Polysemy and Sense Extension in Bilingual Lexicography

Janet DeCesaris
Institute for Applied Linguistics, Universitat Pompeu Fabra
E-mail: janet.decesaris@upf.edu

Abstract

Polysemy often poses problems for the dictionary representation of word meaning, because the discrimination of senses is seldom clear-cut. In the past twenty years, corpus linguists, notably Kilgarriff (1997) and Hanks (2000), have argued that the concepts of "word sense" and "word meaning" are problematic to the extent that they invite a "checklist" view of meaning that is not borne out by corpus evidence, although precisely that "checklist" view is encouraged by dictionary representation in that dictionaries describe meaning as discrete items in lists (Fontanelle 2016). The challenges associated with representing polysemy are particularly acute for bilingual dictionaries, because patterns of polysemy associated with cross-linguistic equivalents display differing degrees of what has been called "overlapping polysemy" (Alsina & DeCesaris 2002; Boas 2009). This paper considers the treatment in bilingual dictionaries of two small sets of words in English and their equivalents in Spanish, French and Italian which display varying degrees of overlapping polysemy. We suggest ways of incorporating sense extension and partial parallelisms into bilingual dictionary entries, specifically by subdividing senses according to the semantic types as found in corpora.

Keywords: bilingual lexicography, overlapping polysemy, sense extension

1   Introduction

The representation of polysemy has been discussed by many, particularly in the context of monolingual dictionaries and the two opposing approaches informally known as "lumping" or "splitting" (Landau 2004). Polysemy often poses problems for the dictionary representation of word meaning, because the discrimination of senses is seldom clear-cut. Leading figures in corpus lexicography, such as Hanks (2000) and Kilgariff (1997), have noted that the presentation of word meaning in lists with a hierarchical structure that is fundamental to traditional dictionary representation is actually not borne out by the evidence: the notions of "word sense" and "word meaning" without further context are problematic. Yet, as Fontanelle (2016) cogently points out, dictionary representation as we know it today encourages a "checklist" view of word meaning, because meaning is described as discrete items on lists. In this context, the issue of how to deal with the intricacies of word meaning across two languages presents an especially difficult challenge. A situation which frequently arises in the comparison of two languages is that of partial correspondence of sense extension. In this paper, I discuss the dictionary representation of a few cases of partial correspondence or "overlapping polysemy" between English and three Romance languages, Spanish, French and Italian, in light of corpus evidence. This paper is structured as follows. After a brief introduction to the nature of polysemy and its representation in dictionaries, two small sets of words in English that are known to exhibit varying degrees of sense extension are discussed. The entries of these words in several large bilingual dictionaries in the three aforementioned language combinations are discussed, and the information found in the dictionaries is compared with that from corpus analysis. The paper concludes by suggesting how bilingual dictionaries could improve their representation of overlapping polysemy.

2   Polysemy

Polysemy may be defined as "having or characterized by many meanings".[1] As has often been noted (Landau 2004), the multiplicity of meaning associated with a single written form is usually represented in a dictionary by means of a single headword encompassing several senses which are typically displayed as a list. However, exactly what constitutes multiplicity of meaning (polysemy) as opposed to independent meanings the forms of which converge (homonymy), is an issue that is open to debate. Before discussing the dictionary representation of polysemy, it is worthwhile noting that in the fields of philosophy of language and theoretical semantics, polysemy is an oft-treated topic. Sennet (2016) offers a convenient discussion of the importance of polysemy in the philosophy of language, and Falkum and Vicente's (2015) introduction to a specially themed issue of *Lingua* on approaches to polysemy in semantics brings together different theoretical views. Nonetheless, for those of us who work with dictionaries, which in a very direct way must deal with senses and words, it is rather disheartening to see that most discussion of polysemy in lexicographic research has gone unnoticed by these two research communities, and that which has been noticed is sometimes met with a cavalier attitude (e.g. Sennet's comment "And in general, taxonomy based on the relatedness of distinct meanings is a pretty dull affair for anyone but the committed lexicographer" (2016)).

2.1   Polysemy and Monolingual Dictionaries

In many monolingual dictionaries, etymology is a determining factor in the representation of polysemy: if senses are known to have been derived from a single source, the senses are included under a single headword, even though the current meanings of the historically related senses may seem unrelated to the modern eye. Let us look at an example. Some current monolingual dictionaries of English, such as *The American Heritage Dictionary of the English Language* (see Figure 1[2]), *Merriam-Webster's Unabridged Dictionary*, and the *Macmillan Dictionary*, assign both the sense of the word *crane* referring to a kind of bird with long legs and a long neck, and the sense referring to machinery used to move heavy objects, to the same headword, because the sense referring to a kind of machinery is historically the result of sense extension from that referring to a kind of bird.

The *Oxford Dictionary of English*, in contrast, assigns those two same senses to two different headwords, *crane¹* (the machinery) and *crane²* (the bird), as seen in Figure 2.

Grammar sometimes plays an important role in lexicographers' representation of polysemy (or homonymy): the English verb $crane_{[verb]}$ is listed as a separate word in the *Macmillan Dictionary* and in *Merriam-Webster's Unabridged Dictionary*, presumably because the morphological forms and syntactic behavior of $crane_{[verb]}$ are different from those of $crane_{[noun]}$. The *Oxford Dictionary of English* provides a different treatment, placing the verb *crane* under *crane¹* (i.e. along with the sense referring to machinery used to move heavy objects, as seen in Figure 2), and the *American Heritage Dictionary of the English Language* gives all senses of both the noun and the verb under a single headword (Figure 1). This brief example points up the different approaches that monolingual dictionaries can take to representing the complex relationships existing across related senses and words. The task facing bilingual dictionaries is arguably even more daunting, given the fact that patterns of polysemy associated with cross-linguistic equivalents coincide only partially.

---

1   Definition taken from the *American Heritage Dictionary of the English Language*, 5th edition.

2   The entry in the dictionary also includes the etymology and two photos, one of a bird and one of heavy machinery, which I have not included here.

crane (krān)

n.

1.

    a. Any of various large wading birds of the family Gruidae, having a long neck, long legs, and a long bill.

    b. A similar bird, such as a heron.

2. A machine for hoisting and moving heavy objects by means of cables attached to a movable boom.

3. Any of various devices with a swinging arm, as in a fireplace for suspending a pot.

v. **craned**, **cran·ing**, **cranes**

v.tr.

1. To hoist or move with or as if with a crane.

2. To strain and stretch (the neck, for example) in order to see better.

v.intr.

1. To stretch one's neck toward something for a better view.

2. To be irresolute; hesitate.

Figure 1: Entry for *crane*, *The American Heritage Dictionary of the English Language*, Fifth Edition.

crane[1]

▶ *noun* a large, tall machine used for moving heavy objects by suspending them from a projecting arm or beam: *a dockside crane* | [as *modifier*] : *a crane driver*.

    ■ a moving platform supporting a television or film camera: *a very long tracking shot done with dolly and crane* | [as *modifier*] : *the opening crane shot*.

verb

    1. [no *object*, with *adverbial of direction*] stretch out one's body or neck in order to see something: *she craned forward to look more clearly*.

    ■ [with *object*] stretch out (one's neck) so as to see something: *she craned her neck to see past me*.

    2. [with *object* and *adverbial*] move (a heavy object) with a crane: *the wheelhouse module is craned into position on the hull*.

crane[2]

▶ *noun* a tall, long-legged, long-necked bird, typically with white or grey plumage and often with tail plumes and patches of bare red skin on the head. Cranes are noted for their elaborate courtship dances.

    ● Family *Gruidae*: four genera, in particular *Grus*, and several species, including the Eurasian **common crane** (*G. grus*).

Figure 2: Entries for *crane*[1] and *crane*[2], *Oxford Dictionary of English.*

2.2   Overlapping Polysemy

Overlapping polysemy occurs when cross-linguistic equivalents share a literal sense and some, but not all, extended senses, and may be described as a situation when the sense extension or extensions of one word belonging to one language correspond in part to those of an equivalent word in another language. The polysemy of a word rarely coincides with that of a word in another language because the derived senses associated with a given word are the result of a combination of internal and external forces in a specific language, and thus the potential for differences across languages is very high. Partial correspondence of patterns of polysemy, however, is not rare because many languages share metaphors. In addition, and specifically in the cases under consideration in this paper, overlapping polysemy is widespread in languages sharing etymological sources and sociocultural development. Certainly, given the contact between English and vocabulary originally from Latin over centuries, some overlapping polysemy between English on the one hand, and Spanish, French, and Italian on the other, is to be expected.

In the context of bilingual dictionaries, correctly recognizing and representing the complexity and varying degrees of overlapping polysemy is particularly important to the user if the dictionary is being consulted to produce text in a non-native language. In terms of language comprehension, it is quite possible that understanding cases of overlapping polysemy unknown to the non-native speaker at the time may not be problematic at all: for example, if a native speaker of English reads the Spanish phrase "*sembró el pánico entre la población*" ('it spread/caused panic among the population'), decoding "*sembró el pánico*" (literally, 'sowed panic') is not difficult even if the speaker is unaware that *sembrar* can take direct objects other than types of seeds or fields because the equivalent of *sembrar*, the English verb *sow*, is frequently used in conjunction with nouns such as *confusion*, *terror*, *dissension*, and *distrust*, and thus the sense extension displayed in "*sembró el pánico*" is quite similar to that displayed in English. As Taylor (2003) noted, speakers are rarely troubled by polysemy (thus resulting in what Taylor famously called "polysemy's paradox"). Production tasks in a non-native language, in contrast to comprehension tasks (at least for some speakers), can be quite troublesome if speakers simply assume that sense extension in the non-native language parallels that of the native language. To continue with data from English and Spanish, in English one might be tempted to translate the phrase "a flood of complaints" as "*una inundación de quejas*" when in fact the Spanish noun *inundación* is rarely used with an extended sense; a better translation would be "*una avalancha de quejas*" (literally, 'an avalanche of complaints') or "*una oleada de quejas*" (literally, 'a huge wave of complaints'). To the extent that the extended sense of the expression in English ("flood of" meaning 'a huge amount of X, often appearing without warning') is standard and frequent enough to warrant inclusion in a monolingual dictionary, it is a candidate for inclusion in a comprehensive bilingual dictionary; in this case, the dictionary would need to show that *inundación* is not a good equivalent for all senses of flood$_{[noun]}$.

3   Description of the Study

3.1   Words Studied

In order to study the representation of overlapping polysemy in several English-Spanish, English-French and English-Italian bilingual dictionaries, two small sets of words which display varying degrees of overlapping polysemy were considered. One set of words (*avalanche*, *flood*, *mountain*, *storm*, and *stream*) consists of nouns the literal sense of which refers to a natural phenomenon; these nouns commonly display an extended sense when they are the heads of a prepositional phrase (e.g. *an avalanche of publicity*, *a storm of protest*, *a stream of visitors*). The choice of nouns referring to natural phenomena also allowed us to assume that, for the purposes of this study, the literal meaning of the

noun was essentially the same in all the languages under consideration in this paper. This assumption cannot be made for all semantic classes of nouns; for example, abstract nouns (e.g. *privacy*, *friendship*, *freedom*), the meaning of which often involves a significant cultural component, would not allow clear comparison of extended senses. The other set of words studied consists of verbs (*cultivate*, *fabricate*, *forge, plough/plow, sow*) that are used in conjunction with direct objects belonging to very different semantic classes (e.g. *cultivate the <u>land</u>* vs. *cultivate the <u>arts</u>*; *forge <u>iron</u>* vs. *forge a <u>career</u>; sow <u>seeds</u> vs. sow <u>hatred</u>*). Such obvious differentiation of semantic classes of direct objects can be detected through corpus analysis, specifically by using the Word Sketch function in Sketch Engine®, which allows one to quickly identify nouns in the direct object position. This sort of display of information is desirable, because the grouping of direct objects into semantic classes is a possible way of identifying differences in equivalents, and thus a way of organizing entries in a bilingual dictionary.

3.2   Dictionaries Consulted

In order to compare the representation of overlapping polysemy in the dictionaries, the degree of sense extension of the words in English as represented in *The American Heritage Dictionary of the English Language* and shown by the Word Sketch feature of Sketch Engine while consulting the English Web 2015 (enTenTen15) corpus was examined. The following online bilingual dictionaries were then consulted. To the extent possible, using online bilingual dictionaries without pay walls was the goal; however, this was not always possible, and some dictionaries with pay walls were consulted and this information is noted.

- English-Spanish:
  Collins Spanish Dictionary; *Oxford Spanish Dictionary* online; English-Spanish combination on www.diccionarios.com (subscription required);

- English-French:
  Collins French Dictionary; English-French combination on www.diccionarios.com (includes Larousse dictionaries; subscription required);

- English-Italian:
  Collins Italian Dictionary; *Grande Dizionario Hoepli Inglese* by F. Picchi (available online at *La Repubblica* newspaper website).

4   Analysis and Discussion

The first observation to note about the nouns chosen for this study ((*avalanche*, *flood*, *mountain*, *storm*, and *stream*) is that they do not all behave in the same way with respect to sense extension. *Storm* and *stream* have a wide variety of complements (e.g. *storm of XX*, *stream of XX*), whereas *mountain*, once geographic references are removed (e.g. *mountains of California*; *mountains of the Alps*), has fewer possible figurative complements. *Mountain* is used both in the singular and plural in its extended sense (e.g. *mountain of evidence*, *mountains of paperwork*). Of the top 25 possible complements of "*avalanche of*", only five (*mud*, *rubble*, *ash*, *snow*, and *dust*) are related to the literal sense; the remaining 20 (e.g. *criticism*, *publicity*, *lawsuit*, *propaganda*) are all related to the extended sense. Of the 25 most frequent complements of the expression "*flood of*", only one ("*flood of lava*") is a manifestation of the literal sense. This surely says something about the meaning of *flood*, which must be of water and thus the repetition of a complement referring to water would be superfluous; *avalanche*, on the other hand, while prototypically involving snow, can also be applied to other substances, and thus can occur with a prepositional phrase with its non-extended sense.

The verbs chosen yield equally interesting observations. The verb *fabricate* has two clear meanings, one referring to manufacturing and the other to producing falsified statements, and both are widely attested in current usage. In English, one can *sow seeds*, *wheat*, *oats* or other grains, fields or other surface areas, and in its extended sense a wide variety of nouns with negative resonance (of the top 25 direct object nouns of *sow* according to the Word Sketch, 12 were nouns belonging to that category and all were uncountable: *confusion*, *terror*, *chaos*, *dissension*, *distrust*, *fear*, *strife*, *hatred*, *panic*, *division*, *doubt*, *mistrust*). The verb *forge* is far more frequent in its extended sense of *forging an allegiance* or *friendship* than in its original sense of *forging steel*, but this verb has a seemingly unrelated sense of falsifying documents (*forge passports* or *documents*). The dictionaries all register this latter sense, of course, but interestingly do not label it as a figurative sense (possibly because *forged documents* exist and are not imagined). The extended sense of *plough/plow* occurs with the preposition through: one frequently *ploughs through books*, but one can also *plough through snow*.

Let us now look at a few specific examples: the representations of *stream* (Figures 3, 4, 5, and 6) and *sow* (Figures 7, 8, 9, and 10) in each combination of languages.

1. *(= brook)* **arroyo *m* ♦ riachuelo *m***

2. *(= current)* **corriente *f***

to go with/against the stream *(literal, figurative)* **ir con/contra la corriente**

3. *(= jet, gush)*

[of liquid] **chorro *m***

[of light] **raudal *m***

[of air] **chorro *m* ♦ corriente *f***

[of lava] **río *m***

[of insults, abuse] **sarta *f***

[of letters, questions, complaints] **lluvia *f***

a thin stream of water **un chorrito de agua**

she exhaled a thin stream of smoke **lanzó** *or* **exhaló un chorrillo de humo**

a steady stream of cars **un flujo constante** *or* **ininterrumpido de coches**

people were coming out of the cinema in a steady stream **había una continua hilera de gente que iba saliendo del cine**

we had a constant stream of visitors **recibíamos visitas continuamente** *or* **sin parar**

he let out a stream of insults **soltó una sarta de insultos**

stream of consciousness **monólogo *m* interior**

4. *(British) (Education)* **grupo de alumnos de la misma edad y aptitud académica**

the top/middle/bottom stream **la clase de nivel superior/medio/inferior**

5. *(Industry)*

to be on/off stream *[machinery, production line]* **estar/no estar en funcionamiento**; *[oil well]* **estar/no estar en producción**

to come on stream *[machinery, production line]* **entrar en funcionamiento**; *[oil well]* **entrar en producción**

Figure 3: *stream* in the *Collins Spanish Dictionary*

1

1.1(small river)

arroyo (masculine)

riachuelo (masculine)

1.2 (current)

corriente (feminine)

2 (flow) *a thin stream of water issued from the fountain*

un chorrito de agua salía de la fuente

a stream of lava

un río de lava

a stream of sunlight entered the room

el sol entró a raudales en la habitación

she poured out a stream of abuse at him

le soltó una sarta de insultos

the affair generated a stream of books and articles

el caso generó un torrente de libros y artículos

there is a continuous stream of traffic

pasan vehículos continuamente

el tráfico es ininterrumpido

streams of people were coming out of the theater

un torrente de personas salía del teatro

3 (British) (School)

(conjunto de alumnos agrupados según su nivel de aptitud para una asignatura)

Figure 4: *Stream* in the *Oxford Spanish Dictionary*

1. *(= brook)* **ruisseau *m***

2. *(= current)* **courant *m***

3. *(= continuous flow) [of smoke, air, liquid]* **flot *m***

4. *(= moving line) [of people, vehicles]* **flot *m***

5. *(= large number) [of letters, jokes, complaints, visitors]* **flot *m***

6. *(Britain) (School)* **niveau *m***

7. *(Industry)*

to be on stream *[new power plant, computer system]* **être en service**

to come on stream *[new power plant, computer system]* **être mis en service**

transitive verb

(Britain) (School) [pupils, classes] **répartir par niveau**

Figure 5: *Stream* in the *Collins French Dictionary*

1 (= *brook*) torrente, ruscello, fiumiciattolo, corso d'acqua

◊ **stream bed** alveo o letto di torrente; **a mountain stream** un ruscello di montagna; **as fresh as a mountain stream** fresco come un torrente di montagna; **to go up/down stream** idiom andare a monte/a valle di un corso d'acqua; **the boy leapt over the stream** il ragazzo superò il torrente con un salto; **a lovely stream flows through the park** un grazioso ruscello attraversa il parco

2.1 (= *current*) corrente (*di liquido o gas*)

◊ **the wind stream quickly spread the radioactivity** la corrente del vento propagò rapidamente la radioattività

2.2 mar corrente, filo di corrente/di marea

◊ **stream-anchor** ancora di tonneggio; ancora di corrente; **stream cable/chain** catena dell'ancora di tonneggio/di corrente; **stream tide** marea delle sizigie, marea sizigiale, grande marea; **tidal stream** corrente di marea; **in the stream** (*di nave*) ancorato al largo; **to swim with/against the stream** idiom nuotare a favore di/contro la corrente

3 +of (= *trickle*) flusso, rivolo, rivoletto

a stream of blood was flowing from his nose dal naso gli colava un rivoletto di sangue

4 (*di persone, auto, ecc*) flusso, corrente, afflusso, deflusso, fila, massa

◊ **an endless stream of tourists** un afflusso continuo di turisti; **a steady stream of traffic** un flusso costante di traffico; **to come/to be brought on stream** fig entrare in funzione; **the assets built up by Japan are generating a stream of income** le attività accumulate dal Giappone generano un flusso di reddito

5 (= *flood*) fig fiumana, marea, massa, fiotto, flusso

◊ **a stream of abuse/insults** una marea di insulti; **a steady stream of phone calls** un flusso costante di telefonate; **a stream of questions** una massa di domande; **streams of immigrants in search of employment arrived in the country** arrivarono nel paese masse di immigrati in cerca di occupazione

6 scol gruppo omogeneo di studenti formato in base alle loro capacità

◊ **the top stream** il gruppo più bravo.

Figure 6: *Stream* in the *Grande Dizionario Hoepli Inglese*

Interestingly, the bilingual dictionaries do not structure their entries in the same ways, but the differences do not appear to be a result of differences in contrastive analysis. All the dictionaries indicate that *stream* corresponds to the notions of "brook" and "current", but these two notions are listed as subsenses of a single sense in the *Oxford Spanish Dictionary* whereas all the others separate them into two distinct senses. Presumably, in the Oxford dictionary the accompanying idea of "water" is not why the two senses are lumped together, because "water" is an integral part of the sense in this dictionary 2. The *Collins Spanish Dictionary* groups together several complements under the meaning indicator "jet, gush" which concentrates on the manner the substance moves, but because Spanish does not typically have a manner component entailed in the meaning of its verbs, the resulting entry has a wide range of unrelated complements mixing the literal and extended senses (*stream of light*,

stream of abuse, *stream of visitors*, and *thin stream of water* are all in sense 3, and *light*, *abuse*, *visitors,* and *water* do not belong to a single semantic class). The *Oxford Spanish Dictionary* also groups together unrelated complements under the meaning indicator "flow", but unlike the *Collins Spanish Dictionary* does not identify any equivalent; rather, sense 2 is a listing of examples. Although the translations provided are appropriate, the fact that the classification under "flow" yields no equivalent indicates that the sense distinction based solely on the source language is not suitable for a bilingual dictionary. The Italian dictionary provides a large number of equivalents, many of which are not used in examples and thus are of less use to native English speakers, who may lack enough knowledge of Italian to use them properly in a language encoding task (which, of course, is why an English speaker would go to an English to Italian dictionary). It is difficult to see the differences between some of the examples given in sense 4 (e.g. *an endless stream of tourists*) and those in sense 5 (e.g. *streams of immigrants*).

By looking at the data from Sketch Engine, the complements of *stream* may be grouped into the following ten semantic types: LIQUID, AIR, SMOKE, LIGHT, PARTICLES, PEOPLE, SCHOOLS OF THOUGHT OR BELIEF, DOCUMENTS, INSULTS AND ABUSE, and REVENUE. None of the dictionaries include any examples similar to a phrase like *streams of Judaism*, which had a logDice association figure of 6.91 with 435 occurrences, and only one (the Italian dictionary) has an example with *income*, which is one of the most frequent collocates of *stream* (a logDice association of 8.17; another noun belonging to that semantic class, *revenue*, is not in any of the entries). If the dictionaries were to structure their senses around the semantic grouping of collocates, the resulting entries would be longer, and arguably more complex, because the semantic groupings correspond to a more fine-grained analysis than the current linguistic analysis behind the dictionary entries: note that none of the dictionaries indicate that *stream* combines primarily with ten types of entities. Today's corpus tools give us the ability to see this distributional data, and it should be incorporated into dictionary entries. In addition, structuring entries around the notion of non-derived vs. derived senses and further centering these around groupings of collocates would aid in avoiding entries consisting of only lists of examples, with no equivalents.

We turn now to *sow*.

> *[seed]* **sembrar**
> to sow doubt in sb's mind **sembrar dudas en algn**
> to sow mines in a strait, sow a strait with mines **sembrar un estrecho de minas ♦ colocar minas en un estrecho**

Figure 7: *Sow* in the *Collins Spanish Dictionary*

> 1 (plant)
>   (seeds/barley/field)
>   <u>sembrar</u>
>   *to sow a field with wheat*
>   **sembrar un campo de trigo**
>
> 2 (mines)
> <u>plantar</u>
>   <u>poner</u>
>   *to sow a field with mines*
> **sembrar un campo de minas**

Figure 8: *Sow* in the *Oxford Spanish Dictionary Online*

transitive verb
1. *[seed, field]* **semer**
2. *(= spread) [doubts, confusion, dissension]* **semer**

Figure 9: *Sow* in the *Collins French Dictionary*

A vti
V(+D) seminare, fare la semina, spargere
◊ **this is the best time to sow** questo è il momento migliore per seminare

B vt
1 V+D+with/in/on+IN piantare, seminare, sementare
◊ **to sow the land** seminare la terra; **to sow seeds in pots/in the open ground** piantare semi in vasi/nel terreno aperto; **the land was sown with corn** la terra fu seminata a grano

2 V+D(+in+IN) (= *to stir up*) fig seminare, diffondere, suscitare, provocare, promuovere
◊ **to sow doubts in sb's mind** mettere dubbi in mente a qn; **to sow the seeds of** creare le premesse di/per; **to sow the seeds of discontent** gettare il seme della discordia; **to sow unrest** diffondere malcontento.

Figure 10: *Sow* in the *Grande Dizionario Hoepli Inglese*

In English, as mentioned above, *sow* can combine either with seeds or grains that can be planted, or with the area where such planting is to take place. The strong resonance of "one reaps what one sows" is linked to the Bible, and is most often used in contexts in which what was sown (figuratively) is not good, and as a result the consequences that must be faced are equally negative. This negative resonance is clearly seen in the corpus data, as *sow* combines with abstract nouns with negative resonance. The Spanish dictionaries do not show this clearly, yet surely this is information that belongs in such works. The Italian dictionary, in contrast, provides a meaning indicator in the form of a paraphrase in the source language (*to stir up*) which effectively conveys the idea, and the several examples provided all go to reinforce the verb's negative resonance. Even though its entry is very short, the French dictionary does a reasonable job of explaining the extended sense of *sow* and the meaning indicators of what can be *sown* (*doubts*, *confusion*, *dissension*) suggest negative resonance to the reader. On the whole, the dictionaries' representation of *sow* is more in line with the corpus data available than was the case for *stream*, although the entries could be improved by clearly stating the extended sense of *sow* takes complements with negative resonance.

5   Conclusion

Overall, the bilingual dictionaries consulted all represent the extended senses of the words studied to one degree or another. What they fail to do in some cases is provide a more consistent representation of the extended use: on the one hand, several equivalents are given, yet we found numerous examples of extended senses in the dictionaries studied that did not include the equivalent provided. This would not be difficult to improve. If *colonna* is the equivalent for *stream* in the context of cars, which is what the *Collins Italian Dictionary* states, it is a mystery why the dictionary gives an example referring to cars that does not use *colonna* (*un fiume ininterrotto di machine* is listed). The same practice may be seen in sense (2) of the *Oxford Spanish Dictionary*'s entry for *sow*: the dictionary lists two equivalents, *plantar* and *poner*, yet the example given is with *sembrar*.

If lexicographers ask users to plough through long entries, with senses, subsenses and numerous examples, then using meaning indicators to group together equivalents is a welcome strategy, because adding visual and semantic structure to the representation of equivalents should aid consultation. A recurring problem in representing sense extension and overlapping polysemy is the presence of long lists of translated phrases. It is not clear that the mere presence of translated examples is useful to many users, who may not be willing to read them. Those phrases could be grouped according to semantic criteria and a brief explanation could be provided so that the user is pointed in the right direction. In essence, this is what the *Grande Dizionario Hoepli Inglese* does by providing a paraphrase (as in *sow = to stir up*). Of the dictionaries consulted in this study this one has the best treatment of sense extension and overlapping polysemy. It employs a strategy of "splitting" as opposed to "lumping" more than the other dictionaries, and as a result the display of equivalents is generally clearer. It also tends to have the longest entries. That is not a coincidence, as there are no shortcuts in representing the complex interplay of word senses across languages.

References

Alsina, V. & DeCesaris, J. (2002). Bilingual lexicography, overlapping polysemy, and corpus use. In B. Altenberg, S. Granger (eds.) *Lexis in Contrast: Corpus-based Approaches*. Amsterdam/Philadelphia: John Benjamins, pp. 215– 230.

American Heritage Dictionary of the English Language. (2012, Fifth edition). Boston: Houghton Mifflin Harcourt.

Boas, H. C. (ed.) (2009). *Multilingual FrameNets in Computational Lexicography.* Berlin/New York: Mouton de Gruyter.

Collins French Dictionary. Accessed at*:* https://www.collinsdictionary.com/dictionary/english-french [15/02/2018].

Collins Italian Dictionary. Accessed at: https://www.collinsdictionary.com/dictionary/english-italian [15/02/2018].

Collins Spanish Dictionary. Accessed at: https://www.collinsdictionary.com/dictionary/english-spanish [15/02/2018].

Diccionarios.com. Accessed at: https://www.diccionarios.com/ [18/02/2018].

Falkum, I. L. & Vicente, A. (2015). Polysemy: Current perspectives and approaches. *Lingua* 157, pp. 1-16.

Fontanelle, T. (2016). Bilingual Dictionaries. History and Development; Current Issues. In P. Durkin (ed.) *The Oxford Handbook of Lexicography*. Oxford: Oxford University Press, pp. 44-61.

Hanks, P. (2000). Do Word Meanings Exist? *Computers and the Humanities* 34, pp. 205-15.

Kilgarriff, A. (1997). I Don't Believe in Word Senses. *Computers and the Humanities* 31, pp. 91-113.

Landau, S. (2004, Second edition). *Dictionaries: The Art and Craft of Lexicography*. New York: Cambridge University Press.

Macmillan English Dictionary Online. Accessed at: http://www.macmillandictionary.com [20/02/2018].

Merriam-Webster Unabridged. Accessed at: https://unabridged.merriam-webster.com [25/03/2018].

Oxford Dictionary of English. Third edition, online version 2015. Accessed at: www.oxfordreference.com [24/03/2018].

Oxford Spanish Dictionary. Accessed at: https://premium.oxforddictionaries.com/spanish/ [22/01/2018].

Picchi, F. *Grande Dizionario Hoepli Inglese.* Accessed at: http://dizionari.repubblica.it/inglese.php [18/02/2018].

Sennet, A. (2016). Polysemy. *Oxford Handbooks Online* (Subject: Philosophy, Philosophy of Language; DOI:10.1093/oxfordhb/9780199935314.013.32)*.* Accessed at: http://www.oxfordhandbooks.com [27/02/2018].

Sketch Engine Corpus Management. Accessed at: https://www.sketchengine.co.uk/ [27/03/2018, last access].

Taylor, J. R. (2003). Polysemy's Paradoxes. *Language Sciences* 25, pp. 637-655.

Acknowledgements