

Borrowing of discourse functions of English *suggest* by Spanish *sugerir* in biomedical research articles: A contrastive study

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1. Introduction

Corpus-based studies have grown in popularity as advances in computer technology have made it possible to analyse extremely large quantities of electronically stored text data. The application of corpus techniques to bilingual data in contrastive studies is a valuable method to gain insight into both grammatical patterns and the use of polysemous or multifunctional lexical items, allowing distinctions to be made between their meanings and functions. This has led to a plethora of English-Spanish studies both from a general language perspective (Labrador 2004, 2007; Rabadán 2006, 2007; Ramón-García 2006, 2007) and in specialised domains of language such as medical discourse (López-Arroyo and Méndez-Cendón 2007; Williams 2004, 2005, 2007, 2008).

In biomedical research articles (RAs), the polysemous verb *suggest* is commonly used by authors as a hedging device to express tentative claims and to attenuate evaluation of other researchers' work. In a wider context of academic prose, Biber *et al.* (1999) classify *suggest* as a communicative verb, and note that it occurs at a frequency of over 400 tokens per million words, is associated with a nominal *that* clause in over 100 cases per million words, and "when such [communication] activities are reported, they are often attributed to some inanimate entity as subject of the verb" (Biber *et al.* 1999: 372). *Suggest*, therefore, makes a considerable contribution to the impersonal style of both academic and scientific prose, and forms part of a cluster of verbs (including *indicate*, *find*, *show*, *prove*, *demonstrate*) that allow writers both to express their evidence-based claims along a scale of certainty

without being too pretentious and to mitigate critical evaluation of work by members of their peer group (Williams 1996).

This function of *suggest* is increasingly found for its apparent Spanish counterpart *sugerir* in Spanish RAs, especially in translated texts, where the frequency of *sugerir* appears to be almost double that observed in naturally occurring Spanish texts. However, the function is not really covered by the two meanings of *sugerir* in the Spanish Royal Academy Dictionary (*Diccionario de la Real Academia Española* 2001):

Sugerir (Del lat. *suggerere*).

1. tr. Proponer o aconsejar algo. *Le sugerí que no trabajara tanto.*
2. tr. Evocar (traer algo a la memoria). *Esa canción me sugiere recuerdos de la infancia.*

While these two contexts, in which *sugerir* – and also *suggest* – serves to make a proposal and give advice, or causes someone to recall past experiences, may well represent the most frequent functions of the verb in the language overall, they do not explain the increasing use in medical RAs. This could well be the result of transfer of meaning and function, or both, a phenomenon to which translation of scientific texts may be particularly prone: “se acaba a veces *calcando*, más que *traduciendo*” (Santoyo 1996: 66).

To explore this possibility, the present study examines the use of *suggest* and *sugerir* quantitatively and qualitatively in a large bilingual corpus of biomedical research articles published in 1993, and investigates the evolution of *sugerir* in Spanish medical literature in the CORDE (*Corpus Diacrónico del Español*) and CREA (*Corpus de Referencia del Español Actual*) databases of the Spanish Royal Academy.

2. Study design

2.1. The corpus

The corpus used in this study contains approximately half a million words and consists of 192 complete RAs with the typical Introduction,

Methods, Results and Discussion (IMRAD) format, but excluding the Abstract, which is considered a separate genre. The corpus is divided into three subcorpora: a subcorpus of 64 English source language (SL) texts, composed of eight randomly selected RAs from each of the eight medical journals with Spanish editions in 1993; a subcorpus of the 64 corresponding Spanish target language (TL) texts; and a comparable subcorpus of 64 Spanish native language (NL) texts in sets of eight RAs randomly selected from Spanish journals to cover the same specialities as the English subcorpus. The specialities covered are general medicine (two journals in each subcorpus), cardiology, dermatology, gynaecology and obstetrics, ophthalmology, paediatrics, and surgery (one journal in each case for the English (and Translation) subcorpus, and eight RAs from one or more journals for the Spanish subcorpus).

2.2. Synchronic and diachronic analyses

The synchronic analysis was both quantitative and qualitative and was performed on the three subcorpora for 1993. Quantitative analysis compared frequency of use of *suggest* and *sugerir* both overall and in relation to the different rhetorical sections. All the instances of the verbs were located with the concordance tool of *WordSmith Tools* (Scott 1998) and subjected to a detailed qualitative contextual analysis. This is based on linguistic profiles consisting of extended units of meaning (Sinclair 1991; Tognini-Bonelli 2001) to establish the environments in which these verbs appear in the different subcorpora. These profiles cover collocation, colligation, semantic preference and semantic prosody, representing the lexical, grammatical, semantic and discoursal features, respectively. The study also examines the alternative linguistic resources chosen by native Spanish writers in the discourse contexts covered by *suggest* in the texts published in English. These resources, which include verbs such as *indicar*, *deducir*, *afirmar*, *señalar*, and syntactic structures (e.g., *hacer + cognitive verb* or *por lo que + modality*), were identified by scanning appropriate parts of the Spanish texts in the view function of *WordSmith Tools*, and then making searches with the concordance tool. The quantitative data and the linguistic profiles obtained then serve in a third evaluative stage to determine appropriate use and to recommend strategic options

for English-Spanish translation aimed at achieving a more natural target-language text.

The evolution of *sugerir* was investigated in the CORDE and CREA databases of the Royal Academy, which are available online. Since CORDE does not include journal articles, the search was carried out for the theme field 15311 *Medicine* in books within Spain. For CREA, the selection criteria were the theme field 601 *Medicine* for journals in Spain. For comparison purposes, in addition to *sugerir*, searches were also performed for *hacer* + *cognitive verb* (*pensar* and *sospechar*) and *deducir*.

3. Results

3.1. Quantitative analysis

Overall, the English subcorpus contained 97 tokens of *suggest* located in 45 of the 64 RAs. This more than doubled the 42 instances of *sugerir* found in 26 of the 64 Spanish comparable texts. In addition, tokens of *suggest* were located in all four rhetorical sections (Introduction, 17; Methods, 2; Results, 9; Discussion, 69), whereas *sugerir* only appeared in the Introduction (8 tokens) and Discussion (34).

3.2. Translation behaviour

Of the 97 tokens of *suggest*, 90 were transferred into Spanish by *sugerir*, the other translation replacements being *indicar* on five occasions, *establecer* in one context, with non-translation (redundant) in one case:¹

¹In the examples the relevant verbs and related structures are shown in bold, and other features of note are underlined. Examples from the English subcorpus are followed when appropriate by the corresponding published translation, which is signalled by the symbol (>), and sometimes by a revised version proposed on the basis of the results of this study and indicated by an asterisk (*). Examples from the Spanish subcorpus and from CORDE are followed by a translation (my own), which is also marked by an asterisk.

- (1) Patients with symptoms and signs **suggesting** DVT, PE, or both, for whom heparin and warfarin treatment was indicated were randomly assigned at study headquarters either 4 weeks' or 3 months' anticoagulation after initiation of heparin therapy.

> *Desde la oficina central del estudio fueron aleatorizados los pacientes con síntomas y signos **de** TVP, EP o ambos procesos en quienes estaba indicado el tratamiento con heparina y warfarina para recibir anticoagulación durante 4 semanas o 3 meses tras instaurar la heparinización inicial.*

In contrast, translators added five tokens of *sugerir* from other sources. Of these, two involved transposition from *suggestion* and *suggestive*, a further two derived from the verb *support*, and the fifth case involved recasting of a basis-claim structure:

- (2) **Based on these observations**, identification of the initial stages of ventricular dysfunction during evolution of CHF may permit early pharmacologic intervention, which may lead to improved survival.

> *Estas observaciones **sugieren** que la identificación precoz de la disfunción ventricular durante la evolución de la ICCV podría permitir una rápida intervención farmacológica que mejorase la supervivencia.*

As a result of the translation process, the frequency of *sugerir* of the TL texts and its distribution in the rhetorical sections (Introduction, 16; Methods, 1; Results, 9; Discussion, 69) closely reflected the pattern of the SL texts rather than approaching that observed in the Spanish comparable NL subcorpus.

3.3. Qualitative analysis

Table 1 shows the linguistic profiles for *suggest* and *sugerir* in the English and Spanish subcorpora. In the English texts, the most frequent collocate in the subject position is *study/ies* (12 tokens), referring either to the current study or to previous research, and this is followed

by a cluster of evidential nouns (*data, finding/s, observation/s* and *result/s*). Other less frequent collocates are the general abstract nouns *frequency* and *absence*, together with the medical term *symptoms*. It should be noted that *suggest* is predominantly impersonal, since the only repeated human item is the subject pronoun *we*. As a nominal direct object (DO) is infrequent with *suggest* (only 14 instances in 85 active forms), the single collocate in this position was the clinical entity *thrombosis*.

With regard to colligation, *suggest* is predominantly active (87%) and is usually associated with a dependent nominal *that* clause (76%). The principal tense is the present (59%), and *-ing* forms are not uncommon (13 instances), either as reduced defining relative clauses (see example 1) or in unattached non-finite clauses referring to the whole of the matrix clause (Quirk *et al.* 1985: 1122) and elaborating on its content (Halliday 2004: 399). Variants of the latter occur as non-defining relative clauses or independent clauses associated with the pronouns *which* (one token) and *this* (4 tokens), respectively.

For semantic preferences, the outstanding semantic field is that of evidence, as seen above in the cluster of frequent collocates (*data, finding/s, observation/s, result/s*), but also the noun *evidence* itself. A second related area is that of research, represented in the subcorpus by *study/ies, report/s* and *trial/s*. In contrast, the group of abstractions tends to be highly text-specific with few repetitions (only *absence* and *frequency*), but nevertheless make up a sizeable proportion of the subjects of *suggest* (15%, 13 of 85 active forms). Less frequent semantic fields are those of researchers (either specific named authors, e.g., Connelly *et al.*, or the general noun *author/s*, or the first-person pronoun *we*, representing the writers of the current article) and clinical signs and symptoms, either in the form of the general noun *symptoms* or as specific nouns, e.g., *jerking*. The semantic preference in the DO position is for general abstractions and to a lesser extent for specific clinical entities (*thrombosis, pemphigus*).

In the 97 contexts analysed, the major communicative function of the statement associated with *suggest* was to make a claim, that is, a deduction or hypothesis based on the data obtained in the new study. These tentative hedged statements accounted for 43% (42/97) of the total.

A second important function of statements with *suggest* was to cite previous research either in the Discussion or in the Introduction section. When these are associated with human subjects (specific researchers or *authors*) they entail a degree of ambiguity. On the one hand, the verb can report a proposal made by the authors:

- (3) They **suggested** that this lesion should be taken into consideration in the differential diagnosis of pigmented Spitz nevus and combined nevus as well as malignant melanoma.

On the other, it may represent a hedge on the part of the citing writers, as they seek to occupy their own “research space” (Swales 1990: 140; Hyland 1998):

- (4) Winters and colleagues¹⁷ demonstrated that the concentration of N-ANP but not that of C-ANP is raised in patients with New York Heart Association (NYHA) class I heart failure, **suggesting** that N-ANP may discriminate patients with class I heart failure from normal subjects.

In this example taken from an Introduction, it is not immediately clear whether Winters and colleagues formulated the suggestion in their study or whether the citing authors are establishing a hypothesis to be tested in the study being introduced. The question is clarified in the following sentence in which the writer labels this as an observation “The importance of this observation is underscored ...”, thus attributing it to Winters.

More frequently, however, these citations are associated with research and evidential nouns or with impersonal passive structures “It has been suggested that...”. In these contexts, the writer is clearly using the verb strategically either to justify the need for a new study (Introduction) or to accommodate the new findings within an already existing but not completely consolidated body of knowledge (Discussion).

Less frequent functions of statements with *suggest* are to provide an immediate interpretation of a result in the Results section rather than wait until the Discussion:

- (5) A non-significant inverse association was observed with cholesterol concentration **suggesting** that low cholesterol may be associated with an increased risk of death from non-cardiovascular causes.

In this example, an unexpected outcome of an association of higher mortality with lower cholesterol (although not related to heart disease) requires an elaborating comment rather than a plain statement of result.

In some contexts involving signs and symptoms, the verb *suggest* introduces a clinical interpretation. Interestingly, all these instances occurred outside the Discussion:

- (6) Although repeated jerking during the attack **suggests** an epileptic cause, involuntary movements, described as “limb shaking”, have been seen in patients with extensive atherosclerotic lesions in the carotid arteries.⁹

This example, taken from the Introduction section, helps to contextualise the problem that the new study will attempt to clarify.

The final context in which *suggest* appears in the English texts is to provide a practical recommendation based on the results of the new study, a function consistent with its meaning of “recommend”, but one which is attributed to the data and not directly emanating from the authors:

- (7) This study **suggests** that more aggressive therapy (for example, angiotensin-converting enzyme inhibiting agents) should be given to patients with an occluded vessel or severe residual stenosis after infarction to minimize subsequent left ventricular dilation.

In the Spanish subcorpus, the main collocates of *sugerir* in the subject position were *autores* and *estudio/s*, with 4 tokens apiece, followed by two evidential nouns *datos* and *hecho/s* (2 each). In the DO slot, only two nouns were repeated (*aumento* and *origen*), since a nominal DO was again a minority option (11 of 33 active forms).

In the Spanish texts, as in English, active forms predominated (79%) and a dependent nominal clause was attached in 29 contexts (69%). The main associated tense was the present (24/42, 57%), as occurred in the English texts. Gerund forms acting as elaborations of matrix clauses were used in 4 contexts, and these were paralleled by statements initiated by anaphoric pronouns in a further 7 instances (*lo que/cual*, 4; *esto*, 2; *ello*, 1).

The main semantic field associated with *sugerir* was that of researchers, either through the general noun *autores* or by named researchers (4 instances):

- (8) *Estos autores **sugirieron** que la práctica de una biopsia rectal aportaría mayor información en la EICH aguda*⁴.
* These authors **suggested** that a rectal biopsy would provide more information in acute GvHD.⁴

It is interesting to note that, unlike *suggest*, *sugerir* was not found in the first person, although the sample is too small to draw definitive conclusions. Other semantic fields are evidence (*datos*, *hecho/s*, *resultado/s*, *observaciones*), research (*estudio/s*) and abstractions (5 specific nouns):

- (9) *Existen algunos datos que **sugieren** un aumento de la incidencia del CHC en los últimos años*³.
* There is some evidence **suggesting** an increase in the incidence of hepatocellular carcinoma in recent years.³

General abstractions were the only semantic area represented in the DO position, as in example (9).

With regard to communicative function, the relative frequencies were inverted in comparison with the English texts, with citations predominating: 19 references in the Discussion and 8 in the Introduction:

- (10) ***Se ha sugerido** que las tasas de infección por el virus B de la hepatitis podría ser indicativa de los niveles que podría llegar a alcanzar la epidemia de infección por el virus de la inmunodeficiencia humana (VIH)*^{1,2}.
* It **has been suggested** that rates of infection by hepatitis

virus B may be an indicator of the levels that the human immunodeficiency virus (HIV) epidemic could reach.

Promotion of the new study through claims was realised in 13 contexts in the Discussion section:

- (11) *Los resultados encontrados en nuestra población **sugieren** que la actividad del itraconazol es comparable a la de la griseofulvina en el tratamiento de Tinea manuum y Tinea pedis.*

* The results found in our study population **suggest** that the activity of itraconazole is similar to that of griseofulvin in the treatment of Tinea manuum and Tinea pedis.

In contrast to the English subcorpus, *sugerir* was not associated with clinical interpretations, explanatory comments in the Results section, or recommendations in the Discussion.

Comparison of the frequencies and the linguistic profiles for the use of *suggest* and *sugerir* indicates that there is a considerable gap between the roles played by the verbs in their respective discourse communities. Since the TL texts carried the English profile over into Spanish, both the high frequency and some uses of *sugerir* could well appear unnatural to the target audience.

3.4. Review of translation replacements in English-Spanish translation

Close scrutiny of the Spanish texts in the view function of *WordSmith Tools* allowed identification of a series of lexical items and other syntagmatic or phraseological resources that could serve to reduce the excessively high frequency of *sugerir* and as potential translation replacements for *suggest* in those contexts in which *sugerir* does not appear.

In this process, each of the environments of *suggest* was analysed in the light of the Spanish profiles and of the alternative translation options for the English functions identified in the examination of the Spanish texts. The results of this analysis are shown in table 2.

3.4.1. Clinical Interpretations.

Apart from the single context in which the verb was considered redundant (example 1), speculative clinical interpretations can be rendered by *hacer pensar* or *hacer sospechar*:

- (12) On the following day control Doppler ultrasonography **suggested** hepatic artery thrombosis, which was confirmed at angiography.

> *Al día siguiente, la ecografía Doppler de control **sugirió** [* hizo sospechar] una trombosis de la arteria hepática, que se confirmó en la angiografía.*

In this example (and in example 6 above), there is change in perspective, or modulation, which lexicalises the cognitive process rather than the indication function of *suggest*. When stronger conviction is implied, the more assertive *indicar* is an option:

- (13) During evolution one patient with pemphigus foliaceus and one with pemphigus herpetiformis had a butterfly rash of the cheeks, **suggesting** pemphigus erythematosus.

> *Durante la evolución, una paciente con pénfigo foliáceo y una con pénfigo herpetiforme tuvieron una erupción en alas de mariposa en las mejillas, **sugiriendo** un pénfigo eritematoso.*

* *Durante la evolución, una paciente con pénfigo foliáceo y otra con pénfigo herpetiforme presentaron una erupción en vespertilio en las mejillas, que **indica** un pénfigo eritematoso.*

In the other clinical context, in which the presence of clinical signs represented a health risk, *suponer* was an appropriate alternative to *sugerir*.

3.4.2. Comments in methods and results

As with the clinical interpretations already considered in examples (6), (12) and (13), speculations concerning methodological issues and interpretations of research data can also be rendered by *hacer pensar*

or *indicar*, the former being more speculative than the latter. Thus, in (14), where exclusion of a substantial number of subjects from the analysis could call into question the validity of the results, the justification of this decision requires the stronger verb, which implies that using the omitted data would probably have led to distortion as well:

- (14) The absence of second tumours at any site in that group of patients, who constituted almost a quarter of the cohort, also **suggested** that their data may be incomplete.

> *La ausencia de tumores secundarios en cualquier región en ese grupo de pacientes, que constituyó casi una cuarta parte de la cohorte, también **sugirió** que sus datos podrían ser incompletos.*

* *En ese grupo de pacientes, que representa casi la cuarta parte de la cohorte, la ausencia de tumores secundarios de cualquier localización también **indica** que sus datos podrían ser incompletos.*

A similar line of reasoning can be proposed in (15), in which *suggest* can be rendered by modalised but more assertive *afirmar*, again used in a justification of a methodological choice.

- (15) This decrease in frequency of local recurrence as maximum clearance decreased **suggests** that the selective policy had not compromised outcome.

> *Esta disminución de la frecuencia de la recidiva local, a medida que disminuye el límite máximo del margen de la limpieza oncológica, **sugiere** que el protocolo selectivo no comprometió los resultados.*

* *Esta menor frecuencia de la recidiva local a medida que disminuye el límite máximo del margen de la limpieza oncológica **nos permite afirmar** que el protocolo selectivo no ha comprometido los resultados.*

Other deductive structures that can prove useful to avoid *sugerir* involve the verb *deducir*, the causal sentence relative syntagm *por lo que* followed by a modal verb (these are more frequent in the Discus-

sion), and an adjunct with *Según* + noun followed by the matrix clause instead of an embedded clause dependent on *suggest*:

- (16) Our gels thus **suggest** that the “minor” BP Ag equals 170-kd and is identical to what others have called BP 180 or BP 160.^{35,36}
> *Por consiguiente, nuestros geles sugieren que [* según nuestros geles] el antígeno BP “menor” equivale a 170 kD y es idéntico a los que otros han denominado BP 180 o BP 160^{35,36}.*

3.4.3. Reference to previous research

For citations, either in the Introduction or in the Discussion, the data in table 2 indicate that the tentativeness of *suggest* may require or tolerate a degree of modification when replaced by verbs with stronger implications, not only *establecer* and *indicar*, as occurred in the published translations in 6 instances, but also *señalar*. This verb is underused by translators, but is often appropriate both for *report* when referring to published results and findings (Williams 2009) and for *suggest* when other authors’ opinions are strategically cited to support a line of argument. Thus, in example (4), repeated here as (17), the ambiguity of *suggesting* could be clarified by replacing *sugiriendo* with *señalar* in a coordinated clause:

- (17) Winters and colleagues¹⁷ demonstrated that the concentration of N-ANP but not that of C-ANP is raised in patients with New York Heart Association (NYHA) class I heart failure, **suggesting** that N-ANP may discriminate patients with class I heart failure from normal subjects.
> *Winters et al.¹⁷ demostraron que en pacientes con insuficiencia cardíaca clase I de la New York Heart Association (NYHA) se eleva la concentración de N-PNA pero no la de C-PNA, sugiriendo [* y señalan] que su determinación podría discriminar a estos pacientes respecto a los sujetos normales.*

An adjunct with *Para* plus a named researcher followed by the author’s opinion is another useful syntactic variant that obviates the need

for a reporting verb, but may require modalisation of the dependent finite verb, as in (18):

- (18) MacGillivray² **suggests** that a diastolic blood pressure of >100 mmHg justifies drug treatment, and that a blood pressure less than that does not.
> *MacGillivray² sugiere que una TSD >100 mmHg justifica el tratamiento farmacológico, y que una tensión sanguínea inferior, no.*
* *Para MacGillivray² una TAD >100 mmHg justificaría el tratamiento farmacológico y una TAD inferior, no.*

3.4.4. Claims

Since the greatest discrepancy between the functional profiles for *suggest* and *sugerir* was for claims, one of every two of the modifications reflected in table 2 affected this category (24 of 49). In addition, claims can be made with practically all of the resources mentioned. The most frequent alternative, as seen in section 3.2., is with *indicar*, often with associated modality expressed either by *parecer* or in the dependent clause (usually *poder*). Example (19) illustrates a case of direct replacement of *suggest* by *indicar*:

- (19) In conclusion, our study **suggests** that SCCs developing in the setting of iatrogenic immunosuppression (organ transplantation) do not exhibit a higher proliferative potential than do matched tumors developing in nonimmunocompromised hosts.
> *En conclusión, nuestro estudio **indica** que los SCC que aparecen en el contexto de una inmunosupresión iatrogénica (trasplantes de órganos) no tienen un potencial proliferativo superior al de los tumores similares que aparecen en pacientes inmunocompetentes.*

A second frequent means of expressing a claim is with *deducir*, either as an attached relative or as an independent clause. Again, modality is usually present to signal the attenuated or hedged interpretation represented by *suggest*:

(20) This **suggests** that subclinical involvement may occur before soft-tissue signs are noted.

> *Esto **sugiere** que puede ocurrir una afectación subclínica antes de que se aprecien los signos de tejidos blandos.*

* *De ello **se deduce** que puede existir afectación subclínica antes de que se aprecien los signos de tejidos blandos.*

Other less frequent, but equally valid options are *afirmar* modalised as *nos permite afirmar* or *podemos afirmar*, modulation through the *hacer + cognitive verb* structure, and sentence relatives with *por lo que* expressing the basis-claim relationship. Finally, the translator may resort to *ad hoc* alternatives in specific contexts: in the first person *proponemos* could be used instead of *sugerimos*, which was not attested in the Spanish subcorpus; *desprender*, though not appearing in the corpus, can serve as a variant for *deducir*, and *apuntar* is appropriate in more hypothetical suggestions:

(21) Our present data **suggest** a possible clinical use of IL-6 in the treatment of persistent corneal epithelial defects.

> *Nuestros datos **sugieren** [* **apuntan hacia**] la posibilidad de utilizar la IL-6 para el tratamiento de los defectos persistentes del epitelio corneal*

Table 3 presents the profile for *sugerir* after the 48 contexts shown in table 2 have been expressed by the other resources as illustrated above. This leaves 49 instances of *sugerir*, which were considered appropriate in the light of the data of the Spanish subcorpus. The main collocates were *datos* (9 tokens) and *resultados* and *estudio/s* (6 apiece), followed by *autores*. The frequency of the experiential nouns and possibly *estudio/s* is high in comparison with the Spanish profile.

For colligation, 86% of the verbs are active, an associated nominal clause occurs in 80%, and the main tense is the present (78%), all of these features being basically similar to, though always higher than, those in the Spanish subcorpus. However, there are fewer pronouns (indefinites and relatives) and gerunds. This is the result of the greater specification through the labelling of the section of text with evidential and research nouns in the English SL texts, rather than the less pre-

cise and sometimes ambiguous use of indefinites. The lack of gerunds also explains in part the higher frequency of the present tense.

The main semantic field refers to evidence (20 tokens), which is much higher than in the Spanish subcorpus and is explained by the above-mentioned SL text specification through nouns like *data*, *results*, *findings* and *observations*, and the reduced presence of researchers. The fields of research and abstractions are in the same range as in the Spanish comparable subcorpus. The only significant field in the DO position was that of general abstract nouns.

Despite the above small deviations from the Spanish lexicogrammatical and semantic standards, the functions performed by the remaining statements conforms almost exactly to that of *sugerir* in the Spanish NL texts (see table 1), with more citations than claims and a higher proportion of the former in the Discussion section.

4. Spanish-English translation

If we compare the Spanish and English profiles (table 1), it is clear that for translation of the Spanish texts into English there will be a shortfall of contexts with *suggest* even if all 42 instances of *sugerir* are rendered by this English verb. In addition, there will be a considerable deficit of claims, a lack of clinical interpretations and no comments in the Methods and Results expressed by this verb, when this would be expected by an English language readership. However, having identified in the previous section a number of resources as potential translation replacements for *suggest*, we can predict that some of the contexts in which these appear in the Spanish texts will serve as sources for *suggest* in a target English text. In this section, we examine this possibility and use backtranslation to test the acceptability of *suggest* in a contextual study.

Table 4 reflects how a total of 57 Spanish contexts expressed by linguistic resources similar to those discussed in the previous section could be distributed among the functions identified in the profile for *suggest* in the English subcorpus. As can be seen from the table, the main single potential source of contexts for *suggest* is a cognitive verb (*pensar*, *sospechar*, *suponer*, *valorar*) combined with *hacer* or some

other causative verb (*inducir*), a syntactic structure used by Spanish authors to interpret clinical signs and symptoms:

- (22) *El intervalo desde el comienzo de los síntomas fue ampliado sin limitación, siempre que el paciente presentase dolor persistente o criterios de ECG que **hiciesen sospechar** la existencia de obstrucción coronaria aguda.*

* The time from onset of symptoms was extended without limit, provided that the patient had persistent pain or met ECG criteria **suggesting** acute coronary obstruction.

A second potential source for the reference to previous research function is an adjunct headed by *Para* or *Según* (sometimes *De acuerdo con*) plus named author or *autores* provided that the following statement expresses an opinion. Thematic adjuncts with *According to* + *authors* are rare in medical research articles (only one in the English subcorpus), so that some other means of expression is required:

- (23) ***Para Sala y cols.**⁶ cualquier tumoración que persista más allá de la 20^a-24^a semanas, debe ser en principio considerada patológica.*

* Sala *et al.*⁶ **suggested** that any tumour persisting beyond weeks 20-24 should in principle be considered pathological.

A third productive source of contexts for *suggest*, particularly for reported opinions and recommendations, is the verb *indicar*. However, the presence of modality in some form is a requirement; otherwise a more assertive verb, such as *indicate* or *show*, will be more appropriate to convey the greater degree of certainty:

- (24) *Como conclusión general, **indicamos** que debe sospecharse la punción accidental de un higroma quístico ante valores elevados de AFP y banda positiva de AChE.*

* In conclusion, **we suggest** that accidental puncture of a cystic hygroma should be suspected when AFP values are raised and a positive AChE band is found.

In (24) it should be noted that English *indicate* is not used in the first person so that *suggest* is particularly apt for this concluding recommendation by the authors.

Similar considerations can be made for *deducir*, which is a source of claims but must be hedged for use of *suggest*, or other more forceful verbs (e.g., *indicate* or *show*) are more likely translation replacements. The fact that statements with *deducir* almost always open with a thematic complement make a literal English translation unlikely:

- (25) *De nuestros datos puede deducirse que el nivel de conocimiento es en nuestro medio el mejor método para detectar problemas de bajo cumplimiento, y el cumplimiento auto-comunicado es el mejor método para detectar problemas de alto cumplimiento.*

* **Our data suggest** that the level of knowledge test is in our setting the best method of detecting problems of low compliance, and the self-report test is the best method of detecting problems of high compliance.

Other verbs in specific environments can be rendered by *suggest*, which is, therefore, an option when *señalar* reports authors' opinions rather than data; when *apoyar* is followed directly by the subordinator *que* or *la idea de que*; and when *apuntar* is used speculatively:

- (26) *Hasta ahora todo parece apuntar hacia la relación entre el QOFG y la estimulación ovárica por HCG.*

* To date the evidence **suggests** a relation between giant follicular ovarian cysts and ovarian stimulation by human chorionic gonadotropin (HCG).

The remaining cases, as seen in the inverse case, either express the logical relation of basis-claim (*por lo que* + *modal verb* or adjunct with *Basado en* + *modalised matrix clause*) or reflect hypothetical meaning through the noun *hipótesis* + *clause* or impersonal *parece que*. In all these cases, *suggest* allows the translator either to use the canonical *Subject* + *verb* + *clause* or to achieve greater brevity:

(27) *El captopril redujo los valores de la presión sistólica inicial y al descenso del ST superior a 1 mm lo que, junto a la no variación de la FC, **sustenta la hipótesis de que el fármaco reduce el consumo miocárdico de oxígeno***⁴.

* Captopril reduced systolic pressure values at baseline and on ST segment depression over 1 mm, which, together with the unchanged heart rate, **suggests that** the drug reduces myocardial oxygen consumption.⁴

If all the contexts presented in table 4 were added to the 42 for *sugerir* occurring in the Spanish NL subcorpus, this would result in a total of 99 contexts (table 5). Although most of the features coincide with the English profile (table 1), the main collocate in the subject position is *autor/es* and the predominant semantic field is that of researchers. This reflects Spanish medical writers' preference for a more personal style, with greater emphasis in citations on named researchers and a higher frequency of the general noun *autor/es* than in English and translated texts, rather than the use of anthropomorphic metonymy (research for researcher) as abstract rhetors with communicative verbs like *suggest/sugerir* (Williams 2005). If this is carried over in translation, it leaves the imprint of the SL text on the TL text, referred to as "negative transfer", but this also combines with "positive transfer" that is, the overexpression of a feature present in the the TL system (Toury 1995). These phenomena would also account for the predominance of citations over the statement of claims in this proposed back-translation profile.

5. Diachronic analysis

The diachronic evolution of *sugerir* in medical discourse was assessed by searching both the CORDE and CREA databases of the Spanish Royal Academy. The results are shown in table 6.

The first appearance of *sugerir* in the Spanish medical literature included in the CORDE sample corresponds to 1912:

(28) *Tales son las consideraciones que **nos sugiere** el estudio del testículo en sus relaciones con la Opoterapia, de las*

cuales hay que deducir en conclusión, que la medicación orgánica por el jugo testicular, sólo tiene interés histórico (Albasanz Echevarría).

* Such are the considerations that **are suggested** by the study of the testicle in relation to Opotherapy, and which lead to the conclusion that organ medication with testicular fluid is only of historical interest.

The meaning is clearly that of emergence of new ideas stimulated by the intellectual activity (*estudio*) in the wider context of clinical practice. The presence of the verb remains anecdotal until 1943, with 2 and 3 tokens appearing in two works by Gregorio Marañón. The frequencies of the three manifestations of tentative interpretation show considerable irregularity in these early texts: *deducir* predominates in the 1912 work by Albasanz Echevarría; the frequency of all three means is low in Marañón's *Ensayos sobre la vida sexual*; but, as might be expected, the cognitive verbs predominate for the interpretation of signs and symptoms in the 1943 textbook on diagnosis.

The picture has changed completely by 1964, the year Díaz Rubio's medical textbook was published. For a similar number of tentative statements to that in Marañón's 1943 text and expressed by the three means under study, the distribution has largely evened out. Of the 48 tokens of *sugerir* in this work, the full range of functions and lexicogrammatical characteristics identified in the previous analyses is represented: citations with both authors and research nouns, interpretations of both clinical evidence and research data, and the use of anaphoric indefinites (*ello, esto, todo ello, lo que*, etc). In addition, the nominal clause complement appears for the first time, and is present in one third of the instances (16 of 48). Example (29) clearly shows that *sugerir* is being used as a hedging device:

(29) *La exploración radiológica por enema opaco **puede sugerir**, pero no permite afirmar con seguridad, que se trata de una diverticulitis y no de un carcinoma.*

* Radiological examination on barium enema **may suggest**, but not allow us to state with certainty, that it is a case of diverticulitis and not one of carcinoma.

However, frequency of use continues to be irregular, since the 1966 work by López Ibor shows a different distribution, with fewer instances of *sugerir* than of the other two means of tentative expression.

Despite the rather inconsistent figures, the data allow us to locate the emergence of *sugerir* in the medical literature somewhere between 1943 and 1964. This coincides with the changing pattern of citation in medical articles reported by Navarro and Alcaraz (1997), who found that it was around 1965 that citations of English-language articles equalled and began to overtake citations of Spanish sources, and by the 1990s over 80% of citations were of English publications. The underlying cause was the enormous expansion in research after World War II in the USA, and its domination of scientific publication in most fields since then. The discrepancy between the two Spanish works for 1964 and 1966 may be related to the overall number of tentative statements: the higher the frequency, the greater the need for variety of expression. Thus Díaz Rubio would have needed to use *sugerir* more often than López Ibor. Another explanation might be the extent to which these authors were exposed to works published in English, and their preference for, or resistance to, these “anglicised” functions.

The data from the Spanish corpus used in this study (1993) and from the CREA corpus, which with the exception of one article dated 1997 correspond to the years 2000-2003, show an increasing tendency for *sugerir* to be preferred to the other two means of hedging statements. The 42 tokens located in 26 articles in the present corpus represent 70% of the total of 60, whereas the 70 tokens found in 32 CREA documents account for 75% of the total of 93.

6. Conclusions

This study has shown that *sugerir* made its appearance in the medical literature in 1912 with a meaning different from those in the Spanish Royal Academy Dictionary. Whether this usage is a borrowing, possibly from English, or a natural development of the second meaning of the verb from the evocation of memories to the inspiration of new ideas remains unclear. However, the exponential increase of *sugerir* in medical writing in the second half of the 20th century is most likely the

result of the exposure of Spanish authors to scientific publications in the English language. The interpretive function of *sugerir* as a hedging device continues to make gains, especially in translated texts, at the expense of the variety of resources that can express this function in the Spanish language. The corpus-based contrastive approach to translation studies illustrated in this paper is a particularly appropriate and fruitful means of making writers and translators aware of the rich linguistic resources available in restricted registers like medical discourse.

7. Tables

Table 1. Linguistic profiles of the verbs *suggest* (n = 97) and *sugerir* (n = 42) in the English and Spanish subcorpora

a.

		English Subcorpus					
Collocation	Colligation		Semantic Preference		Semantic Prosody		
Subject	Active form	85	Subject	To state a claim	42		
Study/ies	12 <i>That</i> - clause	74	Evidence noun	24	To cite previous	34	
Data	8		Research	17	research		
Finding/s	5 Present tense	57	Abstractions	13	- Discussion	22	
Observation/s	4		Researchers	8	- Introduction	12	
Result/s	4 <i>-ing</i> form	13	Sign/symptom	4			
Report/s	3				To comment on a	7	
Absence	2 Pro-forms	5	Direct Object		result		
Evidence	2						
Frequency	2		Abstractions	11	To give a clinical	5	
Symptoms	2		Clinical entity	3	interpretation		
We	2						
					To recommend	5	
Direct Object							
thrombosis	2						

b.						
Spanish subcorpus						
Collocation	Colligation		Semantic Preference		Semantic Prosody	
Subject	Active form	33	Subject		To cite previous research	27
<i>Autor/es</i>	4 <i>Que</i> - clause	29	Researchers	8	- Discussion	19
<i>Estudio/s</i>	4		Evidence noun	6	- Introduction	8
<i>Datos</i>	2 Present tense	24	Abstractions	5		
<i>Hecho/s</i>	2		Research	4	To state a claim	13
	Pro-forms	7				
Direct Object			Direct Object			
	Gerund	4				
<i>aumento</i>	2		Abstractions	11		
<i>origen</i>	2					

Table 2. Alternative translation replacements to *sugerir* according to communicative function

	Clinical	Comments in M + R	Citations in I + D	Claims in D	Other functions	Total
<i>Indicar</i>	1	2	4	9	3	19
<i>Deducir</i>	-	1	-	6	-	7
<i>Hacer + cognitive</i>	2	2	-	2	-	6
<i>Por lo que + modal</i>	-	1	-	2	-	3
<i>Afirmar</i>	-	1	-	1	-	2
<i>Según/Para + clause</i>	-	1	1	-	-	2
Other resources	Redundant <i>Suponer</i>	-	<i>Señalar</i> 2 <i>Establecer</i>	<i>Apuntar</i> <i>Desprender</i> <i>Proponer</i>	<i>Recomendar</i>	9
Total	5	8	8	23	4	48

Table 3. Linguistic profile of the verb *sugerir* (n = 49) in the English-Spanish translation of *suggest* revised according to the data obtained in this study

English-Spanish Translation Revised						
Collocation	Colligation		Semantic Preference		Semantic Prosody	
Subject	Active form	42	Subject	To cite previous research	26	
<i>Datos</i>	9	<i>Que</i> - clause	39	Evidence noun	20	- Discussion 17
<i>Resultados</i>	6			Abstractions	7	- Introduction 9
<i>Estudio/s</i>	6	Present tense	38	Research	7	
<i>Autores</i>	3			Researchers	6	To state a claim 19
<i>Observación/es</i>	2	Pro-forms	2			
<i>Presencia</i>	2					
		Gerund	1	Direct Object		
				Abstractions	7	

Table 4. Spanish resources translatable by *suggest* according to communicative function

	Clinical	Comments in M + R	Citations in I + D	Claims in D	Other functions	Total
<i>Hacer</i> + cognitive	7	-	1	2	1	11
<i>Según/Para</i> + clause	-	-	9	-	-	9
<i>Indicar</i>	-	-	5	1	2	8
<i>Deducir</i>	-	1	-	5	-	6
<i>Por lo que</i> + modal	-	-	-	4	1	5
Other verbs	-	-	<i>Señalar</i> 3	<i>Apoyar</i> 3	<i>Apuntar</i> 2	8
Other sources	<i>Sugestivo</i> 1	-	<i>Hipótesis</i> 1 <i>Basado</i> 1 Modality 2	<i>Hipótesis</i> 1 <i>Basado</i> 1 Modality 2	<i>Hipótesis</i> 1	10
Total	8	1	22	19	7	57

Table 5. Linguistic profile of the verb *suggest* (n = 99) in the proposed English-Spanish translation based on the data obtained in this study

Collocation	Colligation		Semantic Preference		Semantic Prosody	
Subject	Active form	88	Subject		To state a claim	33
Authors	12 <i>That</i> - clause	74	Researchers	25	To cite previous	49
Study/ies	6		Evidence noun	15	research	
Result/s	4 Present tense	45	Abstractions	11	- Discussion	37
Data	3		Research	6	- Introduction	12
Evidence	3 Pro-forms	22	Sign/symptom	5		
Finding/s	2				To give a clinical	8
We	2 <i>-ing</i> form	3	D.O.		interpretation	
Direct Object			Abstractions	17	To recommend	4
presence	3		Clinical entity	2		
existence	2				To comment on a	3
increase	2				result	

Table 6. Evolution of *sugerir* (S) and comparison with *hacer* + *cognitive verb* (H+c) and *deducir* (D) in CORDE, CREA and the current study

Year	Autor	Source Reference	S	H+c	D
1912	Albesanz Echevarría, S.	<i>Organoterapia y opoterapia. Sus indicaciones, ventajas e inconvenientes</i>	1	3	33
1919	Marañón, G.	<i>Ensayos sobre la vida sexual</i>	2	2	2
-1929					
1943	Marañón, G.	<i>Manual de diagnóstico etiológico</i>	3	138	5
1964	Díaz Rubio, M.	<i>Lecciones de patología y clínica médica. Aparato digestivo</i>	48	67	41
1966	López Ibor, J.	<i>Las neurosis como enfermedades del ánimo</i>	2	9	12
1993	This study	Corpus of 64 research articles	42	8	10
1997	CREA	601 Medicine; Journals; Spain	70	9	14
-2003					

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