A cognitive approach to some phrasal verbs in English for Specific Purposes

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Abstract

The purpose of this paper is to apply some recent findings about the meaning of prepositions in Cognitive Linguistics to some phrasal verbs in ESP, namely Medical and Computer English. We analyse the meaning of some phrasal verbs by applying the cognitive model of prepositions as large networks of related senses with a central spatial meaning that can be extended towards more abstract, metaphorical senses. For this, we have chosen the most obvious spatial scene, that of a container, and the phrasal verbs referring to that container, those which are formed with the particles *in* and *out*. A number of metaphorical projections emerge from the analysis that evidences both the unitary meaning of the particles in different contexts and the motivation underlying the apparent arbitrariness of the compounds. Those metaphorical projections are but specifications of some common metaphors we can find in more general uses of English, which supports the idea that the model presented can be easily extended to other fields in English as well as to general discourse.

Key words: phrasal verbs, Cognitive Linguistics, Medical English, Computer English, metaphors.

Resumen

Una aproximación cognitiva a algunos verbos con partícula en el inglés para fines específicos

El objetivo de este trabajo es aplicar algunos hallazgos recientes sobre el significado de las preposiciones en Lingüística Cognitiva a algunos verbos con partícula en IFE, concretamente, Inglés Médico e Inglés de Informática. Analizamos el significado de algunos verbos con partícula aplicando el modelo

cognitivo de las preposiciones como grandes redes de sentidos relacionados con un sentido espacial central que puede extenderse hacia otros sentidos metafóricos más abstractos. Para ello, hemos elegido la escena espacial más obvia, la de un recipiente y los verbos con partícula que se refieren a ese recipiente, los que están compuestos con las partículas *in* y *out*. Del análisis surgen varias proyecciones metafóricas que demuestran tanto el significado unitario de las partículas en diferentes contextos, como la motivación que subyace a la aparente arbitrariedad de los compuestos. Esas proyecciones metafóricas no son más que especificaciones de algunas metáforas corrientes que se pueden encontrar en usos más generales de inglés, lo cual confirma la idea de que el modelo presentado se puede extender fácilmente a otros campos del inglés para fines específicos así como al discurso común.

Palabras clave: verbos con partícula, Lingüística Cognitiva, inglés médico, inglés para informática, metáforas.

Introduction

Most English grammars define phrasal verbs as idiomatic verbs in which a verb combines with prepositions or particles and creates a different meaning from the original one. The idea is that the particle changes the meaning of the verb in such a way that it is not possible to connect it any more with the dictionary definition of the individual words. Moreover, the very same combination of verb and particle seems to mean different things in different contexts, which supports the intuition that the final meaning is absolutely arbitrary. No wonder phrasal verbs are one of the most difficult parts of the lexicon for foreign learners. On the other hand, they are so expressive that they are very widespread in native speech, especially in spoken English and, what is more, new phrasal verbs are constantly being created. If meanings were as arbitrary as could be inferred from the above definition, they would not be so easily interpreted and created by speakers. Apparently, what makes phrasal verbs so unpredictable is the meaning of the particles, since prepositions seem to be quite arbitrary themselves, whereas the meaning of the verbs is usually less controversial. Besides, as long as the expressions refer to spatial locations and movements, the meanings are quite transparent, but when they refer to more abstract concepts, feelings, relations, etc. the meanings are not so obvious (Rudzka-Ostyn, 2003).

Over the past few years, a cognitive approach to the meaning of prepositions has been fruitful in the explanation of their numerous possible uses and how they are all motivated and related to one another. This paper intends to apply

those findings to phrasal verbs and see if they also provide a satisfactory explanation for the differences in meaning between the original words and the final compound. Still, as there are so many possible variations depending on the contexts where a phrasal verb is used, it will be useful to reduce the analysis to a few specific fields, if only for researching purposes, namely to those of Medical English and Computer English. This reduction will provide a better understanding of the unitary meaning of the phrasal verbs in question before it can be extended not only to other fields, but also to more general discourse.

Phrasal verbs and Cognitive Linguistics

Traditionally, the semantics of English prepositions and particles has been considered largely arbitrary. A long list of possible uses in different contexts is often provided by textbooks and dictionaries without any apparent relation to one another. This poses a particular problem for students of English as a foreign language, who mostly see English prepositions as idiomatic expressions that must be learnt one by one without a reasonable explanation of their uses. Also, since the major nuances of the meaning, and also of the syntax, of phrasal and prepositional verbs lie in these particles, it follows that phrasal verbs constitute a sort of a mystery for foreign learners. They cannot be interpreted by the mere addition of the meanings of their constituents, verb and particle, so they seem to be even more impossible to predict or guess than prepositions alone.

However, in the last 25 years, Cognitive Linguistics has paid great attention to polysemy in general[1] and more specifically to prepositions. Since the work by Brugman (1981) on the meaning of *over*, many studies have been carried out on prepositions from a cognitive perspective (Lakoff, 1987; Brugman, 1988; Herskovits, 1988; Radden, 1989; Taylor, 1993; Dirven, 1993; Vandeloise, 1994; Pütz & Dirven, 1996; Cuyckens & Radden, 2002; Tyler & Evans, 2003, among others). An accurate, rational clarification on the meaning of prepositions will result in a better understanding of phrasal verbs, but not so much work has so far been devoted to them in Cognitive Linguistics (Lindner, 1982; Morgan, 1997; Dirven, 2001; Rudzka-Ostyn, 2003). The view that it is possible to establish links among the different senses of a preposition would present the various meanings of a phrasal verb as motivated ones, if not predictable, and so eliminate the idea that they are arbitrary (Tyler & Evans, 2003 & 2004). Apart from the consequences of

this view for the improvement of the learning of English as a foreign language, it will also contribute to the construction of a better model of the semantics of words in general, the way they are stored and organized in our minds, as well as it will better help to elucidate the strategies by which speakers interpret and use them.

The cognitive approach considers that all the senses in a polysemous word are related and therefore the meaning of a word can be seen as a big semantic network of related senses. Being so, all the possible senses of a preposition would make up a large network of related senses, some of them being more peripheral (i.e., less common or less significant), and some others more central (i.e., basic ones). The core meaning of a preposition is the one that refers to the cognitive domain of physical space, whereas other abstract senses "tend to be derived from concrete, spatial senses by means of generalization or specialization of meaning or by metonymic or metaphoric transfer" (Cuyckens & Radden, 2002: xiii). In other words, English prepositions encode an abstract mental idealization of a spatial relation, derived from more specific spatial scenes; this is what Tyler and Evans (2003 & 2004) call the "proto-scene"[2]. For example, let's consider the following sentences:

(1) I think John is in his room

(2) I think John is in the city

(3) I think John is in trouble

(4) I think John is in love

The spatial sense of the preposition "in" is quite obvious in sentences (1) and (2), even if sentence (2) involves a metaphorical perception of the city as a bounded space. Far more abstract are the meanings of sentences (3) and (4), in which some abstract concepts, TROUBLE and LOVE, are also perceived as physical entities, as containers that people can get "into" or "out of". The relation between "John" and "love" or "trouble" is considered a metaphorically spatial one and this is the reason why the preposition "in" is used. In this network of senses that constitute the meaning of a preposition, conceptual metaphors play a leading role. Metaphors are the way in which we usually understand the world around us (Lakoff & Johnson, 1980). Anything beyond what is physical and concrete can only be understood metaphorically.

As for the role of the verb in the compound, according to Rudzka-Ostyn (2003), apart from a few static verbs such as "be", "sit", "hold", etc. most of the verbs used with particles are verbs of motion, either physical ("run",

"break", "throw", etc.) or abstract ("think", "sell", "buy", "refer", etc.). Even those that refer to physical motion are often used to designate abstract, non-visible changes as in the following examples:

(5) To *run up* the hill

(6) To *run up* expenses

(7) To *throw out* old clothes

(8) To *throw* a person *out of* a club

Moreover, the verbs often provide the perspective of the speaker. Since spatial scenes can be viewed from different perspectives, each of these views will determine how we conceptualize the scene. This is evidenced in the related meanings of those phrasal verbs with the same particle and similar meanings, such as "go down"/"come down"/"get down", etc.

In this paper we will analyse the meaning of some phrasal verbs by applying the before-mentioned cognitive model that considers the semantics of prepositions as big networks of related senses with a central spatial meaning that can be extended towards more and more abstract, metaphorical senses. For this, we have chosen the most obvious spatial scene, that of a CONTAINER, and therefore the phrasal verbs with the particles "in" and "out" referring to that container. However, the possibilities are almost unlimited, since phrasal verb meanings are highly dependant on their context of use.[3] This pragmatic aspect is even more remarkable when we consider different fields in English for Specific Purposes. The following sentences are examples of how the same compound can provide very different meanings depending on the context:

(9) You have *put* your shoulder *out*

(10) The doctor decided to *put* her *out* during the birth

(11) It took them a long time to *put* the fire *out*

(12) They are *putting out* a special issue this week

(13) The yacht *put out* to sea in the morning

(14) The tree has *put out* new leaves

(15) This printer offers excellent *output* quality

Still, we will see that the apparent differences are due to contextual matters and this paper intends to evidence how closely they are related. Since there

is such a wide range of possible contexts, and therefore meanings, it is not easy to find a common core to all the senses of a phrasal verb. For this reason, we have constrained our study to a few specific fields, Medical and Computer English, which will allow us to reduce the number of possible meanings from a pragmatic point of view and consider the similarities underlying the surface differences. This way, all the possible senses of one verb will be better contextualized and will likely be better connected with each other so that we can see all the senses as a unitary meaning. Thus, the analysis will be easier and clearer and it will hopefully serve as a sound basis to eventually extend the results to other fields by adding new senses without altering the global meaning.

The CONTAINER metaphor: The meaning of "in" and "out"

The CONTAINER metaphor is one of the most basic and most pervasive ones in our conceptual system. We understand an extended number of abstract concepts in terms of the experiential image-schema of CONTAINMENT (Johnson, 1987). According to Lakoff and Johnson (1980) it is the human body, our physical bounded reality, which is the origin of this metaphor:

> Each of us is a container, with a bounding surface and an in-out orientation. We project our own in-out orientation onto other physical objects that are bounded by surfaces. Thus we also view them as containers with an inside and an outside. (Lakoff & Johnson, 1980: 29)

Thus, the human body is perceived as a container where we can introduce food or where we can keep emotions and fill it up to the point of a "metaphorical burst" (for instance, in anger or in tears)[4]. We can then project this conceptualization to external areas, even if they do not have clear, physical boundaries and conceptualize them as containers. Therefore, our mind is also perceived as a container "full of" ideas. What is more, we can metaphorically understand abstract concepts in terms of physical containers, such as the visual field as well as events, actions and states as evidenced by the use of the prepositions "in" and "out" in sentences like "I have him in sight" and "he fell into a depression" (Lakoff & Johnson, 1980).

> The linguistic evidence shows that the conceptualization of a particular LM [landmark] as bounded is determined not in absolute terms by its geometry

(although clearly this does play some part), but rather by virtue of the way in which humans experience and interact with the LM in question (Tyler & Evans, 2003: 132).

Moreover, the way in which humans experience and interact with containers, or any other bounded spaces, has a number of functional consequences. According to Tyler and Evans (2003), these consequences are reflected in the meanings typically associated with the spatial particles "in", "into", "out", "out of", and "through". Thus, for instance, CONTAINMENT involves constraining movement, as in the case of a prison cell, which restricts the movements of a convict, but the container can also be conceived as a protection, as in the case of a jeweller's safe (Tyler & Evans, 2003). Also, if the boundaries of the container are opaque, what is inside remains hidden and can only be seen if taken "out". The functional elements in the spatial meaning of prepositions are essential to understand how other senses are generated. Besides, these functional elements can explain the apparent arbitrariness of the alternation of prepositions. For example, if someone is "in trouble", this is conceived as a state from which one cannot easily escape, whereas if one is "on the take" or "on the pill", it is perceived as a choice that can be reversed.

Therefore, there is a basic spatial meaning in prepositions and a number of metaphorical and metonymical extensions, but also some other associated senses must be taken into account, which derive from the way in which we interact with physical entities in the real world. The schematic meaning of "in" and "out" is a basic spatial scene (Tyler & Evans, 2003), the mental image of a container to convey the idea that something is or is not inside that container (see Figure 1).
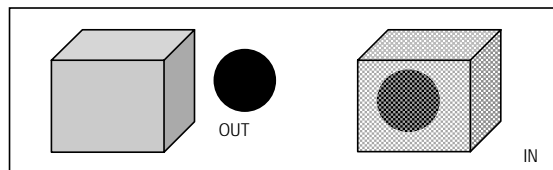

Figure 1. Basic spatial scene for "in" and "out"

From this schematic image we can extend that meaning to more metaphorical senses where entities that are not containers can be seen as such. Depending on the context, concepts like a HUMAN BODY, an ILLNESS, a

COMPUTER or the INTERNET can be perceived as CONTAINERS. We will see that the way in which we conceptualize and interact with many non-physical entities are but metaphorical projections of the concept CONTAINER and the expressions we use to refer to them, especially phrasal verbs with "in" and "out", are the evidence.

The particles "in" and "out" in Medical English

Let us consider first the metaphor THE BODY IS A CONTAINER[5] (see Figure 2), which can make sense of some phrasal verbs in Medical English like:

(1) *Take out*   They *took* his appendix *out*

(2) *Cut out*   Jane had a lump on her neck *cut out*

(3) *Set in*   You can see gangrene has *set in* to your left leg

(4) *Take in*   She sat *taking in* breathes of fresh air

                The average daily *intake* of iron in a normal diet…

(5) *Breathe in/out*   The doctor asked her to *breathe in* and *out* softly

(5) *Hold in*   She wanted to cry but *held in* the tears

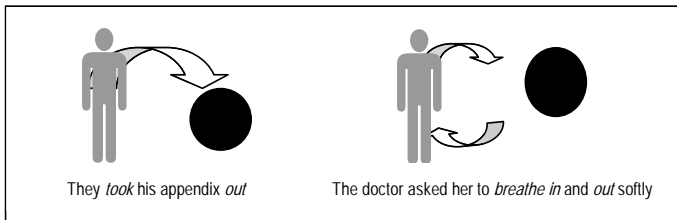(6) *Kick in*   Her hayfever didn't feel as bad once the antihistamines had *kicked in*

Figure 2. THE BODY IS A CONTAINER.

We can also conceptualise BUILDINGS as CONTAINERS, like large boxes where people get "in" or "out of". In general uses, the default building to be "in" is home, which explains general phrasal verbs like "stay in" to mean "stay at home". In Medical English this use is reflected in verbs like:

(7) *Call in*   We had to *call in* a doctor because she was feeling really bad

(8) *Look in*   The stoma nurse will *look in* again next week

However, in Medical English, the default place is a hospital (see Figure 3), so THE HOSPITAL IS A CONTAINER, as evidenced in the following examples:

(9) *Come in*   Someone *came in* with an undiagnosable bleeding

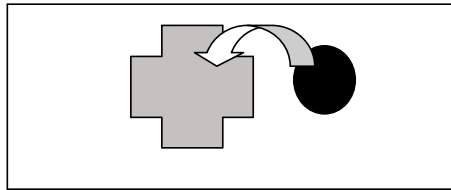(10) *Go in*   He *went in* for a triple bypass operation two days ago

Figure 3. A BUILDING (i.e. THE HOSPITAL) IS A CONTAINER.

Or else, the most specific place in a hospital: the ROOM or WARD:

(11) *Room in*   Most hospitals have a policy of *rooming in* mothers and their babies

We can also perceive some places without physical boundaries as containers, in this sense when something spreads to occupy a wider area, it can also be conceived as going or spreading "out" (see Figure 4).

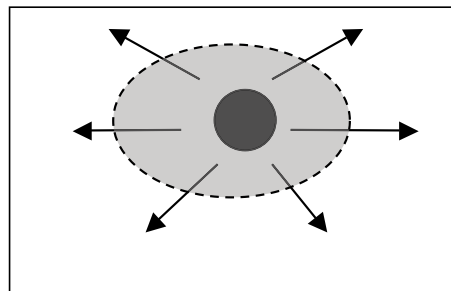(12) *Break out*   An epidemic *broke out*

Figure 4. UNBOUNDED PLACES ARE CONTAINERS.

Or we can consider that the right place for something is its container, so when something is not in the right place to be, then it is "out":

(13) *Put out*   You've *put* your shoulder *out*

In a higher level of abstraction, a person's control area can also be regarded as a container, so anything beyond a person's reach or availability is commonly referred to as "out of reach" (see Figure 5). The same conceptualization is reflected in verbs like:

(14) *Run out*   The nurse *run out* of bandages

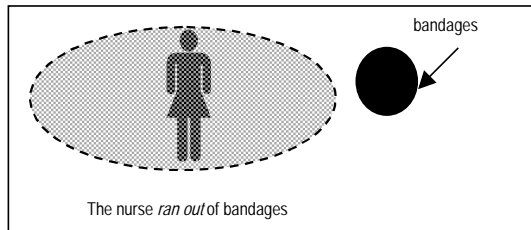(15) *Have in*   Do we *have* any penicillin *in*?

Figure 5. THE AREA OF INFLUENCE IS AN UNBOUNDED PLACE (i.e., A CONTAINER).

As explained in the previous section, when we consider containers, there are some functional elements we know about from our experience of the world. For instance, a container involves the idea of confinement and therefore some kind of obstacle that must be overcome (Tyler & Evans, 2003 & 2004). In that sense, we usually perceive that A BAD HABIT IS A CONTAINER that keeps the person trapped inside (see Figure 6):

(16) *Get into*   How did he *get into* drugs?

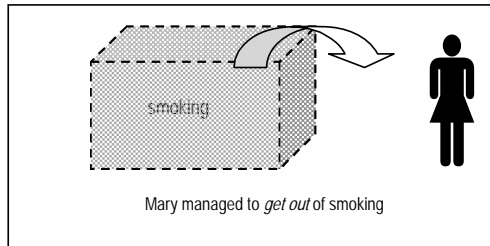(17) *Get out*   Mary managed to *get out* of smoking

Figure 6. A BAD HABIT IS A CONTAINER.

Also from our experience of containers, we know that something inside a container is usually hidden from sight, so BEING UNKNOWN IS BEING INSIDE A CONTAINER (see Figure 7).
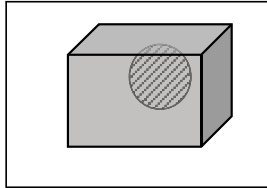

Figure 7. BEING UNKNOWN IS BEING INSIDE A CONTAINER.

Therefore when something unknown is discovered, it is usually conceived as "getting out" (as evidenced by common phrasal verbs in general speech such as "find out" or "come out") (see Figure 8), which explains the meaning of verbs in Medical English like the following:
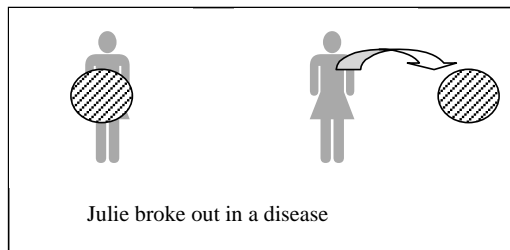
(18) *Break out*   Julie *broke out* in a disease

Julie broke out in a disease

Figure 8. REVEALED IS OUT.

Finally, STATES ARE CONTAINERS, as evidenced in common expressions like "we are in trouble" or "he is in love" (Lakoff & Johnson, 1980). In Medical English, we can find this meaning in verbs like "come out" and "fill in" as in the following sentences:

(19) *Come out*   He is *coming out* of the coma

(20) *Fall in*   He *fell in* a deep depression

And just the same as we have seen in (13) that BEING IN THE RIGHT PLACE IS BEING IN, also THE RIGHT CONSCIOUS STATE IS IN, and when you are unconscious you are "out" (see Figure 9):

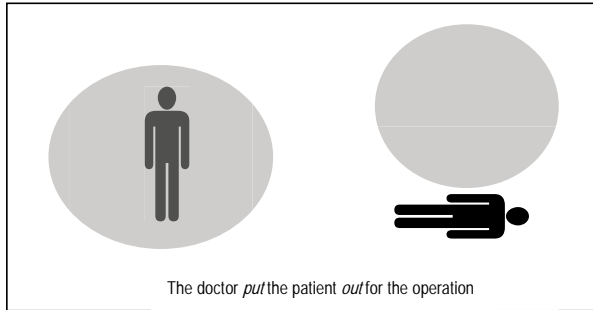(21) *Put out*   The doctor *put* the patient *out* for the operation

The doctor *put* the patient *out* for the operation

Figure 9. BEING UNCONSCIOUS IS BEING OUT.

Very significant for this particular conceptualization are those verbs which carry both "in" and "out" at the same time like:

(22) *Bring out in*   It was the lobster that *brought* me *out in* this rash all over my body

(23) *Come out in*   She *came out in* a nasty rash after touching the poisonous plant by mistake

As shown in Figure 10, the mental image underlying these sentences is that of someone being taken "out" of a normal, healthy state (as we pointed out above BEING IN THE RIGHT STATE IS BEING "IN") and "into" a different state.

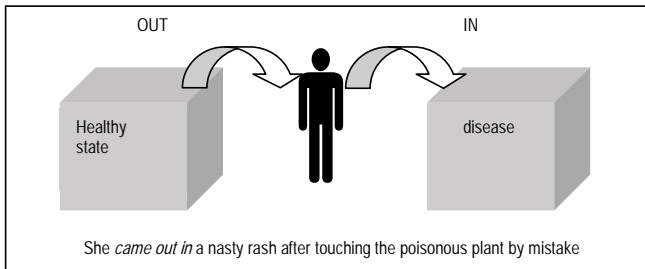She *came out in* a nasty rash after touching the poisonous plant by mistake

Figure 10. STATES ARE CONTAINERS /BECOMING ILL IS GETTING INTO A CONTAINER.

The particles "in" and "out" in Computer English

In the specific field of English for Computer Science, there is an obvious container: the computer itself.[6] The mental image of a container can be easily projected onto that of a computer, mostly because a computer has actually got the shape of a box with chips and circuits inside. Firstly, all the components of a computer system (i.e., the monitor, the keyboard, the CPU, speakers, etc.) can be perceived as one whole container. This conceptualization motivates expressions like "built-in speakers" or "built-in modem". Secondly, in a more abstract sense, non-physical concepts, such as the software or data, are conceived as physical entities that can be "introduced" in the computer system as if in a big box. The two possible uses of "plug in" and "plug into" in the following sentences evidence the transition from a physical, spatial sense to a more abstract one (see Figure 11):

(1) Digital cameras can be *plugged into* a computer to download and edit the photos

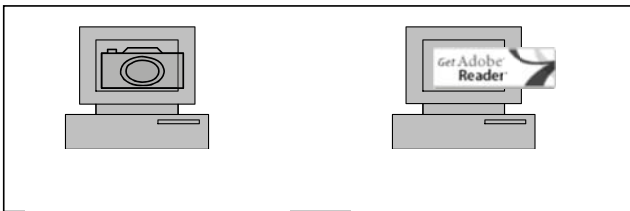(2) A *plug-in* application like Acrobat Reader is recognized automatically by the browser

Figure 11. "plug in": from concrete to abstract meanings.

Thus, the computer is a sort of box with not only chips and devices "inside", but also non-physical entities –i.e., the software, the operating systems, the data. All these are usually conceptualized as physical objects, which we keep in the computer system. The way in which we refer to the computer functions evidences this conceptualization of the computer as a CONTAINER, and so we usually speak about "storing" information, "moving" files to a folder, or about the lack of "space" in the hard disk. For this reason, compounds with "in" and "out" are so frequent when we speak about what we do with the computer, as in the following examples (see Figure 12):

(3) The images were then *scanned into* a Macintosh and the final composition was arranged with Adobe Photoshop

(4) A lightpen is an *input* device similar to a pen.

(5) If the file is not specified, the program will print the *output* at the screen

(6) A person would only have to *key in* words or phrases and he would have access to any information he wants to have.

(7) You should *rub out* all the unwanted files to get some free space in your disk

(8) Instructions and data must be *fed into* the computer

Instructions must be *fed into* the computer

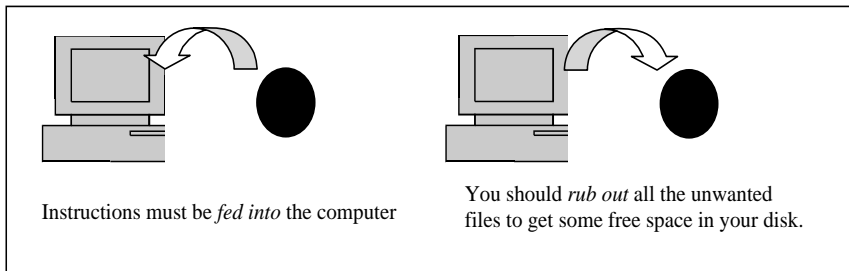You should *rub out* all the unwanted files to get some free space in your disk.

Figure 12: THE COMPUTER IS A CONTAINER

Moreover, since the computer is seen as a closed container where we keep our belongings, it is quite straightforward that the action of accessing the information stored in a computer without permission is conceived as "breaking" or "hacking into" the container:

(9) A few hackers began to use their skills to *break into* private computer systems and steal money.

Since the computer is a container that not only stores but also processes the data, we can find a very special meaning of "out" in Computer English. Consider the following sentences:

(10) The computer *crunched out* all those computations in a fraction of a second.

(11) A series of inputs were set up and fed into the computer, which would *work out* the answers and print them.

The mental image we can obtain from these sentences is that of a computer processing data for some time and putting out the results at the end of the process (see Figure 13). Because what comes out of a computer is usually the result of a processing, the output, the meaning of "out" in Computer English includes a sense of "getting the results (and giving them out)".

The computer *crunched out* all those computations in a fraction of a second.
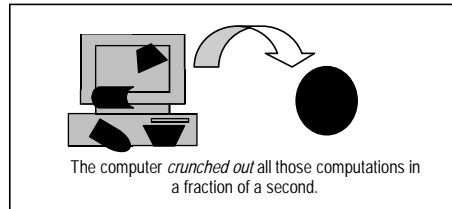
FIGURE 13. *OUT* IS GETTING THE RESULTS.

This is also a meaning that can be found in English for general purposes, as in sentence (12), whose mental representation would be similar to that of Figure 14:

(12) I *worked* it *out* in my head
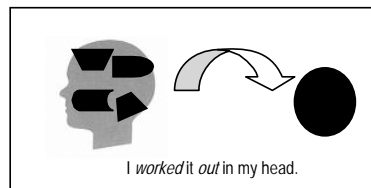

I *worked* it *out* in my head.

FIGURE 14. *OUT* IS GETTING THE RESULTS AND COMPLETION.

This sense of getting the results is also related to "the completion sense" of the preposition "out" in common language.[7] In Computer English it is quite straightforward that the "output" is not only what the computer "puts out" –i.e., the information that the computer shows on the display, but also the last step of a process performed by the computer, since the data provided has been previously processed and only the final result is given.[8] This sense of completion can be easily found in general English as much as in the specific field we are dealing with:

(13) A program is a set of instructions to make a computer *carry out* a task

Apart from the computer itself, we can find other projections of the CONTAINER concept related to the field of Computer English. For example, it is typical of online forms and graphical interfaces to present some sort of "boxes" that the user must "fill in" with the required information –i.e., passwords, personal data, etc. (see Figure 15):

(14) *Type in* your password to access the system
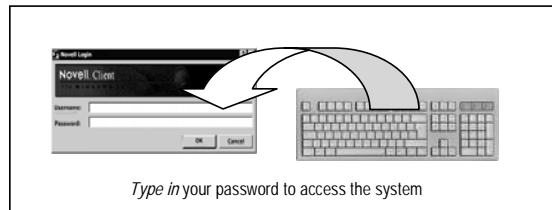
(15) *Fill in* the coloured fields of the form

Type in your password to access the system

Figure 15. BOXES IN GRAPHICAL INTERFACES ARE CONTAINERS.

Once again this meaning of the particle "in" can be found in more general uses as in sentences like:

(16) *Fill in* the blanks in the following sentences

(17) You can *fill in* the details by studying the paper at leisure

In (16), the blanks are still conceptualized as containers, even if they are not framed or clearly bounded, whereas in (17) the gaps to fill in are metaphorically conceptualized.

Finally, there is another obvious container that is always present in the language of computers and Information Technologies: the Internet. Computer users perceive the Internet as a huge box, rather than a network of connected computers. It is conceived as a storage place where they can search for information. This explains the use of the particles "in" and "out" in the compounds "log in" to refer to the action of accessing the Internet and "log out" to mean "stop working on it".

(18) Please use your new password to *log in* to the Internet Service and email

(19) At the end of each Internet session, users must *log out* of the Internet.

As explained in the section of Medical English, the container is not always physically bound, and so, an undetermined area can be also conceived as a container. This explains how *out* develops a sense of "separation", as in "branch out" or "sort out" (see Figure 16), that can be physical as in sentence (20) or metaphorical, as evidenced by examples (21) and (22):

(20) These cables *branch out* from the main feeder routes to cover the entire Distribution Area

(21) The system *sorts out* the computer's memory into blocks

(22) Let your computer *sort out* your tasks rather than you doing it all
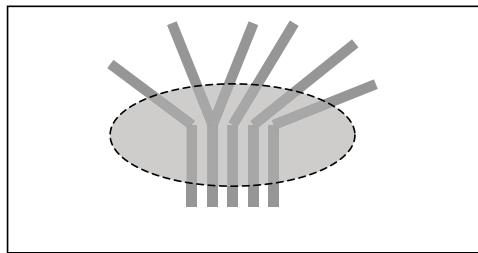

Figure 16. An UNBOUNDED AREA IS A CONTAINER.

Conclusions

In this paper we have applied Cognitive Linguistics insights on prepositions to some phrasal verbs in Medical and Computer English. As we have seen, prepositions encode mental idealizations of spatial scenes whose meanings, through a process of abstraction, can be extended to other domains to express more abstract concepts. This way, all the possible senses of a preposition, and particularly of a phrasal verb, appear to be related and therefore motivated, instead of constituting a bunch of arbitrary, unconnected senses. This has been made more apparent by reducing the analysis to those phrasal verbs in two specific fields, namely Medical English and Computer English.

The CONTAINER metaphor, which is the spatial scene in the core meaning of the particles "in" and "out", has proved to be the link between all the senses of the phrasal and prepositional verbs with "in" and "out" in Medical and Computer English. Instead of the traditional list of possible uses of those compounds in different contexts, we now have an image-schema, that of CONTAINMENT, that can be projected onto the different contexts and so explain the meaning of the particle in those combinations. We have seen that the most frequent CONTAINERS in Medical English are the HUMAN BODY and the HOSPITAL, whereas in Computer English, it is the COMPUTER itself and the concept of the INTERNET which are perceived as CONTAINERS. The analysis of the particles in a constrained domain is only methodological, since it provides a unitary picture of the meaning of the particles by reducing the range of possible context in which they can be used. Once the image-schema has been defined, it can be easily projected onto other specific actions or events in different contexts.

As a matter of fact, the metaphors considered in this paper are not new ones, but mere specifications of some common metaphors we use everyday. According to Lakoff (1993) it is possible to organize metaphors in different levels of abstraction. Thus, the metaphor A HOSPITAL IS A CONTAINER belongs to the subordinate level of the more general metaphor BUILDINGS ARE CONTAINERS. Also, AN ILLNESS IS A CONTAINER or A BAD HABIT IS A CONTAINER derives from STATES ARE CONTAINERS, and so on. The subordinate level of metaphors provides richer mental images than those at a more abstract level and this is the reason why it is easier to analyse the meaning of particles in reduced contexts.

This paper has aimed at showing how metaphors can explain the meaning of the particles and how a unitary view of their meaning can account for a better knowledge of phrasal verbs in the chosen specific fields. However, further research related to other particles, other metaphors and, obviously other ESP branches would be of great interest to this field.

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NOTES

[1] Cognitive Linguistics considers that polysemy is "the natural order of things" (Langacker, 1988: 50; and also Cuyckens, 2002: 257).

[2] Tyler and Evans (2003) also argue that the proto-scenes for each spatial particle tend to represent the diachronically earliest uses of the lexical form.

[3] It must be noted that Cognitive Linguistics does not distinguish between semantics and pragmatics since the meaning is considered extensively and everything that affects to the meaning construction is part of it.

[4] For a full account of the human body as a container of emotions see Kövecses (2000).

[5] We follow the common convention of writing metaphors in small capitals.

[6] The compounds appearing in this section, as well as most of the examples, have already been discussed in Porto Requejo (2006).

[7] For Tyler and Evans (2003) the completion sense of "out" is motivated by the correlation in our experience between an entity leaving a container and the process of leaving being complete, and it is evidenced in the meaning of sentences like "this jacket needs to dry out before you wear it again" (Tyler & Evans, 2003: 204).

[8] In Rudzka-Ostyn (2003) verbs like "figure out", "carry out", "work out", etc. are motivated by the container metaphor in the sense that the state of non-existence or invisibility is a container and the particle "out" is used to express the fact that an object moves out of these states. Similarly, in Tyler and Evans (2003) this use of the particle "out" is an example of the "knowing sense" of "out" –i.e., if something becomes visible it also becomes known, as in the sentence "we figured out the problem". However, when analysed in the specific field of Computer English the senses of "completion" and "getting a result" seem more plausible than just "becoming visible and known", since there is a whole processing of the information before the results are visible/known. Further research would be needed to see if these senses of phrasal verbs with "out" in Computer English also work in the general uses of English.