Echoing Crossley's (2001, 80) assertion that "languages are sediments of the past communicative acts of a community", ELF speakers may develop unique language habits through communicative experiences. While ELF maintains core principles familiar to L1 English, it also develops distinct socio-pragmatic awareness and persuasion strategies in global interactions. ELF practitioners exhibit greater humility and pragmatic adaptability to mitigate potential risks in the international academic context. Interestingly, contrary to stereotypes of Chinese modesty, L1 Mandarin speakers use fewer hedging devices in both frequency and types. Despite some shared pragmatic-motivated categories, the structures and distributions — particularly of content-word and phrasal metadiscursive hedges — differ. This underscores the necessity for a hedging model grounded in Chinese rhetorical traditions rather than one directly translated from English conventions.

The framework and insights presented offers an initial catalog of hedging in academic spoken discourse, potentially benefiting non-native English speakers, Chinese scholars and students, as well as Mandarin-English interpreters. Further detailed examination of the contextual application of the identified hedging forms provides the next step to reveal these distinctions. Be that as it may, given the limited corpus size, the findings remain preliminary and call for additional contextual analyses to deepen understanding. We, therefore, view these quantitative corpus findings merely as a jumping-off point for discourse-oriented investigations into hedging mechanisms in spoken academic contexts. Future research

avenues may return to explore the impact of single versus multiple hedges and conduct more extensive comparisons across different communication registers, offering promising directions for further investigations.

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