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8 **Mitigation of claims in medical research papers: A comparative study of English** 8  
9 **and Spanish writers** 910  
11 MARÍA LUISA CARRIÓ-PASTOR 10  
1112 *Universitat Politècnica de Valencia, Spain* 12  
1314 **Abstract** 1415  
16 *This study identifies variation in the use of mitiga-* 15  
17 *tion devices in medical written English between au-* 16  
18 *thors with English as their first language and those* 17  
19 *with Spanish as their first language. A corpus of 30* 18  
20 *medical research papers written in English and pub-* 19  
21 *lished in international journals was compiled, 15 by* 20  
22 *researchers with Spanish as their first language and* 21  
23 *15 by native English-speakers, and this was com-* 22  
24 *pared with a second corpus of 15 medical papers* 23  
25 *written in Spanish. By a comparative analysis of how* 24  
26 *mitigation devices were used in both corpora, it was* 25  
27 *possible to establish whether their frequency and the* 26  
28 *rhetorical strategies adopted varied depending on* 27  
29 *the writers' linguistic background.* 2830 *Keywords: epistemic markers; medical English; miti-* 29  
31 *gation; modal markers; variation* 30  
3233 **1. Introduction** 3334  
35 English is the most often used language to record 34  
36 advances in medical research and for formal com- 35  
37 munication between medical researchers, and the 36  
38 focus of this study is whether writers of medical 37  
39 papers in English differ in the way they mitigate 38  
40 the claims they make depending on whether they 39  
41 have English as their first language or as their 40  
42 second or a foreign language. The hypothesis 41  
43 thus being tested is that linguistic background 42  
44 influences the way Spanish writers express miti- 43  
45 gation. As such, the present study contributes 44  
46 to previous research on the extent to which the 45  
47 pragmatic processes of writers reveal the same 46  
48 or different patterns in language depending on 47  
4914  
15 their linguistic background (Hyland and Tse 2004; 14  
16 Ádel 2006; Mur-Dueñas 2011; Alonso-Almeida 15  
17 2015). The study examines variation in the use of 16  
18 mitigation devices in medical English by writers 17  
19 with Spanish and English as their first languages, 18  
20 while also shedding light on the different rhe- 19  
21 torical strategies used in this genre to mitigate 20  
22 claims. A further objective is to analyse whether 21  
23 and to what extent the writers' first language is 22  
24 responsible for this variation. 2325  
26 Three considerations are central to this study. 25  
27 First, academic writers find themselves in a 26  
28 continuous negotiation with language, and in a 27  
29 continuous back-and-forth when transmitting 28  
30 meaning and trying to persuade their readers. 29  
31 Thus, when authors write in a foreign lan- 30  
32 guage, they are expected to adapt the way they 31  
33 express their ideas to the conventions of the 32  
34 target language and readership (Hinkel 2009; 33  
35 Mauranen 2012). However, despite adapting to 34  
36 the target culture in the context of a globalised 35  
37 world, different writers use certain linguistic 36  
38 devices in particular ways, and concepts may 37  
39 be transmitted using different linguistic strate- 38  
40 gies (Martín Martín 2008; Carrió-Pastor 2013, 39  
41 2014; Carrió-Pastor and Muñoz Calderón 2013; 40  
42 Alonso-Almeida and Carrió-Pastor 2015). 4142  
43 This may produce synchronic variation in lan- 42  
44 guage, which is the second consideration for this 43  
45 paper. This refers to different manifestations of 44  
46 the same concept in a language that are not mis- 45  
47 takes or errors: although writers share knowledge 46  
48 of the specialist content and academic forms of 47  
49 expressing their thoughts, synchronic variation 48  
may appear when writers use a foreign language 49

(see e.g. Reppen *et al.* 2002; Schneider 2003; Carrió-Pastor 2005, 2013; Schreier 2009; Carrió-Pastor and Muñiz Calderón 2012). The detection of variation in the way speakers communicate may give some hints of the way language is structured and how it changes.

The third consideration is pragmatic processing, the way that speakers conform to rules that are not as straightforward as grammatical conventions. In this paper, this means the rhetorical strategies used by medical writers to mitigate claims in academic writing. It may be thought that pragmatic issues are implicit in language acquisition and so mitigation devices are used intuitively, but I believe that to understand the modification of a speech act one must attend to issues such as linguistic differences and identities. One linguistic feature that clearly exemplifies variation in rhetorical strategies is metadiscourse – specifically, hedging.

The following section discusses the different definitions and classifications of mitigation devices and the function of hedges in medical English. Section 3 then describes the different research papers compiled, the taxonomy of mitigation devices and the procedure of the study. Qualitative and quantitative results are given and some examples from the corpus are discussed in Section 4, ahead of the conclusion.

## 2. Mitigation

Linguistic mitigation can be defined as the action of lessening the illocutionary force of a statement. Mitigation has been studied from different perspectives, but for the most part focusing on emotional, strategic and pragmatic processing (Martinovski 2006). The majority of such studies have been devoted to the analysis of the use of mitigation strategies in one language (Flores-Ferrán 2010; Czerwionka 2012, 2014; Thaler 2012; Flores-Ferrán and Lovejoy 2015), although studies that compare mitigation in two languages include Martinovski (2006), Martín Martín (2008), Bella (2011) and Alonso-Almeida (2015).

The function of mitigation has also been a focus of study, as it navigates considerations of politeness, certitude or imposition as rhetorical strategies. On politeness, this paper refers to Brown and Levinson's (1978, 1987) model, which is founded on the concept of *face* and refers to two basic needs of speakers: to be approved of by others (positive face) and to have their actions and thoughts unimpeded by others (negative face). Face is 'something that is emotionally invested, and can be lost, maintained, or enhanced, and must be constantly attended to in interaction' (Brown and Levinson 1978: 66).

Table 1. *Taxonomies of mitigation devices.*

Author/s	Categories of mitigation devices
Martín Martín (2008)	epistemic modality approximators first personal pronouns verbs of cognition or performative verbs quality-emphasising adjectival/adverbial expressions agentless passive/impersonal constructions impersonal active constructions
Czerwionka (2012)	interpersonal markers, discourse markers epistemic markers
Flores-Ferrán and Lovejoy (2015)	parenthetical verbs hedges pauses tag questions, challenge questions discourse markers

1 Some authors have proposed categorisations of  
 2 mitigation devices. However, the various propos-  
 3 als outlined in Table 1 refer to mitigation devices  
 4 in an informal context or in an academic context,  
 5 which are both different from that considered in  
 6 this study. In this paper, I focus on the mitigation  
 7 functions of hedges, understood as ‘an important  
 8 rhetorical strategy which allows them [research-  
 9 ers] to mitigate the strength of scientific claims  
 10 in order to reduce the potential threat that new  
 11 claims make on other researchers’ (Martín Martín  
 12 2008: 134, referring to Myers 1989). Hübler defines  
 13 hedges and understatements as ‘two manipulative  
 14 non-direct sentence strategies of saying less than  
 15 one means [...] Their aim is to make sentences  
 16 more acceptable and thus to increase their chance  
 17 of ratification by the hearer’ (Hübler 1983: 23).

18 Hedges have been identified and classified  
 19 into different taxonomies by several researchers,  
 20 such as Salager-Meyer (1994) (e.g. modal auxili-  
 21 aries, modal lexical verbs, adjectival, adverbial  
 22 and nominal modal phrases, approximators of  
 23 degree, quantity, frequency and time, introduc-  
 24 tory phrases, certain ‘if’ clauses), Hyland and  
 25 Tse (2004) (e.g. *might*, *perhaps*, *it is possible* and  
 26 *about*), Martín Martín (2008) (e.g. strategies  
 27 of indetermination [epistemic modality and  
 28 approximators], subjectivisation [first person  
 29 pronouns and quality-emphasising adjectival  
 30 and adverbial expressions] and depersonalisa-  
 31 tion [agentless passive and impersonal active  
 32 constructions]), Hu and Cao (2011) (e.g. modal  
 33 auxiliaries, epistemic lexical verbs, epistemic  
 34 adjectives and adverbs and miscellaneous) and  
 35 Mur-Dueñas (2011) (e.g. modal auxiliaries,  
 36 verbs, nouns, adjectives and adverbs).

37 It is important to note that hedges as mitiga-  
 38 tion devices are often used in medical English,  
 39 as explained by Hyland:

40 [b]ecause of potential opposition to such  
 41 claims, however, and the uncertain status of  
 42 much medical knowledge, writers often need  
 43 to present their claims cautiously, accurately,  
 44 and modestly to meet the exacting expectations  
 45 of a skeptical disciplinary community. As a  
 46 result, mitigation elements are commonplace in  
 47 medical writing because they express possibility  
 48 rather than certainty and deference rather than  
 49 overconfidence. (Hyland 2006: 694)

1 In this study, I am not so interested in the study of  
 2 hedges *per se*, but rather in the study of the hedges  
 3 used to express mitigation in medical research  
 4 papers to lessen the certainty of the truth value of  
 5 the proposition or the responsibility of the writers.  
 6

### 7 3. Data corpora and methodology

8 In this study, two corpora were compiled: a  
 9 corpus of 30 medical research papers written  
 10 in English and a corpus of 15 medical research  
 11 papers written in Spanish. The former consisted  
 12 of 30 medical research papers collected during  
 13 2014 and 2015, amounting to 170,964 running  
 14 words. This corpus was itself composed of two  
 15 sub-corpora: 15 of the papers were written in  
 16 English by Spanish-speaking researchers (from  
 17 now on, SWEs – Spanish writers of English)  
 18 and 15 were written in English by native  
 19 English writers (NEW). All of the papers had  
 20 been published in international journals. The  
 21 Spanish-language corpus was made up from  
 22 papers published in national journals in 2014,  
 23 and amounted to 86,553 running words.  
 24

25 The research papers were all selected from  
 26 online journals devoted to the study of various  
 27 areas of medical research. Additional factors  
 28 such as the type and prestige of the journal  
 29 and the length of the papers were also taken  
 30 into account when designing the corpora. The  
 31 medical writers were chosen by taking into  
 32 account their affiliation and emails were sent to  
 33 the main authors to check that their first lan-  
 34 guage was Spanish or English, in order to ensure  
 35 that the data extracted for the identification of  
 36 cross-cultural differences was reliable.

37 The basic statistical data obtained after the  
 38 automatic analysis of the corpora with *Word-*  
 39 *Smith Tools 5.0* (Scott 2009) can be seen in Table  
 40 2. The next step in this study was to read both  
 41 corpora carefully and select the items that were  
 42 included in the initial broad classification of  
 43 mitigation devices, based on the proposals by  
 44 Martín Martín (2008) and Czerwionka (2012).  
 45 The mitigation devices were classified into two  
 46 categories as follows, taking into consideration  
 47 the fact that the corpora were composed of  
 48 written academic texts, and the specificity of the  
 49 field, medical research:



Table 2. Basic statistics of the two corpora analysed.

Basic statistics	English medical sub-corpus written by Spanish researchers	English medical sub-corpus written by native-language researchers	Spanish medical corpus written by Spanish researchers
Tokens (running words)	91,016	79,948	86,553
Types (distinct words)	8,522	8,060	9,563
Type/token ratio	11.08	11.62	12.81
Mean word length	4.69	5.04	4.50
Sentences	4,014	3,273	4,052
Mean (in words)	19.15	21.19	18.42

- a. Epistemic markers
  - a.1. Modal auxiliary verbs
  - a.2. Semi-auxiliary verbs
  - a.3. Epistemic verbs
  - a.4. Modal nouns, adverbs and adjectives
- b. Discourse markers
  - b.1. Approximators
  - b.2. Impersonal constructions

In the category of epistemic markers, a mixed approach was used for the selection of the devices for each sub-category: the classification offered by the literature was taken into account, but finally only those items that acted as mitigation devices in the corpora were included in the list. Thus, following the proposal of von Fintel and Gillies (2007), the English modal verbs included as mitigation devices were: *must*, *might*, *may*, *would*, *should*, *can* and *could*. In the end, only *might*, *may*, *can*, *would* and *could* were included in the results, as no occurrences of *must* and *should* acting as mitigation devices were found in the English corpus. The modal auxiliary verbs found to be acting as mitigation devices in the Spanish corpus were: *podría*, *sugerir*, *debería* and *puede*, along with other verbs whose meaning was mitigated with the use of the Spanish conditional morpheme (*-ría*).

The semi-auxiliary verbs included in the study, suggested by Martín Martín (2008) and detected in the corpora, were, in the case of the English corpus, *to seem* and *to appear*, and in the Spanish corpus, *parecer*. In the sub-category of epistemic English verbs, *to suggest*, *to speculate*, *to assume*, *to think*, *to guess*, *to suppose* and *to consider* were included, along with the Spanish verbs *sugerir*, *especular*, *asumir*, *creer*, *adivinar*, *suponer* and

*considerar*, drawing on Czerwionka (2012). Finally, the subcategory of modal nouns, adverbs and adjectives (Martín Martín 2008; Alonso-Almeida and González-Cruz 2012) included the following English items: *probably*, *possibly*, *perhaps*, *possibility*, *assumption*, *probability*, *possible*, *likely*, *maybe*, *suggestion* and *probable*. For the Spanish corpus, the following were included: *a lo mejor*, *probablemente*, *posiblemente*, *quizás*, *lo más seguro*, *posibilidad*, *suposición*, *sugerencia*, *posible*, *sugerido* and *probable*.

The English items *generally*, *approximately* and *relatively*, and in Spanish *generalmente* and *aproximadamente*, were included as discourse markers, the second category of interest in this paper, within the sub-category of approximators (Martín Martín 2008). In the case of the other sub-category, that of impersonal constructions, the devices included in the study and found in the corpus were *that is* and impersonal constructions (passive and impersonal subject) for English, and, for Spanish, *es decir*, impersonal *se*, and the passive voice.

Once the devices to be included in the taxonomy had been identified, the occurrences were automatically checked with *WordSmith Tools* (Scott 2009). The texts were then analysed manually by four informants to test if the elements identified were used to mitigate the proposition of the writer. Quantitative and qualitative analyses were carried out: the former to compare the frequency of mitigation devices by native and non-native speakers of English and that of Spanish-speaking researchers, and the latter to identify examples of the most outstanding mitigation devices used in medical academic English. The occurrences were

counted and then the frequencies per 1000 words were calculated. Also, a chi-square statistical analysis was performed to check the significance of the results found, using a significance level of <math>0.05</math>. Finally, the conclusions were drawn.

#### 4. Results and discussion

Quantitative results obtained from the analysis of the papers written in English and in Spanish are detailed below, while Section 4.2. discusses examples from the corpora as part of the qualitative analysis of the data.

##### 4.1. Quantitative analysis

In the case of the corpus of English-language academic papers, 546 mitigation devices (6.82 per 1000 words) were found in the sub-corpus of papers written by NEW and 566 (6.21 per 1000 words) in the sub-corpus of English papers written by SWE: occurrences. However, in the corpus of medical papers in Spanish and written by native Spanish speakers, only 313 (3.61 per 1000 words) mitigation devices were found. The total numbers of occurrences of mitigation devices found in the category of epistemic markers in English per thousand words can be seen in Table 3, along with (in square brackets) the level of statistical significance of the difference between the texts written by the Spanish- and the English-speaking writers.

The epistemic markers were used to show uncertainty about the truth of an assertion and also to establish alternative viewpoints. The medical writers used mitigation devices in order to suggest and present the results in a neutral way. Considering that the professional context of the papers analysed is that of medicine, I believe that the medical writers used mitigation devices to lessen the strength of their statements and frame their propositions as if they were hypothetical, with the intention of being approved by others. Following the politeness model of Brown and Levinson (1978), some writers of medical English may think that the use of assertive modal verbs is intrinsically threatening to face. In this sense, Table 3 reveals a statistically significant difference for all categories except for modal

nouns, adverbs and adjectives. For example, with regard to the modal auxiliary verbs, the NEW used *may* (1.52 vs 1.06 occurrences per 1000 words) and *might* (0.52 vs 0.25) more frequently than the SWE.

However, the SWE demonstrated a preference for the modal verb *can* (1.20 vs 0.70) as a mitigation device. In the case of semi-auxiliary verbs, the NEW showed a preference for the use of *to appear* (0.17 vs 0.05), whereas *to seem* (0.05 vs 0.12) was preferred by the SWE. In the sub-category of epistemic verbs, the NEW displayed a preference for *to suggest* (0.43 vs 0.23), while the SWE favoured the use of *to assume* (0.17 vs 0.08), *to think* (0.06 vs 0.01) and *to consider* (0.50 vs. 0.28). There are two verbs that I would like to draw attention to as they are more typical in non-academic contexts: *to speculate*, used by the NEW but not by the SWE, and *to guess*, used just once by the SWE. In the sub-category of modal nouns, adverbs and adjectives, the NEW preferred the use of *probably* (0.10 vs 0.04), *possibly* (0.12 vs 0.02), *likely* (0.27 vs 0.10) and *perhaps* (0.07 vs 0.00). In the case of the SWE, they used *assumption* (0.13 vs 0.02), *probability* (0.28 vs 0.11) and *possible* (0.47 vs 0.27) more frequently.

For most of the results obtained for epistemic markers, there were significant differences between the two sub-corpora, as the  $p$  value obtained for almost all of the data was <math>0.05</math>. The  $p$  value was 0.68 in the total results of the category modal nouns, adjectives and adverbs.

The epistemic markers were mostly found in the results, discussion and conclusion sections of the papers analysed in both sub-corpora, as the medical writers chose not to mitigate their statements when presenting the objectives or theoretical background of their papers.

The data concerning the use of discourse markers as mitigation devices can be seen in Table 4. Statistically significant differences were found between the two sub-corpora in all cases. Amongst the most noteworthy is the fact that the NEW demonstrated a preference for the use of impersonal constructions (0.60 vs 0.36) to mitigate their statements, with one of these being a structure which is characteristic of academic English: the passive voice. The use of the passive voice (0.30 vs 0.13) and impersonal subjects

Table 3. Occurrences of epistemic markers in the two sub-corpora of SWE and NEW.

English Epistemic Markers	Sub-corpus of English papers written by NEW. Raw occurrences / per 1000 words / [p]	Sub-corpus of English papers written by SWE. Raw occurrences / per 1000 words / [p]
Modal auxiliary verbs	296 / 3.70 [0.02]	325 / 3.57 [0.02]
<i>can</i>	56 / 0.70 [0.00]	110 / 1.20 [0.00]
<i>could</i>	44 / 0.55 [0.00]	68 / 0.74 [0.00]
<i>may</i>	122 / 1.52 [0.00]	97 / 1.06 [0.00]
<i>might</i>	42 / 0.52 [0.00]	23 / 0.25 [0.00]
<i>would</i>	32 / 0.40 [0.00]	27 / 0.29 [0.00]
Semi-auxiliary verbs	18 / 0.22 [0.01]	16 / 0.17 [0.01]
<i>to seem</i>	4 / 0.05 [0.00]	11 / 0.12 [0.00]
<i>to appear</i>	14 / 0.17 [0.00]	5 / 0.05 [0.00]
Epistemic verbs	69 / 0.86 [0.00]	93 / 1.02 [0.00]
<i>to suggest</i>	35 / 0.43 [0.00]	21 / 0.23 [0.00]
<i>to speculate</i>	2 / 0.02 [0.00]	0 / 0.00 [0.00]
<i>to assume</i>	7 / 0.08 [0.00]	16 / 0.17 [0.00]
<i>to think</i>	1 / 0.01 [0.00]	6 / 0.06 [0.00]
<i>to suppose</i>	1 / 0.01 [0.00]	3 / 0.03 [0.00]
<i>to consider</i>	23 / 0.28 [0.00]	46 / 0.50 [0.00]
<i>to guess</i>	0 / 0.0 [0.00]	1 / 0.01 [0.00]
Modal nouns, adverbs and adjectives	86 / 1.07 [0.68]	105 / 1.05 [0.68]
<i>probably</i>	8 / 0.10 [0.00]	4 / 0.04 [0.00]
<i>possibly</i>	10 / 0.12 [0.00]	2 / 0.02 [0.00]
<i>perhaps</i>	6 / 0.07 [0.00]	0 / 0.0 [0.00]
<i>possibility</i>	7 / 0.08 [0.01]	5 / 0.05 [0.01]
<i>assumption</i>	2 / 0.02 [0.00]	12 / 0.13 [0.00]
<i>probability</i>	9 / 0.11 [0.00]	26 / 0.28 [0.00]
<i>possible</i>	22 / 0.27 [0.00]	43 / 0.47 [0.00]
<i>likely</i>	22 / 0.27 [0.00]	10 / 0.10 [0.00]
<i>maybe</i>	0 / 0.00 [0.00]	1 / 0.01 [0.00]
<i>suggestion</i>	0 / 0.00 [0.00]	1 / 0.01 [0.00]
<i>probable</i>	0 / 0.00 [0.00]	1 / 0.01 [0.00]
Total	469 / 5.86 [0.72]	539 / 5.82 [0.72]

(0.20 vs 0.09) were devices that native speakers showed a greater preference for in comparison with non-native speakers of English.

As stated in the methodology section above, the second part of the study involved the analysis of a corpus of fifteen papers written in Spanish by Spanish-language researchers, in order to compare the results obtained from the English-language corpus, and to verify whether first-language influence might be the cause of the variation found in the corpus of papers written

in English by the Spanish-speaking researchers. Table 5 shows the data for the use of Spanish epistemic markers as mitigation devices.

When the total occurrences of each sub-category of the epistemic markers used to express mitigation are compared, the normalised frequencies of occurrences per 1000 words are lower in the corpus of Spanish medical papers than in the English-language corpus written by native Spanish speakers: 2.06 modal auxiliary verbs vs 3.57; 0.08 semi-auxiliary verbs vs 0.17;

Table 4. Occurrences of discourse markers used as mitigation devices.

English Discourse Markers	Sub-corpus of English papers written by English writers. Raw occurrences / per 1000 words / [p]	Sub-corpus of English papers written by Spanish writers. Raw occurrences / per 1000 words / [p]
Approximators	29 / 0.36 [0.00]	9 / 0.09 [0.00]
generally	6 / 0.07 [0.00]	3 / 0.03 [0.00]
approximately	16 / 0.20 [0.00]	3 / 0.03 [0.00]
relatively	7 / 0.08 [0.00]	3 / 0.03 [0.00]
Impersonal constructions	48 / 0.60 [0.00]	27 / 0.29 [0.00]
that is	8 / 0.10 [0.00]	6 / 0.06 [0.00]
passive	24 / 0.30 [0.00]	12 / 0.13 [0.00]
impersonal subject	16 / 0.20 [0.00]	9 / 0.09 [0.00]
Total	77 / 0.96 [0.00]	36 / 0.39 [0.00]

Table 5. Occurrences of epistemic markers in the Spanish corpus.

Spanish Epistemic Markers	Corpus of Spanish papers written by Spanish writers. Raw occurrences / per 1000 words
Modal auxiliary verbs	179 / 2.06
<i>puede</i>	43 / 0.49
<i>podría</i>	35 / 0.40
<i>sugerir</i>	8 / 0.09
<i>debería</i>	42 / 0.48
<i>parecería</i>	8 / 0.09
<i>consideraría</i>	19 / 0.21
Other verbs with conditional morpheme <i>-ía</i>	24 / 0.27
Semi-auxiliary verbs	7 / 0.08
<i>Parecer</i>	7 / 0.08
Epistemic verbs	33 / 0.38
<i>sugerir</i>	6 / 0.06
<i>especular</i>	1 / 0.01
<i>asumir</i>	1 / 0.01
<i>creer</i>	3 / 0.03
<i>adivinar</i>	0 / 0.00
<i>suponer</i>	3 / 0.03
<i>considerer</i>	19 / 0.21
Modal nouns, adverbs and adjectives	47 / 0.54
<i>a lo mejor</i>	0 / 0.00
<i>probablemente</i>	5 / 0.05
<i>posiblemente</i>	1 / 0.01
<i>quizás</i>	0 / 0.00
<i>lo más seguro</i>	0 / 0.00
<i>posibilidad</i>	3 / 0.03
<i>suposición</i>	0 / 0.00
<i>sugerencia</i>	0 / 0.00
<i>posible</i>	28 / 0.32
<i>probable</i>	9 / 0.10
<i>sugerido</i>	1 / 0.01
Total	266 / 3.07



0.38 epistemic verbs vs 1.02; and 0.54 modal nouns, adverbs and adjectives vs 1.05. This could be an effect of the long tradition in academic English of including mitigation, which the SWE have noticed and emulated. The Spanish academic tradition is not as old and well-developed as that of the English-speaking world, and the results seem to reflect this.

It is also worth noting that the modal auxiliary verbs *puede* (0.49 per 1000 words) and *debería* (0.48 per 1000 words) were the most frequent mitigation devices found in this corpus, just as the most frequently used devices in the SWE sub-corpus were *can* and *may*. In the sub-category of epistemic verbs, *considerar* (0.21 per 1000 words) is the most frequently used, just as *to consider* was also the most frequently used by the SWE. Finally, in the sub-category of modal nouns, adverbs and adjectives, *posible* (0.32) is the most frequently used, just as *possible* was the most frequent in the SWE sub-corpus; the writers make sentences more acceptable to increase their chance of ratification by the reader.

These results seem to refute the hypothesis that the native language influences the way Spanish writers express mitigation. Similar epistemic markers are used in both languages, English and Spanish, but whereas there is a clear difference in the frequency of their appearance in papers written in English and those in Spanish, the overall results obtained from the analysis of the two sub-corpora of English papers were similar and only a detailed analysis

could bring out the differing uses of the devices identified.

The epistemic markers were found in the results, discussion and conclusion sections of the research papers written by the SWE. Table 6 shows the data for the discourse markers used as mitigation devices. From Tables 5 and 6, one can see that Spanish writers again did not use many devices to mitigate in Spanish their results or findings. The less frequent use of mitigation devices in the Spanish medical research articles suggests that Spanish researchers preferred not to mitigate their results with rhetorical devices. This may be a consequence of the academic tradition in Spanish, which is different to that of English-speaking academic culture, in which there is a greater tendency for writers to protect face by using mitigation.

However, it is important to note that the SWE used mitigation devices to make weaker claims about their results and findings and to be approved by others. It seems that the researchers adapted their rhetorical strategies to the linguistic conventions of the language in question, being more assertive in Spanish while mitigating their claims in English. It should also be taken into account that these results might also be influenced by the changes suggested by reviewers or journal editors to the medical writers. Further, it is worth pointing out that Mur-Deñas (2011) obtained similar results to those described in this paper, finding that Spanish researchers used fewer hedges than English researchers in business research papers.

Table 6. Occurrences of discourse markers in the Spanish corpus.

Discourse Markers	Corpus of Spanish papers written by Spanish writers. Raw occurrences / per 1000 words
Approximators	9 / 0.10
generalmente	6 / 0.06
aproximadamente	3 / 0.03
Impersonal constructions	38 / 0.43
es decir	1 / 0.01
passive	12 / 0.13
impersonal se	25 / 0.28
Total	47 / 0.54



#### 4.2. Qualitative analysis

Below are six examples from the corpora of NEW and SWE, along with a reference number for the particular paper being quoted. A quote from the Spanish-language corpus follows as the seventh example. Each quote is followed by discussion of its implications. Emphases in non-italics have been added.

[1] NEW: *'Thus, the contribution eye and hand movements alone may make to the modulation of pain may require further investigation. Similarly, the contribution that movement makes to interventions reporting a reduction in pain is not clear.'* [MEentx1]

The native speakers of English use the modal verb *may* to make the hypothesis more acceptable and thus to increase the chance of ratification by the intended reader. The medical writers protect their face by using *may* since this modal verb helps to reduce the imposition on the readers. The fact that the contribution of the eye and hand movements is perceived as possible rather than factual is a means of weakening the claims made, and, as is further explained, the experiment 'requires further investigation' and 'is not clear.' The medical writers use the modal verb *may* to be approved by others and this device leaves space for future research or contrary findings.

[2] SWE: *'The design and implementation of protocols for maintaining blood glucose control in the hospital may be a useful tool for all professionals. Diabetes management in hospital setting may be offered effectively by either primary care physicians or hospitalists, but the involvement of appropriately trained specialists or specialty teams may reduce length of stay, improve glycemic control and improve outcomes.'* [MEsptx4]

*May* was used by the SWE in a similar way to native speakers of English. In this medical sub-corpus a strong need was observed to express findings and conclusions tentatively so that

colleagues could validate the results presented (positive face).

[3] SWE: *'It can be hypothesized that, in our study, ALA induces an efficient intracellular increase in both NQO-1 and HO-1, which in turn, protecting endothelial cells, counteracts the induction of Eng and the release of its soluble form.'* [MEsptx2]

In this example, it can be observed that one of the most frequent modal verbs used by the SWE is *can*, as a mitigation device. It is used to soften the meaning of 'hypothesized' in the conclusion section, increasing the chance of being ratified by the reader. The writers lessen their findings with the use of a modal of possibility that is reinforced with the verb 'hypothesize'.

[4] NEW: *'Thus despite the strong evidence for a mechanism whereby the HP22 variant could be expected to increase vascular activation and vasoconstriction in the inflammatory and haemolytic condition of SCA, our data does not support this suggestion. An explanation for this might be that HP is overwhelmed in SCA.'* [MEentx13]

The NEW used *could* infrequently to mitigate their claims, with other mitigation devices such as *perhaps*, *possibly*, *can*, *might*, etc., being generally preferred. In the same paragraph, it can be seen that *could* was used, but later on the medical writers preferred to use *might*. In the initial part of the sentence, the writers used *could* to mitigate the initial claim, but at the end of the sentence, the medical writers made it clear that the study results did not validate their hypothesis, with the use of the mitigation device *suggestion* ('our data does not support this *suggestion*'), making the initial use of *could* all the more important.

[5] SWE: *'[...] our study does not show an improved glycemic control that could be explained by some factors, such as low compliance and adherence to treatment, underdosing, infrequent dose adjustments and failure to administer insulin doses as prescribed. Moreover, other reasons could*


1 explain this apparent lack of effectiveness  
2 of the basal bolus therapy in our setting.  
3 [MEsptx1]  
4

5 The SWE preferred the use of *could* in the  
6 sub-corpus in order to transmit uncertainty  
7 and mitigation of claims. This may be a literal  
8 translation of the Spanish verb *podría*, which  
9 is quite widely used in Spanish. So, this may be  
10 due to the influence of the first language of the  
11 writers, as has been seen above in the results of  
12 the use of mitigation devices in Spanish.  
13

14 [6] SWE: 'Since the presence of EV-RNA in  
15 serum is a marker of viremia, which is  
16 assumed to last only a few weeks at most  
17 [...]' [MEsptx10]  
18  
19

20 [7] Spanish texts: "Tras la implementación  
21 de todas estas medidas, el número de  
22 casos semanales compatibles con QCE  
23 fue descendiendo, tras un pico entorno a  
24 febrero y marzo, aunque con alguna nueva  
25 oleada (no tan relacionados estos casos ya  
26 con un contagio hospitalario y que podrían  
27 ser resultado más bien de una transmisión  
28 secundaria)." [MSestx7]  
29

30 This is an example of the use of the conditional  
31 morpheme *-ía* of lexical verbs as a mitiga-  
32 tion device in Spanish. The modal verb *podría*  
33 mitigates the assertive proposition '*resultado*  
34 *más bien de una transmisión secundaria*', as the  
35 medical writers do not provide evidence in the  
36 form of bibliographical references or previous  
37 tests to support this fact: the writers are merely  
38 speculating about a possible reason for the result.  
39

40 In s study, it has been shown that Spanish  
41 medical researchers favoured the use of mitiga-  
42 tion devices when they presented their research  
43 in English, while they did not use so many  
44 devices to mitigate their claims when Spanish  
45 was the language of communication. The  
46 Spanish researchers tended to be more assertive  
47 when presenting the results of their research in  
48 Spanish. Therefore, the results of this study seem  
49 to suggest that the use of mitigation devices

1 did not only depend on the language used in 1  
2 a particular genre, as has been stated in previ- 2  
3 ous studies (Mur-Dueñas 2011), but also on the 3  
4 rhetorical and cultural conventions of the target 4  
5 language and the expected readership. As Martín 5  
6 Martín has explained: 6

7 The English-speaking writers resort more 7  
8 frequently to making their claims more tenta- 8  
9 tive and indeterminate, and thus mitigate the 9  
10 strength of their assertions in a bid to achieve 10  
11 greater acceptance from the members of the 11  
12 research community. (Martín Martín 2008: 148) 12

13 Following the analysis of the data from the 13  
14 corpora, I also believe that medical writers 14  
15 adapted to the conventions of the target language 15  
16 in order to avoid being criticised and to gain the 16  
17 approval of their peers. 17  
18

## 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49

### 5. Conclusions

As shown above, mitigation can be expressed by  
various rhetorical devices. The use of epistemic  
or discourse markers to express scientific imprec-  
ision, evasiveness, mitigation of responsibility  
or uncertainty with regard to the truth value of  
a particular interpretation of study findings was  
frequently found in the corpus of researchers  
who communicated in English. Medical writers  
who used English to communicate showed  
uncertainty about certain assertions and estab-  
lished alternative viewpoints with the use of  
these mitigation devices.

At the beginning of this paper, the following  
hypothesis was proposed: writers with differ-  
ent linguistic backgrounds differ in the way  
they mitigate a proposition in English. As was  
explained in the results section, this hypoth-  
esis proved to be false in light of the overall  
results: researchers with English and Spanish  
as their first languages use mitigation devices  
quite similarly when writing academic English,  
whereas Spanish-speakers writing in Spanish  
use mitigation devices less often. However,  
after a closer analysis, variation was found in  
the use of some of the devices in the categories,  
and different rhetorical strategies in medical  
English were also found (see below). Further,

Spanish-speaking researchers frequently used the same mitigating devices, whether expressing themselves in English or in Spanish. This study has shown that in English, findings are presented cautiously to fellow medical researchers and peers (regardless of whether the writers are native speakers or not), and researchers try to adapt to the conventions of academic English. There is less of an academic tradition of mitigating claims in Spanish: instead, the style is more direct and assertive.

Differences in the use of devices **use** (see Tables 3 and 4) include the more frequent use of *may*, *might* and *suggest* by native writers of English versus the more frequent use of *consider*, *could* and *can* by non-native English speakers writing in English. It was also noticed that **Spanish** researchers varied in their use of verbs as mitigating devices depending on the language in use. Modal verbs as mitigation devices were preferred in English, whereas fewer such devices were used to mitigate claims in Spanish. The influence of the native language was found in the form of the modal verb *can*, and other mitigation devices such as *consider* and *possible* were also used more frequently by Spanish-speaking writers of English. Also, one of the most common Spanish verbs used as a mitigation device was *podría* (see Table 5), the semantic equivalent of *could*.

After a comparison with the medical texts written in Spanish, it was found that medical researchers adopted the academic culture and rhetorical conventions of the target language, using more mitigation devices in English than in Spanish, and in this sense these results should be set within the context of the rhetorical variation of academic language. The texts analysed in this paper were addressed to specific communities that differ in academic and linguistic backgrounds: the findings of this study confirm this. There is no single, uniquely valid way of communicating with one's peers and the differences in the ways in which we express ourselves are a testimony to the richness of language.

These findings could also have pedagogical implications, as intercultural differences in academic writing should be studied and understood. Second-language users need to be aware of the

linguistic differences or preferences in a particular genre, in order to make the best decisions about the way they can use language. However, the examples of the qualitative analysis show that writers can communicate with readers and be successful in engaging readers in discourse, even if the use of mitigation devices varies according to the language used and its specific linguistic or academic conventions.

Finally I would like to acknowledge that I could have explored further features of mitigation devices which have been pointed out by other researchers (Czerwionka 2012; Alonso-Almeida 2015), but I believe that identifying native-language influence in communication in medical research papers could be a good starting point and one that may aid the analysis of further aspects of rhetorical traditions in different languages.

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6 **María Luisa Carrió-Pastor** is a Senior Lecturer of  
7 English Language at the Applied Linguistics Depart-  
8 ment of Universitat Politècnica de València. She is

1 also the head of the department and the director  
2 of the masters programme in Languages and Tech-  
3 nology. Her research interests include contrastive  
4 linguistics, pragmatics and the analysis of academic  
5 and professional discourse for academic purposes  
6 and second-language acquisition. Address for cor-  
7 respondence: Departamento de Lingüística Aplicada.  
8 Universitat Politècnica de València. Camino de Vera,  
9 14. 46022. Valencia (Spain). Email: [lcarrío@upv.es](mailto:lcarrío@upv.es)

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