Involved In Writing Science: Nineteenth-Century Women in the *Coruña Corpus*

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Abstract

The aim of this work is to offer an overview of female scientific writing in English in the nineteenth century. In particular, we want to focus on the analysis of the more or less informational style of texts written by women. Variables such as discipline or subject-matter and genre will be used to measure the way in which the informative character of scientific texts develops once Empiricism is well settled. Assuming the andro-centric nature of scientific discourse in the Modern Age, the survey of these variables will help us explore the extent to which this informational style is revealed in female scientific works. The fact that these authors are women could imply that some involvement on their part may be required. This could be caused by extra-linguistic factors such as the need to be taken more seriously not only in a field completely dominated by males but also in the social context surrounding women's lives in general.

Keywords: involvement, scientific writing, late Modern English, women scientists.

0. Introduction

Since the emergence of Empiricism scientific knowledge in the western tradition has been regarded as objective and universal. The reporting of such knowledge was influenced by the empiricist mindset which, hence, also determined the way in which knowledge was conveyed. At present, the generally accepted approach to scientific writing is that authors detach themselves from their work, given that science demands objectivity, disinterestedness, organised scepticism, and universalism (Hyland, 1996). As Prelli (1989) and Besnier (1994) have argued, this objectivity may itself reflect ideological constructs which have evolved in the transmission of scientific information. Authors employ either detachment or involvement not only as manifestations of a particular cultural ideology but also as analytical constructs in the description and interpretation of linguistic behaviour (Besnier, 1994: 284).

The sex of the author, alongside the written vs. oral mode of transmission in Hallidayan (1985) terms, are two of the parameters that can be taken into consideration in the study of involvement and detachment. According to Besnier (1994) social groups "differ from one another in the degree to which high or low involvement is viewed as necessary and valuable" (p.287). Within different social groups there are users of "high-involvement styles" and users of "considerate styles" (Lakoff, 1990, p. 50). In terms of power relations the former are considered domineering whereas the latter find themselves in some way dominated in discourse interaction. This results in a relation of power asymmetry, which is reflected in male and female discourse strategies (Lakoff, 1990). Another frequently employed notion here is that women are more emotional and therefore more involved in their writings.

As authors, it is argued; females are less detached than men (Argamon et al. 2003). If both these contentions are indeed true, we might expect scientific writing by women to be more involved than informational (Biber, 1988).

In addition to considering involvement and detachment in terms of power relations, we can also consider their relation to the medium of the discourse, be it oral or written. In this sense Biber (1988, p. 43) claims that involvement is a consequence of there being actual interaction between speaker and listener, whereas there is no direct interaction in the written medium. Although it has been claimed by some that involvement features are specifically characteristic of spoken registers (Besnier, 1994, p. 280), which by contrast defines scientific discourse as informational par excellence, we intend to try to verify what previous studies (Argamon et al., 2003) have shown: that women writers feel inclined to incorporate into their writing features which transmit involvement. This, indeed, is the basis of our working hypothesis: to see whether such claims for present-day academic prose (Biber, 1988) can also be applied to nineteenth-century scientific writing.

To this end, the present paper has been organised thus: section 1 deals with the characteristics both of involved and informational texts, and the typical linguistic features found in them; section 2 describes the corpus and the methodology used; the analysis of data is then presented in section 3, focusing on different linguistic features and variables (such as genre and discipline); finally, section 4 offers some conclusions.

1. Linguistic features and degree of involvement in discourse

Academic writing is not just about conveying an ideational 'content'; it is also about the representation of the self. Recent research has suggested that academic prose is not completely impersonal, but that writers gain credibility by projecting an identity invested with individual authority, displaying confidence in their evaluations and commitment to their ideas. (Hyland, 2002, p. 1091)

Hyland's ideas here serve as a starting point for our study: that authorial presence can be detected in scientific discourse. Authorial intentions may be perceived through the way in which certain linguistic features are either consciously or unconsciously used. The study of academic prose by Chafe (1985), Biber (1988), Hyland (1996) and Atkinson (1999) systematised the lists of linguistic features typically employed here, and which may be indicative of different authorial attitudes towards discourse, audience, subject-matter, etc. In the same vein, Salager-Meyer (1997) provides a list of 'strategic stereotypes' for hedging, expressed through grammatical means such as modal verbs, approximations and introductory phrases.

Some of the linguistic features now accepted as indicating a higher or lower degree of authorial involvement are those set out in Table 1 below, with the generic names for the features in Biber's terms (1988, 1995) in the left column, and the elements belonging to each category on the right:

Table 1: Linguistic features under study

Hedges	*At about, something like, more or less, almost, maybe, xxx sort of (where xxx is not determiner, possessive pronoun adjective or who), xxx kind of*
Private verbs	*Anticipate, assume, believe, conclude, decide, demonstrate, determine, discover, doubt, estimate, fear, feel, find, forget, guess, hear, hope, imagine, imply, indicate, infer, know, learn, mean, notice, prove, realise, recognise, remember, reveal, see, show, suppose, think, understand*
Wh-questions	*How, what, when, where, which, who, , whose, why, however,*
Amplifiers	*Absolutely, altogether, completely, enormously, entirely, extremely, fully, greatly, highly, intensely, perfectly, strongly, thoroughly, totally, utterly, very*
1st and 2nd person pronouns	*I, me mine, myself, ours, ourselves, us, we, you, yours, yourself, yourselves*

Lakoff (1972) used the term hedge to refer to "words whose job is to make things more or less fuzzy" (p. 194). This general definition was later taken up from a number of different perspectives. Hyland (1996), for instance, categorised hedges as content-oriented and reader-oriented. In our present research we will look specifically at content-oriented hedges in which the approximations in Table 1 above are included.

Hedges are used in English, as in many other languages, with the aim of lessening the impact of an utterance. Using hedges leads to a reduction in the precision of the discourse, which can become close to vague language (Chanell, 1994), definitely not one of the characteristics expected of scientific writing. However, hedges are also the symptom of a certain kind of commitment on the author's part towards the message conveyed.

Present-day academic writing is said to be "rich in discourse structuring and stance expressions, some of which overlap with other spoken and written registers, and others of which seem particularly characteristic of academic prose" (Simpson 2004, p. 38). But what kind of involvement, if any, was shown by nineteenth-century writers, especially women writers? This question will be addressed in section 4 below, following the analysis of data.

Another linguistic feature considered for the assessment of involvement is the use of amplifiers which, according to Quirk et al. (1985, p. 589-590), are a subtype of intensifier. Although they distinguish between maximisers and boosters, no such distinction is made here. These amplifiers are used to enhance the content of a proposition as well as authorial stance.

Biber (1988) and Biber et al. (1999) are among those who include private verbs in the list of linguistic indicators of authorial involvement. Their definition in turn is based upon Quirk et al. (1985, p. 1180-1), who characterise these semantically as a relatively small and closed set of verbs representing a subdivision of the group of factual or propositional verbs:

The 'private' type of factual verb expresses intellectual states such as belief and intellectual acts such as discovery. These states and acts are 'private' in the sense that they are not observable: a person may be observed to assert that God exists, but not to believe that God exists. Belief is in this sense 'private'. (Quirk et al., 1985, p. 1181).

We will use Biber's (1988, p. 242) selection here, which is based on Quirk et al's (1985: 1181) initial list, as shown in Table 1.

Finally, the use of first and second person pronouns is undoubtedly one of the devices used by authors either to involve the reader, or to show their own involvement with and proximity to both the message conveyed and the readership.

In what follows we will examine how all these features behave in the particular case of nineteenth-century women who published scientific works under their own name.

2. Material and methodology

For the present study we have used material from the *Coruña Corpus of English Scientific Writing*, which contains samples written in English between 1700 and 1900. This corpus is formed by several sub-corpora, each of which includes texts from a distinct scientific discipline: Astronomy, Philosophy, Life Sciences and History. From these we have selected all texts written by women during the nineteenth century. Table 2 below includes some information about these samples, such as name of author, title of work, year of publication, discipline and genre or text-type, as well as the number of words per sample.
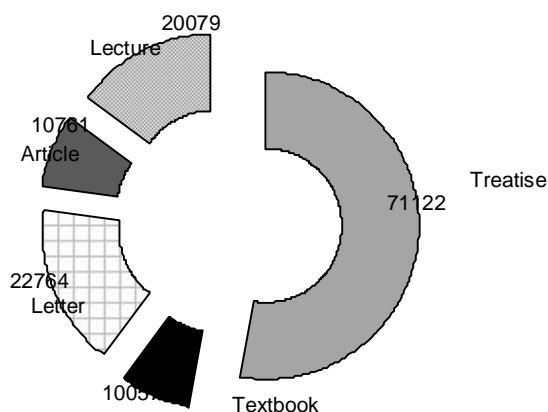
Table 2: Information on samples under survey

Author	Year	Title	Discipline	Text type	Words
Jacson,Maria E.	1804	*Botanical lectures. By a Lady*	Life Sciences	Lecture	10,051
Wakefield, Priscilla	1816	*An introduction to the natural history and classification of insects, in a series of familiar letters*	Life Sciences	Letter	9,805
Lincoln, Almira Hart Phelps	1832	*Familiar lectures on botany, including practical and elementary botany*	Life Sciences	Lecture	10,028
Pratt, Anne	1840	*Flowers and their associations*	Life Sciences	Treatise	10,023
Agassiz, Elizabeth	1859	*A First Lesson in Natural History,*	Life Sciences	Letter	12,959
Lankester, Phebe	1879	*Wild flowers worth notice ... for their beauty uses and associations*	Life Sciences	Treatise	10,080
Clerke,Agnes Mary	1893	*A popular history of astronomy during the nineteenth century.*	Astronomy	Treatise	10,530
Warren,Mercy Otis	1805	*History of the rise, progress and termination of the American revolution...In three volumes. Vol.I.*	History	Treatise	10,032
Callcott, Maria /lady	1828	*A Short history of Spain. In two volumes. Vol. II*	History	Treatise	10,333
Aikin, Lucy	1833	*Memoirs of the Court of King Charles the First. In two volumes. Vol. I*	History	Treatise	10,022
Sewell, ElizabethM.	1857	*A first history of Greece*	History	Textbook	10057
Freer,Martha Walker	1860	*History of the reign of Henry Iv. King of France and Navarre.*	History	Treatise	10102
Cooke, Alice	1893	*The Settlement of the Cistercians in England.*	History	Article	10761
					134,783

These samples all comply with the compilation principles of the *Coruña Corpus* (henceforth, *CC*) (Crespo and Moskowich, 2010). For this reason each of them contains around 10,000 words, first editions are used where available, and all were written directly in English by native speakers (that is to say, no translations have been included). The resulting corpus totals some 134,783 words.
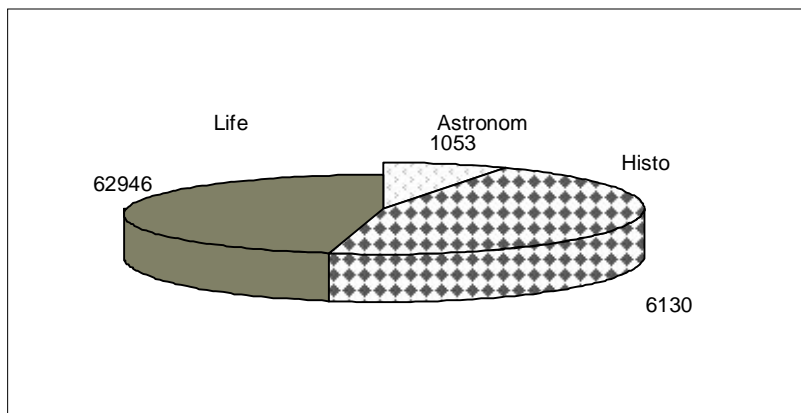
Although, as already noted, the four sub-corpora thus far compiled in the *CC* correspond to four disciplines, Table 2 displays texts from only three of these, since the *CC* contains no nineteenth-century Philosophy texts by women. As regards genres or text-types, it is worth mentioning that the taxonomy in the *CC*, based on Görlach (2004), includes 8 different categories: "textbook", "lecture", "letter", "treatise", "essay", "dialogue" and "others", but only the first five of these are represented in the samples selected.

As already pointed out, two variables were chosen in our analysis of involved or detached discourse here: genre or text-type and discipline. Genre or text-type determines the kind of relation to be established between the author and her audience, since different genres might require different linguistic and discursive strategies in addressing their readerships. Similarly, discipline may exert a significant influence on the writer's use of language: the subject-matter may impose certain constraints on the choices she makes here.

Figures 1 and 2 below illustrate the distribution of words per genre and discipline, respectively. In the first case, the highest number of words corresponds to the text-type "treatise" (71,122), followed by "letter" (22,764) and "lecture" (20,079). There is just one sample for the categories "article" (10,761) and "text-book" (10,057).

Figure 1: Words per genre/text-type

Regarding disciplines, Figure 2 shows that Life Sciences and History are more or less equally represented with 62,946 and 61,307 words, respectively. In the case of Astronomy there is only one sample, of 10,530 words.

Figure 2: Words per discipline

The number of words per genre and discipline are externally determined, that is, conditioned by the trends of the period that led to the use of particular text-types, or simply because female writers tended to find themselves pushed towards certain formats. Similarly, society accepted more readily that women should write about topics seen as appropriate to their sex, such as flowers and birds (Life Sciences), travel (History) but not constellations or planets (Astronomy) which required the observation of the night sky. As noted in Moskowich (2012), Female authorship, then, is very difficult to establish. On some occasions women did not sign their own works, as is the case of the Catalogue of Stars by German female astronomers in the seventeenth century. Indeed, it was seen as indecorous for women to observe the sky at night (Herrero 2007: 82). And although women participated intensively in the field of astronomy from the time of the Copernican revolution, their access to study and scientific work was limited to the role of mere assistants (p. 46).

Such constraints should be borne in mind in the analysis below.

Another methodological concern has to do with analyses in which only one sample of a particular kind is available. In order that findings be useful and revealing, even in these cases, all figures in the analysis have been normalised to 1,000.
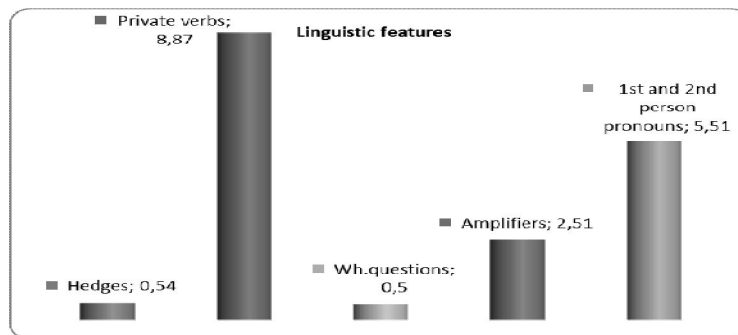
3. Analysis of data

The linguistic features we will focus on here as a means of assessing the degree of involvement in female writing are set out in Table 3 below, for which we have included both raw numbers and normalised frequencies. The same information can be seen in Figure 3:

Table 3: Raw and normalised figures (nf) for linguistic features

Linguistic features	Raw figures	Nf_{1000}
Hedges	74	0,54
Private verbs	1196	8,87
Wh-questions	68	0,50
Amplifiers	339	2,51
1st and 2nd p pronouns	1004	7,44

As the normalised frequencies show, the linguistic feature found most abundantly in our data is that of *wh*-questions with 17 cases, followed by private verbs (8,87), and first and second person pronouns (7,44). At far lower frequencies we find the use of amplifiers (2,51) and of hedges (0,54). At first sight, these figures seem to indicate that linguistic features considered characteristic of involved styles are not abundant in texts written by women. The same information can be seen in Figure 3 below:

Figure 3: Distribution of Linguistic features

A detailed account in 3.1 to 3.5 below will provide more information about each of these features.
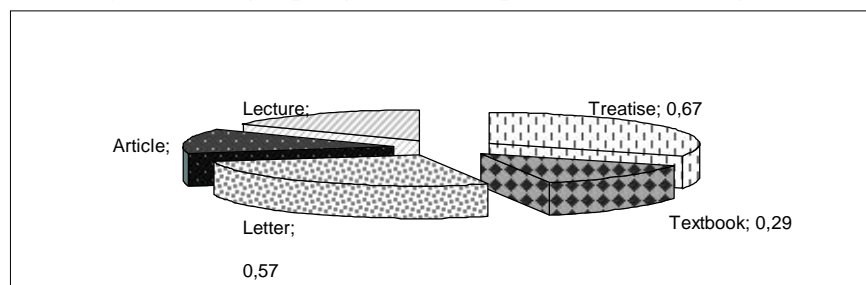
3.1. Hedges

A complete list of the types for hedges was provided in section 2 above[1]. Hedges do not occur with any great frequency in the data, with only 74 instances. (1) and (2) provide examples:

(1)   palustris has a blossom of a bright blue colour shaped <something like> that of a primrose (Pratt, 1840, p. 207)

(2)   the course of ages into a moderate ellipse and expands <almost> to a circle the major axis and consequently the mean (Clerke, 1893, p. 319)

Hedges, however, are found in all five text-types in our data, as shown in Figure 4 below. "Treatise" and "letter" are the genres in which hedges predominate. It is worth noting that these two text-types could be placed at opposite ends of an orality scale. We might venture to say, though, that the category "treatise" could perhaps be understood as not occupying such an extreme position on the scale, but be placed in fourth or fifth position, adjacent to "article". This would be in accordance with a hypothetical scale of spokenness in which the order from more to less oral would be "lecture", "letter", "text-book", "article" and "treatise".

A possible explanation for this apparent contradiction is that during the nineteenth century there seems to be a shift in the formats used for the transmission of knowledge. Articles and lectures gain ground as treatises diminish. A certain loss of the prestige of this genre in scientific contexts may have made women feel more comfortable and relaxed, therefore more involved, when using it.

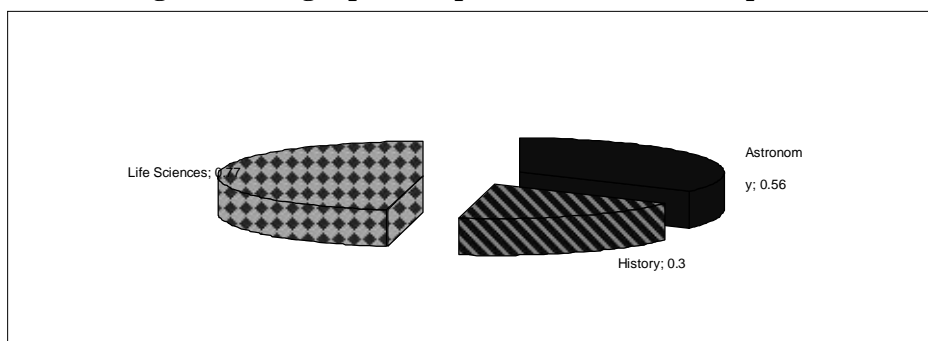**Figure 4.Hedges per genre/text-type in normalised figures.**

In the case of the variable "discipline", Life Sciences contain the highest number of hedges, as normalised figures show (0.77). This can be accounted for by the very nature of the discipline itself, since it tends to be descriptive, recounting the observations of the writer, who may use hedges as a rhetorical device to show tentativeness and modesty, or who may incorporate her own views (personal stance) into the text.

Contrary to our expectations, Astronomy is second with 0.56 hits. The sort of observations made in astronomy, and their expression by means of mathematical language, suggest that as a discipline it should not admit personal inferences. The findings here may be explained by the fact that the only sample in this field belongs to the category "treatise", in which, as we have seen, hedges abound.

It is equally unexpected that History exhibits the lowest number of cases (0.3) since the Humanities (defined according to the UNESCO's classification, 1988) have traditionally allowed for the expression of personal opinions. This is more so when we consider that "travelogue", a genre with a very personal character, is represented here. The above findings are set out in Figure 5:

Figure 5: Hedges per discipline in normalised frequencies

The second linguistic feature in this analysis is the one we have termed *wh*-questions.

3.2. *Wh*-questions

As noted in section 1, not all *wh*-words have been considered for this study, only *wh*-questions (Mischke, 2005: 103): *who, which, what, why, where, when, how.* An automated search was made for these forms using the *Coruña Corpus Tool*, after which all material was checked manually to ensure that the instances selected were those with a clear direct or indirect interrogative function, as in (3) and (4):
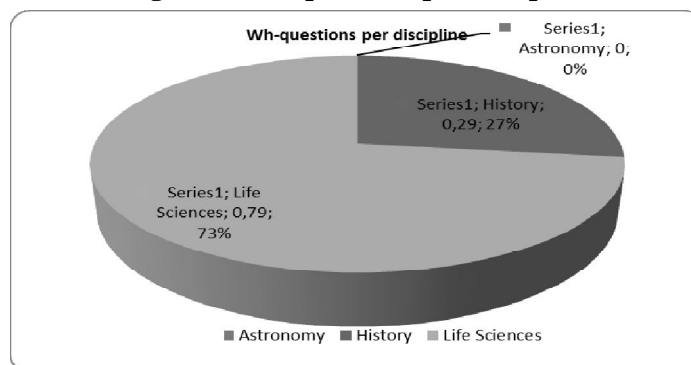
(3)   schemes none of which can afford me any gratification alone <what> is a walk without a companion or a book unless (Wakefield, 1816, p. 1)

(4)   whether artaxerxes would risk a battle and clearchus asked cyrus <what>   he thought upon the subject cyrus himself was quite certain(Sewell, 1857, p. 253)

Manual checking resulted in us being able to say that some of the forms (*when, where, which*) were completely absent from the samples as *wh*-questions. Even in the case of the variable "discipline", no instances of *wh*-questions were found in Astronomy.

Life Sciences is in fact the discipline that contains most occurrences (0.79), followed by History (0.29), as Figure 6 below shows:

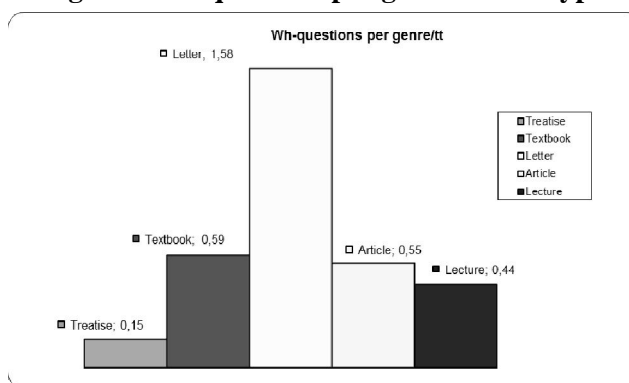**Figure 6: *Wh*-questions per discipline**

The imbalance between the number of occurrences of *wh*-questions in Life Sciences and History may be due not only to subject-matter but also to the level of technicality in these texts. In fact, most samples for Life Sciences have been extracted from works whose titles include the words "first" or "familiar", indicating that their contents are basic and the author's intention of reaching her readership. This can also be detected in the use of direct questions, as in (3) above.

It has been argued that female writers had a specific interest in providing their readers with basic instruction (author, forthcoming). However, the authors of works of history in our corpus seem to be more concerned with the narration of objective facts and events which are distant from the readership and which do not necessarily require the author's involvement. Most historical works are treatises and there is also one article, as well as a single textbook.

Concerning the variable "genre", the category "letter" contains the highest number of items (1.58), in contrast to "treatise", with the lowest number (0.15). Of the text-types under survey, "letters" are the ones closest to orality. They are a direct way of communicating, and although in some cases they were written to be published, they are more informal. Moreover, the fact that the author selects this text-type to talk about science shows some kind of intentionality on her part to approach her addressee in this manner, allowing her to use a more intimate tone. Letters were, perhaps, a way to make female knowledge visible without being seen as too forthright and presumptive in a world dominated by men.

Figure 7.*Wh*-questions per genre or text-type

Although lectures may be considered closely related to orality, our findings reveal that it is the text-type in which we find the lowest number of instances expressing involvement. There are perhaps two main explanations for this: on the one hand, lectures at this time were probably not envisaged as a means of popularising science but, rather, were aimed at a qualified audience likely to share the author's scientific background. On the other hand, lecturers may not have needed to resort to linguistic elements to express involvement since they could rely on other mechanisms, such as body language, emphasis, clarifying pauses etc.

There is only one text-book in our material and most of the *wh*-questions found in it perform the function of relative pronouns. The relatively abundant presence of *wh*-questions in one single sample, as is the case with "textbooks" and "articles", could be explained simply in terms of the author's personal style, which is full of subordination, as in example (5).

(5)   had shown proper attention to a number of poor men <who> had been left clinging to the Athenian vessels which had (Sewell, 1857, p. 236)

Whereas "text-book" as a genre may allow for the use of more complex syntactic structures, "article" seems to carry more constraints. These seem to adhere more to patterns of the evolving scientific formats in the nineteenth century, including concision and brevity. Limited space may impose some constraints on style and syntactic structure in comparison to other genres where there is no such limitation.

Since some genres are represented in the data by only a single sample, no definite conclusions can be drawn here. Nevertheless, these findings do suggest that authorial idiosyncrasy may play a part in the use of *wh*-questions.

3.3. Private verbs

For the scrutiny of private verbs we have used the list included in Table 1 above, but it is worth mentioning that we have searched for all possible verbal forms of these, both finite and non-finite. Private verbs were also manually checked, which revealed putative verbal forms which were in fact not so, as in example (6):

(6)   authors of these conceits and at that time the most <learned> part of the community been possessed of as much knowledge (Lincoln, 1832, p. 298)
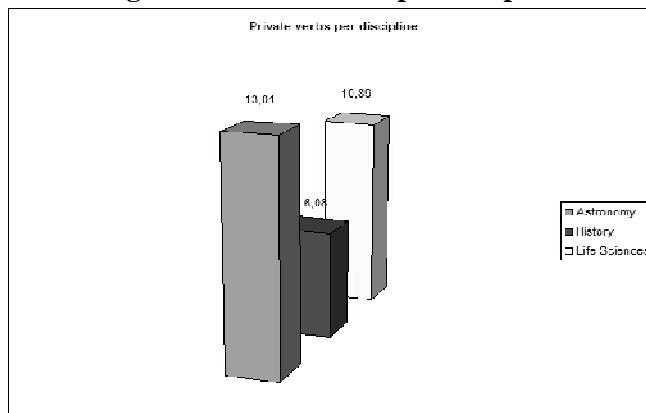
The two disciplines belonging to the group of "Exact and Natural Sciences", according to the Unesco's classification (1988), exhibit the most abundant use of 'private verb' forms. Astronomy is first with 13.01 cases and Life Sciences is second (10.89), with History accounting for 6.08 cases. Such uses can be found in examples (7) and (8):

(7)   of the earth's figure must however take place unless we <suppose> it of absolute or preternatural rigidity (Clerke, 1893, p. 317)

(8)   men were influenced by the blindest superstition that they thus <imagined> every operation of nature to be emblematical of something connected (Lincoln, 1832, p. 286)
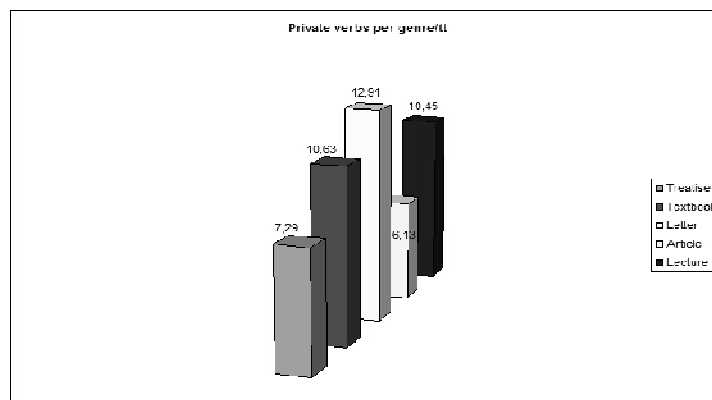
Figure 8 provides a visual representation of the distribution of private verbs per discipline.

Figure 8: Private verbs per discipline

The use of private verbs can be interpreted as the manifestation on the user's part of feelings, beliefs and mental processes which cannot be observable but which clearly reveal her involvement with the subject under discussion.

Figure 9: Private verbs per genre or text-type

Turning to genre or text-type, Figure 9 above indicates that those genres that could be seen as closer to orality are those which contain most uses of private verbs forms. These are letters (12.91), with textbooks and lectures almost at the same level (10.63 and 10.45, respectively). Treatises and articles include fewer of these forms, which might suggest that the discourse is somehow more detached here. Letters, as a more informal means of communication, even in the scientific realm, are more apt to be personalised. Lectures although written to be spoken, contain a lesser number of tokens and are still more structured and formal than letters; that is, however oral, they have to conform to somewhat fixed patterns, as they contain quite well-differentiated parts and rhetorical devices. Due to their didactic aim, textbooks could also be considered as a genre that needs to establish a close contact with the corresponding readership and, as such, resorts to the use of private verbs.
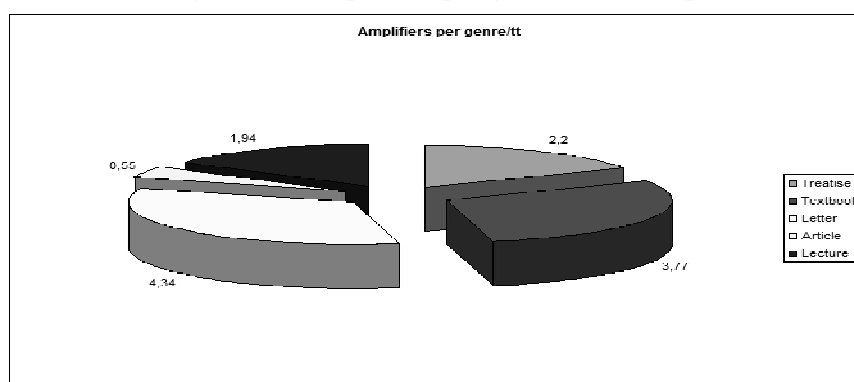
On the contrary, articles are supposed to be more standardised at this point in time and, consequently, private verbs are not found in any great abundance. This could also indicate that nineteenth-century female authors tried to fit into the general patterns that ruled scientific discourse (Atkinson, 1999), in that treatises were a priori designed to transmit scientific knowledge in an objective and depersonalised way.

3.4 Amplifiers

Amplifiers belong to the semantic category of degree. As Mischke (2005) has pointed out, amplifiers indicate the feelings of certainty or conviction of the speaker or writer. They are used in academic discourse to indicate the reliability of a proposition. This expression of certainty is what makes amplifiers a typical feature of involvement, since they denote authorial presence. After searching the corpus for those amplifiers listed in Table 1 above, we looked at the results in terms of the two variables under survey: discipline and genre or text-type.
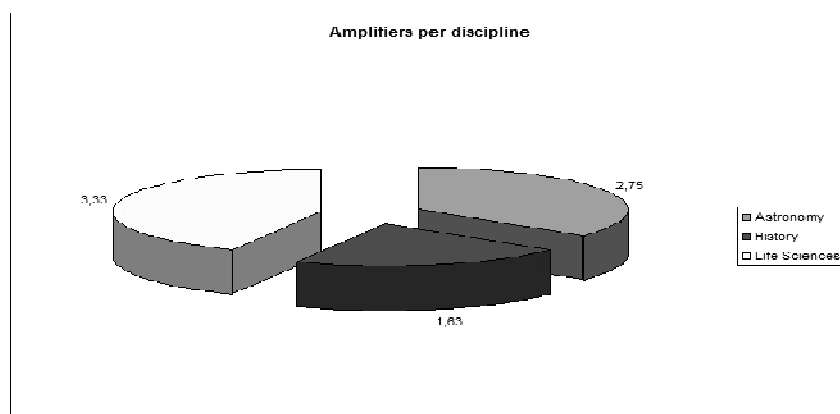
Amplifiers transmit individual preference and self-expression. They indicate the author's degree of commitment about what she writes in relation to people, objects and qualities. They may also function as in-group markers (Lorenz, 1999). In this vein, letters (4.34) and textbooks (3.77) show the highest degree of commitment (see Figure 10), followed by "treatises" (2.2), "lectures" (1.94) and "articles" (0.55). Authorial presence and authorial preference is more clearly detected in letters, which, as has already been noted, is a more informal genre than others. Once more, the scarcity of amplifiers in "articles" might suggest that our sample texts illustrate the process by which the patterns that govern the article format as a means of scientific communication came to be established and generally accepted.

Figure 10: Amplifiers per genre or text-type

As for discipline, Figure 11 shows that Life Sciences contains the highest frequency of tokens (3.33), closely followed by Astronomy (2.75). These findings contrast with the figure found for History (1.63), a humanistic discipline. It might be ventured that the necessary expression of certainty and reliability is achieved through the use of elements traditionally fulfilling that function in the case of exact and natural sciences, but with the same notions of reliability and certainty being expressed in different ways and by different means in the humanities.
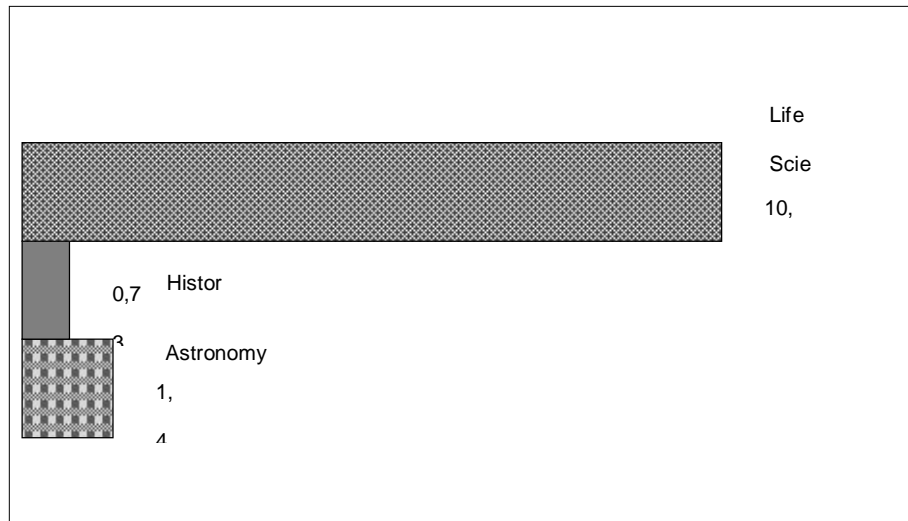
Figure 11: Amplifiers per discipline

The last feature included in the analysis deals with pronominal reference.

3.5. First and second person pronouns

The last feature analysed, and another indicator of personal involvement, is the use of first- and second-person pronouns. According to Cegala (1989) highly involved communicators use more immediate language, speak with greater certainty, and use more relational pronoun references than their less involved counterparts.

If we analyse the distribution of these features per discipline, an overwhelming difference in the use of pronouns can be observed (see Figure 12 below). Life Sciences is the discipline with by far the highest frequency of use (10.86), followed at a considerable distance by Astronomy (1.42) and History (0.73), in this latter case first and second person pronouns being almost non-existent.
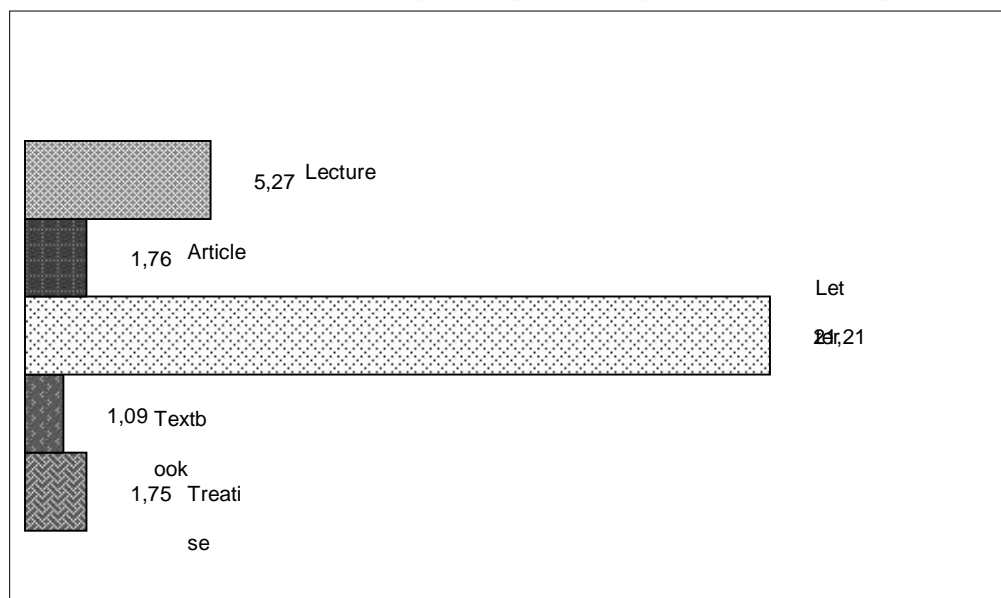
Figure 12: First and second person pronouns per discipline

This may be accounted for by the fact that the samples belonging to Life Sciences probably have the lowest level of technical difficulty, given that they are introductory texts or material that may be the first contact that a new reader has with the subject matter. If it is the aim of authors to instruct, as we claimed above, and given that it seems authors were sympathetic towards those willing to acquire knowledge, it is only logical that the use of first and second person pronouns is high. Although frequencies recorded for both History and Astronomy are lower than those for Life Sciences, it is worth mentioning that again History seems to be more detached than Astronomy, even if a first impression might not lead us to such a conclusion.

As for text-types (see Figure 13 below), "letters" (21.21) and "lectures" (5.27) are the two genres for which most instances of the personal pronouns under study here have been noted, although there is a huge gap between the two. The genres that follow "lectures" in descending order are "articles" (1.76), "treatises" (1.75) and "textbooks" (1.09).

Figure 13: First and second person pronouns per genre or text-type

In the case of "letters" the abundant presence of pronouns may be explained by their less formal style and the interpersonal relation between writer and reader, closer in the case of "letters" than other text-types. This is in line with what might have been expected.

4. Conclusions

In absolute terms, the percentage of involvement features found in the work of the female writers under survey here is quite low (0.74%). If we see the birth of modern science, underpinned by the empiricist movement, as having led to an overreaction against the expression of personal commitment, our findings might be seen as reflecting the written manifestation of a nineteenth-century ideological construct based on the kind of objectivity, truthfulness and mathematical scrupulousness first posed by authors such as Bacon and Boyle (Allen, Qin and Lancaster, 1994). However, one of the basic tenets of this ideology was also reliability, and the expression of this implied the use of particular text-types that could help the author "convince" the reader of their reliable explanations or the use of language structures which could make the reader participate in his or her work.

Although we are aware of the fact that the number of samples under survey is quite low and more samples would be necessary to confirm our results, we could anticipate that this pursuit of reliability may be noted in our findings here: generally speaking, private verbs, followed by first and second person pronouns, are the most frequent linguistic features to communicate the author's intention to reveal her thoughts and intimate considerations about the topic, and her efforts to be close to her readership.

Our analysis of linguistic features denoting involvement has also shown some unexpected results. Life Sciences is the discipline where most of these features have been attested. An external factor of the period that of the idiosyncrasy of women's position at the time could account for this predominance. The topics dealt with here by female writers were those seen as more appropriate to their sex (see above). It is both surprising and noteworthy that History as a discipline belongs to the humanities, and might have been expected to show a closer and more personal style. However, the low frequencies of hedges (0.3), *wh*-questions (0.29), private verbs (6.08) and amplifiers (1.63) here seem to reveal that the author intends to detach herself from her readership.

As for text-types, our findings are not especially surprising. "Letter", on the other hand, is the category containing most of these features, maybe because women felt more comfortable in using an intimate and less formal genre, this leading to some involvement features being manifested. When writing articles, however, female authors seem to have been able to adapt their style to the trends of scientific prose, using a detached register, perhaps to reflect the required objectivity characteristic of men.

Finally, a more comprehensive picture of the situation will be provided after a comparison of our findings with those from a similar analysis of male scientific discourse, which we must leave for future research.

Notes:

[1]No cases of *kind of* or *sort of* have been found. All instances are preceded by one of the elements Biber (1988) excludes from his own counts, as in the case with "showy flowers having an irregular and unequal margin and a <sort of> bell-shaped figure…"*Wild Flowers worth Notice* (Lankester, 1879, p. 98).

References

Argamon, M.K., Jonathan F. & Shimoni, A. (2003). Gender, Genre, and Writing Style in Formal Written Texts. *Text*, 23 (3), 321–346.

Atkinson, D. (1999). *Scientific Discourse in Socio historical Context: The Philosophical Transactions of the Royal Society of London, 1675-1975*. Mahwah, NJ: Lawrence Erlbaum.

Besnier, N. (1994). Involvement in linguistic practice: An Ethnographic Appraisal. *Journal of Pragmatics*, 22, 279-299.

Bryce, J.Q. & Lancaster, F. (1994). Persuasive Communities: A Longitudinal Analysis of References in the Philosophical Transactions of the Royal Society, 1665-1990. *Social Studies of Science*, 24 (2), 279-310.

Biber, D. & Finnegan, E. (1989). Styles of Stance in English: Lexical and Grammatical Marking of Evidentiality and Affect. *Text - Interdisciplinary Journal for the Study of Discourse,* 9 (1), 93–124.

Douglas, B. (1995). *Dimensions of Register Variation: A Cross-linguistic Comparison.* New York: Cambridge University Press.

Cegala, D. J. (1989). A Study of Selected Linguistic Components of Involvement in Interaction. *Western Journal of Speech Communication*, 53 (3), 311-326. DOI: 10.1080/10570318909374309.

Chafe, W. (1985). Linguistic Differences Produced by Differences between Speaking and Writing. In O. N. Torrance, & Hildyard, A. (Eds.), *Literacy, Language, and Learning: The Nature and Consequences of Reading and Writing* (pp. 105-122). Cambridge: Cambridge University Press:

Chanell, J. (1994). *Vague Language*. Oxford: Oxford University Press.

Authors. (2010). CETA in the Context of the Coruña Corpus. *Literary and Linguistic Computing*, 25 (2), 153-164.

Gläser, R. (1995). *Linguistic Features and Genre Profiles of Scientific English*. Frankfurt am Main: Peter Lang.

Görlach, M. (2004). *Text Types and the History of English*. Berlin: Walter de Gruyter.

Halliday, M. A. K. & Hasan, R. (1985). *Language, Context, and Text: Aspects of Language in a Social-Semiotic Perspective*. Deakin University: Deakin University Press.

Hyland, K. (1996). Writing without Conviction? Hedging in Science Research Articles. *Applied Linguistics*, 17(4), 433 – 453.

Hyland, K. (2002). Authority and invisibility: authorial identity in academic writing. *Journal of Pragmatics*, 34, 1091–1112.

Lakoff, G. (1972). Hedges: A study in meaning criteria and the logic of fuzzy concepts. *Chicago Linguistics Society Papers*, 8, 183-228.

Lakoff, R. T. (1990). *Talking power: The politics of language in our lives*. New York: Basic Books.

Lorenz, G. (1999). *Adjective Intensification- Learners versus Native Speakers. A Corpus Study of Argumentative Writing.*. Amsterdam & Atlanta: Rodopi.

Mischke, G. E. (2005). *Analysing 'involvement' in Distance Education Study Guides: An Appraisal-based Approach*.The University of South Africa.

Author. (2012). *CETA* as a tool for the study of modern astronomy in English. In Authors (Eds.) *Astronomy 'playne and simple'. The writing of science between 1700 and 1900*. (pp. 35-56). Amsterdam/Philadelphia: John Benjamins.

Prelli, L. J. (1989). *A Rhetoric of Science: Inventing Scientific Discourse*. Columbia, SC: University of South Carolina Press.

Quirk, R et al. (1985). *A Comprehensive Grammar of the English Language*. London: Longman.

Salager-Meyer, F. (1997). I think that perhaps you should: A study of hedges in written scientific discourse. In Miller, T. (Ed.) *Functional Approaches to Written Text: Classroom Applications*. Volume I (The Journal of TESOL France 2 (2)) (pp. 127-143). Washington, D.C: United States Information Agency.

Simpson, Rita C. 2004. Stylistic features of academic speech. The role of formulaic expressions. In Connor, U. & Upton, Th (Eds.) *Discourse in the Professions: Perspectives from Corpus Linguistics*. (pp. 37-64). Amsterdam/Philadelhia: John Benjamins.

author. (2015). Women writing science. The case of eighteenth-century authors in the *Coruña Corpus*. *Anglica. An International Journal of English Studies.* In press.