Epistemic and evidential marking in discourse:
Effects of register and debatability

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Abstract

The use of evidential and epistemic marking as a rhetorical strategy has received little attention in the literature. Speakers often make judgments on the basis of perceptual, reported, or inferred evidence, thus the relationship between epistemicity and evidentiality is often close and difficult to demarcate. However, whereas epistemicity involves the speaker’s or writer’s evaluation, judgment and degree of commitment attached to the truth-value of a piece of information, evidentiality involves the speaker’s or writer’s assertion of the source and kind of evidence at their disposal (De Haan, 2001, 2005; Mushin, 2001; Nuys, 2005). Both of these semantic notions have been thoroughly dealt with in regard to morphosyntactic, lexical and grammatical marking, but relatively little has been investigated in pragmatic and textual terms. The present study approaches the indexing of epistemicity and evidentiality from the point of view of register by analyzing a total of 30 oral and 30 written productions of two opinion reports (one dealing with a debatable issue and the other with a non-debatable issue) produced by 15 Catalan speakers. The main aim of the paper is to test the potential effects of register (i.e., oral vs. written discourse) and debatability (i.e., debatable vs. non-debatable issue) on the discourse marking of evidentiality and epistemicity. With respect to the effects of register, results confirm that the use of both epistemic and evidential markers is significantly higher in the oral than in the written reports, and specifically the use of low certainty epistemic markers and direct evidential markers. With respect to the effects of debatability, results show that there is a more profuse use of epistemics than evidentials in the debatable than in the non-debatable condition, and specifically the use of low certainty markers and common knowledge and reported evidential markers. In general, these results support the view that register and debatability are two important factors that condition the use of evidentiality and epistemicity in the construction of discourse epistemic stance.

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1. Introduction

This paper deals with evidentiality and epistemicity from a discoursal point of view, taking register into consideration. The study aims at assessing how the speaker/writer makes a different use of evidential and epistemic markings as rhetorical strategies, in oral and written register, to back up his/her epistemological position, assertions and beliefs. Because of the pragmatic nature of the study, intentions, participants and content of the information are taken into account. The empirical basis for this investigation is a corpus of 30 oral and 30 written opinion reports in Catalan, a Romance language that does not grammaticize evidentiality.

1.1. The notions of evidentiality and epistemicity from a discoursal perspective

In the last few decades, evidentiality and epistemicity as grammaticized and non-grammaticized language systems have been broadly studied (Chafe and Nichols, 1986; Willett, 1988; Kamio, 1991; Wierzbicka, 1994; Aikhenvald, 2003, 2004; Squartini, 2008; Papafragou, 2000), with an increasing interest in linguistic aspects that are not strictly grammatical and/or morphosyntactic, but which also take into account cognitive-functional domains of pragmatic and context-bound phenomena and interaction (Ifantidou, 2001; van der Auwera and Plungian, 1998; Mushin, 2001; Fitneva, 2001; De Haan, 2001, 2005; Nuyts, 2005; Bednarek, 2006; Cornillie, 2010; González, 2010). From the notional point of view, the relationship between evidentiality and epistemicity ranges from a total ‘inclusion’, where evidentiality is subsumed in epistemic modality, to a ‘disjunction’ relation, where a clear distinction between the two is made; an in-between approach is that of ‘overlap’, where the two categories interrelate but do not conflate and are treated separately (Dendale and Tasmowski, 2001: 341–342). The ‘inclusion’ view is exemplified by the work of authors such as Chafe and Nichols (1986) and Palmer(1986, 2001) who sustain that the relationship between source of knowledge (evidence) and degree of commitment and speaker’s belief and attitude (epistemicity) lies in the fact that, as speakers and writers, we often make judgments and show a greater or lesser degree of commitment to what we say by providing some sort of ‘evidence’ that supports the propositional content of the information we provide and makes our contribution more assertive. Thus, for Palmer, evidentiality falls within the modal system:

Epistemic modality and evidential modality are concerned with the speaker’s attitude to the truth-value or factual status of the proposition and may thus be described as ‘propositional modality’. The basic difference between epistemic modality and evidential modality is that with epistemic modality speakers make judgments about the factual status of the proposition, whereas with evidential modality they indicate what the evidence is that they have for it. (Palmer, 2001: 24)

In the ‘inclusion’ view, the general accepted belief is that the relationship between the two categories stems from the fact that we tend to present a piece of information as more certain and reliable if we have direct evidence (sensory, visual), and as less certain and thus more unreliable if the evidence is indirect (reported, hearsay) or inferred (obtained through reasoning). In the studies that adopt this view, evidentiality is often treated as a subcategory of epistemic modality, the idea being that we indicate source of evidence when we do not unconditionally subscribe to the propositional content of an utterance. In contrast with this view there is the ‘disjunction’ approach, which separates what is considered a strictly evidential marking of the source of information from what is considered the attitude and participative belief of the speaker (van der Auwera and Plungian, 1998; Mushin, 2001; Fitneva, 2001; De Haan, 2001, 2005; Aikhenvald, 2004; Nuyts, 2005). The claim made by the authors following this approach is that source of knowledge marking does not necessarily imply speaker attitude marking:

Evidentiality asserts the evidence, while epistemic modality evaluates the evidence. (De Haan, 2005: 379)

While evidentiality qualifies the source that justifies the assertion of a proposition, modality qualifies the genuine belief of the speaker about the truth of the proposition. (Pietrandrea, 2005: 33)

Finally, the two polarized views meet in a compliant position of ‘overlap’, where the evidential and the modal categories are considered distinct but closely related, in what Hoyer (2008: 165) calls a “synergy between evidential and epistemic meanings”, particularly intertwined and relevant in discourse and text-driven approaches. In this line of argument, some authors (Nuyts, 2001; Marin Arrese, 2004, 2011; Bednarek, 2006; Du Bois, 2007; Hoyer, 2008; Cornillie, 2009) provide a thorough discussion of the points of encounter of these two categories through the notions of ‘epistemic stance’, ‘epistemological positioning’ and ‘legitimization strategies’ in discourse. Stancetaking has been widely treated in studies on critical discourse analysis and the marking of evidentiality from a cultural and interactional perspective (Biber and Finegan, 1989; Hill and Irvine, 1993; White, 2003; Du Bois, 2007; Englebretson, 2007; Hassler, 2010; Cornillie, 2010), where knowledge is dynamically co-constructed and is treated as a social phenomenon. The underlying idea is that, as speakers and writers, we make use of evidential and epistemic forms to assess the validity of our assertions and opinions, providing our words with reliability and thus a certain degree of authority. Mushin (2001: 51) makes use of the term
‘epistemological positioning’ to embrace not only ‘source of the information’, but also matters of attitude toward knowledge (reliability, confidence, inference, validity, expectedness). In interactional terms, Hassler (2010: 229) comments on the fact that speakers only signal their source of information when they think that the interlocutor does not know the source and/or when they assume that its mentioning is relevant for the felicitous exchange. In these terms, Ilfantidou (2001) and Cornillie (2010) elaborate on the interactive and interpersonal function of evidentials as part of the speaker’s intention to make his/her contribution relevant and to share with the co-participant a given experience, action or thought. As a rhetorical strategy, Hoyle (2008: 164) argues that the interplay between modalized utterances and evidential expressions is used by speakers to get their point across and to justify and defend their epistemological positioning. The speaker then chooses a given expression motivated by his/her intentions, the topic under discussion, the genre, the situational context and course of interaction: it is the dynamics of communication that imposes the sort of marking. Examples of lexical, phrasal and clausal structures used as epistemic and evidential markers in Catalan are exemplified in the excerpt in (1), taken from one of the oral opinion reports recorded for this study. The gloss in italics provides the type of evidential source; the letter in square brackets indicates the presence of an epistemic [E] modal expression.

(1) Jo penso que... és molt probable que funcioni, basant-me en... ho afirmo en – basant-me en l’experiència de que coneix persones que hi han anat, i que... sembla que estan evolucionant. No no serveix potser per a... per curar malalties molt greus, però sí que... alleuja el dolor, pel que sembla, i... també ajuda a respirar millor. Si... penso que potser s’hauria d’investigar una mica més sobre el tema, dedicar-hi una mica més de... d’esforç... però que pot ser un camí interessant.

_I think [E] that... it is very probable [E] that it works... based on... I affirm this based on the experience of people that I know and that have had it [indirect mediated; reported], and apparently [indirect reflected; inferential] they are making progress. It does not work perhaps [E] for... for very serious illnesses, but it lessens the pain, apparently [indirect reflected; inferential], and... it also helps you breathe better. Yes... I think [E] that perhaps [E] there should be a little bit more research on this issue, devote a little bit more of... an effort to it... but that it might be an interesting approach to pursue._

[oral report Acupuncture; speaker 13]

The underlying idea is that, as speakers and/or writers, we make meaning and commit ourselves to a piece of information by providing the status and source of information with the ultimate goal of making a reliable, truthful and relevant contribution to the interactive process, so it is in fact a rhetorical strategy that has a persuasive purpose and that goes beyond the mere conveying of propositional content, in the communicative exchange.

The ‘overlap’ view we adopt, where the evidential and the modal categories are considered distinct yet at the same time closely related, can be exemplified in Catalan by the use of lexical units and grammatical resources. Catalan, like other Romance languages, does not use specific morphemes of epistemicity and evidentiality, but rather uses lexical and discourse marking strategies. Some previous studies have dealt with the marking of evidentiality and epistemicity in this language and how it is encoded by means of lexical markers like adverbs, verbal periphrasis (González 2005, 2011; González and Ribas, 2008), and modal particles (Torrent, 2011). For example, the Catalan verbal periphrasis es veu que (literally ‘it is seen that’) encodes indirect evidence (González, 2011: 154), as in (2).

(2) S’han quedat sense llum, a Girona. Es veu que hi ha nevat.

_Self have remained without light in Girona ES VEU QUE there has snowed_  
The electricity has gone off in Girona. Presumably there has been lots of snow.

The use of the Catalan lexical marker (la) veritat (literally, ‘the truth’) can also serve to illustrate both the evidential and the epistemic meanings (González, 2014). Like most markers which have undergone a process of grammaticalization and lexicalization, this lexical unit has evolved from a literal to a figurative meaning. See these two meanings exemplified in (3) and (4), with an evidential and an epistemic use, respectively.

(3) Això que ell ha dit és la pura veritat. ‘This he just said is the plain truth’

_Les veritats són amargues. ‘Truths are painful’

_Això és una veritat a mitges. ‘This is not the whole truth’

_Unes quantes veritats sobre el món acadèmic. ‘Some truths about the academic world’

In (3) the marker adopts an evidential role. It has two forms, one variable, inflected for number (the noun verdad, verdades; veritat, veritats; ‘truth’ ‘truths’) and another unvariable, with different syntactic configurations. As a variable noun, verdad/veritat can be preceded by the feminine [singular or plural] determiners la/las; la/les ‘the’; una/unas; una/unes ‘a’ ‘some’. In
this context of use, their meaning is always literal, referential: ‘truth’ as true facts about something, as a quality or a state of being based on fact, opposite to a falsity or to something that is not genuine; it can be empirically checked and tested and always responds to something that is objectively real, measurable and factual (and so, opposite to a lie) in the real world; it can be verified through direct (personal visual, perceptive, attesting) and/or indirect sources of knowledge (hearsay, non-personal attesting, inferential reasoning).

See the variable forms illustrated in (3); most of these are phraseologic expressions.

(4) *La veritat*, a mi no em va agradar gens la pel·lícula.
    *La verdad*/*veritat* ‘to tell you the truth’, I didn’t like the film at all.

In (4) the marker adopts an epistemic role. In this context of use *la veritat* works as a parenthetical adjunct, detached from the syntactic clause structure; it can appear in initial, mid, and final position at the clause. Its meaning is procedural (it guides the speaker’s intentions and attitudes) and figurative (metaphorical). It is the most commonly found in spontaneous oral discourse and it is speaker-oriented. The speaker makes use of it to convey a highly personal opinion and attitude toward the content of the proposition, providing a strong degree of certainty to it.

Besides lexical items,1 Catalan may also encode epistemicity by means of verbal constructions like *crec que* ‘I think that’, *estic segur que* ‘I’m sure that’, or *és clar que* ‘it is clear that’ (González, 2004), exemplified in (5) (González, 2011: 154), which, consistent with its lexical meaning (‘it is clear that/it appears clearly that’), also has an evidential role.

(5) És clar que aniré a la teva festa!
    ES CLAR QUE go(FUT) to the your party
    Of course I will go to your party!

Moreover, *clar* shows expressive evidential effects as marker of solidarity, emphasis, agreement, and facilitator of shared knowledge (Martín-Zorraquín and Portolés, 1999; Pons, 2003; González, 2004; Maldonado, 2010; Cuenca and Martín, 2012) and, as an indirect evidential, is used to share common ground with the interlocutor through an inferential process of reasoning.

In this study, we examine epistemic and evidential discourse marking as distinct categories that, in textual terms, have proven to be closely related, along the aforementioned ‘overlap’ view. In Section 2.4.1, following, we offer the classification and labeling that we adopt of both categories.

1.2. Goals of the study

The above discussion paves the way for us to present the main goals of the study. Its overarching goal is to empirically test the potential effects of register and debatability on the construction of epistemic stance and evidentiary support. By controlling the issue under discussion (debatable and nondebatable issues) in the experimental materials, we will be able to assess the effects of debatability on evidential and epistemic markings. Similarly, the study will explore evidentiality and epistemicity as textual rhetoric strategies in the oral and written registers of Catalan opinion reports. In sum, one of the main goals of the study is to test whether the register (oral and written) and the debatability (debatable and nondebatable) variables will affect the type of marking (evidential and/or epistemic) adopted by the speaker/writer and thus his or her epistemic stance. Moreover, we will investigate whether we find any relationship between types of epistemic and evidential markings.

We note that there are a profuse number of morphosyntactic and typological studies on evidentiality and epistemicity, mostly done on non-indoeuropean languages,2 but that still little is known about its relationship with textual properties and discourse modes.3 Thus, traditionally, considerable research has been done on language varieties that grammaticize evidentials, exemplifying the phenomenon with short utterances/sentences, but most of them have neglected the discoursal perspective that considers the communicative context, the language users and the intentions (i.e. pragmatics) of the speaker/writer. Although there has lately been a growing interest in studying the topic from a rhetorical and lexical perspective (e.g. Ifantidou, 2001; Squartini, 2008; Diewald and Smirnova, 2010), with the description of naturally occurring

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1 Other syntactic and grammatical resources such as the use of conditional forms, verbal tense and subjective mood are also possible to provide epistemic and evidentiary support in Romance languages (rf. Squartini, 2008; Haßler, 2002).
2 See Chafe and Nichols (1986), Aikhenvald (2004) and De Haan (2001) for an extensive bibliography on languages that have a grammatical and morphological coding of evidentiality.
3 Smith (2003) talks about five modes: *narrative, description, report, information and argument*. According to her, “passages of the discourse mode (DM) are linguistic units, since they have recognizable linguistic features. They also have rhetorical significance. In fact, the DM are text units both linguistically and notionally.”
data taken from corpora, little or no emphasis at all has been given to the oral-written register distinction, nor to the potential effects of debatability.4

In cognitive terms, whereas writing implies more planning and time to think and edit a text, speaking is a direct face-to-face social activity that involves promptness and an on-going dynamic process. Cornillie’s (2010: 311) findings in his study on Spanish evidential adverbials in conversation prove that whereas writing includes more inference based on reasoning, speaking makes more use of circumstantial inferences and direct experience that is interactionally shared and co-constructed with co-participants. As Cornillie points out, although the pioneering work by Chafe (1986) on the use of evidentials in conversational English and academic writings showed that the amount of evidentials in both speaking and writing was quite balanced, there is still a need to qualitatively specify, in cognitive-functional terms, the sort of evidential and epistemic marking that prevails in each of the two registers. Thus, following this line of reasoning, we hypothesize that the type of support offered by our participants will not only differ in relation to register (oral and written), but also in relation to the topic under discussion, offering one type of evidence or another depending on whether they are providing an opinion on a controversial issue (in our cultural context, acupuncture is a relatively new technique that is not always accepted in the medical community), or a noncontroversial issue (in our cultural context, aspirin is a well-established drug widely prescribed by doctors). Importantly, the debatable vs. nondebatable contrast will allow us to compare experimentally the types of evidential and epistemic markings that are used under two very distinct epistemological positions.

Summarizing, the main goal of this investigation is to experimentally test the potential effects of register (i.e., oral vs. written discourse) and debatability (i.e., debatable vs. nondebatable issue) on the marking of discourse evidentiality and epistemicity. Specifically, we will investigate the following research questions: (a) effects of register and debatability on the number of epistemic and evidential markers (Section 3.1); (b) effects of register and debatability on epistemic marker types (Section 3.2); (c) effects of register and debatability on evidential marker types (Section 3.3).

Section 2 presents the methodology of the production experiment aimed at eliciting oral and written opinion reports from 15 Catalan speakers. It also describes the pragmatic coding of belief and evidence applied to the results of this oral and written opinion reporting task, which is based on Plungian’s (2001) classification of evidentials. Finally, Section 3 presents the results of the study, and Section 4 the discussion of the results and conclusions.

2. Methodology and corpus

2.1. Experimental design

In order to carry out the experiment, we designed a between-participants task that included two conditions, namely (a) the debatability condition (debatable vs. nondebatable), and (b) the register condition (oral vs. written). In each task, the participant first conveyed the content of an informational text to a conversational partner and then expressed his/her opinion about the topic of the text, first in oral then in written format.

In order to test the abovementioned effects (see Introduction), we relied on the analysis of data from Catalan oral and written reports that we had elicited and tagged ourselves. We thus did not make use of any large pre-existing corpora (i.e. corpus-driven vs. corpus-based approach; Tognini-Bonelli, 2001: 65).

2.2. Participants and materials

Fifteen pairs of students (23 female and 7 male) aged between 19 and 29 (mean = 21.9 years) from the Universitat Pompeu Fabra in Barcelona participated in the experiment. Since we wanted the participants to feel at ease so that they would produce spontaneous discourse, they were asked to volunteer in pairs of friends. All participants were native speakers of Catalan and used it as the main language of their daily life (on average, they reported using Catalan during 66.2% of their daily activities, while in the remaining 33.8% they used Spanish or other languages). All of them received a payment of 10 euros for their participation.

The stimulus materials consisted of two medical texts taken from the Catalan version of Wikipedia (see the English translations in Appendix). The two texts were edited into two shorter articles each of approximately one page in length. Whereas one text contained information about an issue that, in the cultural context of early 21st century Catalonia, is somewhat controversial (the effectiveness of acupuncture, Fig. 1), the other text contained information about what is a non-controversial matter (the properties and effects of aspirin, Fig. 2).

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4 However, as previously mentioned, there are a number of studies on evidentiality that have concentrated on the ‘legitimization of strategies’ in specific text genres, such as political and journalistic discourse (Marín Arrese, 2004, 2011) and legal texts (Philips, 1993), among others.
In order to test the adequacy of the materials, a pilot test was carried out whereby 4 pairs of participants were asked to rate their belief in the effectiveness of the two treatments (acupuncture and aspirin) on a 7-point Likert scale. The results confirmed the adequacy of the materials insofar as all participants declared they were unsure about the effectiveness of acupuncture (corresponding to ratings 3 “I think it works” and 4 “I don’t know whether it works”), while all of them were sure about the effectiveness of aspirin (corresponding to ratings 1 “I know it works” and 2 “I’m convinced it works”).

2.3. Experimental procedure

The experiment took place in a quiet room at the Universitat Pompeu Fabra. The room contained enough space for the two participants to stand facing each other while one gave the other, orally, (a) a description of the contents of one article

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**Acupuntura**

De Viquipèdia

L’**acupuntura** és una tècnica de medicina tradicional xinesa que tracta de la inserció i la manipulació d'agulles en el cos amb l'objectiu de restaurar la salut i el benestar en el pacient reequilibrant el flux del ch'î (el supost principi actiu que forma part de tot aquest viu i que es podria traduir com “flux vital d'energia”). Forma part de les anomenades medicines alternatives, les quals es caracteritzen per la seva limitada evidència clínica en estudis científics.

La definició i la caracterització dels punts acupunturals està estandarditzada actualment per l'Organització Mundial de la Salut (OMS) mitjançant una nomenclatura estandarditzada que agrupa les grans tradicions de l'acupuntura, encara que no es correspon completament amb un sol patró de punts tradicional. L'OMS ha publicat documents i guies per animar els estudis clínics d'aquesta disciplina mèdica com un camí per validar l'acupuntura, millorant la seva acceptació per la medicina moderna i així estendre el seu ús com a simple, barata i efectiva opció terapèutica. En aquesta línia la pròpia OMS divulga resultats d'asseig clínic des de fa diverses anys.

Segons els seus partidaris, l'acupuntura és apropiada per al tractament d'uns amplis ventall de patologies, destacant el seu ús en hèmies discal, alegres, processos inflamatoris o infecions grupal, entre altres afeccions. És a més important destacar el seu ús com anàlegic, i fins i tot per reduir el dolor en procediments quirúrgics. Actualment, l'acupuntura és oferta com a prestació sanitària, dins dels sistemes nacionals de salut a la Xina, Vietnam i Cuba. Hi ha evidències de la seva eficàcia per al tractament de les nausès i del dolor d'esquena, sobretot, per a la majoria de dolços crònics. Fins ara, encara, les observacions no han conclòs que hi hagi una evidència suficient, per determinar si l'acupuntura és eficaç en la resta de malalties.

Existeix un moviment crític de caràcter escèptic que afirma que s'ha ofert proves de l'existència dels fenòmens en què es fonamenta, com ara que l'origen de les malalties sau en un desequilibri del ch'î, l'element enèrgic vital l'existència del qual no s'ha demostrat. Consideren que els estudis dels que es disposa en favor de la seva eficàcia són insuficients i de baixa qualitat. Tot i això, al 1998 es va avaldar als Estats Units per un estudi nacional publicat al Journal of the American Medical Association, que conclou que en algunes malalties pot resultar benefècic, encara que no es poguin descartar l'efecte placebo. Altres estudis, en canvi, destaquen la seva eficàcia per sobre dels tractaments convencionals.

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Fig. 1. Stimulus text about acupuncture.
and (b) an opinion about those contents. Only one member of each pair read the texts. The room also contained a computer so that the participant who had read the texts could then type up his/her opinion about first acupuncture and then aspirin. The oral version of the materials was videotaped with a Panasonic HD AVCCAM camera connected with a Røde NTG-2 microphone by means of a Panasonic AG-MYA30G adapter.

Upon their arrival at the experiment site, we informed the two participants that the goal of the experiment was to find out and analyze the way people exchange information in a communicative context (however, nonverbal or gestural communication was not mentioned). To this end, each of them would assume a different role: while one would speak, the other would listen. Each pair then decided between themselves who would assume each role. That done, the listener was asked to wait outside the room where the interaction would take place. At this point, the participants were given specific instructions separately such that each was ignorant of the instructions the other had received. The speaker was given a
text to study for five minutes and was told that he/she would have to convey the contents of the text verbally to the listener, entering into as much detail as possible but without looking at the text again. For their part, the listener waiting outside was told what to expect and instructed to listen in silence while their partner was speaking, confining themselves to offering positive nonverbal feedback by nodding. The listener was instructed to then ask the speaker “I tu, qué en penses, de l’acupuntura/aspirina?” And what is YOUR opinion about acupuncture/aspirin?’ and to listen to the answer in silence, again showing positive feedback by nodding.

In order to test whether the assumed distinction between debatable vs. nondebatable topic (i.e., the idea that in 21st century Catalan society aspirin is considered effective while acupuncture is still regarded as controversial) was working, we collected confidence ratings from all participants in the experiment. After they had finished the experimental procedure for one of the two texts, each pair of participants (speaker and listener) independently rated on a 7-point Likert scale in Catalan their degree of confidence in the medical treatment described. Slightly different versions of the Likert scale were used for speaker and listener; whereas in the speaker’s scale sentences referred to the speaker him/herself (e.g. I think it works), in the listener’s scale the sentences referred to the speaker (e.g. He/she thinks it works). The text of the scale also made reference to either acupuncture or aspirin depending on the text that had been described. Table 1 shows the speaker’s version of the scale used for the text on acupuncture along with an English translation.

The whole procedure was repeated twice for each pair of participants, first using the text on aspirin, then using the text on acupuncture, or vice versa, but as noted the speaker/listener roles remained constant. Counterbalancing was achieved by presenting the two texts in different orders. Pairs of participants whom the researchers had assigned even numbers (e.g., Pair 2, Pair 4, Pair 6, etc.) started with the text about acupuncture and later dealt with the text about aspirin. Pairs of participants who had been assigned uneven numbers (Pair 1, Pair 3, Pair 5, etc.) started with the text about aspirin and later dealt with the text about acupuncture. A total of 30 opinion reports were obtained (for a total of 3643 words, corresponding to 21:39 min). These opinion reports constitute the acupuncture and aspirin oral opinion data which we analyze in this study.

The average duration of the full experimental procedure for each pair of participants was approximately 40 min, including briefing, the two oral reports for the two target texts, answering the Likert questionnaires, and carrying out administrative paperwork.

2.4. Corpus and data coding

The corpus of opinion data collected by means of the above-mentioned procedure consists of 30 oral reports (21 min 39 s in total) and 30 written reports (7097 words).

Oral reports were first transcribed orthographically and then annotated manually. The semantic coding of both the written and oral data was carried by the first author of this paper using Atlas.ti (Scientific Software Development, 1999) as an interface data analysis program. Labels were finally exported to SPSS for statistical analysis.

The linguistic material that was coded includes lexical, verbal and phrasal units with an evidential and epistemic meaning. The subsections below explain the semantic labeling that was used, which focused on two categories: epistemicity and evidentiality. Although there is a certain degree of interweaving (fully exemplified in transcript excerpts 1–8 below), for the purpose of this study we endeavored to label the two categories separately.

2.4.1. Labeling of epistemicity and evidentiality

The classification of epistemic markers was based on Palmer (2001), van der Auwera and Plungian (1998) and Marín Arrese (2004, 2011), among other authors, who suggest three levels of certainty (see Table 2). Thus, a high certainty utterance is Sí que funciona. ‘It does work.’ [Aspirin; speaker 2]; a medium certainty utterance is Jo crec que funciona.

<table>
<thead>
<tr>
<th>Escull l’opció que descriu millor la teva opinió.</th>
<th>Choose the option that best reflects your opinion.</th>
</tr>
</thead>
<tbody>
<tr>
<td>En relació a l’acupuntura:</td>
<td>With regard to acupuncture:</td>
</tr>
<tr>
<td>3. Sé que funciona.</td>
<td>3. I know it works.</td>
</tr>
<tr>
<td>2. Estic convencut/da que funciona.</td>
<td>2. I’m quite sure it works.</td>
</tr>
<tr>
<td>1. Crec que funciona.</td>
<td>1. I suspect that it works.</td>
</tr>
<tr>
<td>0. No sé si funciona o no.</td>
<td>0. I don’t know whether it works.</td>
</tr>
<tr>
<td>–1. Dubto que funcioni.</td>
<td>–1. I suspect it doesn’t work.</td>
</tr>
<tr>
<td>–2. Estic convencut/da que no funciona.</td>
<td>–2. I’m quite sure it doesn’t work.</td>
</tr>
<tr>
<td>–3. Sé que no funciona.</td>
<td>–3. I know it doesn’t work.</td>
</tr>
</tbody>
</table>
Table 2
Certainty degree of epistemic markers.

<table>
<thead>
<tr>
<th>EPISTEMICITY</th>
<th>High certainty</th>
<th>Medium certainty</th>
<th>Low certainty</th>
</tr>
</thead>
</table>

Table 3
Different ways of clustering evidential values (Plungian, 2001).

<table>
<thead>
<tr>
<th>DIRECT EVIDENCE</th>
<th>INDIRECT EVIDENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct evidence</td>
<td>Reflect evidence</td>
</tr>
<tr>
<td></td>
<td>(inferentials and presumptives)</td>
</tr>
<tr>
<td></td>
<td>Mediated evidence</td>
</tr>
<tr>
<td></td>
<td>(quotatives)</td>
</tr>
</tbody>
</table>

PERSONAL EVIDENCE

‘I think it works.’ [Acupunture; speaker 3]; and a low certainty sentence is Potser funciona. ‘Maybe it works.’ [Acupunture; speaker 2].

Along with the wealth of research and terminological array of terms related to evidentiality there have been put forth a number of proposals to classify sources and/or modes of knowledge, depending on how the information was acquired. For our purposes we will adopt Plungian’s (2001) proposal. Basing himself on the pioneering work of Willett (1988), he elaborates on the binary features of direct and indirect modes of knowledge by introducing the notion of personal and non-personal access to the information. According to Plungian (2001: 353) there are three main types of sources of information that a speaker has for a situation (P), summarized in Table 3.

Plungian refers to the above values in terms of a greater or lesser degree of personal involvement on the part of the speaker: whereas direct access implies that the speaker has personally observed or perceived the situation, indirect access through quotative or reported sources excludes that personal involvement completely and the information is therefore ‘mediated’. In Plungian’s words, “personal access to information presupposes that the speakers know about a situation on the basis of facts that they personally got to know, whereas a non-personal access to information presupposes that the speakers received their knowledge, roughly, through a report in somebody else’s words. Thus, the source of a retold assertion may be either known or unknown to the speakers” (2010: 29). In the case of reflected evidence (Plungian, 2001), the status of inference and presumption is ambiguous. The speaker can make use of an inferential marker when he personally observes [a posteriori] traces of the evidence without having direct access to the information. Similarly, in the case of presumption, the speaker can make a deduction from facts based on reasoning, without seeing any trace. Hence, the access is indirect but there is personal involvement (physical and cognitive). In both cases the speaker is confident of the truth value of the information because his deduction is factual.

Table 4 offers a summary of the evidential values that we used to code the acupuncture–aspirin corpus of oral and written opinion reports that we had elicited experimentally, and which have been adapted from Plungian (2001). As we will see below, the corpus exemplifies a wide variety of direct and indirect mediated sources of information that were coded with these evidential values.

The transcript excerpts that follow (6–8) exemplify the majority of the evidential values in Table 4. In each example, we refer to the epistemic positioning taken by the speaker/writer on the issue, that is, whether they believe that acupuncture/aspirin works. Plungian’s indirect reflected and mediated evidential values are present by means of inferential adverbs and clauses that indicate the source of information, mostly knowledge coming from third parties (i.e. non-personal evidence) that we have subcategorized as scientific, tradition, common knowledge and reported (see Table 4).

Table 4
Evidential values used to code the opinion reports (adapted from Plungian, 2001).

<table>
<thead>
<tr>
<th>DIRECT</th>
<th>INDIRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFLECTED (inferentials + presumptives)</td>
<td>MEDIATED</td>
</tr>
<tr>
<td>Scientific</td>
<td>Tradition</td>
</tr>
</tbody>
</table>

| Personal access to information. | Non-personal access to information. |
| Speaker’s personal involvement | Speaker’s non-personal involvement. |
| Mediated knowledge coming from third parties. |
The excerpts that exemplify the pragmatic coding serve to illustrate the discourse meanings created by the speaker/writer when giving his/her opinion on the use of acupuncture and aspirin, peppers the discourse with a multiple array of evidential expressions and epistemic forms (phrases, clauses, adverbs, adjectives and modal and lexical verbs). This point is worth highlighting, since most studies on evidentiality and epistemicity have traditionally focused on grammatical and lexical forms in isolation, i.e. pragmatically decontextualized.

See extracts (6) and (7) following. Note the way the speaker builds up and supports his/her positioning by making reference to other peoples’ experiences (indirect mediated; ‘…practically everybody has taken it at some time…’) and to the cause-and-effect result (‘and apparently they are making progress’ – extract 1) of their experience. The combination of and interplay between epistemic and evidential ‘voices’ construct the speaker’s positioning. In addition, by means of epistemic modal forms, the speaker presents his/her judgments and degree of commitment (I think, perhaps, probably) by providing different evidentiary support (indirect, reflected and mediated).

(6) [indirect reflected; inferential] [indirect mediated; tradition]

[...] Més d’un estudi clinic ha provat que l’aspirina funciona, ja que sembla ser que bloqueja una hormona que tots els humans tenim [...] És veritat que l’aspirina també comporta moltes contraindicacions, però ha estat comprovat clinicament que realment funciona; pràcticament tothom alguna vegada n’ha pres.

[...] Quite a few clinical studies have proved that the aspirin works [indirect mediated; scientific] since it seems [indirect reflected; inferential] to block a hormone that all human beings have [...] It is true that the aspirin also entails many contraindications, but it has been clinically proved that it really works [indirect mediated; scientific]; practically everybody has taken it at some time [indirect mediated; tradition].

[written report Aspirin; speaker 12]

(7) [direct evidence]

Jo crec que… funciona per a algunes coses, algunes potser no, però… però per… potser no el. el tema més… espiritual, de les, bueno, si funcionen els fluxos d’energia i tot això, però si que… crec que, per a dolors musculars o així… ajuda molt a – a alliberar… tensions o… a mi m’ha funcionat. M’ho han fet i m’ha funcionat.

I think [E] that… it works for some things, for others it might not, but… but for… perhaps [E] not… the aspect that is more… spiritual, of, well, if the flows of energy work and all that, but yes, I do think [E] that, for muscle pain or that sort of thing… it helps a lot to free… tensions or… it has worked for me. I’ve had it done and it has worked. [direct evidence].

[oral report Acupuncture; speaker 3]

Notice, in the extracts, the way the speaker constructs his/her opinion and gets his/her point across, when asked about whether s/he thinks that acupuncture/aspirin works. The arguments that the speaker presents to the listener substantiates his/her reasoning, responding to the pragmatic constraint (Givón, 1982 implicit contract) that speakers impose on themselves to provide some sort of evidentiary support when making a claim. It is worth noticing the collocation with argumentative connectors (because, since) introducing the justifying phrases and clauses (underlined), which provides a cause-and-effect result (González and Ribas, 2008). Thus, in (8), after his/her initial strong assertion (“I’m almost 100% convinced that it works”) s/he finds himself compelled to introduce, by means of because, a clause that pragmatically justifies his/her claim (“because otherwise it wouldn’t be sold at the pharmacies, and doctors…”).

(8) [direct evidence; indirect reflected-inferential; indirect mediated-scientific]

Doncs jo trobo. Bueno, estic gairebé convencuda al 100% de que funciona, perquè… si no no la vendrien a les farmàcies, i no la receptarien els metges, també perquè… Jo n’he pres, de vegades, i… també m’ha funcionat bé quan m’he trobat malament… I a més perquè… bueno, segons explica, doncs, … s’ha estat investigant… investigant durant un parell de segles els seus efectes, durant un segle, i… pel que sembla… Si que funciona, està clinicament provat.

Well I believe [E]… well, I’m almost 100% convinced [E] that it works, because… otherwise it wouldn’t be sold in pharmacies, and doctors wouldn’t prescribe it, also because… I’ve taken it [direct evidence], sometimes, and… it has also worked when I’ve felt ill… and also because… well, according to what it says, well,… it’s been researched… researched for a couple of centuries, its effects, for a century [indirect mediated-scientific], and… apparently [indirect reflected-inferential]… it does work, it’s been clinically proved [indirect mediated-scientific].

[oral report Aspirin; speaker 13]
2.5. Reliability test

The pragmatic labeling system used for epistemicity and evidentiality was participated to an inter-transcriber agreement test. Twenty percent of the data from the database were randomly selected (a total of 656 target words), though care was taken to ensure that they were uniformly representative across speakers and conditions (debatable vs. nondebatable texts; oral vs. written materials). Three researchers (namely the third and fourth authors of this paper, in addition to another member of the Grup d’Estudis de Prosòdia at the Universitat Pompeu Fabra) were trained in labeling during 3 sessions of approximately 3 h each session and were then asked to independently label the subset of texts.

A comparison of the labeling across the transcribers revealed a high consistency rate in all variables. The percentage of inter-transcriber agreement for both epistemicity and evidentiality labellings was high: 79% in the case of markers of epistemicity, and 82% for markers of evidentiality. The Online Kappa Calculator (Randolph, 2008) was used to calculate the Fleiss kappa statistical measure (Yoon et al., 2004). This tool provides two variations of kappa: fixed marginal multirater kappa and Randolph’s free marginal multirater kappa (Randolph, 2005; Warrens, 2010). Since raters did not know previously about the presence of any semantic event for each sentence, free marginal kappa was used. For semantic labeling, kappa is high: 0.72 in the case of lexical markers of epistemicity and 0.80 for lexical markers of evidentiality. In sum, free marginal kappa values were in all cases higher than 0.70, which is considered to indicate a good degree of inter-transcriber agreement. One can therefore conclude that the pragmatic labeling system used was reliable.

2.6. Data extraction and analyses

Table 5 shows the length (in number of words) of the different parts of the corpus (i.e. oral vs. written part, debatable vs. nondebatable text condition). Since the length in number of words of the oral and written corpora (as well as the debatable vs. nondebatable condition) is different, the tokens of epistemic and evidential markers were normalized on a 10,000 word basis.

These data were submitted to statistical analysis using SPSS. Four Generalized Linear Mixed Models were carried out, with the number of semantic markers found in our corpus as the dependent variable, and the speaker variation as a random factor. In all four analyses, there were two common variables that were set as fixed factors, namely Register (two levels: oral, written), and Debatability (two levels: debatable, nondebatable), whereas the last one depended on the model. The first statistical model took as a fixed factor the markers’ Semantic Category (two levels: epistemic, evidential), and so let us analyze how they are distributed across the different register and debatability conditions; the second one focused on the level of Certainty (LC, MC, HC) of the epistemic markers; the third one analyzed the type of evidence of the evidential markers (EviType; two levels: direct, indirect); and the fourth one focuses on the source of evidence of the indirect mediated evidential markers (SourceEvi; reported, common knowledge, tradition, scientific).

3. Results

First, in order to check whether the debatable vs. nondebatable variable played the expected role in our study, we asked both speakers and listeners to rate their degree of belief in the effectiveness of the procedures by means of a 7-degree Likert scale (see Section 2.3). Fig. 3 shows the distribution of the number of speakers according to their responses to the Likert confidence scale to the debatable text (acupuncture) and the nondebatable text (aspirin). The results shown in Fig. 3 confirm that the debatability issue triggered different degrees of confidence, that is while 14 out of 15 participants rated the effectiveness of the acupuncture text as “not sure whether it works” (a combination of 3, 4, and 5 ratings in the Likert scale), 12 out of 15 participants rated the aspirin text as “very or quite sure it works” (a combination of the 1 and 2 ratings in the Likert scale).

Two Generalized Linear Mixed Models (GLMM) were conducted, one with SpeakerOpinion as the dependent variable and another one with ListenerOpinion as the dependent variable. In both analyses, Debatability was set as the fixed factor and Pair as a random factor. A significant effect of Debatability was found in both analyses: SpeakerOpinion ($F_{1, 28} = 13.300, p < .001$), ListenerOpinion ($F_{1, 28} = 7.724, p < .010$). The direction of the effect was found to be the same,
i.e., the degree of confidence of both speakers and listeners in the effectiveness of aspirin was higher than the effectiveness of acupuncture.

These results confirm that the two texts chosen for the debatability variable (namely, acupuncture vs aspirin) are good representatives of debatable vs. nondebatable issues. We thus expect that the debatable vs. nondebatable variable will be related with the epistemic stance of the speaker.

The following three subsections present results of the indexing of belief and evidence in our corpus of oral and written opinion reports, around three topics: (i) effects of register and debatability on the number of epistemic and evidential markers in discourse, (ii) effects of register and debatability on the type of epistemic marking; and (iii) effects of register and debatability on the type of evidential marking.

3.1. Effects of register and debatability on the number of epistemic and evidential markers in discourse

In this section we investigate the effects of register and debatability on the number of epistemic and evidential markers used in our opinion reports. As we mentioned in Section 1, the point of how much register and debatability affects the amount of evidential and epistemic marking in discourse has not really been tackled in the literature.

Fig. 4 shows the number of epistemic and evidential markers (with different linguistic realizations, i.e. lexical, verbal, phrasal, clausal) separated according to the register (oral vs. written reports) and debatability (debatable vs. non-debatable issues). In here and in the subsequent figures, the number of semantic markers in the y axis has been computed as the mean number of cases found across all opinion reports in that condition. For example, since we have 15 opinion reports, the mean of 16 epistemic markers in the oral-debatable combination has been obtained by dividing the total number of epistemic markers in this condition by 15. The results in Fig. 4 show that it is very important to jointly take the two conditions into consideration when analyzing the results. First, epistemic markers are more frequent than evidential markers in all conditions, except in the case of written nondebatable issues, where evidential markers are more frequent. With respect to the effects of register, more epistemic and evidential markers appear in the oral register than in the written register, probably related to the specific genres under analysis (Gray and Biber, 2012: 24–25). Regarding the effects of debatability, epistemic markers are more frequent in the reports about the debatable issue (acupuncture) than in the reports about the nondebatable issue (aspirin), in both the oral and the written registers.

A GLMM analysis was conducted with the number of markers found in the production experiment as the dependent variable (Gamma distribution, log link). SEMANTICCATEGORY (two levels: epistemic vs. evidential), DEBATABILITY (two levels: debatable vs. nondebatable), REGISTER (two levels: oral vs. written), and all their possible combinations were set as fixed factors. SPEAKER was set as random factor. A main effect was found for SEMANTICCATEGORY ($F_{1, 1378} = 180.912$, $p < .001$; epistemic markers were overall more frequent than evidential markers), REGISTER ($F_{1, 1377} = 704.187$, $p < .001$; more semantic markers are found in oral productions than in written productions), and DEBATABILITY ($F_{1, 1375} = 22.649$, $p < .001$;
more semantic markers in acupuncture than in aspirin). Two paired interactions were found to be significant: \textsc{semanticcategory} \times \textsc{register} (F_{1,1376} = 12.788, \ p < .001), \textsc{semanticcategory} \times \textsc{debatability} (F_{1,380} = 105.693, \ p < .001), but not \textsc{debatability} \times \textsc{register} (F_{1,1375} = 2.275, \ p = .132). The interaction \textsc{semanticcategory} \times \textsc{register} can be interpreted in gradient terms, i.e., the described effect for \textsc{register} (more markers in the oral than in the written reports) is greater for epistemic markers than for evidential markers, and the described effect for \textsc{semanticcategory} (more epistemics than evidentials) is greater in oral reports than in written reports. The interaction \textsc{semanticcategory} \times \textsc{debatability} indicates that the main effect found for \textsc{debatability} only holds when focusing on epistemic markers (i.e., more epistemic markers in acupuncture than in aspirin texts), whereas the opposite direction of the effect is found for evidential markers (i.e., more evidential markers in aspirin than in acupuncture texts).

The triple interaction \textsc{semanticcategory} \times \textsc{debatability} \times \textsc{register} was also significant (F_{1,1375} = 21.230, \ p < .001), and it can be read in two different ways since the effect of \textsc{register} (more semantic markers in oral than in written reports) is constant across conditions. First, the main effect described for \textsc{semanticcategory} (more epistemic than evidential markers) holds when related to both acupuncture and oral productions, but not when these properties are missing (in written nondebatable reports), where the opposite pattern is then found (i.e., evidential markers are more frequent than epistemic markers). Second, the main effect described for \textsc{debatability} (more markers in debatable than in nondebatable reports) shows different patterns depending on the condition: whereas this pattern holds for epistemic markers, the opposite pattern is found in the case of evidential markers (more markers in the written nondebatable vs debatable condition).

Summarizing the relevance of these results, the significant main effects found for \textsc{register} and \textsc{debatability} (\ p < .001) and the significant \textsc{semanticcategory} \times \textsc{register} and \textsc{semanticcategory} \times \textsc{debatability} interactions indicate the following:

(a) \textbf{Main effects of register}: significantly more semantic markers are found in oral productions than in written productions; the \textsc{register} \times \textsc{debatability} significant interaction shows that this effect is significantly greater for epistemic markers than for evidential markers.

(b) \textbf{Main effects of debatability}: significantly more semantic markers are found in debatable productions than in nondebatable productions; the \textsc{register} \times \textsc{debatability} significant interaction shows that this effect is only significant for epistemic markers.

![Mean number of epistemic and evidential markers, as a function of register (oral vs. written) and debatability (debatable vs. nondebatable).](image)

The figures have been normalized to 10,000 words.
3.2. Effects of register and debatability on epistemic marker types

This section describes the effects of register and debatability on the presence of epistemic types (coded as the degree of certainty conveyed by epistemic markers). Fig. 5 shows the mean number of epistemic markers separated by type (LC = low certainty, MC = mid certainty, and HC = high certainty), as a function of debatability (debatable vs. nondebatable) and register (oral vs. written). The results reveal a more frequent use of markers that convey low (and mid) certainty in the oral reports. By contrast, note that, in the written reports the number of high certainty markers is more comparable with the number of low/mid certainty markers, which suggests that writers are more assertive in conveying their opinions and in getting their points across than speakers. It is also interesting to note that epistemic low certainty markers are used more frequently in opinion reports about the debatable issue, whereas epistemic high certainty markers prevail in the reports about the nondebatable issue.

A GLMM analysis was conducted with the number of epistemic markers found in the production experiment as the dependent variable (Gamma distribution, log link). Certainty (three levels: HC, MC, and LC), Debatability (two levels: debatable vs. nondebatable), and Register (two levels: oral vs. written), and all their possible combinations were set as fixed factors. Speaker was set as random factor. All factors and interactions were found to be significant. A main effect was found for Certainty ($F_{1,781} = 57.705, p < .001$; such that the overall tendency is to find more MC than LC and HC markers, i.e., MC > LC > HC), Debatability ($F_{1,781} = 56.463, p < .001$; more epistemic markers are found in debatable than in nondebatable reports), and Register ($F_{1,782} = 309.380, p < .001$; more epistemic markers are found in oral than in written registers). Concerning the paired interactions, first, the interaction Certainty × Debatability ($F_{2, 783} = 26.791, p < .001$) can be interpreted in two different ways: on the one hand, both LC and MC markers are most frequent in acupuncture texts than in aspirin texts, whereas HC markers are most frequent in aspirin texts than in acupuncture texts. On the other hand, acupuncture texts display a frequency scale such as LC > MC > HC, whereas aspirin texts display a high frequency of MC markers. Second, the interaction Certainty × Register ($F_{2, 781} = 106.623, p < .001$) can be also read in the following way: oral productions show a frequency scale such as LC > MC > HC, whereas written productions show a frequency scale of MC > HC > LC. At this point, one may note that the distribution of epistemic markers by type is quite similar in both the
**Fig. 6.** Mean number of evidential markers coded by degree of type (Direct vs Indirect), as a function of register (oral vs. written) and debatability (debatable vs. nondebatable). The figures have been normalized to 10,000 words.

**Debatability** and the **Register** conditions, namely, both orality and debatability (acupuncture reports) entail LC markers. Third, the significant interaction **Debatability** × **Register** \((F_{1, 780} = 43.035, p < .001)\) means that oral epistemic markers appeared in a similar frequency independently of the debatability condition, whereas written epistemic markers were significantly more frequent in acupuncture than aspirin texts.

Finally, the triple interaction **Certainty** × **Debatability** × **Register** \((F_{2, 781} = 12.961, p < .001)\) can be also explained in different ways. The effects of **Debatability** and **Register** within the triple interaction show similar facts: LC markers appear more frequently in the oral and acupuncture texts; HC markers are more frequent in written texts and show a similar frequency in both acupuncture and aspirin texts; and MC markers are placed in one extreme or the other of the axes depending on the factor they are combined with. Finally, **Certainty** shows a similar distribution to the one described above: oral acupuncture texts [LC > MC > HC], oral aspirin texts [LC, MC > HC], written acupuncture texts [MC > LC > HC], and written aspirin texts [HC, MC > LC].

In sum, the results in this section reveal that both register and debatability play an important role in the speakers’ selection of epistemic markers. Taken together, the results reveal a more frequent use of markers that convey low certainty in the oral reports and in the debatable issues. Yet, as mentioned before, interesting interactions also arise between the two factors.

### 3.3. Effects of register and debatability on evidential marker types

This section describes the effects of register and debatability on the presence of evidential marker types. **Fig. 6** shows the mean number of evidential markers separated by type (direct vs. indirect evidential markers), as a function of debatability (debatable vs. nondebatable issues) and register (oral vs. written). The results reveal a more frequent use of evidential markers (both direct and indirect markers) in the oral reports than in the written reports. Moreover, the results show a tendency to have more direct evidential markers than indirect evidential markers in the oral register, and more indirect evidential markers than direct evidential markers in the written register.

A GLMM analysis was conducted with the number of evidential markers found in the production experiment as the dependent variable (Gamma distribution, log link). **EvIType** (two levels: direct vs. indirect), **Debatability** (two levels:...
debatable vs. nondebatable), and Register (two levels: oral vs. written), and all their possible combinations were set as fixed factors. Speaker was set as random factor. A main effect was found for Evitype ($F_{1, 573} = 5.117, p = .024$; more indirect evidential markers than direct evidential markers overall), Debatability ($F_{1, 575} = 8.850, p = .003$; more evidential markers in nondebatable than in debatable issues), and Register ($F_{1, 574} = 24.444, p < .001$; more evidential markers in oral than in written texts). Two paired interactions were found to be significant: Evitype $\times$ Register ($F_{1, 574} = 36.004, p < .001$) and Debatability $\times$ Register ($F_{1, 573} = 8.910, p = .003$), but not Evitype $\times$ Debatability ($F_{1, 574} = 0.150, p = .699$). The interaction Evitype $\times$ Register indicates that oral productions displayed significantly more direct than indirect evidentials, whereas written productions displayed significantly more indirect than direct evidentials. The interaction Debatability $\times$ Register means that, in writing, evidential markers are more frequent for nondebatable than for debatable issues, whereas nondebatable and debatable evidential markers are similarly frequent in oral productions. The triple interaction Evitype $\times$ Debatability $\times$ Register was found to be not significant ($F_{1, 574} = 1.490, p = .223$).

Turning to indirect evidential types, Fig. 7 shows the mean number of indirect evidential markers separated by type (reported, common knowledge, tradition, and scientific), as a function of register (oral vs. written) and debatability (debatable vs. nondebatable). Three main points stand out from these results: (i) the use of reported, tradition, and common knowledge evidentials is more common in the oral reports, in particular in debatable issues (acupuncture); (ii) the use of scientific evidentials prevails in the written reports, especially in the nondebatable issues (aspirin).

A GLMM analysis was conducted with the number of indirect evidential markers found in the production experiment as the dependent variable (Gamma distribution, log link). SourceEv (four levels: reported, tradition, common knowledge, and scientific), Debatability (two levels: debatable vs nondebatable), and Register (two levels: oral vs written), and all their possible combinations were set as fixed factors. Speaker was set as random factor. A main effect was found for SourceEv ($F_{1, 346} = 20.280, p < .001$; both scientific and reported evidential markers were more frequent than both common knowledge and tradition evidential markers) and Register ($F_{1, 350} = 7.607, p = .006$; more mediated evidential markers in oral than in written texts), but not for Debatability ($F_{1, 350} = 1.540, p = .215$). Two paired interactions were found to be significant: SourceEv $\times$ Debatability ($F_{3, 345} = 29.486, p < .001$) and Debatability $\times$ Register ($F_{1, 345} = 8.915, p = .003$), but not SourceEv $\times$ Register ($F_{3, 345} = 0.283, p = .838$). The interaction SourceEv $\times$ Debatability can be read in two different ways: on the one hand, both common knowledge and reported evidential markers were significantly more frequent in acupuncture than in aspirin texts, scientific mediated evidential markers were significantly more frequent in aspirin than in acupuncture texts, and tradition evidential markers showed a similar frequency in both issues; on the other

![Fig. 7. Mean number of indirect evidential markers separated by type (Reported, Common Knowledge, Tradition, and Scientific), as a function of register (oral vs. written) and debatability (debatable vs. nondebatable). The figures have been normalized to 10,000 words.](image-url)
hand, within acupuncture texts we found the following frequency scale: reported > common knowledge > tradition > scientific, whereas within aspirin texts there were more scientific mediated evidential markers than any other type of mediated evidential markers (with no significant differences among the other three types). As in the previous analyses, the interaction **Debatability × Register** means that, in writing, evidential markers are more frequent for aspirin than for acupuncture, whereas acupuncture and aspirin evidential markers are similarly frequent in oral productions.

The triple interaction **Source/EVI × Debatability × Register** was also found to be significant ($F_{2, 344} = 4.146, p = .017$), and it can be interpreted in three different ways. First, the effect of debatability described for common knowledge and reported is only found in orality, whereas the effect of debatability found for scientific is only found in writing. Second, the significantly higher number of oral markers compared to written ones is found in all conditions except when analyzing common knowledge in nondebatable condition, which showed no significant differences. Third, different scales of frequency regarding the sources of evidence appear in the four possible conditions, namely: for both oral and written reports, nondebatable condition [scientific > rest], for oral reports, debatable condition [reported > common knowledge > tradition], and for written reports, debatable condition [reported > tradition, scientific].

In the case of indirect reflected evidence, where the access is indirect but there is personal involvement (physical and cognitive), the results have shown that the correlation with register and debatability is not statistically significant in the corpus of analysis. This point might confirm its intermediate status between the other direct and indirect categories.\(^5\)

In sum, the analyses presented in this section show clear differences between the use of evidential types between oral and written reports, as well as an influence of debatability. Both factors clearly influence the speakers’ selection of direct and indirect evidential types.

4. Discussion and conclusions

The present investigation has analyzed the epistemic and evidential marking of a set of 30 oral and 30 written opinion reports (one dealing with a debatable issue and the other with a nondebatable issue) produced by 15 Catalan speakers. The quantitative and qualitative analysis carried out by means of an experimental task which elicited opinion reports while controlling for two factors – register (oral vs. written), and debatability (debatable vs. nondebatable) – has revealed the importance of both factors in terms of conditioning epistemic and evidential marking in discourse. The general results have demonstrated that both the register and the debatability of a particular issue are significant factors when trying to predict the use of evidential and epistemic marking in discourse.

The analysis of the effects of register and debatability on the quantity of epistemic and evidential marking (Section 3.1) has revealed a main effect of both factors (at $p < .001$). This is, significantly more semantic markers are found in oral productions than in written productions, and significantly more semantic markers are found in debatable productions than in nondebatable productions. The significant paired interactions have revealed that both effects are significantly greater for epistemic markers than for evidential markers. Speakers use more epistemic markers when discussing debatable topics than when discussing non-debatable topics (see Fig. 4 in Section 3), both in the oral and written registers, and that this is not the case for evidential markers. A plausible explanation for the higher number of epistemics and evidentials in the oral register is the tendency to modulate utterances much more when we are engaged in verbal communication, making use of repetition, hesitation, hedges and pragmatic markers recurrently (González, 2004). On the other hand, the higher number of epistemics in the debatable condition can be traced back to the fact that when speakers provide an opinion on a controversial issue they tend to use a more modalized (cautious and tentative) discourse.

The analysis of the effects of register and debatability on epistemic marker types (Section 3.1) has again revealed a main effect of both factors (at $p < .001$) and a set of interactions. In terms of register, the participants make a profuse use of low certainty epistemics more when reporting orally than in writing. In this same line, note that, in terms of epistemic degrees, the number of high certainty markers is slightly greater in the written reports than in the oral reports, which suggests that writers are more assertive in conveying their opinions and in getting their points across than speakers. In essence, speakers show their epistemological positioning and commitment more openly (and thus use more low certainty epistemic markers) when communicating orally. In terms of debatability, both low certainty and medium certainty markers are significantly more frequent in acupuncture texts than in aspirin texts, whereas high certainty markers are similarly frequent in the two issues. This probably responds to the fact that speakers are giving an opinion on a practice that is socially controversial (i.e., debatable), and therefore their degree of commitment, and their epistemic stance is not as strong as it would be when giving an opinion about a socially acceptable medical treatment (as is the widespread use of aspirin).

The analysis of the effects of register and debatability on the frequency of evidential types (Section 3.1) shows a similar picture. Again, a main effect of both factors (at $p < .001$) is found, together with significant paired and three-way interactions. Our findings show a significant effect of register, in the sense that oral productions display more direct than

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\(^5\) We appreciate this observation coming from one anonymous reviewer of a previous version of this paper.
indirect evidentials, whereas written productions display more indirect than direct ones. Results show that when participants convey their opinions in writing they hardly ever back up their opinions and assertions by means of direct sources of information, whereas in the oral register participants very frequently back up their judgments and claims by providing first person (visual or perceptual) access to the information. Moreover, our results show that, when participants are asked to report their opinion in writing, they make extensive use of indirect sources of knowledge to provide reliability and authority to their judgments. These results thus confirm that the register condition affects the sort of evidentiary support provided by the speaker, in particular that oral production, as a social ongoing dynamic process that builds up as it evolves, makes a higher use of direct evidentials than written production, when there is more time to plan and cognitively access other sources of information.

Further analyses on the effects of register on indirect evidential types again show a clear effect of register. On the one hand, the use of reported, tradition, and common knowledge evidentials is more common in the oral reports than in the written reports, while the use of scientific evidentials prevails in the written reports, especially in the nondebatable issues (aspirin). That is, when speakers validate their oral judgments they tend to access other persons' experiences (‘...jo no ho he practicat mai, però tinc una amiga que si, que va deixar de fumar’) I have never had it done to me, but I have a friend that did, and she quit smoking), especially when giving their opinion on a debatable topic such as acupuncture. These findings indicate that when speakers express their beliefs orally, they back them up not so much with objective evidence but rather in experiential terms; thus, they are more focused on conveying experiences, even if such experiences are not their own, than on providing an encyclopedic sort of support. In this respect, participants commit themselves and play a more participative role in oral reports than in written ones, where more evidential distance is taken. On the other hand, with respect to the effects of debatability, there is the preponderant use that writers make of scientific sources of knowledge in the nondebatable condition, which probably responds to a more clear accessibility to knowledge that has an intrinsic empirical value and that is regarded by the social community as reliable; making reference to it unquestionably provides their discourse with greater authority.

Summarizing, the results presented here have shown clear effects of debatability and register on evidential and epistemic marking in discourse. First, when participants have to give their opinion orally, they tend to convey their epistemic stance by making use of a profuse number of epistemic and evidential markers, and specifically low certainty markers, and to support their assessments and opinions by means of direct personal experience. Second, when participants have to give their opinion on debatable issues, they tend to use significantly more epistemic markers (specifically low certainty markers), and make more use of reported and tradition-mediated evidence. By contrast, opinion reports about nondebatable issues report more scientific-mediated evidence.

From a methodological point of view, it is important to emphasize that our findings have also proved that the discoursal-pragmatic perspective on evidentiality deserves attention, and that studies on how we construct the evidential support of a given piece of information is very important, particularly from the register and propositional content points of view. More traditional grammatical and morphosyntactic works on the evidential system of non-explored languages and language varieties are undoubtedly necessary, but other approaches that take into consideration the evidential and epistemic meanings within an interactional communicative context are definitely worth pursuing.

In sum, the results of this investigation show that when asked about their opinions, speakers convey their epistemic positioning and their evidentiary support differently depending on whether (a) they were conveying the report in the oral or in the written register, and (b) they were discussing debatable or nondebatable issues. Findings thus suggest that the speakers’ epistemological positioning, that is, their commitment and beliefs, is mostly expressed by a combination of epistemic and evidential markers, which are sensitive to different discourse factors. Findings support the view that epistemicity and evidentiality are independent but yet overlapping systems that work together in the construction of epistemic stance. They also indicate that both speakers and writers make use of different sources of knowledge depending on their epistemic stance, which is partially dependent on the content under debate, thus adjusting and making use of different legitimizing strategies which are partially dependent on register.

Appendix 1. English translation of the acupuncture text

From Wikipedia

Acupuncture is a traditional Chinese medical technique that aims at restoring health and well-being in patients by means of the insertion and manipulation of needles in the human body, re-equilibrating the flow of chi (the presumed active part of all living things, which could be translated as “vital energy flow”). It belongs to the so-called alternative therapies, which are characterized by limited clinical evidence in scientific studies.

The definition and characterization of acupuncture points is currently standardized by the World Health Organization (WHO), which suggested a nomenclature that is based on the major traditional acupuncture schools, although it does not completely correspond with any traditional pattern. The WHO has published documents and clinical guidelines to encourage this discipline “as a way of validating medical acupuncture, improving its acceptance and spread within
modern medicine and its use as a simple, cheap and effective treatment”. The WHO itself has published results of clinical trials involving acupuncture for several years.

According to its supporters, acupuncture is suitable for treating a wide range of diseases, especially hernia, allergies, inflammation and the flu. It is also important to emphasize its use as an analgesic, and even to reduce pain in surgical procedures. Today, acupuncture is included as a medical treatment within the health systems of China, Vietnam and Cuba. There is evidence of its effectiveness for the treatment of nausea and back pain as well as for most types of chronic pain. So far, though, observations have concluded that there is insufficient evidence to determine whether acupuncture is effective in the treatment of other diseases.

There is a skeptical critical movement which argues that there is no evidence of the existence of the notion that underpins acupuncture, namely that the origin of disease lies in an imbalance of ch'i. Critics say that the studies which claim prove of the effectiveness of acupuncture are few and of poor quality. However, in 1998 acupuncture was backed in the United States by a national study published in the Journal of the American Medical Association, which concluded that it may be beneficial in the treatment of some diseases, although the placebo effect cannot be excluded. Other studies, however, argue that it is more effective than conventional treatments.

Appendix 2. English translation of the aspirin text

From Wikipedia

Aspirin or acetylsalicylic acid (acetosal or AAS) is a drug belonging to the family of salicylates. It is often used as an analgesic (for minor injury and acute pain), antipyretic (against fever), and anti-inflammatory.

It was first synthesized in 1897 by the German chemist Felix Hoffmann, following the method of Arthur Eichengrün. Its properties as an analgesic and anti-inflammatory drug were described in 1899 by the German pharmacologist Heinrich Dress.

In 1966 the New York Times Magazine stated that "Aspirin is the wonderful drug that nobody understands". In 1971, the British pharmacologist John Robert Vane showed that aspirin's multiple medical applications derived from its ability to block the production of certain prostaglandins. Although prostaglandins were first identified in 1935 by the Swedish philosopher Ulf von Euler, research on their composition, structure, functions and medical use began in the late 1960s. Prostaglandins in biochemistry and medicine are a family of chemicals similar to hormones that are naturally present in all mammals. There are over a dozen prostaglandins that play a major role in biology and are relevant in many essential physiological functions. Although aspirin's main effect seem to be its effect on prostaglandins, aspirin has favorable effects on several other cellular processes. Many other effects of aspirin are linked to its action in the cell.

The following effects of aspirin are known: the antipyretic effect (i.e. regulation of fever), the analgesic effect (acting on the same nerve endings affected by pain-generating substances), and the anti-inflammatory effect (aspirin reduces the responses of cells to the inflammatory stimulus). Aspirin is used in the treatment of migraine, tension headache, rheumatic fever, arthritis, angina, ischemic stroke, senile dementia, and diabetes.

In the prospectus attached to a container of Aspirin, one can read a list of contraindications that this drug can have, such as gastrointestinal irritation, rashes, breathing difficulties, dizziness, dry mouth, nose or throat, nervousness or drowsiness (especially when alcohol is ingested simultaneously), which can reduce the user’s ability to drive vehicles and operate machines.

References


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