

## SciE-Lex: A Lexical Database of Collocations in Scientific English for Spanish Scientists

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*As a result of the widespread use of English in science and scholarship, there is an increasing need of reference tools which provide accurate information to non-native—especially junior—researchers on the correct use of lexico-grammatical patterns of non-technical words when writing their scientific papers in English and on the conventionalized phraseological characteristics of the genre. Our aim is to present SciE-Lex, a lexical database which provides information to help Spanish researchers to write research papers in English accurately. Whereas there are specialized monolingual and bilingual dictionaries with specific terminological information, there is a shortage of reference tools supplying information on the correct use of syntactic and collocational patterns of non-technical words in the scientific register and on the conventionalized phraseological characteristics of the genre. Based on the analysis of a 3+ million word corpus of scientific English, in its first stage, SciE-Lex displays information on: word class, morphological variants, equivalent(s) in Spanish, patterns of occurrence, list of collocations, examples of real use, and notes to clarify usage. In a second stage we plan to include lexical bundles, compositional recurrent sequences of words, since several studies have confirmed the difficulties that learners have with them. Further research will provide SciE-Lex with information about the distribution of lexical bundles across the different sections and/or moves of the academic research article as well as their function in discourse.*

### **Preliminary considerations**

The role of English as the lingua franca of science and scholarship is undeniable. Scientists who wish international diffusion and recognition write their research articles in English (Swales 2004) and there is an increasing need of reference tools which provide accurate information to non-native—especially junior—researchers on the correct use of syntactic and collocational patterns of non-technical words when writing their scientific papers in English and on the conventionalized phraseological characteristics of the genre. The number of studies based on specialized corpora (Howarth 1998, Hyland 1998, Gledhill 2000, Luzón Marco 2000, Flowerdew 2002, Gavioli, 2005, Noguchi, Orr & Tono 2006, Verdaguer & Laso 2006, Biber & Barbieri 2007, among others) reflects the attention that they are currently receiving. Furthermore, the fact that the second edition of the Macmillan English dictionary for advanced learners (2007) includes a section to improve the writing skills of learners in academic or professional contexts confirms the existence of such a need.

Whereas there are specialized monolingual and bilingual dictionaries providing specific terminological information—either encyclopaedic or the equivalent in other languages—there is a shortage of reference tools providing information about the use of non-technical nouns and verbs in scientific register.

### **Aim**

Our aim is to present *SciE-Lex*, a lexical database which provides information to help Spanish researchers to write research papers in English accurately. Based on the analysis of a 3+ million word corpus of scientific English, in its first stage *SciE-Lex* displays information on: *Word*

class, Morphological variants, Equivalent(s) in Spanish, Patterns of occurrence, List of collocates, Examples of real use and Notes to clarify usage.

### Entry

The following lexical entry of the node word *evidence*, which is a frequent noun in research articles, is aimed at illustrating the contents of the database (see Figures 1, 2 and 3):

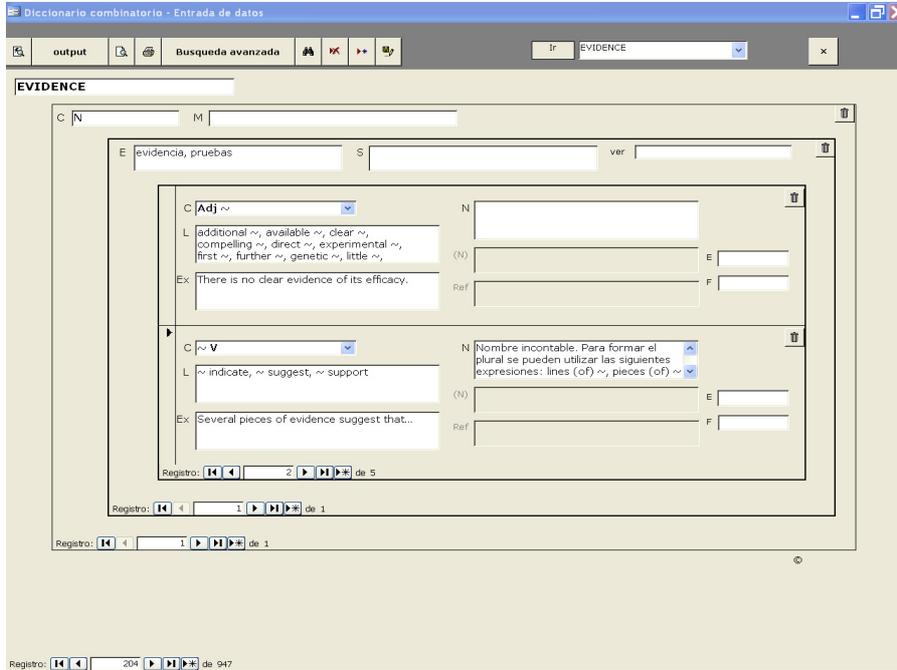


Figure 1. Lexical entry of the node word *evidence* (I)

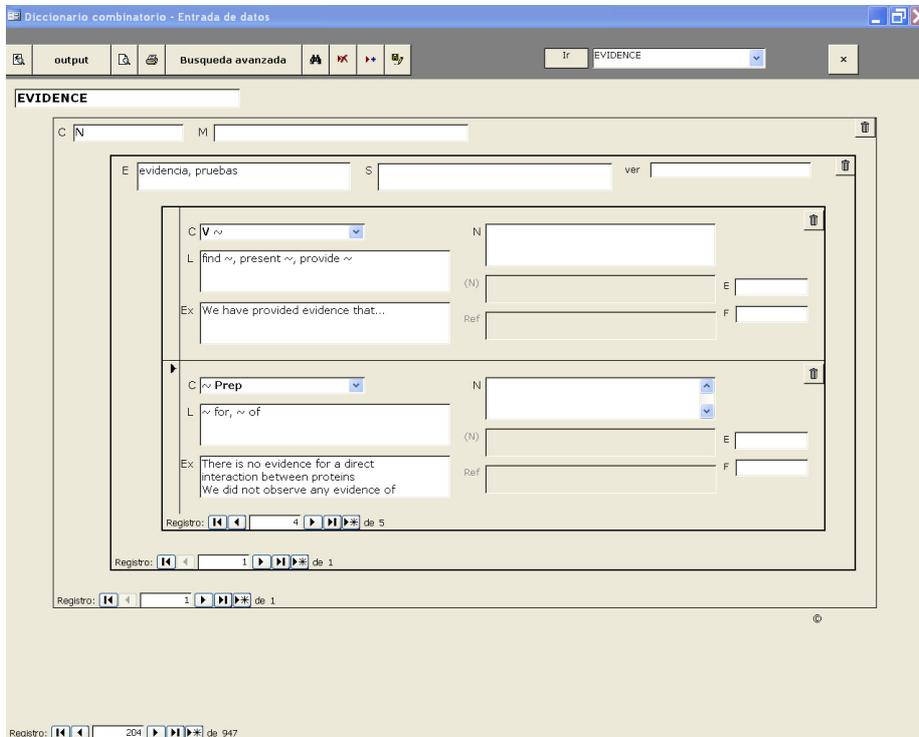
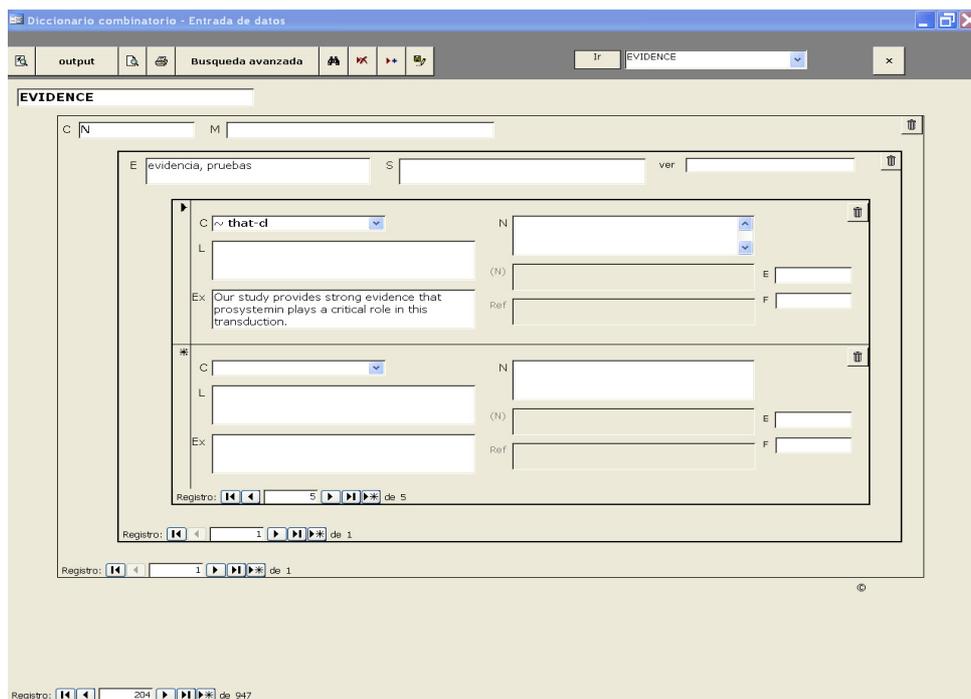


Figure 2. Lexical entry of the node word *evidence* (II)

Figure 3. Lexical entry of the node word *evidence* (III)

*Word Class (C)*: it is a noun

*Morphological variants (M)*: it is uncountable (so, it is invariable)

*Equivalent in Spanish (E)*: (*evidencia, pruebas*), which can be further specified if necessary, especially in cases of homonymy or polysemy.

Next, there are the *patterns (C)* in which the lexical item can appear, followed by a list of the most frequent *collocates (L)* and *examples (Ex)* illustrating them:

*evidence* can be preceded by an adjective (*additional, available...*) (see Figure 1)

*evidence* can be the Subject and, consequently, can precede the verbs *indicate, suggest, support...* (see Figure 2)

*evidence* can be the Object and, consequently, can follow the verbs *find, present, provide...* (see Figure 2)

*evidence* can be followed by a *for*-PP or *of*-PP (see Figure 3)

*evidence* can be followed by a *that*-clause (see Figure 3)

Finally, there may be *notes* that help users or highlight special usages (see Figure 1)

### Future work: Lexical bundles

As Gledhill (2000: 130-131) points out, phraseology is a central issue in ESP studies: “the direct correspondence between lexis and grammar is now so pervasive that it is difficult to conceive of a general characterization of science writing or the design of teaching materials for the benefit of science writers which can afford to ignore phraseology as a central level of analysis”. In addition, scientists are not consciously aware that there are phraseological conventions specific to each genre.

In a second stage, then, in line with the current recognition of the importance of phraseology (Oakey 2002, Charles 2006), we plan to include the multiword units that Biber et al. (1999 & 2004) refer to as *lexical bundles*. Several studies on learner corpora (Cortes 2004, Granger 2005, Nesselhauf 2005, Paquot 2005) have confirmed the difficulties that learners have with these compositional recurrent sequences of words. After subdividing the corpus into several subcorpora according to the different sections in some research papers compiled in the *SciE-Lex* corpus, we will provide the following information:

Most statistically frequent lexical bundles

Patterns and its variants:

- 1) THERE + BE + evidence + that-clause  
THERE + BE + evidence + for-PP  
THERE + BE + evidence + of-PP

There + is/was/isn't/wasn't + (some/no // clear/direct/further/strong) + evidence + that-clause/for-PP/of-PP

- 2) evidence + FOR + NP [the absence/presence of, the/a role of]
- 3) lines of evidence + VP[indicate/suggest/support]
- 4) a (large) body of + evidence
- 5) in the light of + evidence

Further research will provide *SciE-Lex* with information as regards the distribution of the abovementioned lexical bundles across the different sections and/or moves characteristic of the academic research article as well as their function in the discourse.

### **In conclusion**

*SciE-Lex* supplies not only lexico-grammatical information of the language used in the scientific research article but also aims at helping scientists in the phraseological conventions of the genre.

### **Acknowledgements**

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