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ANALYSING THE *CORUÑA CORPUS:* SUBJECTIVITY AND INTERSUBJECTIVITY MARKERS

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ABSTRACT

This paper aims to analyse the concepts of subjectivity and intersubjectivity in scientific writing through the use of stance adverbs *perhaps* and *possibly*. These adverbs act as markers of the authors' presence expressing their views, and a covert relationship between these authors and their corresponding readership. The material used for this study includes four sub-corpora of the Coruña Corpus of English Scientific Writing: CETA (Corpus of English Texts on Astronomy), CEPhiT (Corpus of English Philosophy Texts), CHET (Corpus of English History Texts), and CELiST (Corpus of English Life Sciences Texts). Two of these represent the so-called soft sciences, and the other two the hard sciences, which will allow for comparison. The results might argue against the generally-assumed tendency in the history of scientific writing that this discourse has moved from being author-centred to object-centred. Perhaps it is simply impossible for writers of science to disappear completely from their texts.

Keywords: Late Modern English; stance; scientific discourse; subjectivity; intersubjectivity.

1. Introduction

It has been claimed that scientific writing has evolved over time from being author-centred to object-centred (Atkinson 1999). This view has, however, been challenged, insofar as the supposedly objective register of scientific discourse has been found to involve hedging (Hyland 1998) and elements expressing stance (Moskowich & Crespo 2014; Alonso-Almeida & Lareo 2016; Dossena 2017). This paper aims to describe late Modern English scientific writing by looking specifically at subjectivity and intersubjectivity (López-Couso 2010; Ferrari & de Almeida 2015) in the stance adverbs *perhaps* and *possibly*, seen as markers of authorial tentativeness and uncertainty as much as devices that seek the audience's

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involvement or approval in the presentation of certain ideas. The use of adverbs of stance of this kind not only shows authorial presence, but also demonstrates a somewhat covert interaction with the reader, rendering texts more engaging to their readership. This interaction uncovers a hidden relationship, one which in principle is difficult to imagine in scientific prose, and one which offers a different perspective on the way the message has been conveyed in scientific discourse and the extent to which terms such as *object-centred*, *dialogic*, or *intimate* are compatible with the description of late Modern English scientific discourse.

The material used for this study includes four sub-corpora of the Coruña Corpus of English Scientific Writing: CETA (Corpus of English Texts on Astronomy), CEPhiT (Corpus of English Philosophy Texts), CHET (Corpus of English History Texts), and CELiST (Corpus of English Life Sciences Texts). Two of these represent the so-called soft sciences and the other two represent the hard sciences. Differences in language use may be found in relation to the discipline in question, the time at which a text was produced, and the sex of the author. All these factors are recorded for all texts in the Coruña Corpus.

The paper is divided into five sections. This Introduction will be followed by an approach to the concepts of subjectivity and intersubjectivity in Section 2. The third section will describe the material used in the analysis. Our findings will be discussed in Section 4: both general findings, and also the findings of a variable analysis involving time, discipline, and genre (or communicative format) of the texts. Finally, in Section 5, some conclusions will be put forward.

2. An approach to the concepts of subjectivity and intersubjectivity: *perhaps* and *possibly*

As early as the 1980s, Ochs & Schieffelin (1989: 22) argued that the whole linguistic system is pervaded by affect and emotion, and that these are present at most levels of language: lexical, grammatical, phonological, syntactic, and discursive. The speaker's selection of particular items imprints subjectivity on the language (Kärkkäinen 2007: 703).

According to Nuyts (2015: 106), subjectivity refers to "'speaker presence' in language and language use (cf. Benveniste 1971). But the speaker is of course 'omnipresent' in linguistic behavior, hence may show up in it in numerous places and ways". There is a variety of different interpretations of the notion of subjectivity. For Lyons (1982: 102) 'subjectivity' concerns "the way in which natural languages, in their structure and their normal manner of operation, provide for the locutionary agent's expression of himself and of his own attitudes and beliefs"; whereas Closs Traugott (2002, 2010) considers subjectivity or subjectification as the output of a diachronic change, and Langacker (1990, 2008) understands it as forming part of one's conceptualisation of the world.

Over the last decade, however, it has also been observed that any notion of subjectivity is somewhat incomplete if we focus only on authorial choices and ignore the actual motivation behind such choices: that is, an awareness of the interlocutor, either reader or listener. When a speaker's utterances or a writer's script are produced with consideration for the other participants in a communicative exchange, we may introduce a new concept, that of intersubjectivity, or interactive subjectivity according to Scheibman (2001).

According to Jessica Benjamin, the concept of *intersubjectivity* originated in the social theory of Habermas (1970) "who used the expression 'the intersubjectivity of mutual understanding' to designate an individual capacity and a social domain" (Benjamin 1988: 320). Since then, and in spite of the fact that most people might intuitively grasp its meaning, the term is yet to be defined satisfactorily. It has often been used to refer to the shared meanings constructed in human interaction, used as an everyday resource to interpret the meaning of elements of social and cultural life. If people share a common understanding, then they also share a definition of the situation (Seale 2004).

The scientific register is usually seen as objective, characterised by "clarity, economy, rational argument supported by evidence, caution and restraint" (Bennett 2009: 52). This plain transmission of scientific facts is what has traditionally rendered information reliable and trustworthy in the readers mind, key factors for the social development of science during the late Modern period. This has not, however, always been the case; previous work on persuasion, abstraction and involvement (Moskowich 2013, 2017; Crespo 2015, 2017) has demonstrated that there is some inclination towards the manifestation of the authors' emotions in scientific texts. Recent research on present-day academic writing has also shown this (Hyland 2010, 2012, 2015).

Given that the human activity of language is inevitably connected with both social and psychological factors and, albeit originating initially in one subject, the main goal is to communicate or interact with others, some traces of (inter)subjectivity are therefore inevitably hidden in our linguistic production. In this paper we shall seek such traces through a microscopic study in which different uses of *perhaps* and *possibly* will be classified in terms of whether they refer only to the author expressing his own viewpoint (subjectivity) or include both author and reader and their shared knowledge (intersubjectivity).

The *Oxford English Dictionary* (*OED*, henceforth) provides several different definitions and synonyms for the adverbs *perhaps* and *possibly*. Of these, the ones that best fit our idea of the way science may be interpreted as less objective are set out below. For example, *perhaps* is said to be a form "Expressing a hypothetical, contingent, conjectural, or uncertain possibility: it may be (that); maybe, possibly". The history of this adverb points to a case of grammaticalization through which

perhaps developed in the nineteenth century as a modality marker encoding epistemic possibility (Suzuki 2018).

Example (1) below taken from the *OED* reflects this use

    (1) 1766 O. Goldsmith *Vicar of Wakefield* I. xix. 210 Perhaps I shall never see him or happiness more.

The OED also notes that it may be used "In a conditional clause (with *if*, *unless*, *lest*, etc.): as may happen or be the case; as is possible; by any chance", as in example (2):

    (2) 1853 C. Kingsley *Hypatia* II. ix. 218 There they would repent, and pray, and mourn out life side by side, if perhaps God would have mercy upon their souls.

As for the adverb *possibly*, and despite definitions in the *OED* shedding little light on the difference between *perhaps* and *possibly*, sentences containing *possibly* seem to have a more positive shade of meaning than those containing *perhaps*. Compare the semantics of the two simple clauses in example (3):

    (3) *Perhaps* you can do it vs. You can *possibly* do it

The use of *perhaps* denotes a remote possibility. In '*Perhaps* you can do it', the speaker is uncertain about the success of the action to be performed. In the utterance 'You can *possibly* do it', the speaker's attitude invites us to think that the action might indeed be successfully performed.

    The *OED* gives two meanings for *possibly* that we may again (based on pure linguist intuition) regard as looser, such as entry 1.a, further exemplified in (4). The sense here is equally subjective but more flexible, and is therefore maybe more likely to be used in the soft sciences:

1. a. In a possible manner; in accordance with what can or may exist, occur, be done, etc.; within the range of possibility; by any existing power or means, in any possible way. Chiefly, now only, used as an intensifier of *can* or *could*.

    (4) 1767 W. Blackstone *Comm. Laws* Eng. II. 295 A deed is a writing sealed and delivered by the parties… it is called a deed... because it is the most solemn and authentic act that a man can possibly perform, with relation to the disposal of his property.

On the other hand, the definition in 2, further exemplified in (5), seems to be firmer and therefore conceivably more likely to be found in texts dealing with the hard sciences.

2. Qualifying a statement, and expressing contingency or uncertainty (cf. possible adj. 3): according to what may be (as far as one knows); perhaps, maybe. Frequently used as an intensifier of *may* or *might*.

(5) 1711 J. Addison *Spectator* No. 98. 2 The Women might possibly have carried this Gothick Building much higher.

The different shades of meaning of these adverbs, together with the results obtained from the analysis, will be considered further in the discussion of the findings. The material used to study the possible subjective and intersubjective uses of both adverbs will be described in the following section.

3. Corpus material and methodology

As noted in the Introduction, we shall be using four sub-corpora of the Coruña Corpus of English Scientific Writing (CC, henceforth): CETA, CEPhiT, CHET, and CELiST. Each of these sub-corpora contains samples of texts dealing with a specific academic discipline published between 1700 and 1900. All the sub-corpora in the CC share a similar structure and also contain approximately the same number of words. Table 1 reflects this similar distribution and total number of words used for this study (ca 1,600,000 words):

Table 1. Number of words per subcorpus

Subcorpus	Words
CETA	409,909
CHET	404,424
CEPhiT	401,129
CELiST	400,305
Total	1,615,767

The structure of the CC determines that there is little difference between the disciplines in terms of total word count and words per century. As a consequence of its aim to be representative of the language of the Modern period, however, certain peculiarities may be observed regarding the distribution of the sex of authors and the communicative formats used. These are set out in Figures 1 and 2, since they will be relevant for this analysis.
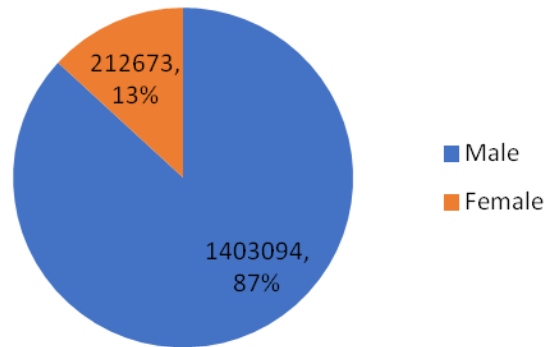
Figure 1. Distribution of the sex of authors in the four sub-corpora

With reference to the sex of the authors, only 13% of the total number of words in these sub-corpora corresponds to texts written by women. This proportion is in accordance with the social reality of the period. As we know, women were not expected to dedicate themselves to writing in general, and scientific writing in particular. Faithfulness to representativeness in the corpus has therefore been achieved at the expense of balance (Puente-Castelo & Monaco 2016; Puente-Castelo 2017). The genre distribution of the samples compiled is set out in Figure 2, below.
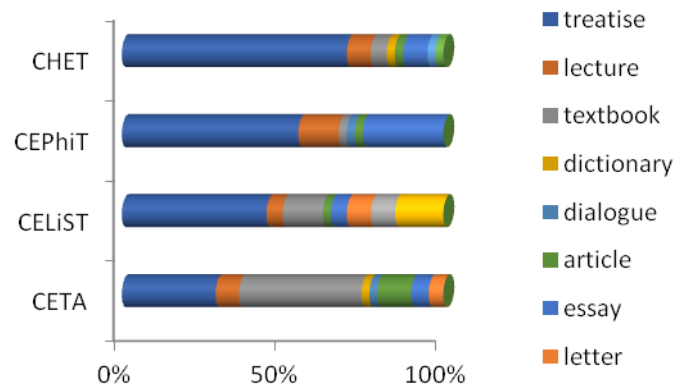

Figure 2. Distribution of the genre variable in the four sub-corpora

In terms of the distribution of genres (or communicative formats), Graph 2 above illustrates the popularity of the treatise, but this is probably determined by discipline. In fact, some previous studies have confirmed that genres are indeed predictably discipline-specific (Crespo 2015; Hyland 2015; Moskowich 2017). Here again, the intended faithfulness to the reality of the period when compiling the CC caused us to sacrifice balance and thus to provide an uneven number of samples for each genre.

Searches of the data were made using the Coruña Corpus Tool in order to retrieve all the instances of *perhaps* and *possibly*. Each of the resulting instances was manually classified as either subjective or intersubjective, after an analysis of its meaning in context.

4. Discussion of findings

This microscopic study will present our findings from two perspectives. Subsection 4.1. will describe the general results concerning the use of the two adverbs under scrutiny, and subsections 4.2. to 4.4. will look at the variables of time (of writing), sex of the author, and the communicative format of texts with a view to ascertaining whether such factors play a part in adverb choice. Finally, Section 4.5 will discuss the analysis of *possibly* and *perhaps* from the point of view of subjective and intersubjective uses, looking at the results here in light of the same variables.

4.1. General results

The raw figures in Table 2 show the extremely low proportion of the adverbs under analysis in our material, with the number of occurrences in each of the four sub-corpora set out.

Table 2. Occurrences of *possibly* and *perhaps* in the four subcorpora

Raw Figures						NF/10,000
Forms	CHET	CEPhiT	CETA	CELiST	Total	3.61
Possibly	20	46	24	25	115	0.71
Perhaps	76	212	64	117	469	2.90

As well as their low frequency in the corpus (3.61 per 10,000 words), some other general considerations may help understand the different uses of the two adverbs. We note that overall, *possibly* (0.71) occurs far less frequently than *perhaps* (2.9). The etymological origins of the adverbs in question might themselves be revealing here. The Germanic origin of the latter, together with its meaning, might therefore

have some bearing on it wider use. The analysis of the distinctive semantic features characterising each of the adverbs is also illuminating. *Possibly* is derived from Old French *possible*, taken in turn from the Latin *possibilis* 'that can be done' from *potere* 'be able'. On the other hand, *perhaps* derives from Middle English *per, par* 'by, through' + plural of *hap* 'chance', the model for structures such as *peradventure, perchance*, etc., these having now fallen out of use.

These shades of meaning coincide with what we mentioned in Section 2 above: that etymology might confirm our linguist/speaker intuition. If a scale from looser to firmer existed, *perhaps* would undoubtedly occupy the looser end of the scale, in that whatever it refers to seems to be caused by mere chance; whereas *possibly* is firmer in the sense that it relates to one's ability, determination or willingness to do something (Figure 3).

Possibility

Loose   Firm

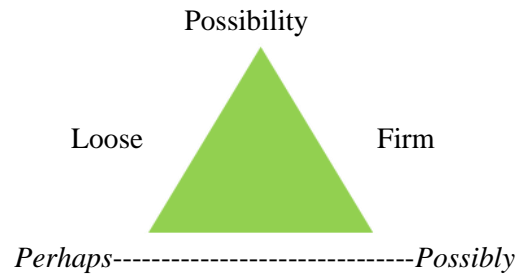*Perhaps*-----------------------------*Possibly*

Figure 3. meaning scale for *perhaps* and *possibly*

The distribution of these forms in our material shows different tendencies in samples in the hard (CETA, CELiST) and soft (CEPhiT, CHET) sciences, as may be seen in Table 3:

Table 3. Distribution of forms in the hard and soft sciences

Forms	Hard sciences	Soft sciences
possibly	0.3	0.41
perhaps	1.12	1.78

This general tendency suggests that *perhaps* is the form most often found across the two groups. The soft sciences, however, contain more of these adverbs, revealing the author's presence and train of thought. Such is the case with the large number of tokens found in the sub-corpora of Philosophy (268 of the total 584 instances) and History (96 instances). Both of these disciplines use narration to convey knowledge, perceptions, and points of view, allowing authors to incorporate their own beliefs and assumptions into their prose (Crespo 2017); in other words, they manifest their own subjectivity.

The analysis of these initial frequencies also reveals that *perhaps*, relating to chance, is slightly more frequent in the soft sciences, and we note that in such disciplines there is less expectation of scientific rigor or that they will attain the same level of exactitude as in the natural and exact sciences, represented here by Astronomy and Life Sciences, which indeed contain fewer instances (88 and 142 tokens, respectively).

In what follows we shall examine the way the variables of time, sex, and communicative format provide us with a different perspective on the data.

4.2. The time variable

Tables 4 and 5 below set out the frequencies in raw numbers of the two adverbs, in terms of occurrence in the eighteenth and nineteenth centuries.

Table 4. Tokens of *perhaps* per century

Perhaps	Period	
	18th c.	19th c.
CELiST	40	77
CEPhiT	96	13
CETA	29	35
CHET	33	43
TOTAL	198	168

Table 5. Tokens of *possibly* per century

Possibly	Period	
	18th c.	19th c.
CELiST	10	15
CEPhiT	33	13
CETA	6	18
CHET	10	10
TOTAL	59	56

As may be seen, there are no significant differences between the total numbers of tokens found in the eighteenth and the nineteenth centuries in either of the adverbs. This quasi-uniformity, with a slight tendency to decrease, might indicate that the expression of subjectivity or intersubjectivity by these adverbs is unrelated to the evolution of the scientific register during the late Modern English period. Some differences, however, may be noted.

With the passage of time, the use of *perhaps* increases in three of the four disciplines (Life Sciences, Astronomy, and History). Only in the case of Philosophy do we observe a dramatic decrease in the frequency of the occurrence of this adverb. The reason for these findings may be related to the variable of the author's sex insofar as this decrease coincides, curiously, with the absence of women writers in nineteenth-century Philosophy texts.

The frequency of *possibly* is much more stable: similar raw figures are found in History texts and there is a slight increase in samples from Life Sciences over the time frame. The figures diminish in Philosophy texts, as was the case with *perhaps*, whereas raw figures in nineteenth-century Astronomy samples are three times higher than in the eighteenth-century samples. There seems no obvious reason for this distribution within this analysis, and perhaps it may be attributed to random patterns of behaviour, or to hitherto unexplored factors.

4.3. The sex variable

More surprising are the findings provided by a detailed analysis of the sex of the author. In general, although there are only 21 women authors represented in the material, compared to 140 men, differences in the use of the adverbs under analysis, once normalised to 10,000 words, is insubstantial: 3.34 for women vs 3.66 for men. Accordingly, there seems little evidence suggesting that the use of one or the other adverb is determined by the sex of the author.

In terms of disciplines, some findings merit discussion. The presence of the adverbs is certainly irregular, as shown in the normalised figures in Figure 4 below, where we see that neither men nor women clearly stand out in terms of their use. Philosophy texts by women, however, exhibit the largest number (9.27 nf) of the types *perhaps* and *possibly*, although we must bear in mind that no Philosophy text by female authors was compiled for the nineteenth-century section of CEPhiT, and thus that these normalised figures reflect purely eighteenth-century patterns of use here. Curiously, the second most abundant use of these forms is found in Astronomy (in CETA) which is a radically different discipline, containing figures, measurements, proportions etc. It is also curious that only two samples by women have been found in CETA, which means that these two authors use the forms much more frequently than their 39 male colleagues.
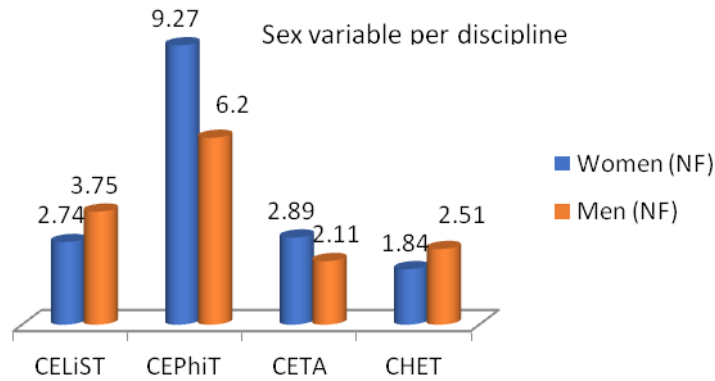
Figure 4. Use of adverbs according to the sex variable per discipline

CELiST and CHET represent those disciplines (Life Sciences and History, respectively) where *perhaps* and *possibly* are least commonly used by women (2.74 vs 3.75 in CELiST; 1.84 vs 2.51 in CHET). As was the case with the findings discussed above, we are dealing here with one discipline pertaining to the hard sciences and another to the soft sciences. Although initially it seems that male and female authors use these adverbs differently depending on the subject-matter they are writing about, no firm conclusions may, however, in fact be made regarding sex and discipline.

   If we proceed with the analysis of each adverb, we observe slightly different distributions in the material.
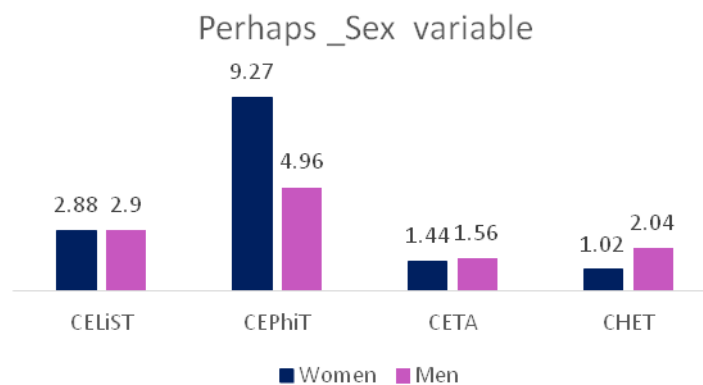

Figure 5. *Perhaps* used by men and women

The most noticeable difference in the use of *perhaps* is in the Philosophy sub-corpus, where normalised figures for women's use are 9.27 (per ten thousand words) compared to 4.96 for men. Although only three women writers are represented in the eighteenth-century Philosophy texts, we might nevertheless explain these figures in terms of the tentative nature of female discourse here, a kind of hedging or reticence that emerges particularly when dealing with knowledge, values, or reality.

The presence of *perhaps* is homogeneous in CELiST (2.88 vs 2.90) and CETA (1.44 vs 1.56), the two sub-corpora of the hard sciences (Life Sciences and Astronomy respectively). Curiously, this adverb is less common in History texts written by women (1.02) than in those written by men (2.04). Authors narrating history are conditioned by facts and events and are compelled to adhere to these in their writing in order to meet the requirements of reliability and trustworthiness of the register. By contrast, philosophical writing seems to be more open to the flow of thought in which manifestations of imprecision, as well as the involvement of the inner self, are felt to be appropriate.

Possibly is less frequently used by women than men (see Figure 6 below). It is instructive to recall here that this adverb conveys a positive meaning, insofar as it conveys the probability of something happening or coming true, or at least a positively-charged possibility.
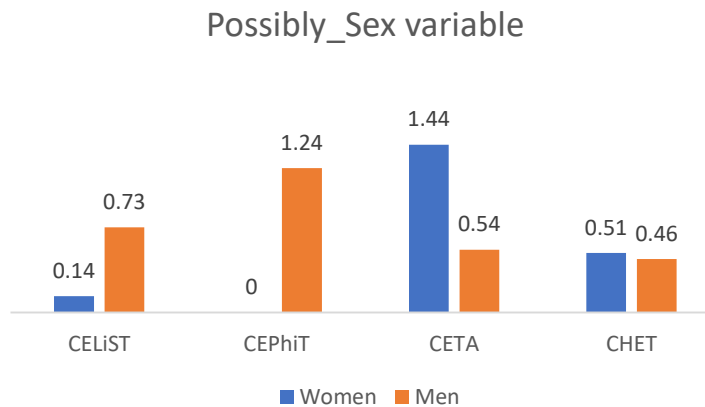
Possibly_Sex variable

Figure 6. *Possibly* used by men and women

The data reveal that it is in CHET (0.51 for women vs 0.46 for men) and CETA (1.44 for women vs 0.54 for men) that female writers use *possibly* more frequently than their male counterparts. As shown in Graph 5, the gap in Astronomy texts is apparently sharp, especially when considering that, as has already been mentioned, just two women authors are included in CETA.

A more detailed analysis, however, reveals that only one of the two female authors writing on Astronomy (Agnes Mary Clerke) uses *possibly*, and she does so on only three occasions.

The analysis of *possibly* in CELiST is surprising, in that the results (0.14 female vs 0.73 male) differ from those found in the other three corpora. Women tend to use *possibly* more frequently in all disciplines except Life Sciences. The degree of certainty over a contingent action expressed by this adverb seem not to fit easily into the style of a variety of formats used by women: Letter, Lecture, Guide, Catalogue, and Textbook.

The use of *possibly* and *perhaps* according to the variable communicative format will be explored below.

4.4. Communicative format

In terms of the way the communicative format determines the use of the types *possibly* and *perhaps*, Essay sees the highest (normalised) frequency (6.07), followed by Article (4.6) and Lecture (4.06). Nearby on the scale we also find Dialogue (4) and Biography (3.99). It is notable here that the general formats considered most appropriate for the expression of scientific content, both in written and oral media, are those exhibiting the highest frequencies. It is also curious and somewhat contradictory, however, that other more discipline-specific formats such as Biography also show high frequencies. This may be due to the discipline that format often represents, History, and the sort of humanistic description that the format typically conveys in History texts.
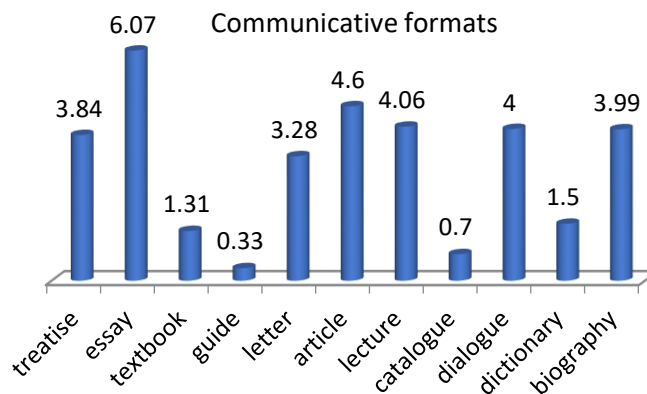

Figure 7. Overview of uses of *perhaps* and *possibly* per communicative format

Contradictions also arise with other specialised formats, as is the case with Catalogue (0.7) and Guide (0.33), which occupy the opposite end of the scale. This reflects the idea of discipline as an intervening factor here.

From the two adverbs under examination that can express either subjectivity or intersubjectivity, our data reveal that *perhaps* is most frequently used in Essays (5.14), Dialogues (4), and Lectures (3.99). The adverb *possibly* is extensively used in Biography (1.99) and Article (1.89). The lack of homogeneity in these results may suggest that there is no real reason behind the use of one or the other, but rather the mere expression of a greater or lesser degree of certainty, as we noted above in the discussion of the etymology of the terms.
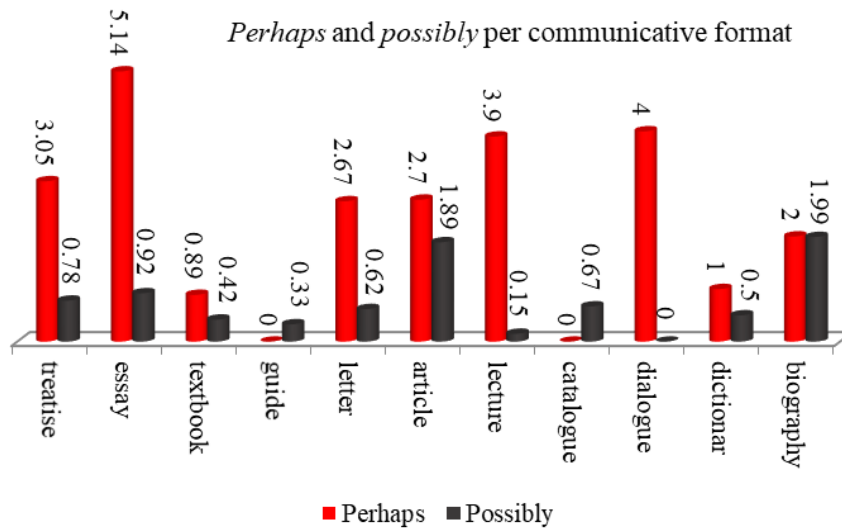

Figure 8. Uses of *perhaps* and *possibly* represented in the different formats

What we are able to confirm is that there seems to be a general tendency for some formats, in accordance with patterns of objectivity, to use fewer or even none of these forms (Guide, Catalogue, Textbook) in contrast with those favouring more argumentation and debate with the readership (Essay, Lecture, Dialogue), as the figures in Figure 8 above show. Dialogue and negotiation seem to favour the expression of the authorial self.

4.5. Subjectivity and intersubjectivity in *possibly* and *perhaps*

After a thorough examination of all the instances of *possibly* and *perhaps* found in the sub-corpora under examination, we have observed that the expression of

subjectivity and intersubjectivity is unbalanced. The two forms tend to be used most commonly as manifestations of authorial presence, i.e., adding an author's opinions and considerations to the proposition (Nuyts 2015). The results are set out in Table 6 below:

Table 6. Frequency of use of *perhaps* and *possibly* expressing (inter)subjectivity

	Subjectivity	Intersubjectivity
Perhaps	427	42
Possibly	103	12
Total	530	54

Examples (6) and (7) below illustrate the interpretation of subjectivity and intersubjectivity that has been adopted for this paper. In (6) the writer manifests uncertainty about the fact he is relaying:

    (6) between one and two millions in their structure insects are <perhaps> more complicated than any other animals this is partly due (Packard 1898: 1)

The use of *perhaps* in (7) reveals the way the author invokes the interlocutor(s) participation, with whom an atmosphere of common knowledge is shared (Seale 2004).

    (7) joyous faces and warm hearts while to some of us <perhaps> who have passed the sunshine of life its bright green (Lankester 1879: 92)

The expression of subjectivity (530 uses) represented by both *perhaps* and *possibly* clearly predominates over the expression of intersubjectivity (54 uses). The speaker's presence is, on most occasions, manifested through the use of *perhaps* (427 uses) and, to a lesser extent, by *possibly* (103 uses). As for the meanings they transmit, the author using *perhaps* conveys an attitude of insecurity, uncertainty, and tentativeness in regard to the utterance which may be reinforced by the parallel use of modal verb groups, as example 8 shows:

    (8) to that of a greater impelling power a libertarian may <perhaps> be diſpoſed to acknowledge that we always act in obedience (Crombie 1793: 24)

In example 9 the linguistic visibility of the author is enhanced by a stance adverb, *indeed*, which contributes to the manifestation of the author's opinion and viewpoint:

(9) formed and long perſiſted in but originally grounded on authority
    <perhaps> indeed the moſt reſpecʈable are adhered to with the utmoſt
    (Kirwan 1811: 420)

Possibly may also embody authorial beliefs or personal views, as in (10):

(10) be more rapidly and satisfactorily advanced in improvement than can
      <possibly> be hoped for so long as imagination is permitted to (Godman
      1878: 29)

In the above example the author not only expresses a propositional thought, but
he is adding what he expects to be the outcome, the positive value that something
is going to happen or be performed, according to his previous statement.

   We understand intersubjectivity in the sense of an author addressing the reader
when expressing his or her views, i.e., the author making linguistic choices that
involve the addressee. The frequency of occurrence of *perhaps* and *possibly* used
in this sense decreases dramatically (42 cases of *perhaps* vs 12 cases of *possibly*).
Examples (11) and (12) below illustrate these uses:

(11) the thorax not to cruſh it more than you can <poſſibly> avoid or if you
      have it between the fans of (Donovan 1794: 47)

(12) law was king and went hand in hand with credit <perhaps> if we were to
      inquire how it was that such (Burrows 1895: 176)

Example (11) illustrates what Scheibman (2001: 77–79) calls "interactive
subjectivity", as authors mould their discourses by using modal verbs and second-
person pronouns to invoke the readership as interlocutors in the speech act. In
example (12) *perhaps* comes close to the clause it modifies and this clause
incorporates an inclusive *we* that places both participants in the speech act at the
same level. The writer is evaluating the utterance, but he is additionally trying to
get the readership involved in the content of the message.

4.5.1. Hard vs soft sciences

As has already been mentioned, our choice of material for the analysis of the
behaviour of *perhaps* and *possibly* includes four disciplines that allow us to study
such behaviour in the soft and in the hard sciences, this under the assumption that
the former may be more likely to include a higher number of these forms than the
latter. It is also worth considering the ways in which subjectivity and
intersubjectivity are expressed in both cases.

In fact, the findings illustrated in Figure 9 reveal that, as in previous studies (Crespo 2018; Moskowich 2018), it may be said that the soft sciences incorporated more subjective expressions than the hard sciences, even in the late Modern period.
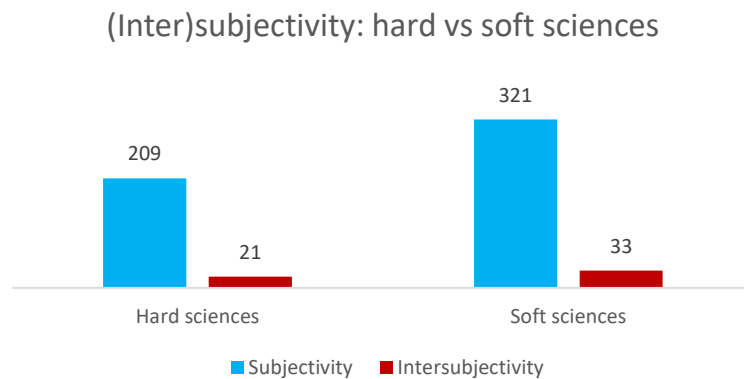
(Inter)subjectivity: hard vs soft sciences

Figure 9. The expression of (inter)subjectivity in hard and soft sciences

The soft sciences (Philosophy, History) seem to express subjective and intersubjective views more commonly than the hard sciences (Astronomy, Life Sciences). Even if the difference in the expression of subjectivity is great, this is not the case in intersubjective uses, where raw figures are almost the same.

When analysing each individual discipline, we see that Philosophy texts exhibit the highest number of subjective uses. In contrast, figures in the History samples are, comparatively speaking, much lower, especially when compared to those from Life Science texts. These figures are illustrated in Figure 10 below:
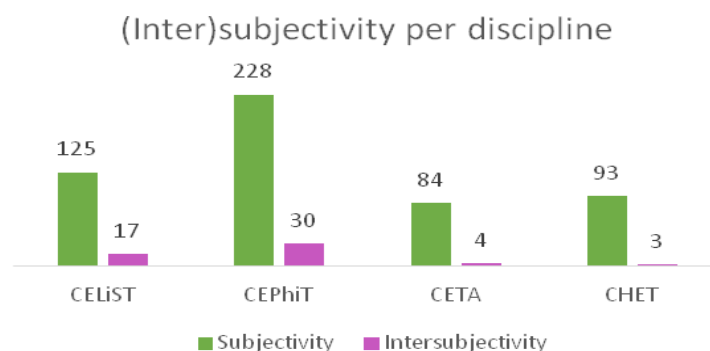
(Inter)subjectivity per discipline

Figure 10. The expression of (inter)subjectivity in the four disciplines

Curiously, figures in CHET (93 tokens for subjectivity and 3 for intersubjectivity) are closer to those in CETA (84 and 4 respectively). Life Sciences and Astronomy at this stage are purely observational sciences that admit the authorial voice more easily than purely narrative sciences such as History, which with the exception of a travelogue written in the eighteenth century, moves towards the objectivising trend favoured by the advance of historiography (Moskowich 2017; Crespo 2018).

4.5.2. The diachrony of (inter)subjective uses

The subjective and (inter)subjective uses of *perhaps* and *possibly* vary across time. In terms of percentages and proportions the overall figures in the eighteenth century reveal that subjective uses predominated insofar as they represent 93% of the total, the remaining 7% corresponding to intersubjective meanings. There is an increase in intersubjectivity in the nineteenth century: 11% of such uses are recorded, as opposed to the 89% of the forms conveying subjectivity.

From a purely diachronic point of view an increase in the nineteenth-century samples in general is clear, as the trend lines in both uses indicate (see Figure 11 below).
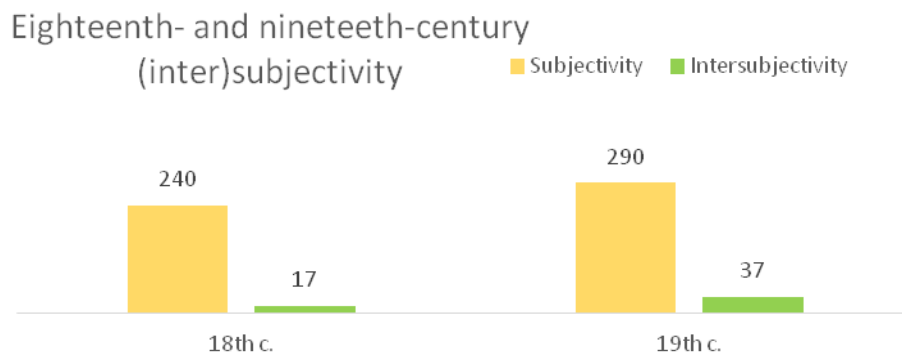

Figure 11. (Inter) subjective uses over time

This is, however, not a homogeneous growth, as subjective uses increase by 20.83%, whereas intersubjective uses increase by 117.65%. What may be concluded, then, is that these two adverbs largely expand their intersubjective meanings over the course of time with the subsequent involvement of the readership that this implies. Such a rise in authorial presence is paralleled by an extraordinary rise in authors' anxiety about making clear their concern for their

readership and the need to open science up to the opinions and values of its addressees. As Puente-Castelo (2017: 26) would have it, writers of science have to make their research visible among their epistemic community, but "they also need to move their audience towards consensus, emphasising commonality (that is, shared knowledge and values) to vindicate their status as members of the scientific community". This was a way of predisposing the addressee to agree with their claims.

The individual analysis of each of these forms, expressing either one or the other meaning in each century, is presented in Figure 12 below. The abundance of *perhaps* manifesting only the author's viewpoint in both the eighteenth and the nineteenth centuries (185 and 242 respectively) eclipses by far the subjective meaning of *possibly* (55 and 48) together with other intersubjective references (13 and 29 for *perhaps*; 4 and 8 for *possibly*) in a quantitative analysis. There is nevertheless one case in which uses do not increase. The subjective meanings of *possibly* decrease in the nineteenth century, following an opposite tendency in the eighteenth for an overall upward trend. Authors seem to use this adverb less due to the assertiveness it conveys on the part of the author alone.

Perhaps and possibly: (inter)subjectivity over time

185 242 13 29 55 48 4 8

Subjectivity Intersubjectivity Subjectivity Intersubjectivity
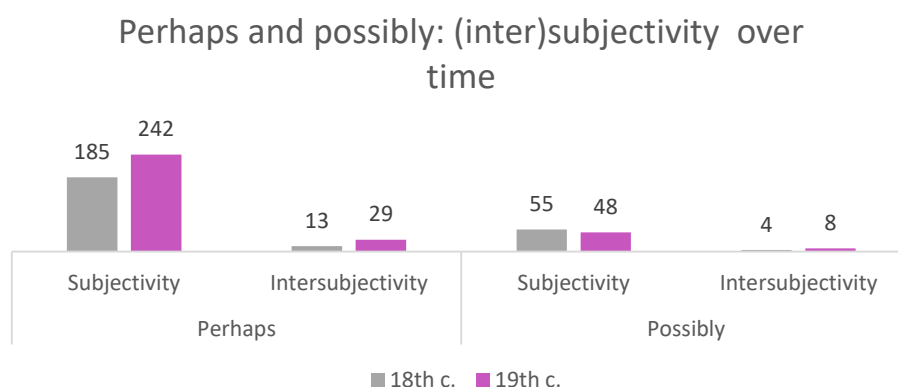Perhaps Possibly

■ 18th c. ■ 19th c.

Figure 12. (Inter)subjectivity of *perhaps* and *possibly* over time

A different picture is seen in the case of intersubjectivity, insofar as its use enhances the author's position before, and hence with, the readership, which adds to and reinforces writer-reader commitments.

(13) if he had been poor instead of rich he might <possibly> have lived less good a life even as Themistocles… (Bonar 1893: 12)

(14) this might be done with a world of innocence but <perhaps> reader you'll ſay here lies the miſchief there's fleſh and… (Dunton 1710: 6)

Intersubjectivity is what Seale (2004) defines as "the common-sense, shared meanings constructed by people in their interactions with each other and used as an everyday resource to interpret the meaning of elements of social and cultural life" (in Pearce 2011: 52). In the above examples the basic pillar of intersubjectivity lies in the shared knowledge of the external circumstances that both interlocutors must have for the effective interpretation of the message.

In what follows we will apply two other variables to the use of *perhaps* and *possibly*. Sex is the first of these.

4.5.3. Are women more prone to express subjectivity or intersubjectivity than men?

In an attempt to answer this question, I have analysed and compared the uses of these in texts written by men and women, and the results are presented in Table 7 below.

Table 7. Frequency of uses indicating (inter)subjectivity in men and by women

	Subjectivity	Intersubjectivity
Women	2.9	0.28
Men	3.33	0.34

In general terms we may say that no dramatic differences might be attested in relation to the sex of authors here, despite the fact that women in their communicative exchanges are generally viewed as more amenable to the expression of subjectivity (Lakoff 1973; Coates 2015). It might be the case that spontaneous conversation or dialogue, everyday language, and scientific writing do not all follow the same discourse patterns, even when we analyse the overt manifestation of the author through specific examples of language.

As for the referential values of the subjectivity or intersubjectivity of the two forms under analysis, the variable sex seems to add no extra information, insofar as the frequency of use of these meanings is quite similar in texts written by men or women. Although males uses are slightly higher than female (see Table 7 above), the lack of any striking differences between the sexes may be interpreted as a hint of uniformity in late Modern English scientific discourse. If we consider that the number of male writers (87% of the material under survey) greatly surpasses that of females (13%), we might infer that it is male writers who dictate the patterns of scientific discourse at the time, and that in this female authors simply follow these patterns.

The third variable at stake here is communicative format, given that some of these may be felt to be more inclined to manifestations of (inter)subjectivity than others.

4.5.4. Are some communicative formats more likely to see the expression of subjectivity or intersubjectivity?

Figure 13 below illustrates our findings on the use of the adverbs under examination when dealing with their distribution across the different communicative formats contained in our material. Essay is the format exhibiting the highest number of instances expressing subjectivity (5.20) and intersubjectivity (0.87). Article (4.46), Dialogue (4), and Biography (3.99) follow Essay in containing instances that indicate subjectivity. These, however, do not coincide with those containing forms of *perhaps* and *possibly* when manifesting intersubjectivity: Letter (0.82), Lecture (0.61), and Guide (0.50). These are more interactive formats in the sense that they necessarily consider the possible readership as being part of the author's discourse, setting the addressee's perspective onstage (Verhagen 2006: 343).
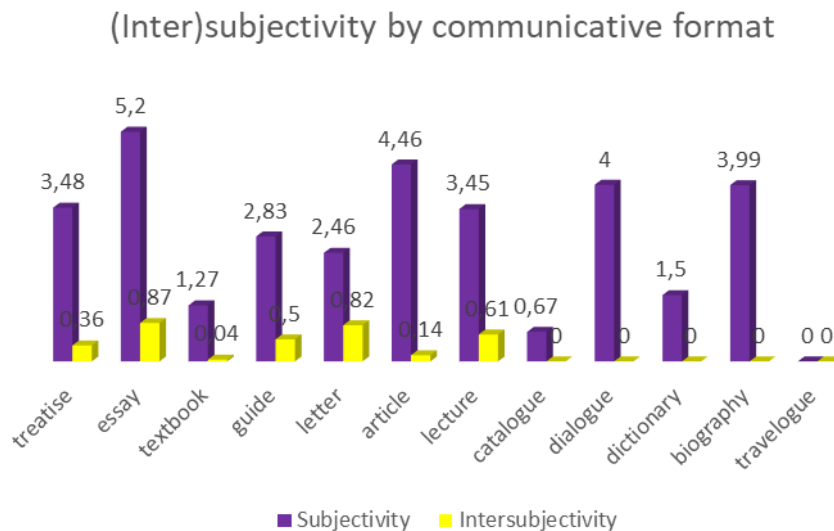

Figure 13. (Inter)subjectivity in communicative formats

It is worth noting here that those formats normally used as channels to express intimacy or in which authors feel most comfortable for the expression of inner feelings (such as Letters) contain the highest frequency of intersubjective references. Letters are also interactive and dialogic *per se*, and thus it is unsurprising to find these frequencies here, however objective scientists try to be. It may be the very structure of the format that determines this and makes it recognisable as an example of a particular genre. The examples below illustrate cases of *perhaps* with either intersubjective (15) or subjective (16) meaning:

(15) above the water would be what we call an island <perhaps> you think of
the bottom of the ocean as one (Agassiz, 1859: 29)

(16) from their interior parts and from their surfaces it appears <perhaps>
incredible that so thin a substance should be visible (Olmsted, 1841: 318)

Feedback from the readership is also a feature of Lectures, originally part of the
oral medium but more recently fixed in writing. In oral communication authors
seek a response from the audience to individual perceptions of facts, although this
is minimised to a great degree in transferring speech to writing.

5. Final remarks

Assuming that both *perhaps* and *possibly* are indexical of stance and authorial
presence, the initial research question involved detecting any of these adverbs in
late Modern scientific writing as compiled in the *Coruña Corpus*. The differences
in etymological origin (Germanic and Romance respectively) and pragmatic
meaning (loose and firm senses of possibility) might account for the more frequent
use of *perhaps* than *possibly* (2.90 vs 0.71 in normalised figures respectively). The
two adverbs under survey, when analysed in context, showed traces either of
subjectivity in terms of authorial identity and personal opinions, or, of
intersubjectivity, inviting the readership to share similar viewpoints and to become
involved. The expression of subjectivity is more frequent than the expression of
intersubjectivity (530 vs 54 cases). Bearing in mind the variables analysed, we have
also seen that the frequency of occurrence of these adverbs increases in the
nineteenth century, which fits well with the claims of authors investigating present-
day English academic writing, for whom this discourse is less objective than it was
assumed in principle to be (Hyland 1998, 2015). This specific discourse might
derive from the real need of scientific writers to negotiate knowledge with all the
members of the scientific community, a notion which is also confirmed by an
increase in the number of cases manifesting intersubjectivity.

Both adverbs are also more commonly used in the soft (354 forms) than in the
hard sciences (230 forms), which seems to confirm the less objective character of
the former. All these expected answers coincide with the data on the sex variable:
unexpectedly, men seem to be slightly more frequent users of these adverbs than
women (3.66 vs 3.34), despite the supposition that women are more emotional
than their male counterparts. This difference is relatively small and might be
explained on the grounds of women's overreaction to the classical canons of
scientific discourse during the period and their need to reaffirm themselves as
science writers. Curiously enough, however, I have found that texts written by
women contain more of these forms in Philosophy than in those written by men

(9.27 vs 6.20), and in Astronomy texts women also use these adverbs more frequently than men (2.89 vs 2.11). Regarding communicative formats, Essay, Article, and Dialogue reveal the highest frequencies of occurrence for both *perhaps* (5.60, 4.42, 4) and *possibly* (expressing subjectivity, contrary to what might be expected as the predominant format is that of treatise). Essay also predominates even in terms of intersubjectivity (0.87), despite other formats occupying the second and third positions: Letter and Lecture (0.82, 0.61). The new experimental Essay that emerged towards the second half of the seventeenth century contains a description of personal scientific experiences in a clear but detailed way, and this might account for the use of stance adverbs such as *possibly* and *perhaps*, even in the nineteenth century, a time which in principle is more respectful of object-centred patterns. Although limited, there was some space for personal reflection in essays of this kind where tentativeness was also present.

This study has sought to demonstrate that, however objective and impersonal scientific writing has been claimed to be, the analysis of personal features in scientific prose texts from the eighteenth and nineteenth centuries seems to indicate the conscious presence of the author in these writings, or at least the fact that the presence of the author has never been completely neglected in scientific discourse. The objectivising trend that has characterised the evolution of current forms of expressing scientific/academic content is not, therefore, in conflict with some linguistic markers of authorial identity or even with linguistic cues of interaction between writer and reader. There has always been a sense of discursive community in which the negotiation of knowledge and its dissemination has contributed definitively to the development of science.

REFERENCES

Alonso-Almeida, Francisco & Inés Lareo. 2016. The status of *seem* in the nineteenth-century Corpus of English Philosophy Texts (CEPhiT). In Isabel Moskowich, Gonzalo Camiña, Inés Lareo & Begoña Crespo (eds.), *'The conditioned and the unconditioned': Late Modern English texts on philosophy*, John Benjamins. 145–165. DOI: 10.1075/z.198.08alo

Atkinson, Dwight. 1999. *Scientific discourse in sociohistorical context: The Philosophical Transactions of the Royal Society of London, 1675–1975*. Routledge.

Benjamin, Jessica. 1988. *The bonds of love: Psychoanalysis, feminism, and the problem of domination*. Pantheon.

Bennett, Karen. 2009. English academic style manuals: A survey. *Journal of English for Academic Purposes* 8(1). 43–54. DOI: 10.1016/j.jeap.2008.12.003

Benveniste, Emile. 1971. *Problemas de lingüística general*. Siglo Veinitiuno.

Closs Traugott, Elisabeth. 2002. From etymology to historical pragmatics. In Donka Minkova & Robert Stockwell (eds.), *Studies in the history of the English language: Millennial perspectives,* Mouton de Gruyter. 19–49. DOI: 10.1515/9783110197143.1.19

Closs Traugott, Elisabeth. 2010. (Inter)subjectivity and (inter)subjectification: A reassessment. In Kristin Davidse, Lieven Vandelanotte & Hubert Cuyckens (eds.), *Subjectification, intersubjectification and grammaticalization*, De Gruyter Mouton. 29–70. DOI: 10.1515/9783110226102.1.29

Coates, Jennifer. 2015. *Women, men and language. A sociolinguistic account of gender differences in language* (3rd edn.). Routledge.

Crespo, Begoña. 2015. Women writing science in the eighteenth century: A preliminary approach to their language in use. *Anglica. An International Journal of English Studies*. 24(2). 103–127.

Crespo, Begoña. 2017. Creating an identity of persuasion in history texts. In Francisco Alonso-Almeida (ed.), *Stancetaking in Late Modern English scientific writing. Evidence from the* Coruña Corpus*. Essays in honour of Santiago González y Fernández-Corugedo*, Universitat Politècnica de Valéncia. 41–55.

Crespo, Begoña. 2018. Women's presence in scientific texts and prefatory material: keeping track of persuasion. Unpublished paper presented at the 10th CILC Conference, University of Cáceres, Spain.

Crespo, Begoña, 2019. How intimate was the tone of female history writing in the Modern period? Evidence from the *Corpus of History English Texts*. In Isabel Moskowich, Begoña Crespo, Luis Puente-Castelo & Leida Maria Monaco (eds.), *Writing history in Late Modern English: Explorations of the Coruña Corpus*, John Benjamins. 186–213. DOI: 10.1075/z.225.10cre

Dossena, Marina. 2017. A matter of opinion: Stancetaking in Late Modern English historiography. In Francisco Alonso-Almeida (ed.), *Stancetaking in Late Modern English scientific writing. Evidence from the* Coruña Corpus*. Essays in honour of Santiago González y Fernández-Corugedo*, Universitat Politècnica de Valéncia. 27–39.

Ferrari, Lilian & Paloma de Almeida. 2015. Subjectivity and intersubjectivity in conditionals: Temporal backshifting strategies in Brazilian Portuguese. *Alfa: Revista de Linguística* 59(1). 91–112. DOI: 10.1590/1981-5794-1502-4

Habermas, Jürgen. 1970. Towards a theory of communicative competence. *Inquiry: An Interdisciplinary Journal of Philosophy* 13(1–4). 360–375. DOI: 10.1080/00201747008601597

Hyland, Ken. 1998. *Hedging in scientific research articles*. John Benjamins. DOI: 10.1075/pbns.54

Hyland, Ken. 2002. Authority and invisibility: Authorial identity in academic writing. *Journal of Pragmatics* 34(8). 1091–1112. DOI: 10.1016/S0378-2166(02)00035-8

Hyland, Ken. 2010. Metadiscourse: Mapping interactions in academic writing. *Nordic journal of English Studies* 9(2). 125–143. DOI: 10.35360/njes.220

Hyland, Ken. 2012. *Disciplinary identities: Individuality and community in academic writing*. Cambridge University Press.

Hyland, Ken. 2015. Genre, discipline and identity. *Journal of English for Academic Purposes* 19. 32–43. DOI: 10.1016/j.jeap.2015.02.005

Kärkkäinen, Elise. 2007. Stance taking in conversation: From subjectivity to intersubjectivity. *Text & Talk. An Interdisciplinary Journal of Language, Discourse & Communication Studies* 26(6). 699–731. DOI: 10.1515/TEXT.2006.029

Lakoff, Robin, 1973. Language and woman's place. *Language in Society* 2(1). 45–79. DOI: 10.1017/S0047404500000051

Langacker, Ronald W. 1990. Subjectification. *Cognitive Linguistics* 1(1). 5–38. DOI: 10.1515/cogl.1990.1.1.5

Langacker, Ronald. 2008. *Cognitive grammar: A basic introduction*. Oxford University Press. DOI: 10.1093/acprof:oso/9780195331967.001.0001

López-Couso, María José. 2010. Subjectification and intersubjectification. In Andreas H. Jucker & Irma Taavitsainen (eds.), *Historical pragmatics*, De Gruyter Mouton. 127–163. DOI: 10.1515/9783110214284.3.127

Lyons, John. 1982. Deixis and subjectivity: Loquor, ergo sum? In Robert J. Jarvella & Wolfgang Klein (eds.), *Speech, place, and action: Studies in deixis and related topics*, John Wiley & Sons. 101–124.

Moskowich, Isabel. 2013 Eighteenth century female authors: Women and science in the *Coruña Corpus of English Scientific Writing. Australian Journal of Linguistics* 33(4). 467–487. DOI: 10.1080/07268602.2013.857570

Moskowich, Isabel. 2017. Genre and change in the Corpus of History English Texts. *Nordic Journal of English Studies* 16(3). 84–106. DOI: 10.35360/njes.413

Moskowich, Isabel. 2018. A corpus-based approach to female involvement in the *Coruña Corpus of English Scientific Writing*. Unpublished paper presented at the 10th CILC Conference, University of Cáceres, Spain.

Moskowich, Isabel. 2019. An Introduction to CHET, the *Corpus of History English Texts*. In Isabel Moskowich, Begoña Crespo, Luís Puente-Castelo & Leida Maria Monaco (eds.), *Writing history in Late Modern English: Explorations of the* Coruña Corpus, John Benjamins, 42–56. DOI: 10.1075/z.225.03mos

Moskowich, Isabel & Begoña Crespo. 2014. Stance is present in scientific writing, *indeed*. Evidence from the *Coruña Corpus of English Scientific Writing. Token: A Journal of English Linguistics* 3. 91–114.

Nuyts, Jan. 2015. Subjectivity: Between discourse and conceptualization. *Journal of Pragmatics* 86. 106–110. DOI: 10.1016/j.pragma.2015.05.015

Ochs, Elinor & Bambi Schieffelin. 1989. Language has a heart. *Text* 9(1). 7–25. DOI: 10.1515/text.1.1989.9.1.7

Oxford English Dictionary Online. 2009. Oxford University Press. (accessed on 28/11/2017)

Pearce, Celia. 2011. *Communities of play: Emergent cultures in multiplayer games and virtual worlds*. MIT Press.

Puente-Castelo, Luís. 2017. *On conditionality: A corpus-based study of conditional structures in Late Modern English scientific texts*. Unpublished PhD dissertation, Universidade da Coruña.

Puente-Castelo, Luis & Leida Maria Monaco. 2016. ʿit is proper ſubſerviently, to inquire into the nature of experimental chemiſtry': Difficulties in reconciling discipline-based characteristics and compilation criteria in the selection of samples for CECheT. In Antonio Moreno Ortiz & Chantal Pérez-Hernández (eds.), *CILC2016. 8th International Conference on Corpus Linguistics*, EPiC. 1.351–360. DOI: 10.29007/tk5m

Scheibman, Joanne. 2001. Local patterns of subjectivity in person and verb type in American English conversation. In Joan L. Bybee & Paul J. Hopper, (eds.), *Frequency and the emergence of linguistic structure,* John Benjamins. 61–89. DOI: 10.1075/tsl.45.04sch

Seale, Clive (ed.). 2004. *Researching society and culture* (2nd edn.). Sage Publications.

Suzuki, Daisuke. 2018. The semantics and pragmatics of modal adverbs: Grammaticalization and (inter)subjectification of *perhaps*. *Lingua* 205. 40–53.
DOI: 10.1016/j.lingua.2017.12.014

Verhagen, Arie. 2006. *Constructions of intersubjectivity. Discourse, syntax, and cognition.* Oxford University Press. DOI: 10.1093/acprof:oso/9780199226702.001.0001