FUNDAMENTAL CONTRIBUTIONS TO RESEARCH ON HEDGES IN WRITTEN ACADEMIC DISCOURSE

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Abstract: Extensive research on hedging was carried out in the 1990s in the attempt to better define, identify linguistic forms and assign pragmatic functions to a widely used rhetorical strategy in written academic discourse. Therefore, the current paper aims to review the fundamental contributions to research on hedges in this period in order to systematize them theoretically and offer an overview of the most important trends. The research analyzed here not only reinforced existing trends but also challenged and refined them, thus contributing greatly to their understanding as key rhetorical strategies that facilitate the successful introduction of knowledge claims in scientific research articles in today's highly competitive academic environment.

Keywords: hedges, written academic discourse, rhetorical strategies, knowledge claims, scientific research articles.

In the 1990s, the research on hedges in written academic discourse continued the existing studies initiated in the 1970s and 1980s but also added fundamental contributions from authors such as Swales (1990), Salager-Meyer (1994, 1998), Crompton (1997), Hinkel (1997), Markkanen and Schröder (1997), Varttala (1999) and Hyland (1994, 1996a, 1996b, 1997, 1988a, 1988b, 1998c). In particular, the prolific contribution of the latter significantly contributed to a better understanding of hedging and influenced subsequent studies in the field.

This period registered a vivid controversy with linguists such as Salager-Meyer (1994, 1998) and Crompton (1997) criticizing each other's approach to hedges in the attempt to provide viable definitions and taxonomies that could be readily applicable to text and corpus analyses. Chronologically speaking, Salager-Meyer (1994) studied medical research papers and case reports in order to see how their communicative function influenced the frequency and distribution of hedging conventions, starting from the assumption that hedging is a basic feature of written academic discourse. Her contribution to the theoretical understanding of hedges consists of having reviewed existing research on the topic, followed by her own definition and taxonomy of hedges, which constituted the methodological grounds of her study. The novelty of Salager-Meyer's approach represents the focus on "the fact that hedges are first and foremost the product of a mental attitude which looks for prototypical linguistic forms (such as modals, epistemic verbs, approximators, etc.) for its realization, but these linguistic forms do not always carry a hedging nuance." (1994: 152)

The ambiguity generated by the fact that one linguistic form can have several functions while one function can be expressed using different forms leads to difficulty identifying hedges. In the same decade, Markkanen and Schröder (1997: 6) also acknowledged the importance of context by stating that "no linguistic items are inherently hedgy but can acquire this quality

depending on the communicative context and the co-text. This also means that no clear-cut lists of hedging expressions are possible".

Furthermore, context is strongly related with the tremendous role of writer-reader interaction in academic prose. The writers' mental process allows them to express intentions using various linguistic means that are later filtered by the readers' mind and analyzed according to their general and subject-specific knowledge and experience through contextual analysis. It is ultimately the reader who decides whether a hedge is used in order to protect an otherwise possibly exposed author or whether it is a genuine means of expressing research results as accurately as possible. This adds difficulty in objectively analyzing the use of hedging devices in scientific research articles without deeply understanding the mechanisms of the discourse community intended as the target audience of the text and the realities of today's academic environment.

At this point of the research on hedges, Salager-Meyer's contribution (1994: 154) consists of having presented a definition of hedges that incorporates a three-dimensional concept: "1. that of purposive fuzziness and vagueness (threat-minimizing strategy); 2. that which reflects the authors' modesty for their achievements and avoidance of personal involvement; 3. that related to the impossibility or unwillingness of reaching absolute accuracy and of quantifying all the phenomena under observation". Although each of these three components had been previously mentioned by other writers: fuzziness and vagueness by Lakoff (1972) and Myers (1989), author modesty by Swales (1990), avoidance of personal commitment by Brown and Levinson (1987) and Prince *et al* (1982), and the introduction of accurate information by Skelton (1988), the novelty of Salager-Meyer's approach consisted of reuniting multiple views.

In addition, her taxonomy including both formal and functional criteria derived from this three-dimensional definition represents an original contribution in the field, as it seems to be the first attempt to apply a previously established taxonomy for analyzing the frequency of hedging techniques used in the various sections of two academic genres. Thus, Salager-Meyer investigated medical research papers and case reports published between 1980 and 1990 in leading medical journals such as *The British Medical Journal*, *Annals of Internal Medicine*, *The Lancet*, *Archives of Internal Medicine* and the *New England Journal of Medicine*. According to her taxonomy, hedges can be: "1. Shields: all modal verbs expressing possibility (not capability); semi-auxiliaries (*to appear, to seem*); probability adverbs (*probably, likely*) and their derivative adjectives; epistemic verbs (*to suggest, to speculate*). 2. Approximators: stereotyped adaptors as well as rounders of quantity, degree, frequency and time (*approximately, roughly, somewhat, quite, often, occasionally*) which express heed and coyness. 3. Expressions such as *I believe, to our knowledge, it is our view that*… which express the author's personal doubt and direct involvement. 4. Emotionally-charged intensifiers (comment words used to project the authors' reactions) such as *extremely difficult/interesting, dishearteningly weak, of particular importance, particularly encouraging, unexpectedly, surprisingly*. 5. Compound hedges (strings of hedges, i.e. the juxtaposition of several hedges) which can be double hedges (It *may suggest* that…it *could be suggested* that…), treble hedges (It *would seem likely* that…, it *seems reasonable* to *assume*), quadruple hedges (It *would seem somewhat unlikely* that…)." (Salager-Meyer, 1994: 155)

The results of this study indicated that *Methods* sections registered the lowest percentage of hedges while *Discussion* sections were the most heavily hedged. This finding was also confirmed by Myers (1989), Adams Smith (1984), Swales (1990), Hyland (2006), Salager-Meyer (1994) and Varttala (1999). In addition, shields, approximators and compound hedges

occurred most frequently as they accounted for about 90% of the total number of hedges recorded in Salager-Meyer's study. Special mention should be made of emotionally-charged intensifiers, absent from the taxonomies of other authors who regarded them as *boosters* and treated them as a separate category from hedges (Hyland, 1998b, 2000, 2005; Hyland and Tse, 2004; Vásquesz and Giner, 2008; Millán, 2010).

The pedagogical implications derived from these findings indicate the concern of hedge researchers with the difficulties that students and non-native speakers of English have with the use of hedging devices, which are not usually included in textbooks or syllabi. Since hedging is a crucial tool in scientific discourse, the ability to distinguish between observed facts and interpretation constitutes an advantage when both reading and writing research articles. This observation is in agreement with Swales (1990: 151) who stated that the ability to differentiate facts from opinions "is a powerful rhetorical tool in authors' attempts to create research spaces for themselves because it allows them to signal early whether claims are to be taken as substantiated or not". Later, authors such as Markkanen and Schröder (1997) and Fraser (2010) also regarded the appropriate usage and decoding of hedges as part of the pragmatic competence required for successful academic communication. In this context, sensitization, translation and rewriting exercises represent Salager-Meyer's (1994) suggestions for English for Specific Purposes (ESP) teachers who wish to improve their students' academic reading and writing skills by raising learners' awareness of the various rhetorical techniques prevalent in academic discourse.

The second attempt to provide a new definition of hedges and a corresponding taxonomy applicable to academic writing was made by Crompton (1997), whose approach would also be strongly criticized by Salager-Meyer (1998). Crompton first observed the lack of agreement regarding the forms and functions of hedging according to previous researchers in the field. Thus, he criticized Lakoff (1972) for not having provided a clear list of functions or an appropriate taxonomy, Skelton (1987) for having introduced the ambiguous term *comment* and Salager-Meyer (1994) for only having defined the functional concept of hedges, without providing a plausible definition, thus creating the possibility of overlooking hedges which appear in new forms that had not been previously regarded as such, as well as for having introduced emotionally charged intensifiers such as *particularly encouraging* in her taxonomy, without including them in her functional concept of hedging.

However, Crompton agreed with Myers (1989) on the fact that hedging represents a politeness strategy in academic writing: writers' social role requires them to advance claims in order to establish and fill a niche (also Swales, 1990) in order to become renowned members of their discourse community. Nevertheless, out of politeness and respect for the possibly diverging views of the discourse community, authors sometimes do not commit themselves to these claims and choose to massively employ hedging techniques, especially in the *Discussion* sections of research articles, where claims are usually expressed.

Crompton also shared Myers's view on the importance of distinguishing between presenting propositions that had already gained the acceptance of a discourse community and thus became facts and newly introduced propositions, which only have the status of claims pending the acceptance required to transform them into facts. By sharing this last view, Crompton also found himself in agreement with Swales (1990), as well as with Salager-Meyer (1994), despite the open academic conflict with the latter, which generated much debate and controversy in the field.

Crompton's desire to shed light on hedging devices led him to also summarize the previous research carried out on hedges and to produce two valuable tables listing all the categories of hedging devices recognized by two or more researchers, as well as those recognized by only one researcher. Therefore, according to Crompton's thorough review (1997: 280), the most frequently recognized hedging devices were copulas other than be, lexical verbs and modal verbs (Skelton, 1987; Myers, 1989; Salager-Meyer, 1994; Hyland, 1994), followed by probability adverbs (Myers, 1989; Salager-Meyer, 1994; Hyland, 1994) and probability adjectives (Salager-Meyer, 1994; Hyland, 1994), whereas all clause initial adverbs and all adjectives in introductory phrases were only recognized as hedging devices by Skelton (1987), all devices suggesting alternative by Myers (1989), lexis expressing personal involvement, emotionally charged intensifies and approximators only by Salager-Meyer (1994), while Hyland (1994) listed IF clauses, time adverbials, impersonal expressions, passives, modal nouns, adjectives and adverbials other than probability.

However, besides this critical literature review, Crompton's personal contribution to the study of hedges consisted of a proposed definition of hedging applicable only to hedges on propositions, the main speech act performed in academic writing, followed by a test to determine whether a proposition is hedged or not. Thus, "a hedge is an item of language which a speaker uses to explicitly qualify his/her lack of commitment to the truth of a proposition he/she utters" and "can the proposition be restated in such a way that it is not changed but that the author's commitment to it is greater than at present? If "yes" then the proposition is hedged. (The *hedges* are any language items in the original which would need to be changed to increase commitment.)" (Crompton, 1997: 281-282). According to Crompton, the test could determine whether or not approximators are introduced in order to lessen the writer's commitment, at the same time being able to establish who introduced tentativeness in propositions: the author or the cited source.

However, this test was heavily criticized by Salager-Meyer (1998: 297) who argued that this "magic formula" is neither innovative nor useful since it fails to add anything new to the concept. In fact, Crompton's approach seems similar to that carried out by Myers (1989), as both regarded hedges as solely mitigating the author's relation with the claims (Hyland's reader-motivated hedges) and not their accuracy (Hyland's content-motivated hedges).

Moreover, Salager-Meyer (1998) reiterated her previous idea (1994) that hedges represent a mental phenomenon requiring the interaction of two subjects: the author of the hedged proposition and the external observer (reader), who will first use introspection to recognize familiar hedges and then apply contextual analysis based on expert knowledge and experience in order to establish whether a proposition is hedged or not. This approach stresses not only the crucial role of writer-reader interaction in academic writing, but also the difficulty in strictly categorizing hedges and the importance of consulting specialist informants with expert knowledge and experience in a field as part of any methodological study design aimed at carrying out accurate academic text or corpus analyses of hedging devices. Later, authors such as Hyland (2003), Millán (2010) or Johns (2013) also pointed out that insights from specialist informants under the forms of consultations, interviews or questionnaires are useful tools for a more comprehensive understanding of linguistic phenomena occurring in academic writing from an inside perspective.

To return to Crompton's (1997) attempt to add to research on hedging devices, his proposed taxonomy of hedges, consisting of a list of common sentence patterns usually regarded as hedges should be mentioned. This characterization of hedged propositions starts from his

already stated assumption that epistemic modality is the property of sentences only, which means that individual words cannot be possibly identified as hedges, and includes the following features: "1. Sentences with copulas other then *be*. 2. Sentences with modals used epistemically. 3. Sentences with clauses relating to the probability of the subsequent proposition being true. 4. Sentences containing sentence adverbials which relate to the probability of the proposition being true. 5. Sentences containing reported propositions where the author(s) can be taken to be responsible for any tentativeness in the verbal group, or non-use of factive reporting verbs such as "show", "demonstrate", "prove". These fall into two sub-types: a. where authors explicitly designate themselves as responsible for the proposition being reported; b. where authors use an impersonal subject but the agent is intended to be understood as themselves. 6. Sentences containing a reported proposition that a hypothesized entity X exists and the author(s) can be taken to be responsible for making the hypothesis." (Crompton, 1997: 284)

Therefore, according to this characterization, approximators, attribution shields, impersonal constructions with epistemic verbs, IF-clauses, time references, lexis suggesting authors' personal involvement or passive, impersonal constructions cannot be regarded as hedged propositions, Crompton's final conclusion being that hedges should solely be regarded by teachers and students as language used to avoid commitment, much like the ordinary use of the word. Subsequent research carried out in the following years will demonstrate that this approach offers a limited view on hedges and is therefore incomplete.

One of the most prolific contributions to the study of hedges was brought by Ken Hyland who has carried out extensive research on academic discourse, second language writing, writing pedagogy, genre, corpus analysis, hedging and modality, reflected in the numerous books, book chapters and journal articles published since the 1990s. Although previous researchers had already sensed the need to investigate hedges, Hyland's multimodal approach, which integrated pragmatic and didactic perspectives in written academic discourse influenced subsequent studies, broadened already existing views and contributed to shaping new ones.

By the time Hyland started his research on hedges, it was already established that academic discourse cannot be simply regarded as objective and impersonal and that the ongoing interaction between writers and readers, which supposes an awareness of the target audience and their background knowledge and expectations should not be overlooked by neither scientific writers nor researchers of academic writing practices and second language teachers. Within this context, hedging represents an important linguistic function which "allows writers to manipulate both factivity and affect, inviting readers to draw inferences about the reasons for their use" (Hyland, 1994: 244).

Early in his research, Hyland also noticed the importance of teaching non-native students the correct use of hedges as a crucial communicative resource for developing an academic competence that allows them to create relationships with the target audience as members of their respective discourse communities. His analysis of English for Academic Purposes textbooks from various fields revealed the inadequacy of ESP materials as far as the teaching of hedging is concerned, given that this important interpersonal strategy had been mainly approached theoretically or in connection with spoken discourse. However, no clear solutions able to help non-native students learn the correct use of hedges in academic writing were advanced at that point.

Although Hyland did not claim to have overtly aimed to provide a working definition of hedges, he often regarded hedging as being central to academic writing where it helps writers express new knowledge claims with tentativeness, caution, modesty and possibility rather than

with certainty and categorical commitment, in order to open a line of dialogue with their readers, avoid the rejection or denial of claims and thus establish themselves as valuable members of their discourse communities. In this context, a hedge is "any linguistic means used to indicate either a) a lack of complete commitment to the truth of a proposition or b) a desire not to express that commitment categorically" (Hyland, 1996a).

The fact that hedges can take numerous linguistic forms renders the task of defining, describing, categorizing and analyzing their functions rather painstaking. Indeed, after having reviewed previous research on hedges in his first contributions on the topic (1996a, 1996b, 1997, 1998a, 1988b), Hyland concluded that most of the work on hedges was either carried out in the area of conversation analysis, or, when applied to scientific research writing, it mainly focused on modality or semantic aspects by using frequency studies or inadequate corpora that failed to show how hedging is usually realized in different genres or scientific domains. He also stressed the importance of studying the use of hedges in scientific research articles in order to understand how knowledge claims are habitually established and how scientists from various fields conduct and present their research.

One of the key assumptions behind Hyland's treatment of hedges is the belief that hedging represents a writer's attitude in a certain situation or context (similar with Salager-Meyer's mental attitude, 1994), which implies that hedging in written academic discourse should be closely connected with the socio-pragmatic contexts in which it occurs, and that, consequently, a thorough understanding of the mechanisms operating within these contexts enables a more comprehensive understanding of hedges. This is why Hyland's approach to hedges has always included an analysis of the characteristics of academic writing and of the social context in which scientific statements are expressed. He analyzed the key features of scientific research articles as the main medium for the expression of new knowledge claims, the importance of appropriately expressing claims in various disciplines through suitable interpersonal and rhetorical strategies, the features of the target discourse communities that claims are addressed to, the interaction between writers and readers as members of these communities, as well as the issue of hedging from the point of view of non-native scientists and learners, thus also introducing new teaching perspectives that other authors neglected, or failed to tackle altogether.

More specifically, in this period Hyland focused on knowledge claims within knowledge contexts, especially scientific research articles (1996a, 1996b, 1997, 1998a, 1998b), writing and culture (1997), types of hedges, their function and polypragmatic nature (1996a, 1996b, 1998a, 1998b), the use of hedges in cell and molecular biology research articles (1996a, 1996b, 1997, 1998a) and across disciplines such as mechanical engineering, electrical engineering, marketing, philosophy, sociology, applied linguistics, physics and microbiology (1998b), authorial involvement in the construction of knowledge, and writer-reader interaction (1998a, 1998b).

Therefore, the notable evolution of Hyland's interest in academic writing and hedging is reflected by the clusters of articles on similar topics published since the 1990s, which demonstrate this researcher's interest in an in-depth analysis of various linguistic and academic phenomena. Of particular relevance would be his classification of hedges according to their pragmatic functions and linguistic realizations, his focus on the polypragmatic nature of these functions, the importance he placed on the existence of disciplinary differences within the system of academic communication, the focus on the interpersonal aspects of language use, the study of hedges from the perspective of non-native readers and students, as well as the cultural specificity attributed to hedging in written academic discourse.

John Swales (1990) was another contributor to the study of hedges as part of his more ample approach to genre and move analysis in the context of written academic discourse and ESP. Thus, he regarded hedges as "rhetorical devices both for projecting honesty, modesty and proper caution in self-reports, and for diplomatically creating research spaces in areas heavily populated by other researchers" (Swales, 1990: 175). He also interestingly pointed out that although the degree of author involvement in the text depends on the conventions of academic writing in the hard vs. the soft sciences, and on the norms of their respective discourse communities, the differences in the use of persuasive tools seem to lie in the *Methods* and *Results* rather than in the *Introduction* or *Discussion* sections of research articles. In this respect, humanistic authors attempt to produce increasingly detailed *Methods* and *Results* sections while authors of hard science texts seem to do the opposite.

Indeed, this trend can also be noticed in linguistics research articles: through descriptions of the methods used as well as statistical analyses and interpretations based on a type of background knowledge previously required only in the hard sciences have been noticed in papers published since the 1990s and are a current prerequisite for international publication. Thus, evidence supported by statistical calculations and inferences has become one of the most persuasive rhetorical tools in recent years in a field formerly characterized by theoretical descriptions and assumptions.

To return to Swale's approach to hedges, his reference to "honesty, modesty and proper caution" could be interpreted as referring to the two most important types of hedges according to pragmatic function later described by Hyland (1996a, 1996b, 1988a): content-motivated, since "honesty" refers to the accurate and reliable presentation of claims, and reader-motivated, since "modesty and caution" mediate the writer's interaction with the target readers within the research article, which is a "reconstructive process deriving from a need to anticipate and discountenance negative reactions to the knowledge claims being advanced" (Swales, 1990: 175). These last two attributes may also hint to hedges as politeness strategies, although Swales did not explicitly attempt to classify the linguistic realizations of hedges or their pragmatic functions. However, he also made other valid observations on hedges, such as the fact that "high-level claims are likely to be important but risky, whilst low-level claims are likely to be trivial but safe" (Swales, 1990: 117).

Other research carried out on hedging in academic writing in the 1990s includes Hinkel's (1997) corpus analysis of indirectness in academic writing across cultures and Varttala's (1999) notes on the functional diversity of hedging. The two studies did not constitute essentially new contributions but rather reinforcements of previously introduced ideas. Thus, the outcomes of the study conducted by Hinkel (1997) confirmed the existence of the indirectness strategies in written academic prose described by Myers (1989) and Swales (1990), at the same time indicating that native and non-native speakers of English (in this case Chinese, Korean, Japanese and Indonesian students) did not differ significantly in their use of rhetorical, lexical, referential and syntactic indirectness devices, including hedges. Similarly, Hinkel also pointed out the need to teach non-native speakers of English the rhetorical and linguistic constructs required for achieving appropriate academic writing results, but without providing clear solutions that could be readily applicable to real-life teaching situations, thus bringing only a theoretical contribution to the teaching field.

Varttala (1999) showed a balanced approach to hedges by not clearly adhering to only one of the views expressed by previous researchers. According to his dual view of hedging as both a precision and a protection strategy, hedges could be regarded as textual ways of being

more precise when reporting research results when they help adjust propositions according to the expected knowledge and expectations of the target readers, but also as interpersonal features of negative face work through which the audience is invited to participate in the creation of knowledge by a writer who may thus avoid being openly criticized or rejected by his peers. Varttala's study confirmed that hedges are typical features of highest-level scientific peer communication, as previously expressed by Myers, Salager-Meyer, Hyland and others. At the same time, he demonstrated that hedging devices also occur in texts with unequal senders and addressees such as books or popular scientific articles (view also shared by Crystal, 1988), although theoretically speaking, hedging would not be required in such instances due to the lower technical knowledge of the audience, which does not allow them to question claims and thus pose threats to the author's reputation. However, in Varttala's view, the hedges employed in these two distinct situations bear different functions: they represent negative politeness strategies in research articles and positive politeness in popularizations.

Also, the research conducted in this period included numerous corpus analysis studies (Salager-Meyer, 1994; Skelton, 1994; Hyland, 1996a, 1996b, 1988a; Varttala, 1999) as part of the growing trend of linguistic investigations based on statistical analyses as well as a concern towards the hedging habits of non-native speakers of English (Hinkel, 1997; Varttala, 1999) possibly due to the increasing scientific publication output generated by this category of authors.

In conclusion, by both reinforcing and challenging previously introduced ideas, the fundamental research on hedges carried out in the 1990s contributed to a better understanding of the importance of hedges in written academic discourse as well as of the need to familiarize students and non-native speakers of English with this widely used rhetorical strategy in order to allow them to interpret knowledge claims correctly as academic readers but also to be able to use them appropriately as current or future academic writers.

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