A contrastive analysis of the use of modal verbs in the expression of epistemic stance in Business Management research articles in English and Spanish[1]

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Abstract

In the present paper an intercultural quantitative and qualitative analysis of the use of modal verbs as epistemic stance markers in SERAC (Spanish-English Research Article Corpus), a corpus of research articles (RAs) in different disciplines, is carried out. The corpus selected for this research consists of 48 Business Management research articles. Special emphasis is laid on the introduction and discussion sections of RAs, where stance devices are most frequently located to pursue convergence with the readership. This kind of intercultural analysis has been achieved through both a bottom-up research approach and a top-down research approach. The results obtained in this study point in the direction that there are obvious differences between the use of modal verbs by native writers and the use of modal verbs by non-native Spanish writers. The most remarkable aspect is that Spanish writers show a deviant handling of hedges and boosters. Therefore, they have difficulties in establishing a proper tenor when they write in English.

Keywords: research articles, modal verbs, hedges, boosters, epistemic stance.

Resumen

Análisis contrastivo inglés-español del uso de verbos modales en la expresión de posición epistémica en los artículos de investigación del área de Dirección de empresas

En este artículo se lleva a cabo un análisis intercultural, cualitativo y cuantitativo del uso de los verbos modales como marcadores de posición epistémica en

SERAC (*Spanish-English Research Article Corpus*), un corpus de artículos de investigación de diversas disciplinas académicas. El corpus seleccionado para este trabajo consta de 48 artículos de Dirección de empresas. Los mecanismos de posición epistémica son más frecuentes en las introducciones y discusiones de los artículos de investigación, con el objetivo de intentar una convergencia con los lectores, por ello, estas secciones se analizan con más detenimiento. El tipo de análisis intercultural mencionado se ha llevado a cabo mediante un enfoque ascendente (*bottom-up*) y un enfoque descendente (*top-down*). Los resultados obtenidos en este estudio señalan que hay diferencias importantes entre el uso de los verbos modales por los/as hablantes nativos/as y el uso de los verbos modales por los/as escritores/as españoles/as. El aspecto más notable es que los/as escritores/as españoles/as muestran un uso diferente de los atenuadores e intensificadores. Por tanto, queda patente que tienen dificultades para establecer un tenor adecuado cuando escriben en inglés.

Palabras clave: artículos de investigación, verbos modales, atenuadores, intensificadores, posición epistémica.

1. General introduction and outline of the study

This paper carries out an intercultural quantitative and qualitative analysis of the use of modal verbs as epistemic stance markers in SERAC (Spanish-English Research Article Corpus), a corpus of research articles in different disciplines. Section 2 examines the theoretical background to modality and stance, the objectives of the study and its research questions. Section 3 studies the corpus selected for this research consisting of 48 Business Management research articles and how the kind of intercultural analysis mentioned above can be achieved through either a bottom-up research approach or a top-down research approach. In a bottom-up approach, the corpus analysis comes first, and the discourse unit types emerge from the corpus patterns. In a top-down approach, the analytical framework is developed at the outset: the discourse unit types are determined before beginning the corpus analysis, and the entire analysis is then carried out in those terms. Both methodologies are used in this article. Section 4 and 5 offer an account and discussion of the results obtained. Finally, some concluding remarks are made in Section 6.

2. Theoretical background for the study of modality and stance

2.1. Modal verbs as the grammatical expression of stance

Stance-taking is one of the most relevant and fundamental human activities accomplished through language. Humans evaluate the world around them, express emotions, beliefs, and desires, and align or disalign with other human beings in social interaction.

The concept of "stance" is known under different labels that overlap to various degrees. Stance can be defined as expressing "personal feelings, attitudes, value judgements, or assessments" (Biber et al., 1999: 966) added to the propositional content. Other terms for language used by speakers/writers to express opinion are "modality" (Halliday, 1994), "evaluation" (Hunston & Thompson (eds.), 2000), and "appraisal" (White, 2001).

At a textual level, stance meanings can be linguistically realized through different grammatical and lexical devices. By lexical stance marking we mean affective or evaluative word choice that involves only a single proposition. In lexical stance marking value-laden words are used, which differ from grammatical stance devices in that they do not provide an attitudinal or evaluative frame for some other proposition. The existence of a stance is inferred from the use of an evaluative lexical item, usually an adjective, main verb or noun.

Grammatical stance devices include two distinct linguistic components, one presenting the stance, and the other presenting the proposition that is framed by that stance. The use of modal verbs is the least clear grammatical marking of stance, because the modal verb (as stance marker) is incorporated into the main clause (expressing the framed proposition) as part of the verb phrase, although it is understood semantically as providing a stance frame for the entire clause (see example 1):

(1) Your team *might* have been defeated.

Modal verbs are used to express a writer's stance, expressing either the degree of certainty of the proposition (epistemic modality), or meanings such as permission, obligation or necessity (deontic modality). Without a modal verb, most verb phrases include only a marking of time orientation and not an overt expression of stance[2].

In most cases the stance marker precedes the structure presenting the proposition. Modal verbs also occur before the main lexical verb and thus typically before the presentation of new information in the clause. This ordering of constituents reflects the primary function of stance markers as a frame[3] for the interpretation of the propositional information. In most cases, writers first identify their personal perspective, thereby encouraging readers to process the following information from the same perspective.

2.2. Modals and modality

Modality is to be understood as a semantic category. Modal auxiliaries express a wide range of meanings, having to do with concepts such as ability, permission, necessity, and obligation. In the *Longman Grammar of Spoken and Written English* (Biber et al., 1999: 485-486) modal verbs are grouped into three major categories according to their meaning:

"Intrinsic" modality	"Extrinsic" modality
1. Permission/ability/	possibility: "can", "could", "may", "might"
2. Obligation/	necessity: "must", "should",
3. Volition/	prediction: "will", "would", "shall"

By means of modal expressions the writer can evaluate a particular situation in terms of possibility, probability, permission, volition, obligation and necessity. To put it differently, all the above mentioned notions cover the subjective attitude or statement of the writer, who presents his/her personal opinion and relation with reality. Modal verbs can basically express two different kinds of modal meanings, which are referred to as "epistemic" and "deontic" modality. The first expresses the degree of probability, including the logical possibility, necessity, hypothetical meaning, beliefs and predictability. The latter, deontic modality, presents a degree of desirability through permission, obligation, and volition.

This terminology agrees, in fact, with the more recent categorization in the *Longman Grammar of Spoken and Written English* referred to above. The former type of modality concerns actions and events directly controlled by humans or other agents. On the other hand, there is another type of meaning labelled "extrinsic", which expresses a certain degree of likelihood in terms of possibility, necessity, or prediction. It can be said that the logical status of events is observed by extrinsic modality. Downing and Locke (1999: 382-383) call these meanings "basic modalities", and they all cover the subjective attitude or statement of the writer, who presents his/her personal opinion and relation with reality. Areas of meaning, such as "permission", "obligation" and

"volition" which involve some kind of intrinsic control over human events, are classified as intrinsic[4] (or deontic) modality, whereas there is the another type of modality labelled extrinsic[5] (or epistemic), which "refers to the logical status of events or states, usually relating to assessments of likelihood: possibility, necessity or prediction" (Biber et al., 1999: 485). This logical modality involves a human judgement of what is or is not likely to happen[6].

The first attempt to study the writer's attitude to the text in academic discourse is found in Biber and Finnegan's (1989) stance framework. They define "stance" as the grammatical and lexical expression of attitude, feelings, judgments or commitment concerning the propositional content of the message. There are two components of stance in this definition: "evidentiality" and "affect". Hyland (1999) proposed a model of "stance", which is more comprehensive than the model put forward by Biber and Finegan (1989). He included three components instead of two: "evidentiality", "affect" and "relation".

"Evidentiality" has to do with the writer's commitment to the truth of the propositions s/he presents. Epistemic comment (often achieved through the use of epistemic modal verbs) is a means by which writers can signal their allegiance and express a point of view on a proposition. "Affect" refers to the overt expression by the writer of a range of personal attitudes. The last term, "relation", is defined as "the extent to which writers choose to engage with their readers, their degree of intimacy or remoteness, and the ways they represent themselves in the discourse" (Hyland, 1999: 101). With these words Hyland includes an element of engagement in his model. Some years later Hyland (2005a) presented a more comprehensive model of "stance and engagement" to account for all the interpersonal resources that are used in academic discourse.

Stance marking makes more sense when we take into consideration the addressees of academic writing. Academic writers intrude and make comments on the information they convey through their texts; they convey judgements, align themselves with readers and express solidarity by anticipating objections and responding to an imagined dialogue with others, thus constructing the text with their readers.

2.3. Objectives and research questions

This paper describes an analysis of intercultural traits by applying both quantitative and qualitative methods of the use of modal verbs as epistemic

stance markers in SERAC. The subcorpus selected for this research consists of 48 Business Management research articles.

One major difference between the two approaches is the role of the functional versus linguistic analysis. In the top-down approach, the functional framework is primary. Thus, the first step in the analysis is to determine the possible discourse unit types (e.g. move types) and provide an operational definition for each one. This functional framework is then used to segment texts into discourse units. Linguistic analysis is secondary in a top-down approach, serving as an interpretive role to investigate the extent to which discourse units also have systematic linguistic characteristics. In contrast, the linguistic description is primary in the bottom-up approach. That is the reason why, in this piece of research, I adopted the bottom-up perspective first of all, starting with the linguistic description of the English modal verbs as semantic markers of modality to move on to the top-down perspective and interpret the results from this standpoint.

The research questions I planned to answer were:

1. What differences are there between the use of modal verbs by native writers and the use of modal verbs by non-native writers?

2. To what extent do the different groups of writers express epistemic stance differently?

3. Is the use of the modals by Spanish academics, writing their articles in English, conditioned by the writing conventions of their national culture –that is, Spanish research writing conventions?

3. Corpus and methodology

Out of the 48 articles, 24 articles were written by native English-speaking researchers (coded ENGBM) and the other 24, by native Spanish-speaking academics (coded SPENGBM). The first subcorpus includes 24 RAs from high impact American journals written by English native speakers, and the second one includes 24 RAs from high impact journals written by Spanish native speakers. The analysis has been carried out combining concordance software and manual analysis. The total corpus amounts to 390,468 words; ENGBM including 197,922 and SPENGBM 192,546 words. For comparability criteria, both groups of writers had a university affiliation,

which guaranteed that they were acquainted with academic writing practices, and more specifically, research article writing.

For the quantitative analysis, the concordance software Wordsmith Tools 4.0 was used (Scott, 1999). This was combined with a manual qualitative analysis of the examples.

Special emphasis has been laid on the introduction and discussion sections, where stance devices are most frequently located to pursue convergence with the readership. Even though epistemic and affective meanings intermesh, in this study they will be treated separately for practical purposes, given that every epistemic judgement carries attitudinal values, but not viceversa[7]. I will concentrate on modal verbs as markers of epistemic stance, as attitudinal stance is very rarely expressed by modal verbs[8].

In this piece of research, first the bottom-up perspective is applied to examine modal use frequency in terms of semantic modality markers. The specific research questions were: Do modals in RAs convey epistemic (extrinsic) or deontic (intrinsic) modality? If so, is this consistent across the two subcorpora?

4. Results

4.1. Results for the bottom-up perspective: Modals as expression of epistemic stance

The frequency of occurrence of modal verbs in ENGBM is of 7.0 per thousand words, while it is of 5.3 verbs per thousand words in SPENGBM. The overall distribution of modals in the two subcorpora is given in percentages in Figures 1 and 2.

According to the pie chart in figure 1, the modals "may", "can" and "will" are very common in ENGBM. At the other extreme, the modals "shall", "should" are very rare. If we focus on the pairs of central modals, the tentative/past time member is less frequent than its partner in all cases except "shall"/"should". Modal verbs are the most typical realisation of hedges and boosters in English. The modal verbs expressing epistemic meaning are: "may", "can", "could", "would", "might". "May" is the most frequent modal verb expressing epistemic meaning in this subcorpus. It is very common, and it is followed by "could", "can", "would" and "might".

"Can" is followed by "will", "may", "would", "could" and "might", according to the frequency rates shown in figure 2 related to SPENGBM.
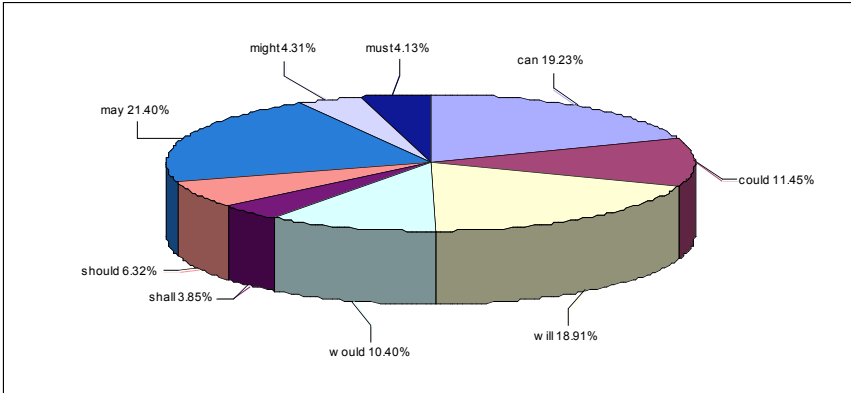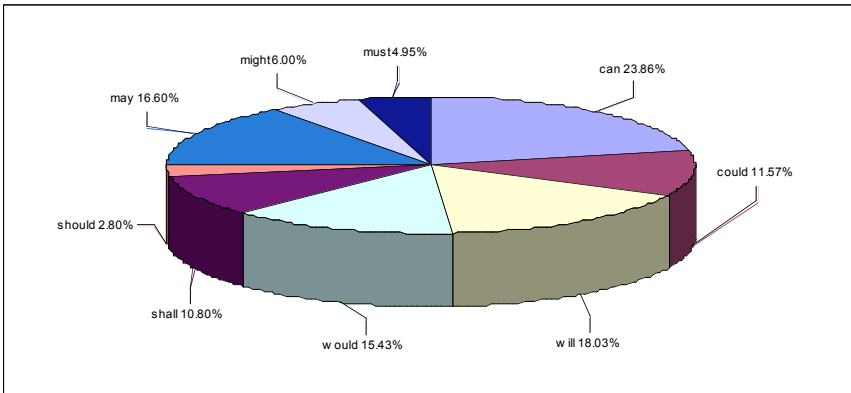
Figure 1. Percentage of modal verbs in ENGBM.

Figure 2. Percentage of modal verbs in SPENGBM.

"Can" is the modal verb, most frequently used by non-native Spanish writers writing their articles in English. Next comes "will", followed by "may", and then "would" and "shall". The tentative member ("should") is the least frequently used of all modals in this subcorpus.

If we want to interpret the overall distribution of the modals properly in both subcorpora, we have to distinguish between their use with intrinsic and extrinsic meanings. Modals marking permission/possibility/ability in ENGBM are discussed below (see also Figure 3).
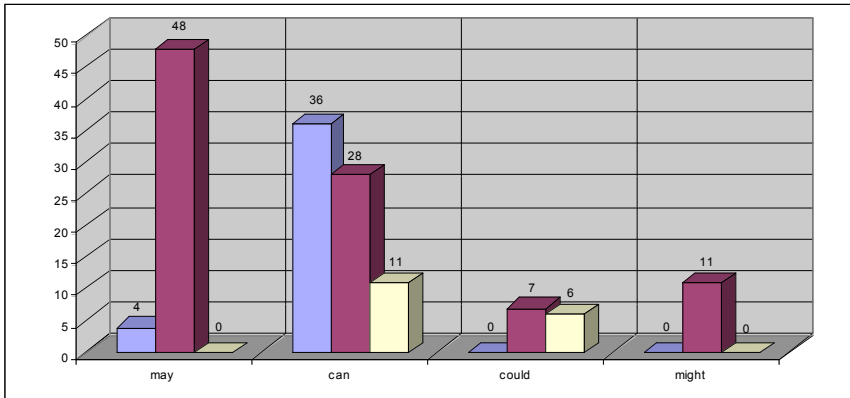
Figure 3. "can", "could", "may", "might" in ENGBM.

The permission/ability/possibility modals ("can", "could", "may", "might") work as epistemic stance markers and are used to present writer comments on the status of information in a proposition. The meaning and use of these four modals are multifunctional to differing extents. "Might" is located at one extreme, it is used only to mark logical possibility; at the other extreme, "can" commonly marks permission, ability and logical possibility. "May" and "could" can express intermediate degrees of possibility. Three of the permission/possibility modals ("could", "may" and "might") are used almost exclusively to mark logical possibility in the RAs. "May" is very common in this function. Permission is rarely expressed in academic writing. "Could" and "might" are much more common when expressing logical possibility than permission or ability. Let us see some examples from the corpus with these modals:

(2) Legumes *may* have smaller conversion efficiencies than cereals. (ENGBM 6)

(3) We also explore the mediating role that SPB productivity, flexibility and cost-effectiveness success *might* play between design characteristics, supervisor/employee support and facility characteristics. (ENGBM 12)

(4) These costs *could* counterbalance SBP benefits. (ENGBM 12)

"Can" is especially ambiguous in the ENGBM subcorpus, since it can often be interpreted as marking either logical possibility or ability:

(5) Ironically, when many employees are topped out, the SBP plan *can* be viewed as successful in many ways because it yields a highly skilled, highly paid workforce. (ENGBM 12)

Similarly, although "can" and "may" are occasionally used to mark permission in the corpus, most of these instances can also be interpreted as marking logical possibility (see example 6) or ability (see example 7):

(6) Close supervision of SPB employees *can* lead to alienation. (ENGBM 14)

[The implicit message being that employees cannot be trusted despite their skills].

(7) Multiskilled employees in SPB *can* generally use their talents fully without supervision (…). (ENGBM 14)

"Could" and "might" are also used to make an implicit attribution of stance to the writer, which can be easily inferred from the text:

(8) These costs *could* counterbalance SPB benefits. (ENGBM 12)

(9) Thus, it is more likely that such exchanges *might* have produced a resentful demoralization effect. (ENGBM 13)

In Figure 4 we can observe the results for the use of "can", "could", "may" and "might" in SPENGBM.
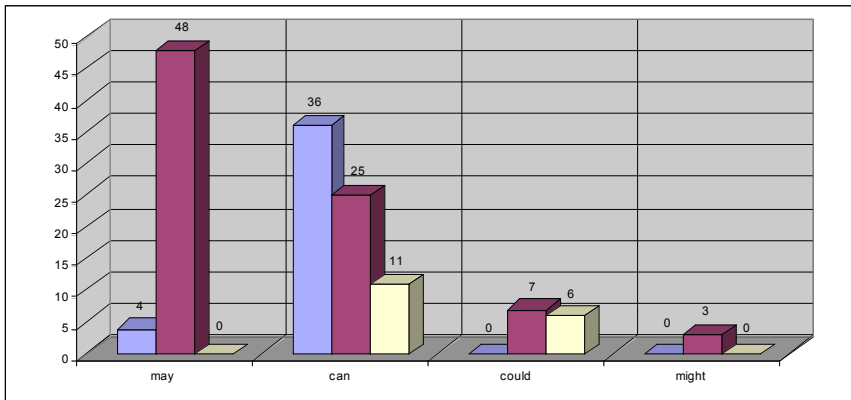

Figure 4. "can", "could", "may" and "might" in SPENGBM.

The modal repertoire of non-native writers (Spanish writers) clearly shows a similar use of "may" in both subcorpora, which runs counter to its expected higher frequency of use in RAs written by native English speakers (Biber et al., 1999) –this seems to suggest that Spanish writers' use of modal verbs adapted to the use of their English counterparts properly.

The higher frequency of use of "can" expressing epistemic modality is also worth considering in the SPENGBM corpus. Few occurrences of "might" have been detected, which not only seems to suggest that the Spanish writers' modalisation of possibility nuances is rather poor, but also entails pragmatic implications. "Might" denotes a multiplicity of possibilities (versus the unilateral and less remote possibility expressed by "could") that facilitate the construction of a "reader-in-the-text" strategy. Finally, there appears to be a mismatch in the expression of epistemic meanings between some modal verbs: "can" absorbs some of the the possibility uses of "may" and "could".

4.2. Results for the second perspective: Metadiscourse as a pragmatic-rhetorical perspective

In the second stage of this study I adopted a top-down perspective. I moved from a purely textual level to a pragmatic/rhetorical one, in which the choice of modal verbs is closely related to the context in which they operate and the writer's communicative intention. For that purpose I adopted Hyland's taxonomy of interactional metadiscourse (Hyland & Tsé, 2004; Hyland, 2005b).

There are five categories of interactional metadiscourse: hedges, boosters, attitude markers, engagement markers and self-mentions. Of these I decided to study hedges and boosters, as academic writers mainly use modal verbs to carry out these two complementary rhetorical strategies. Hedges and boosters generally emerge as the most frequently employed interactional metadiscourse markers. These are a principal means by which writers can use English in a flexible way to adopt a stance to both their propositions and their audience.

Hedges and boosters are like two sides of a same coin. They are communicative strategies for increasing or reducing the force of statements. Their importance in academic discourse lies in their contribution to a relevant rhetorical and interactive tenor, conveying both epistemic and affective meaning (Hyland, 2004 & 2005a; Hyland & Tsé, 2004). Table 1 shows the frequency and distribution of hedges in the two subcorpora.

The overall findings show that international Business Management scholars publishing their articles in English in the American context hedge their discourse more heavily than their Spanish counterparts publishing internationally in English. These results are rather similar to those obtained

	ENGBM		SPENGBM	
	Total	Percentage	Total	Percentage
Hedges	3,174 (16.04 per 1,000 words)	100%	1,868 (9.70 per 1,000 words)	100%
Introduction	1,308	41,21%	596	31.91%
Methods	202	6.36%	250	13.38%
Results	386	12.16%	356	19.06%
Discussion	1,278	40.26%	666	35.65%

Table 1. Frequency and distribution of hedges.

in previous studies (Vassileva (1997 & 2001) for Bulgarian; Ventola (1997) for Finnish; Martin Martin (2002 & 2005) as well as Mur (2007) for Spanish). They indicate that different cultures show different degrees of hedging. The percentages indicate that the Discussion presents the highest incidence of hedges in the ENGBM corpus. This is not so high in the SPENGBM, where the figures for the Discussion and Introduction sections are very similar. This highest frequency of use of hedges in the Discussion section of ENGBM is due to the fact that American Business Management scholars seem to be more cautious when expressing the implications and deductions from the results obtained, as well as when stating the limitations of their study.

Now it is time to discuss how hedging modal verbs are preferred in certain sections in the two subcorpora. Modal verbs are the most prototypical realization of hedges in English, which are rhetorical strategies used by writers to tone down the force of the proposition, however "no linguistic items are inherently hedgy but can acquire this quality depending on the communicative context or the co-text" (Markkanen & Schröder, 1997: 4). The modal verbs expressing hedges are: "may", "would", "can", "might", and "could".

"May" is the most frequent modal verb in both subcorpora. It is extremely common in academic prose. It is followed by "would", "can", "might" and "could" in ENGBM. In SPENGBM, "may" is followed by "can", "could" and "might". Table 2 shows the frequency and distribution of hedging modal verbs in ENGBM and SPENGBM. .

The frequency of occurrence of modal verbs in ENGBM is of 5.58 per thousand words, while it is of 4.22 modal verbs per thousand words in SPENGBM. More modal verbs are included in the Business Management RAs in the ENGBM subcorpus to soften the force of the arguments than in the Business Management RAs in the SPENGBM subcorpus. North

	ENGBM Total	Percentage	SPENGBM Total	Percentage
Hedging modal verbs	1,104 (5.58 per 1,000 words)	100%	836 (4.22 per 1,000 words)	100%
Introduction	474	42.93%	392	46.89%
Methods	58	5.25%	48	5.74%
Results	44	3.98%	40	4.79%
Discussion	528	47.83%	356	42.58%

Table 2. Frequency and distribution of hedging modal verbs in ENGBM and SPENGBM.

American-based Business Management scholars appear to be more tentative in their statements and to protect themselves more against possible criticisms by means of modal verbs. They are perhaps more aware of the need for their claims to be ratified and confirmed by their readers.

The percentages indicate that the Discussion presents the highest incidence of hedging modal verbs in the ENGBM corpus. In the SPENGBM the highest incidence is in the Introduction section. The frequency of use of modal verbs in the Discussion section of ENGBM is due to the fact that American Business Management scholars seem to be more cautious when expressing the implications and deductions from the results obtained, as well as when stating the limitations of their study. Table 3 summarizes the final results for hedging modal verbs in ENGBM and SPENGBM.

	ENGBM Total	Percentage	SPENGBM Total	Percentage
May	536	48.72%	412	49.28%
Would	178	16.12%	144	17.22%
Can	198	18.07%	210	25.11%
Might	118	10.60%	22	2.64%
Could	74	6.49%	48	5.75%
Total	1,104	100%	836	100%

Table 3. Types of hedging modal verbs.

As for boosters, results indicate that Spanish Business Management scholars make use of a wider range of boosters and include some more boosters per 1,000 words than their international North American peers. This is shown in Table 4.

Modal verbs are also the most common realizations of boosting (together with hedging, as indicated before) in the ENGBM corpus. Modal verbs are the second means of boosting in SPENGBM after lexical verbs. Boosting modal verbs are those modal verbs which help express meaning with

conviction or reasonable degree of confidence. In line with this, "will" and "should" were studied.

	ENGBM Total	Percentage	SPENGBM Total	Percentage
Boosters	1,200 (6.06 per1,000 words)	100%	1,368 (7.10 per 1,000 words)	100%
Introduction	459	38.25%	496	36.26%
Methods	141	11.75%	250	18.28%
Results	152	12.67%	254	18.57%
Discussion	448	37.33%	368	26.90%

Table 4. Frequency and distribution of boosters in the two subcorpora.

"Will" is the most common boosting modal verb in the two corpora. Those tokens of "will" expressing future time were not included in the counts, as they are devoid of modal, epistemic meaning. The use of modal "will" in the statement of hypotheses is very common in RAs in English. The modal verb is also frequently included in the subsequent confirmation or refutation of those hypotheses.

"Should" expressing "extreme likelihood, or a reasonable assumption or conclusion" (Palmer, 1986: 49) is the other boosting modal verb in Business Management RAs in English. Examples of "should" expressing deontic meaning of obligation (Quirk et al., 1985) are found in both corpora but they do not contribute to indicating the writers' certainty or conviction. Results are rather similar to those obtained in previous studies (Vassileva (1997 & 2001) for Bulgarian). They indicate that there are different degrees of boosting in different cultures. Modal verbs expressing the writers' certainty are more common in the Business Management RAs in the SPENGBM than in the RAs in the ENGBM, although the differences are not really remarkable (see Table 5).

	ENGBM Total	Percentage	SPENGBM Total	Percentage
Boosting modals verbs	316 (1.60 per 1,000 words)	100%	338 (1.75 per 1,000 words)	100%
Introduction	204	64.56%	218	64.50%
Methods	36	11.39%	38	11.24%
Results	14	4.43%	20	5.92%
Discussion	62	19.62%	62	18.34%

Table 5. Frequency of distribution of boosting modal verbs in ENGBM and SPENGBM.

Boosting modal verbs are most frequently included in the Introduction sections in both subcorpora. This higher incidence of use of modal verbs expressing conviction in the Introduction section may have to do with the more frequent inclusion of hypotheses in this section, the expression of which very frequently entails the use of "will". In both subcorpora, the Discussion section comes second in terms of proportional high incidence of use of boosting modal verbs, followed by the sections of Results and Methods. Table 6 summarizes the final results for boosting modal verbs in both ENGBM and SPENGBM.

	ENGBM		SPENGBM	
	Total	Percentage	Total	Percentage
Will	240	76.52%	250	76.57%
Should	76	23.48%	78	23.43%
Total	316	100%	328	100%

Table 6. Types of boosting modal verbs.

5. Discussion of the results

Spanish writers show a deviant handling of hedging and boosting resources, and hence, the establishment of a proper tenor. This is related to the mismatch we observed in the expression of epistemic meaning between some modal verbs: "can" is used instead of "may" to express possibility.

Part of this epistemic mismatch may be caused by the twofold tendency of the Spanish writers towards an overuse of "can", on the one hand, and lack of modalisation, on the other.

To begin with, "can" embodies three basic meanings in the two subcorpora under consideration: certainty, possibility, and politeness/solidarity, all three accounting for the overwhelming percentage of this verb within their modal repertory (virtually half of the tokens) and for the little variety of this latter in comparison with that of native English writers.

While the certainty use constitutes an empty modal meaning equivalent to an absence of modalisation (see examples 10 and 11 below), the possibility use, as has been previously commented, fills the slots that should be occupied by "may" (example 12), and the politeness/solidarity meaning seems to derive from a transfer of pragmatic norms from a first to a second language.

Such transference of sociolinguistic conventions from Spanish into English conforms to the politeness scheme (-distance, -power) (Neff et al., 2004) and results in "I/we" embeddings (I/we + CAN+ verb of perception or mental verbal activity) seldom used by native English writers. Their purpose is to build a common ground between reader and writer as a positive politeness strategy. In line with this finding, Hernández-Flores (1999) demonstrated that modal verbs performed a similar convergent role in unrequested advice as ways of seeking feedback or inclusion in Spanish conversation. Opposed to this trend, the politeness pattern (+ distance, - power) is found to dominate most of the native English writers' articles scrutinized. The following examples may help illustrate the foregoing point altogether:

(10) X *can* be obtained by solving this equation

["can be" could be here substituted by "is", since the equation is actually solved in the paper].

(11) This can be due to …

[native English writers would use "may" instead of "can"]

(12) As we *can* see…

["can" can be omitted here. In fact, native English writers resort to impersonal constructions of the type *It can/will be seen that …* or *As seen/shown in figure X…*].

Apart from these pragmatic reasons, the overuse of "can" by Spanish writers appears closely bound to other typological and instructional factors:

a) the corresponding Spanish verb "poder" is inherently ambiguous and polysemous (Silva-Corvalán, 1995) for it agglutinates deontic and epistemic meanings (e.g. ability, permission and possibility), as well as the dynamic uses distinguished by Palmer (1990: 35-38). Therefore, it is not surprising that Spanish writers ignore more detailed alternatives like "may" or "might" and set up a symmetrical correspondence of uses with the past form "could".

b) Furthermore, Spanish writers experience a phenomenon of accommodation of their scanty modal repertoire to their actual expressive needs: "can" is the first modal verb learned in Spanish EFL classrooms, and high-school syllabi in general introduce the rest of modal resources sparsely and superficially, embedded in

topical units and without much insistence upon the various shades of meaning conveyed by each of them.

Another interesting finding of this research is the sketchy modalisation observed in the Spanish articles, which confirms Holmes's (1988) view that the use of hedges varies cross-culturally. It is also in accordance with Hoye's (1997) conclusion that native Spanish speakers tend to underuse stance markers in L1 and when speaking English encounter special difficulties with those subject to idiomatic collocations ("may"/"might" + "well"). It should be added that, most probably owing to above mentioned instructional factors, Spanish writers show a deficient handling of hedging and boosting resources.

Lack of modalisation seems to be a natural tendency for Spanish writers and is *per se* a type of boosting device. This fact would partly explain the prevalence of this rhetorical function throughout Spanish RAs with the logical consequence of making refutable, risky or even threatening claims. This suggests considerable lack of expertise on the part of Spanish writers and an ignorance of rhetorical genre standards.

Spanish writers predominantly express certainty through the use of "can" and "will" and exhibit a significantly low proportion of probability and possibility meanings through "would", "should" and "may" (see Figure 2). Native English academic writers, in contrast, show a higher frequency of use of "would", "should" and "might" in their academic papers. Native English writers would use "should" instead to tone down the brusqueness of the imposition. Notice, however, that in the first two cases (in the use of "can" and "will"), Spanish writers combine deontic modality with the passive voice, which serves as mitigator.

6. Concluding remarks

The results obtained in this study point in the direction that there are obvious differences between the use of modal verbs by native English writers and the use of modal verbs by non-native Spanish writers. The most remarkable aspect is that Spanish writers show a deviant handling of hedges and boosters. Therefore, they have difficulties in establishing a proper tenor when they write in English. This is related to the mismatch observed in the expression of epistemic meaning between some modal verbs: "can" is used instead of "may" to express possibility. Spanish writers express epistemic

stance differently. This deviant use of the modals by Spanish academics writing their articles in English is conditioned by the writing conventions of their national culture.

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NOTES

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[2] The absence of a modal verb (or other stance marker), however, can also be considered as choice of stance, with the writer attributing unquestioned validity to the proposition. This is Davies' (2001) position. According to this scholar, all finite verbal groups are said to express a "modal" position or stance, which is related to the "exchange" function of the utterance.

[3] A term borrowed from Charles Fillmore's (1982) "frame semantics". A frame can help create a subjective construal, which is the type of construal in which the speaker as "cognizer" is involved in the very scene s/he is construing. This is contrasted with the objective construal, i.e. the type of construal in which the speaker as "cognizer" is detached from the scene s/he is construing.

[4] Intrinsic modality is discourse-oriented. It refers to the speech act.

[5] Extrinsic modality is synonymous with extra-propositional modality, expressing the speaker's attitude towards the content of a proposition. It covers the area of epistemic modality. For Biber et al. (1999: 485) it "refers to the logical status of events or states, usually relating to assessments of likelihood: possibility, necessity, or prediction" and is synonymous with epistemic modality (which for him, however, also includes dynamic modality).

[6] There is a basic distinction in English between modals with a specific interpersonal function, like the epistemic modals, and modals that do not have an interpersonal meaning, like the modals of ability and volition.

[7] This does not necessarily mean an adherence to the Hallidayan separation of modal and ideational meanings.

[8] Biber et al. (1999) say that very seldom can modal verbs with intrinsic meaning be regarded as attitudinal.