Stance in the corpus of English life sciences texts: A vindication of text-reading

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ABSTRACT

Stance in academic writing has been discussed extensively within the fields of discourse analysis and pragmatics (Alonso-Almeida, 2015; Hyland, 2005; White, 2003). Thus, Hyland and Jiang (2016) identify certain linguistic elements that are said to be indexical of stance: hedges, boosters, attitude markers, and self-mentions. While that model aims at a macroscopic analysis, the present study is a microscopic one, and compares two scientific texts written by a male and a female author to detect possible differences in the way that these authors present themselves or give their opinions in their writings. To this end, we have sought to apply Hyland and Jiang's (2016) three-aspects model but using Cesiri's inventory (2012) as a starting point. We have applied this adapted model to two samples from the Corpus of English Life Sciences Texts (CELiST), one of the subcorpus of the Coruña Corpus of English Scientific Writing. Both texts belong to the same genre, are dated at an almost identical time, and deal with similar subjects. The only difference is that one was written by a woman, Emily Gregory, and the other by a man, Alpheus Packard. Although these texts are part of an electronic corpus, on this occasion we will minimise the automatic analytical techniques of corpus linguistics as far as possible. Rather, we will conduct a microscopic-level study by means of close reading, although some quantification of data

will precede the qualitative analysis where this is useful. It is hoped that the qualitative focus presented in the analysis might open up new paths in the study of stance.

Keywords: *Stance; Coruña Corpus; sex of authors; late Modern English; scientific/academic writing.*

I. INTRODUCTION

This paper is an attempt to underline the value of qualitative analyses over a wholly quantitative approach. It highlights the importance of reading texts in detail and manually disambiguating items, closely considering their semantic and pragmatic context before classifying them as pertaining to one category of analysis or another.

The presence of stance in scientific writing has been addressed by many authors over recent decades (Ağçam, 2015; Alonso-Almeida, 2017; Álvarez-Gil, 2022; Feng, 2020; Halliday, 2004; Hyland, 1998a; Hyland, 1998b; Mele Marrero, 2011; Moskowich & Crespo, 2014; Yang, 2019), but in the current paper we aim to illustrate that a detailed account of the linguistic realisations of stance affords us the opportunity to achieve a fine-grained yet broad perspective on what is happening within a text, and also provides a different way of looking at an author's more or less personal treatment of the content.

The current trend in linguistic circles is increasingly to trust automatic analyses and statistical testing, this perhaps influenced by the methodologies of the social sciences. While this is appropriate when large amounts of texts are involved and a form of text-mining is the objective, we believe that such an approach runs the risk of overlooking details. In terms of pragmatic functions these details can yield vital clues as to what a text hides, and hence can lead us towards a faithful and more enriched interpretation of that text. In other words, we are faced with what Rissanen called the philologist's dilemma (1989), in which he claimed that we need to actually read the texts instead of merely trusting software.

With the aim of demonstrating the validity of such close analyses, we have organised the paper in a way which moves from more general concepts, in the introduction and the literature review on stance in Section 2, to a description of our material and methodology in Section 3. Section 4 then offers a thorough examination of our dataset, paying special attention to the varied shades of meaning revealed by the contexts of the examples. Finally, the conclusions in Section 5 will serve as a

vindication of the need to embrace manual text analysis once again, at least for the kind of studies that inevitably involve interpretation.

II. LITERATURE REVIEW

The way in which writers and speakers express their opinions has been referred to using a variety of terms (Hyland & Jiang, 2016, p. 252): posture (Grabe, 1984), attitude (Halliday, 2004), appraisal (Martin, 2000), evaluation (Hunston & Thompson, 2000) and metadiscourse (Hyland, 2005). The term we will use here is stance. In fact, some bibliometric analyses on research trends in corpus linguistics cite *stance* as one of the most popular topics in the first two decades of the twenty-first century (Crosthwaite, Lingrum & Schweinberger, 2022). From a linguistic point of view, this phenomenon is realised in many different ways by what Labov (1984) called *intensity*, although others referred to it as involving *disjuncts* (Quirk et al., 1985), *hedges* (Hyland, 1998a) or *modality* (Palmer, 1986). All such devices are used to manifest judgments, feelings, or viewpoint, thus revealing authorial presence. Following Petch-Tyson (1998), *writer-reader visibility* is the term used by Ädel (2022) to refer to certain forms that could form part of stance, for instance.

There have been several proposals to create a model for the analysis of stance in which both evidentiality (Chafe, 1986; Chafe & Nichols, 1986) and affect (Besnier, 1990; Ochs & Schieffelin, 1989) intervene. The former can be defined as "the status of the knowledge contained in propositions, and it concerns its reliability, implying its source, how it was acquired, and the credibility we can invest in it" (Hyland & Jiang, 2016, p. 252); meanwhile, the latter includes *"feelings, moods, dispositions, and attitudes associated with persons and/or situations"* (Ochs & Schieffelin, 1989, p. 7). Models thus proposed include Biber and Finegan (1989), Martin (2000), and Hunston and Thompson (2000).

More recently, and in order to complement Hyland's metadiscourse model first introduced in 2005, Hyland and Jiang (2016, p. 256) include a third element along with

evidentiality and affect, one which they call presence, defining it as "the extent to which the writer chooses to intrude into a text through the use of first-person pronouns and possessive determiners". Among other things, this model assumes that a writer's stance is somehow determined by the imagined reader. That is, each of us, as writers, shape our language differently with different intended readerships in mind.

Certain registers have traditionally been seen as more likely to contain linguistic elements revealing the author's attitude to the text, but scientific writing is not one of them. This was especially the case in the late nineteenth and early twentieth centuries, when there was a clear tendency towards objectivity on the part of science writers; indeed, all manner of reports and related writing became detached and object-centred (Atkinson, 1999) exhibiting a move "from a discourse based around the experiencing gentleman-scientist to community-generated research problems" (Hyland & Jiang, 2016, p. 270). However, there is now general consensus (Ädel, 2022) that in academic writing stance is manifested by means of a range of different linguistic elements, such as boosters, hedges, attitude markers, self-references, concession markers, certain evaluative adjectives, etc.

The following section will present our current approach to the study of stance, and will also describe the texts used to carry out this preliminary microscopic analysis.

III. MATERIALS AND METHODOLOGY

Two ca. 10,000-word samples from CELiST have been selected for this microscopic analysis. CELiST is one of the subcorpora of the Coruña Corpus of English Scientific Writing, and thus it complies with all the general compilation principles of that corpus, including the criterion that all texts have been written directly in English. On these lines, then, we consider that any instances of the linguistic elements under examination here can be said to be genuinely part of an author's English style, free of any kind of linguistic interference. As noted in the abstract, these two texts from the Life Sciences corpus were published at around the same time, at the end of the

nineteenth century, and belong to the same genre, textbook. The only major difference, then, lies in the sex of the authors. One of the sample texts, by a female author, is extracted from Emily Lovira Gregory's *Elements of Plant Anatomy* (1895). The other, by the male writer Alpheus Spring Packard, is taken from his *A Text-book of Entomology including the Anatomy, Physiology, Embryology and Metamorphoses of Insects. For Use in agricultural and technical Schools and Colleges as well as by the working Entomologist* (1898).

From a methodological point of view, we have tried to adopt Hyland's metadiscourse model (2005), this completed by Hyland and Jiang's (2016) model that encompasses the ideas of evidentiality, affect and presence, as mentioned in the previous section. Different linguistic entities can realise each of these ideas. Evidentiality is manifested through hedges and boosters. Affect is expressed through various attitude markers (very often in the form of adverbs). Finally, presence is typically represented by first-person pronouns and possessive forms. These elements, taken together, can be understood as indicating the three branches of stance in this model (see Figure 1 below).
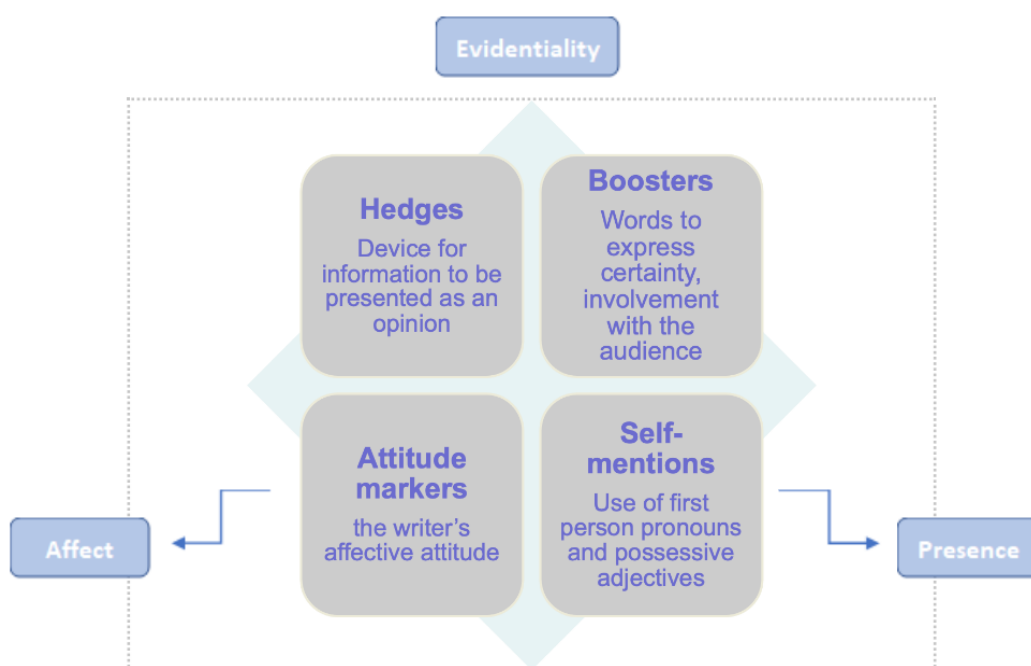

Figure 1. *Three-aspects model*

However, it is not straightforward to establish a precise list of items that are seen as unequivocally representing each of the three branches of the model. As Alonso-Almeida (2015, p. 1) notes,

> Stance is, indeed, a complex concept that includes a large variety of linguistic devices indicating the author's point of view with respect to a given proposition. To my knowledge, there is not, however, a single inventory of stance features and collocation rules, most likely because lexical and morphological features entailing stance are pragmatically defined.

Thus, for the purpose of this analysis we have resorted to Cesiri's inventory (2012), which in turn draws on Hyland's 1998b work on hedges and boosters. So, we will be using Cesiri's list as a starting point, although close reading will allow us to reclassify certain linguistic elements when looking at them in their respective contexts.

First of all, in order to achieve a general overview of the type of linguistic items present in the texts, we have generated a separate word list for each sample using the Coruña Corpus Tool, the information retrieval application that accompanies the corpus. After this initial automatic process, material that is irrelevant for our aims, such as numbers, proper nouns and grammatical words, has been discarded from the two lists. The following steps involve checking each type in both lists with the KWIC utility, and then a close reading, which will allow us to accept or reject each individual token in each type. Such manual disambiguation was needed for those forms which might have different meanings and functions, ones which do not coincide with those attributed to hedges, boosters and attitude markers. In our inspection of individual tokens, we detected cases such as the ones illustrated in examples (1) to (4) below. They are similar instances of cases in which manual disambiguation was necessary, in that automatic processing would have been unable to detect that *May* in (1) is not a modal verb but a month, that *around* in (2) expresses position/location rather that approximation, and that *certain* in (3) is an indefinite demonstrative and not an adjective expressing certainty. Finally, in (4) an automatic listing would not have distinguished the meaning of *find* as 'encounter' rather than 'think', which conveys an opinion.

(1) Footnote: ¹[note] American Naturalist, *May*, 1880, [pp]. 375, 376. [endnote] (Packard, 1898, p, 19).

(2) These latter occur at somewhat regular intervals *around* the whole circumference (Gregory, 1895, p. 94).

(3) If we go back to the simpler forms of plants to find the first traces of root-like organs, we may perhaps begin with the haustoria which grow on the mycelium of *certain* fungi (Gregory, 1895, p. 116).

(4) The reparative nature of chitin is seen in the fact that Verhoeff *finds* that a wound on an adult Carabus, and presumably on other insects, is speedily closed, not merely by a clot of blood, but by a new growth of chitin. (Packard, 1898, p. 30).

Example (5) below illustrates a slightly different case, one which can help explain the need to use word lists in the first place. Both the samples encoded in XML format and the CCTool search engine have been prepared to discriminate between the words written by the authors of the samples from words which were not produced by them and which thus represent someone else's linguistic habits. In (5), the words which are not the author's own are shown in red, as they are displayed in the software itself. This helps researchers keep track of the context, although, in order to avoid false retrievals, such words are neither indexed by the CCTool nor included in the word lists.

(5) ²[note] [quotation] "Scolopendrella has very remarkable antennæ; they may be compared each to a series of glass cups strung upon a delicate hyaline and extensible rod of uniform thickness throughout: so that, like the body of the creature, they shrink enormously when the animal is irritated or thrown into alcohol, and they then possess scarcely two-thirds the length they have in the fully extended condition, their cup-like joints being drawn close together, one within the other. Peripatus, Japyx, many (if not all) Homoptera, and the [S]. Asiatic relatives of our common Glomeris have all *more or less* extensible

antennæ." (Wood-Mason, [Trans]. [Ent]. [Soc]., London, 1879, [p]. 155.) [endnote] (p. 22)

This is why the hedge *more or less* in example (5) does not occur in the word list. This special feature of encoding ensures that we only consider the author's own words, and has been devised in this way for the sake of rigorous linguistic analyses.

In what follows we will provide a detailed account of the forms in context.

IV. ANALYSIS

As already noted in the methodology, we looked for a closed inventory of linguistic forms that express stance. Unfortunately, no such comprehensive list including all the different categories currently exists (Alonso-Almeida, 2015), so we focused our attention on Cesiri's 2012 study of hedges and boosters, in which she applied the metadiscourse model, claiming that she had built those lists on the basis of Hyland's work (1998b, p. 375). As we have noted earlier, we decided to adopt these lists of hedges and boosters as a point of departure for our research. These lists, including 186 items, are reproduced below:

Table 1. *Cesiri's 2012 inventory of hedges and boosters.*

Hedges	about, almost, apparent, apparently, appear*, approximately, argue*, around, assume*, assumption, basically, can, certain+extent, conceivably, conclude*, conjecture*, consistent+with, contention, could, could not, of+course, deduce*, discern*, doubt, doubt*, doubtless, essentially, establish*, estimate*, expect*, the+fact+that, find, found, formally, frequently, general, generally, given+that, guess*, however, hypothesize*, hypothetically, ideally, implication*, imply, improbable, indeed, indicate*, inevitable, infer*, interpret, we+know, it+is+known, largely, least, likely, mainly, manifest*, may, maybe, might, more+or+less, most, not+necessarily, never, no+doubt, beyond+doubt, normally, occasionally, often, ostensibly, partially, partly, patently, perceive*, perhaps, plausible, possibility, possible, possibly, postulate*, precisely, predict*, prediction, predominately, presumably, presume*, probability, probable, probably, propose*, prove*, provided+that, open+to+question, questionable, quite, rare, rarely, rather, relatively, reportedly, reputedly, seem*, seems, seemingly, can+be+seen, seldom, general+sense, should, show, sometimes, somewhat, speculate*, suggest*, superficially, suppose*, surmise, suspect*, technically, tend*, tendency, theoretically, I+think, we+think, typically, uncertain, unclear, unlikely, unsure, usually, virtually, will, will+not,

	won't, would, would+not
Boosters	actually, admittedly, always, assuredly, certainly, certainty, claim*, certain+that, is+clear, are+clear, to+be+clear, clearly, confirm*, convincingly, believe*, my+belief, our+belief, I+believe, we+believe, conclusive, decidedly, definitely, demonstrate*, determine*, is+essential, evidence, evident, evidently, impossible, incontrovertible, inconceivable, manifestly, must, necessarily, obvious, obviously, sure, surely, true, unambiguously, unarguably, undeniably, undoubtedly, unequivocal, unmistakably, unquestionably, well-known, wrong, wrongly.

We searched for all these items in our texts and found that not all of them occurred in our samples. Thus, of all the 137 hedges listed by Cesiri, Gregory uses 46, and of the 49 boosters, she uses only 17. Similarly, Packard's text contains 60 of Cesiri's 137 hedges and 23 of the 49 boosters. On a detailed examination of all these terms in context during the close reading phase of this survey, we noticed that some of the items in the lists could also be allocated to different categories of stance markers. Thus, Table 2 below summarises the cases which we have reclassified according to the meaning of the particular form in context:

Table 2. *Reclassification of hedges and boosters according to context.*

	Cesiri (2012)	**We-authors**	**Examples**
doubt	Hedge	Booster	*With Little doubt* *Without doubt*
Fact *the fact that*	Hedge	attitude marker	*In point of fact*
indeed	Hedge	attitude marker	
tentative	---	Hedge	
fundamental	---	attitude marker	
well (well-known)			*Well-formed*
To be clear			*To make sth clear*
Show	Hedge	attitude marker "demonstrate"	

Several instances of this reclassification process can be seen in examples (6) to (13). This process is not unidirectional. Depending on their contextual meaning, some of the elements that Cesiri classified as hedges were moved to the group of boosters and some others to the group of attitude markers in the present study. For instance, a close reading of examples (6) and (7) reveals that *doubt* in *without doubt* and *with little doubt* does not function as a hedge; on the contrary, both these expressions refer to the writer's intention to reinforce the meaning of the message conveyed:

(6) the sexual opening has ***without doubt*** become secondarily unpaired (Packard, 1898, p. 24).

(7) It is ***with little doubt*** that to their power of flight, and thus of escaping the attacks of their creeping arthropod enemies, insects owe, so to speak, their success in life (Packard, 1898, p. 2).

Following this manual method, and after close reading, we have added forms that in some cases were not included in Cesiri's original list, but that we noticed were playing similar roles. Such is the case with (8) and (9) below, where we found structures akin to the ones proposed by Cesiri, that is, with the same meanings and pragmatic functions:

(8) The brain is ***well developed***, sending a pair of slender nerves to the small eyes (Packard, 1898, p. 23).

(9) ***To make this clear***, certain morphological relations must here be explained. It is usual to consider the methods of leaf arrangement as reducible to two, opposite and alternate; the first, where two leaves appear to start from the same height on the stem and opposite each other; the second, where the leaves all start from different heights on the stem, always with some regular order of arrangement as regards their distance from each other measured on the circumference of the stem. (Gregory, 1895, p. 96).

As can be gathered from Table 2 above, this reclassification process not only affects boosters and hedges but also the third realisation of stance under consideration in this paper, that is, attitude markers. Examples (10) to (13) illustrate this point:

(10) ***Indeed***, certain annelid worms of the family Syllidæ have segmented tentacles and parapodia, as Dujardinia ([Fig]. 19) (Packard, 1898, p. 34).

While Cesiri includes *indeed* within the set of hedges, examples such as (10) and (11) seem to be expressing certainty about what the author is stating, and thus it should be included in the set of attitude markers.

(11) ***In point of fact***, the leaf originates in the stem and its base is in the stem when the bundle arises, but it is customary to describe the course of the bundles in this way (Gregory, 1895, p. 91).

On other occasions we had to decide on particular senses of the same word. Once again, it was the context that had to be taken into account before ascribing particular tokens of a specific type to one or another stance category. Thus, in the case of the verb *show*, the token in example (12) does not express stance, although it is generally considered to do so by Cesiri. Its meaning here is a denotative one equivalent to "exhibit". Conversely, example (13) illustrates the same verb referring to the writer's attitude. This time the meaning denotes "demonstrate" to indicate a conscious and deliberate action on the author's part.

(12) A striking difference in structure ***is shown*** in those leaves which for some reason, such as twisting of the petiole, infolding of the blade or other departure from the ordinary position, develop the palisade tissue on what is morphologically the underside, and the spongy tissue above, thus exactly reversing the normal order of arrangement. (Gregory, 1898, p. 94) "can be seen".

(13) To ***show*** this, two examples are usually taken, Blasia pusilla and Fossombronia. The former consists of a ribbon- or band-shaped thallus, bearing

on its under side two rows of toothed scales, the so-called amphigastria. (Gregory, 1898, p. 85).

The preliminary, basic quantification of data announced at the beginning of the paper reveals that in the ca. 20,000 words we have found 599 tokens of 144 types expressing stance, as Table 3 below shows.

Table 3. *Linguistic realisations of stance in the samples.*

	Gregory (F)		Packard (M)			
	Types	Tokens	Types	Tokens	Total tokens	Total types
Hedges	35	179	61	232	411	96
Boosters	13	40	14	26	66	27
Attitude markers	7	20	8	33	53	15
Self-mentions	1	23	5	46	69	6
Total	56	262	88	337	599	144

As already noted, stance has not been considered as a prototypical characteristic of academic and scientific writing until quite recently (Hyland, 1999; Hyland & Jiang, 2016). Additionally, women have traditionally been regarded as more emotional than men and, hence, more prone to the overt manifestation of feelings and opinions (Flynn, 1988; Lakoff, 1990; Palander-Colin, 2006; Rubin & Green, 1992). Curiously enough, in our current study, the female representative makes use of fewer types (56) and fewer tokens (262) of stance-related elements; the male writer resorts slightly more frequently to both of these: 87 types and 335 tokens.

As for the categories of linguistic realisations that are more frequently used, we must first recognise that three of these belong to open categories of words (hedges, boosters and attitude markers) whereas just one pertains to a closed-class (self-

reference). Additionally, some phrases can also take on the function of open categories. Speakers can freely create open-class items and add new senses to the original meanings of existing forms, as long as the context admits such uses and they are understood within the conversation between writer and reader. Closed classes do not admit such freedom. Self-mentions are simply illustrated by pronominal forms, although the noun author/writer was also found (Moskowich, 2020; Moskowich & Crespo, forthcoming).

An overall view of the data (see Table 4 below) reveals that hedges predominate when expressing stance, with 411 tokens. The second most frequent realisation of stance is in the form of boosters, with 66 tokens, followed by the 53 tokens of attitude markers. In terms of self-reference, we found 69 tokens, which, presumably, indicates a frequency of use higher than in the other categories. When addressing the analysis of each sample in detail, we must again bear in mind that the only variable at stake here is that of the sex of the author, with both texts being representative of the same discipline, time, and genre.

The sample from the text by Packard seems to involve a certain signposting in the distribution of the elements analysed. Hedges represent the most prominent category, followed, in descending order, by boosters, attitude markers, and self-mentions. In general, this text contains a high number of uses of linguistic elements manifesting presence.

Curiously enough, hedges occur frequently in these samples from the genre textbook, notwithstanding that in principle this is defined as "A book used as a standard work for the study of a particular subject; now usually one written specially for this purpose; a manual of instruction in any science or branch of study, esp. a work recognized as an authority" (OED). Hedges do not fit well into these defining features, in that authors of this kind of instructional manuals are not supposed to be tentative in the same way as they might be when addressing their peers in the epistemic community. The reason underlining the prominence of hedging in both examples here might then be the originally oral nature of the extracts, since, as the authors themselves reveal in their

prefaces: "This book contains the substance of the lectures given to the classes in the last half of the second year's course in botany, at Barnard College." (Gregory, 1895, p. iii) and "In preparing this book the author had in mind the wants both of the student and the teacher. For the student's use the more difficult portions, particularly that on the embryology, may be omitted. The work has grown in part out of the writer's experience in class work." (Packard, 1898, p. v). In both cases, therefore, the source of these texts is spoken interaction with students. The same general tendency in the use of stance markers can be observed in the extract from Gregory's textbook, illustrated in Figure 2 below:
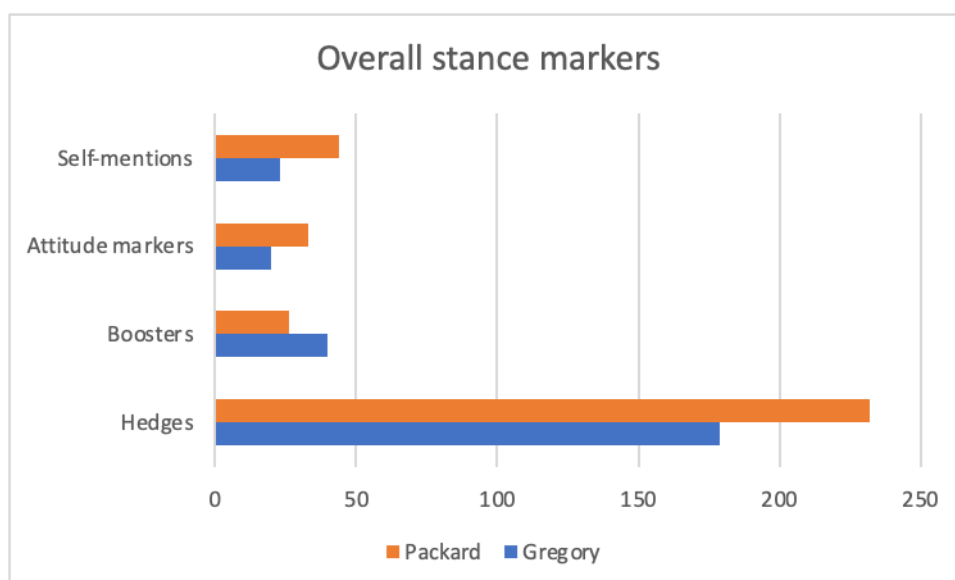

Figure 2. *Distribution of stance markers per sex.*

One deviation from this tendency is the number of occurrences of boosters in Gregory's sample, which surpasses the number of tokens used by the male author (40 vs 26). Gregory's slightly more abundant use of boosters may be accounted for either by the need that nineteenth-century female authors felt to reassure themselves as scientists in an androcentric world, or to the need to transmit knowledge and confidence to their readership in the face of prevailing perceptions that scientific knowledge comes predominantly from men. Indeed, Emily Gregory vindicates her position in the world of academia when she claims that

> The method followed in this course differs somewhat from that generally adopted in either home or foreign colleges. The study of botany, as a science, is comparatively new in this country, and therefore we have the advantage of the experience of Europe, where the science of botany has long held a place equal in rank with that of its related subjects. (Gregory, 1895, p. iii)

Having examined the types of devices used to express evidentiality, we will now focus on attitude markers as expressions of affect and how the authors here use them. In this case, we see that it is the male author who resorts more often to expressions in which his opinions can be identified more or less openly. Although he uses only eight types, as opposed to the seven used by Gregory, his use of these is more frequent in terms of tokens (33 occurrences in Packard vs 20 in Gregory). It is not easy to interpret this based on a single text, but given that this is a microscopic analysis, we might speculate that we are in fact simply looking at the authors' personal styles. In that case, perhaps the text by Packard underwent a more superficial process of revision from the spoken to the written registers. Examples (14) to (16) below illustrate this use, as represented by *perhaps, quite as much, indeed* and *without doubt:*

> (14) In their structure insects are ***perhaps*** more complicated than any other animals (Packard, 1898, p. 2)

> (15) Their bodies are ***quite as much*** complicated or specialized, and ***indeed***, when we consider the winged forms, more so, than any other class of the branch, and besides this they have wings, fitting them for an aërial life. (Packard, 1898, p. 3).

> (16) The uterus masculinus is in its structure homologous with the evaginable penis of Pauropus, Polyxenus, and some diplopods, and the sexual opening has ***without doubt*** become secondarily unpaired. (Packard, 1898, p. 24).

Finally, authorial presence is expressed through the use of first-person pronouns and possessive forms. We have observed that Packard not only uses more types here than Gregory (*we, us, our, me, my*) but also uses them more frequently (in Gregory's text we only recorded the type *we*). It should come as no surprise that our male author is not

shy about making his own presence clear in the text to his readership, while Emily Gregory modestly uses only the first-person plural pronoun, the inclusive *we*, to make her voice heard and to embrace the epistemic community.

(17) ***Our*** commonest species is [S]. immaculata Newport, which occurs from Massachusetts to Cordova, Mexico, and in Europe from England to the Mediterranean and Russia; [Mr]. [O]. [F]. Cook tells ***me*** he has found a species in Liberia, West Africa. (Packard, 1898, p. 26).

(18) ***We*** have now reached that stage of plant development which includes all the organs of the highest form, namely stem, root, and leaf. The anatomy of the remaining forms is therefore limited to a comparative study of these three organs. (Gregory, 1895, p. 90).

The type/token ratios (TTR) of each feature per author are set out in Table 4:

Table 4. *Types/tokens of stance features.*

	Gregory			Packard		
	Types	Tokens	TTR	Types	Tokens	TTR
Hedges	35	179	0.19	61	232	0.26
Boosters	13	40	0.32	14	26	0.53
Attitude markers	7	20	0.35	8	33	0.24
Self-mentions	1	23	0.43	5	46	0.10
Total	56	262	0.21	88	337	0.26

The overall data for both samples suggest that Packard's text (0.26 TTR) is lexically more varied than that of Gregory (0.21 TTR) in terms of the stance features under survey here. Considering each linguistic element individually, the figures indicate that it is only in the use of attitude markers that the female author surpasses that of the male (0.35 vs 0.24). From the point of view of each feature, lexical richness seems to stand out in the case of boosters for Packard (0.53), whereas attitude markers are the prevailing feature for Gregory (0.35 TTR). These data lead us to conclude that, at least

in these two samples, male and female writers do not seem to coincide in the relevance they give to the same stance markers. Thus, the sample that represents women's writing appears to rely more on expressing her perspective or opinion towards the content and making the reader aware of this (*doubtful, however, prove*); such tentative evaluative characteristics are not present in the use of boosters in the sample by the male author. Boosters for the male writer show confidence, self-assurance, and help to convince the reader of the truth of the proposition and the expertise of the author in the topic (*always, certain, believe, demonstrate, definitively, obvious, undoubtedly*). Both authors are engaged in an endeavour to disseminate science in society at a time when this formed an important part of social progress and when specialisation in the sciences was emerging. However, the two sexes did not enjoy the same level of social respect and recognition in this, with men far more prominent.

The study of stance can lead the linguist into troublesome situations, since, as we have already suggested, linguistic items can be interpreted in various ways depending on contextual elements and all the extra-linguistic factors that are involved in text production (genre, period, discipline development, target audience, etc.). Once more, all this indicates the appropriateness of an individual, fine-grained analysis of a text as a means of discerning the true role of the different linguistic components therein.

V. CONCLUSIONS

In this study, we have applied Hyland and Jiang's model (2016), but with an emphasis on qualitative and microscopic analysis rather than simply applying a quantitative approach. To this end, we have examined just two samples, since this was intended to be a preliminary study. Indeed, through our direct contact with the texts we have been able to reveal nuances of meaning that might well have been lost in a wholly quantitative analysis. Although we have considered samples of scientific English, the data reveal the authors' presence at a time when an object-centred discourse was

gradually replacing the authorial self (Atkinson, 1999). Overall, the male author seems to be more prone than the female one to use these devices, probably because of the androcentric mindset of the period (Crespo, 2021), in which men were the 'unmarked sex' in these uses, and women were effectively invited to follow such tenets in an attempt to be recognised as part of the scientific community.

Moreover, the present research, focusing as it does on a qualitative view of texts, seeks to call the attention of other scholars to the vital role of the linguist in the interpretation of texts and the data arising from them. We hope that the study serves as a vindication of the need to look closely into a text and to analyse words or expressions within the intra-linguistic and extra-linguistic context, thus rehumanising the object of study. Herein lies the key to revealing how the scientist's mind was moulded, and helps us to discern how, why, and to whom they wrote. As a preliminary study, this research is merely the first step in renewing the path of detailed and manual examination of language, and we hope that, by expanding the survey to more texts, we will discover a great deal more about the authors' intentions and perceptions, as well as the rhetorical trends in scientific communication.

VI. ACKNOWLEDGEMENTS

VI. REFERENCES

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