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Scientific Rich Images in Translation: A Multilingual Study

Mark Shuttleworth, University College London

ABSTRACT

The aim of this article is to investigate the solutions that translators opt for when translating metaphorical expressions that are classified as either 'rich images' or 'non-rich images.' The investigation is based on a corpus of *Scientific American* texts from 2003 and 2004 and their translations into French, Italian, German, Russian and Polish. Rich images are metaphorical expressions that are 'rich' in detail and in associations, and around 40% of the metaphors that occur in the corpus can be classified in this way. Based on a conceptual framework partially derived from metaphor research and on quantitative and qualitative analyses of the data, the article provides a list of translation procedures that the author identifies for the translation of rich images into non-rich images and *vice versa*. The article determines that there is a greater tendency for rich images to be replaced by non-rich than *vice versa*, thus leading to the conclusion that there is a general tendency to shift from the more to the less specific, in this area of translation practice at any rate.

KEYWORDS

Metaphor, translation, rich image, *Scientific American*, translation procedures.

1. Introduction

The research that this article reports on is based on an analysis of 1354 examples drawn from a corpus consisting of 62 articles totalling around 280,000 words of running text that appeared in the popular science journal *Scientific American* between January 2003 and July 2004, along with their official published translations into French, Italian, German, Russian and Polish (appearing in *Pour la science*, *Le Scienze*, *Spektrum der Wissenschaft*, *V mire nauki* and *Świat nauki* respectively). It forms part of a larger project that examines how the different kinds of scientific metaphor identified in this corpus are translated.

Text-based descriptive translation research consists of identifying what appear to be the salient features of the translators' approach and attempting to produce generalisations not only about the particular textual feature being studied but also, hopefully, in terms of what the case study may teach us about translation in general. In the case of the present research, the aim is to provide a broadly qualitative analysis of the kinds of solution that translators — working in the particular institutional environment in which they find themselves — commonly resort to in rendering metaphorical expressions when looked at in terms of whether they are considered to be rich images or non-rich images. Its ultimate aim is therefore to provide evidence regarding whether there is a greater tendency in translation to move from more to less vivid or specific expressions, or *vice versa*.

In the article metaphorical expressions are indicated by bold in the examples and by italics when they are cited within the text; 'mappings' are highlighted in small capitals. The research distinguishes between two types of deletion: removal, which applies to occasions when a metaphorical expression is replaced by identifiable non-metaphorical textual material, and omission, which is defined as occurring when a metaphorical expression is totally missing from the target text. The other procedures referred to are retention and modification. Throughout the article there is a great emphasis on modifications that typify the multilingual data rather than being specific to one or other target language.

2. What are Rich Images?

Every metaphorical expression is an instantiation of a particular *mapping*, or in other words an abstract link between two different domains of experience — such as 'time is an arrow', 'people are machines' or 'a theory is a framework' — that permits one concept to be understood in terms of another, and that therefore provides a framework within which specific metaphorical expressions can be used and comprehended. In the corpus used in this study many of the mappings are highly specific to the scientific subject matter: for example, 'a neuron is a tree,' 'genetic material is text,' 'nature is a designer' and 'neurons are communicators.'

In addition, all metaphorical expressions involve an 'image' that is more or less 'rich' in details and associations. A rich image is a type of metaphorical expression that contains a strong associative element, which means that it is likely to offer readers or listeners an intuitive understanding of a particular idea or concept because of the associations that are available via another idea, concept or, indeed, object about which they possess specific encyclopaedic or cultural knowledge or simply familiarity through everyday use or contact. In addition, as a general principle, more specific or concrete ideas or concepts — that have a tendency to be linked to more innovative metaphorical expressions — have a greater potential for forming rich associative networks than those that are expressed in general or abstract terms or, perhaps, by a single polysemous lexical item. As pointed out by Kimmel, the notion of 'richness' should be taken as a relative one (2002:37) as there are degrees of richness: quite clearly, some images offer much more extensive networks of associativity than others. This becomes quickly apparent as soon as one starts to analyse real data. This paper makes no effort to identify different degrees of richness in a formal manner, however; be that as it may, the decision as to whether a particular metaphorical expression should be classified as rich or not will inevitably involve a degree of judgement and different language users will sometimes be bound to disagree.

Another way in which the concept of richness can be considered relative is that a metaphorical expression based on a particular concept may be richer

for a person with large amounts of relevant specialist knowledge than for someone who does not possess such a background. This is potentially of relevance in the present study, where the texts in the corpus are highly technical in nature and intended for a relatively specialised readership.

The nature of rich images will perhaps become a little clearer if we consider a few examples. The use of the expression "neurons were free to *communicate*" (Fields 2004a:55) simply imbues brain cells with a general ability to communicate but, for most people at least, is not likely to give rise to any detailed network of specific or familiar associations; "*chattering* neurons" (2004a:59), on the other hand, would have a much greater likelihood of doing so because it not only implies an ability to communicate but also presents this on a much more everyday level: *chattering* is, after all, a familiar activity, while *communicating* is probably perceived as being less so, if only because of the more abstract nature of that particular verb. In other words, the *chattering* can be considered to be a much richer image than *communicating*. Along similar lines, because of their level of abstraction or lack of specification neither of the metaphorical expressions "The *executive apparatus* of the mind (the ego)" (Solms 2004a:84) and "this *pathway* bypasses the hippocampus" (Solms 2004a:85) are likely to be perceived as rich by most readers. On the other hand, the expressions "tiny cellular *butlers* … fetch the specified amino acids" (Freeland and Hurst 2004a:86) and "Freud's concept of *man-as-animal*" (Solms 2004a:87) are both much more likely to give rise to such rich networks of association because of the cultural or encyclopaedic knowledge that readers are likely to possess.

According to George Lakoff, rich images arise unconsciously, in that they do not need to be deliberately called to mind or created, and can be stored in the memory for extended periods without effort (1987:447). They are "fully detailed" evocations of real-world phenomena that "have specific knowledge associated with them" (1987:453). They are "neither context-bound, nor specific, nor conscious, nor effortful" (*ibid*.). Their structure is sophisticated and nuanced rather than skeletal.

In spite of the obvious centrality of the notion of the 'rich image,' it has not been widely exploited as a theoretical concept within the cognitive approach to metaphor research, and has not been developed in a methodical or consistent manner. Indeed, some of the main references even seem to contradict each other.

Lakoff (1987) is one of few major scholars who discuss the topic to any significant extent, and certainly in more detail than Mark Johnson (1987), whose discussion is frequently cited as one of the main authoritative treatments of the concept, not least since it is Johnson who claims to have coined the term (1987:24). However, interestingly enough, nowhere in either source is the term *image* precisely defined or delimited. Lakoff for

example variously refers to what is presumably the same concept as *image* (1987:444), *conventional image* (1987:446) and *conventional rich image* (1987:446) in the space of a few pages. Turner adds the important clarification that images are experienced in various modalities: "a visual image of a road, an auditory image of a scream, a kinesthetic image of a pinch, an olfactory image of the smell of pine, and so on" (1991:57). Kimmel makes the common-sense observation that "[most] frequently rich images are of visual nature, but auditory, tactile, kinesthetic, olfactory, or gustatory images are by no means excluded" (2002:36-7), at least the first part of which contention seems to be borne out in the data collected for the present article.

Writing about figurative expressions in general, Dobrovol'skij and Piirainen (who also avoid a formal definition or even a detailed description of the concept) argue that an expression's real behaviour is governed by "more concrete, culture-specific knowledge" rather than by knowledge of a more general kind. In other words, while the same high-level mapping may account for specific metaphorical expressions in different languages, these will still differ from each other in terms of their precise linguistic behaviour (2005:130).

From this, it becomes immediately apparent why the notion is potentially of such great significance for studies on metaphor in translation, as it is in the interaction between how a metaphorical expression 'behaves' in the target language and its dependence on another expression existing in the source text that much of the interest for the researcher lies.

As a researcher into translation, I consider rich images to be worthy of study for at least two reasons. Firstly, if Dobrovol'skij and Piirainen (2005:130) are correct, they provide a suitable standpoint from which to account for more general phenomena connected to metaphor in translation, particularly in terms of investigating how translators handle expressions that entail different levels of specificity or richness, as indicated in Section One. Secondly, from the point of view of metaphor research, it seems that studying whether the richness of an image acts as a significant factor in translators' decision processes would be one valid way of probing the validity and status of the concept.

To date, Al-Harrasi (2001) is the only other translation scholar to have used the concept of the rich image to investigate metaphor in translation. Basing his work on corpora of speeches by Saddam Hussein and by Sultan Qaboos bin Said of Oman, what he comes up with is a detailed set of translation procedures that are centred around the interplay between the rich image and another concept from cognitive linguistics, the image schema (2001:277-88; for image schemas see Johnson 1987: 23ff.; Lakoff 1987:453ff).

3. Richness in Translation

The corpus contains a total of 114 English rich images, so this is a kind of metaphorical expression that occurs frequently in the data. As expected, this parameter undergoes modifications in the translation process. Metaphorical expressions may be omitted or removed, of course, or may retain, acquire or lose a degree of richness:

> English: as animals move up the **evolutionary ladder**.
> German: Je **höher** in der Evolution Tiere stehen
> [The **higher** animals stand in evolution]
> (Fields 2004a:61; 2004b:56)

In this example, a sophisticated, culturally determined metaphorical expression in which the notion of upward motion is filled out via the image of a ladder is replaced by a blander rendering in which both these elements are removed, the former being replaced by one that simply indicates relative positioning. This is, of course, just one of several possible complex modifications that may occur in translation. The purpose of this section is to observe the cross-language tendencies that are obtained and to examine precisely what kinds of rewording are brought about by a modification within this parameter.

3.1. Some statistics

First of all, details of the total number of rich images and non-rich images in each of the six languages and how these average out when taking all the languages together can be found in Table 1:

	English	German	Russian	Polish	French	Italian	All target languages together
Rich Image	114	58	51	65	37	64	275
% Rich Image	39.45	41.43	31.48	33.51	25.87	35.96	33.66
Non-Rich Image	175	82	111	129	106	114	542
% Non-Rich Image	60.55	58.57	68.52	66.49	74.13	64.04	66.34

Table 1: Rich images and non-rich images across the six languages

In the target language columns, the 'Rich Image' and 'Non-Rich Image' rows taken together represent the 'retained' and 'modified' categories together with any metaphorical expressions that may have been added in translation. The first column indicates that the ratio of rich images to non-rich images is approximately 40:60 in the English data. As can be seen, the proportion of rich images rises slightly in German but falls in all the other

target languages. In each case the fall is greater than the relatively minor increase seen in German, while in French, what can be seen is a significant drop in the percentage of rich images, for reasons that are suggested below. Overall, however, we observe a slight swing towards non-rich images in the target languages (34:66 as opposed to 40:60 in English). In other words, in the translated texts rich images occur with a slightly lower frequency than in the source text.

If we look at the shifts that occur between the two categories in greater detail, what we observe is set out in Table 2:

	English Rich (%)	English Non-rich (%)	English Rich (%)	English Non-rich (%)
	Translation into German:		Translation into Russian:	
rich	49 (42.98)	5 (2.86)	46 (40.35)	3 (1.71)
non-rich	6 (5.26)	70 (40.00)	11 (9.65)	97 (55.43)
removed	16 (14.04)	28 (16.00)	33 (28.95)	35 (20.00)
omitted	43 (37.72)	67 (38.29)	24 (21.05)	40 (22.86)
ANT	0 (0.00)	5 (2.86)	0 (0.00)	0 (0.00)
	Translation into Polish:		Translation into French:	
rich	60 (52.63)	4 (2.29)	34 (29.82)	1 (0.57)
non-rich	13 (11.40)	111 (63.43)	7 (6.14)	98 (56.00)
removed	28 (24.56)	37 (21.14)	25 (21.93)	26 (14.86)
omitted	13 (11.40)	23 (13.14)	31 (27.19)	24 (13.71)
ANT	0 (0.00)	0 (0.00)	17 (14.91)	26 (14.86)
	Translation into Italian:		Overall:	
rich	63 (55.26)	1 (0.57)	252 (44.21)	14 (1.60)
non-rich	13 (11.40)	99 (56.57)	50 (8.77)	475 (54.29)
removed	11 (9.65)	21 (12.00)	113 (19.82)	147 (16.80)
omitted	8 (7.02)	8 (4.57)	119 (20.88)	162 (18.51)
ANT	19 (16.67)	46 (26.29)	36 (6.32)	77 (8.80)

Table 2: procedures used by translators for English rich images and non-rich images in the five target languages and overall ('ANT' indicates the number of expressions that occur in articles that are not translated into a particular target language).

What this tells us, for example, is that, while seven rich images are translated into French as non-rich images, only one original non-rich image is translated by a rich image in that language, a result that is broadly in line with the situation in the other target languages. Interestingly, in addition, far more non-rich images are retained as such (98, or 56.00%) than rich images (34, or 29.82%). This difference is smaller — and in some cases significantly so — in all the other target languages. In addition, more rich images than non-rich images are omitted or removed in French, while in the other languages the differences are not generally as great. These

two facts taken together probably account for the drop in the number of rich images in the French data that we reported above. In all target languages the tendency to replace rich images with non-rich images is greater than the reverse tendency.

Interestingly, in almost all cases the percentages of rich images modified, omitted and removed in all target languages are slightly higher than the corresponding figures for non-rich images, thus indicating that non-rich images are overall slightly more stable in translation than rich images. This indicates that metaphorical expressions that are more detailed, concrete or specific have less of a tendency to be translated without significant addition or reduction than those that are more skeletal, abstract or general. It is not currently known why this should be the case, although it is perhaps worthy of note that it provides evidence that seems to contradict a well-known longstanding hypothesis to the effect that 'the bolder and more creative the metaphor, the easier it is to repeat it in other languages' (Kloepfer 1967:116; translation taken from Snell-Hornby 1995:57).

3.2. Examples of different procedures

We have looked at the broad translation tendencies that seem to be suggested by the data. Now it is time to examine in more qualitative terms precisely what modifications can occur to individual expressions, particularly when shifted between rich image and non-rich image categories. Most source-text rich images and non-rich images remain within their respective category, if they are not removed or omitted. However, when an expression is shifted to the opposite category in translation, the process of 'enrichment' or 'impoverishment' can entail a wide range of different rewordings, as set out in the lists below.

1) Firstly, there are fifty examples of a rich image being replaced by a non-rich image. This modification assumes a wide range of different forms:

a) Use of a word that is less immediate to most people's experience (a total of three examples):

> English: calcium ions or related signaling molecules simply passed **through open doorways connecting abutting astrocytes**.
> Polish: jony wapnia lub podobne cząsteczki sygnalizacyjne przechodzą **przez otwarte, łączące je kanały**.
> [calcium ions or similar signaling molecules pass **through open canals that connect them**.]
> (Fields 2004a:57; 2004c:30)

In this example, the translator replaces the word *doorways* with *canals*, which is likely to be further removed from most readers' experience and will therefore enter into fewer networks of mental associations. An *open doorway* is in itself deemed to be a rich image simply because of the

everyday familiarity that all readers will have with such an object and that engenders a number of clear associations.

b) Use of a more abstract word (three examples):

> English: Each neuron has **a long, outstretched branch**
> Polish: Od każdego neuronu odchodzi **długa wypustka, najczęściej rozgałęziona na końcu**
> [From each neuron there emerges **a long projection, usually branching at the end**]
> Italian: Ogni neurone ha **una lunga ramificazione molto estesa**
> [Each neuron has **a long, very extended ramification**]
> (Fields 2004a: 55; 2004c: 28; 2004d: 50)

Both translators replace the concrete *branch* with abstract alternatives in which the metaphorical expression becomes impoverished, even though the alternative used is etymologically related to the word for *branch* in each language.

c) Partial deletion of the metaphorical expression (six examples). This may occur by partial removal of the expression:

> English: researchers **mapped** the **regions** of the brain
> Russian:исследователям удалось идентифицировать **области** головного мозга
> [researchers managed to identify **regions** of the brain.]
> (Nestler and Malenka 2004a: 81; 2004b: 52)

Although the SCIENTISTS ARE CARTOGRAPHERS mapping is essentially lost, there remains an element of the original metaphorical expression.

It can also occur by partial omission:

> English: But those who become addicted to cocaine **sprout additional spines on the branches**
> Russian:У животных, пристрастившихся к кокаину, **шипиков на дендритах** гораздо больше
> [Animals addicted to cocaine have far more **spines on their dendrites**]
> (Nestler and Malenka 2004a: 83; 2004b: 55)

The translator omits the item *sprout* and converts *branches* to *dendrites*. Once again, this appears to be in line with the weakening of the mapping A NEURON IS A TREE.

d) Shift from rich image to non-rich image in conjunction with a change of mapping (twenty-three examples):

> English: **nature's skill as a primordial software designer.**
> (NATURE IS A SOFTWARE DESIGNER)
> French: **le savoir-faire de la nature**
> [**nature's know-how**]
> (NATURE IS SKILLED)

Italian: **il talento progettuale della natura.**
[**nature's talent for planning.**]
(NATURE IS A PLANNER)
(Freeland and Hurst 2004a: 91; 2004b: 65; 2004c: 94)

Here, the specific knowledge that most readers will associate with software designers is dissipated in each case.

e) Replacement of a vivid word with a more neutral one (twelve examples):

English: if glia could **chatter**
French: si les cellules gliales **communiquent**
[if the glia cells **communicate**]
(Fields 2004a: 56; 2004e: 57)

This example typifies this kind of replacement very clearly. (The same thing happens in the German, Polish and Italian translation of the same example.)

f) Generalisation (three examples):

English: as animals move up the **evolutionary ladder**.
German: Je **höher** in der Evolution Tiere stehen
[The **higher** animals stand in evolution]
(Fields 2004a:61; 2004b:56)

This example, which has already been quoted at the beginning of Section Three, demonstrates how the original metaphorical expression is sometimes only retained in outline, with a detailed notion being substituted by a more general one. Within the data this procedure seems to be most widely used in the Russian translations.

The common theme across all these six different procedures that have been identified is quite clearly a loss of detail and/or specificity in the metaphorical expression. As already indicated, shifts in this direction are relatively widespread in the data.

2) With only fourteen examples, movement from non-rich image to rich image is less common by far than the type considered in Section i) above. These shifts involve two different specific types of rewording:

a) Use of a vivid, specific image (seven examples):

English: the newcomers **'captured'** a subset of the tRNAs
German: die Neulinge ... einige tRNAs und zugehörige Codons **»kidnappten«**
[the newcomers … **'kidnapped'** some tRNAs and the related codons]
(Freeland and Hurst 2004a:91; 2004d:93)

Here the translator in effect homes in on a particular kind of capture, and one with which readers will be familiar through numerous news reports, for example.

b) Explicitation (two examples):

> English: It seems there often is **a kind of reward from nature** if one dares enter new areas.
> German: Denn zum Glück gibt es nicht nur unerwartete Hindernisse, sondern auch **unerwartete Geschenke – als wollte die Natur den Vorstoß in Neuland belohnen**.
> [For luckily there are not only unexpected obstacles, but also **unexpected gifts – as if nature wanted to reward the push into new territory**.]
> (Vettiger and Binnig 2003a:48; 2003b:92)

In this instance the translation is characterised by a significant level of supplementary detail being added.

c) Shift from non-rich image to rich image in conjunction with a change of mapping (five examples):

> English: how exactly would glia be affected by what they **heard**?
> Russian:как влияют на работу глиальных клеток **«подслушанные»** ими нервные сообщения?
> [how do the neural communications that they **"overhear"** influence the work of glia cells?]
> (Fields 2004a:56; 2004f:25)

In this case, the increase in specificity is concomitant with a change of mapping from BRAIN CELLS ARE HUMANS to BRAIN CELLS ARE EAVESDROPPERS.

Not surprisingly, all three of these shifts entail the addition of detail and/or specificity to the metaphorical expression.

3) Thirdly, there are a number of observations that are worth making about precisely what can occur when a rich image is not 'reduced' to a non-rich image:

a) It is not always the case that one-word or otherwise 'simple' rich images are retained. However, in some instances this is indeed what happens:

> English: Two days later Schwann glia cells had formed **a bridge across the divide**.
> Italian: Due giorni dopo le cellule gliali di Schwann avevano formato **un ponte attraverso la recisione**.
> [Two days later the Schwann glia cells had formed **a bridge over the cut**.]
> (Fields 2004a: 61; 2004d: 55)

The key lexical item in this metaphorical expression, *bridge*, is also translated 'straight' in all the other four target languages, and this is a pattern that also occurs in a number of other examples. On the other hand,

in a number of cases simple rich images are not retained. In the following instances

> English: the brain's chemistry and **architecture**
> (Nestler and Malenka 2004a: 80)
>
> English: **rewire** cells to glow in the presence of a particular toxin
> (Gibbs 2004: 75)

the keyword in the original English expression — and sometimes the entire expression — is removed or omitted in every target language.

b) It is probably also worth pointing out that a rich image can be retained even when the wording is reduced:

> English: **Like a wave of cheering fans sweeping across a stadium**, the calcium waves spread throughout the entire population of astrocytes.
> French: telles des **olas moléculaires**, les vagues de calcium se propagent dans les astrocytes.
> [in the same way as the **molecular Mexican waves**, the waves of calcium spread in the astrocytes.]
> (Fields 2004a:60; 2004e:61)

In other words, a particular rich image is (obviously enough) largely independent of the precise wording in which it is expressed, which may vary considerably between the source and target language.

4) Finally, there are a number of points that can be made regarding non-rich images that are not shifted into rich images. For this, around 20-25 English examples and their translations were analysed.

a) A 'straight' translation approach can be seen in a large proportion of expressions:

> English: neuroscientists focused their work narrowly and left the **big picture** alone.
> Polish: badacze mózgu skoncentrowali się na wycinkowych zagadnieniach, tracąc zainteresowanie **ogólnym obrazem**.
> [researchers into the brain concentrated on partial problems and lost their interest in the **general picture**.]
> (Solms 2004a:84; 2004b:76)

In none of these examples is there a change of mapping. However, in some instances this is precisely what occurs, as illustrated below.

b) The second procedure also entails a relatively straight translation, but in this case with a change of mapping:

> English: biological approaches to mental illness gradually **overshadowed** psychoanalysis.
> German: biologische Erklärungen für psychische Krankheiten **verdrängten** die psychoanalytischen Ansätze

[biological explanations for mental illnesses **displaced** the psychoanalytical approaches]
Russian:биологический подход к изучению психических заболеваний мало-помалу начал **вытеснять** психоанализ.
[the biological approach to the study of mental illnesses gradually started to **force out** psychoanalysis.]
French: les approches biologiques de la maladie mentale **supplantèrent** peu à peu l'approche psychanalytique
[the biological approaches to mental illnesses **supplanted** little by little the psychoanalytical approach]
(Solms 2004a:84; 2004c:78; 2004d:56; 2004e:77)

Here the SURPASSING IS OVERSHADOWING of the English sentence gives way in the German to SURPASSING IS SUPPRESSING and in the Russian and French to SURPASSING IS FORCING OUT.

c) Thirdly, there is a strong tendency for expressions based on non-rich images to consist of no more than one or two words. However, there is no absolute link between richness and number of words, and occasionally the size of an expression increases in translation. This can happen, for example, when a source-language term is translated according to sense:

English: chemical **messenger** molecules
Italian: molecole chimiche **che trasportano un messaggio**
[chemical molecules **that transport a message**]
(Fields 2004a:55; 2004d:50)

While a straight translation would have been possible the translator here deemed it necessary to explicitate or explain what she considered to be a potentially obscure expression for the readers. In the process, however, the expression remains a non-rich image.

The second example is non-terminological:

English: oligodendrocyte glia cells **wrap around** axons in the central nervous system (brain and spinal cord).
Russian: а глиальные клетки другого типа (олигодендроциты) **образуют оболочки вокруг** аксонов в центральной нервной системе (т.е. в головном и спинном мозге).
[glia cells of the other type (oligodendrocytes) **form coverings around** the axons in the central nervous system (i.e. the brain and spinal cord).]
(Fields 2004a:56; 2004f:24)

Even though the Russian translator avoids the informality of the original, strict terminology is not employed. However, once again the expression in the target text remains a non-rich image.

These appear to be the main procedures involved in translating metaphorical expressions when seen from the point of view of whether they are rich or non-rich images. More procedures that entailed leaving non-rich

images as non-rich images would no doubt emerge if more data was analysed.

3.3. Metaphorical expressions that have been added in translation

It is worth noting that of the 22 metaphorical expressions that are added in translation, only five are rich images. The following is an example of this phenomenon:

> French: **La nature tire chacun de ses ouvrages à milliards d'exemplaires.**
> [**Nature prints each of its works in billions of copies.**]
> (Tegmark 2003:61)

While this is the only expression in the corpus associated with the mapping NATURE IS A PRINTER, it is in fact a quotation from the French writer Blanqui (1872:33) and so not perhaps as original as this fact would suggest. So not only are the added rich images few in number, but none of them is particularly bold or creative.

3.4. Cross-language tendencies

There is an interesting correlation that emerges in the case of examples in which this parameter undergoes a shift in more than one language: in almost all cases, the procedure used in the different languages coincides, as for example in the following:

> English: Ben Kater ... **defused** that suspicion.
> Russian: Бен Кейтер ... **опроверг** это предположение.
> [Ben Kater … **overturned** this supposition.]
> Italian: Ben Kater e i suoi colleghi ... hanno **fugato** il dubbio.
> [Ben Kater and his colleagues … **put** the doubt **to flight**.]
> (Fields 2004a: 57; 2004f: 27; 2004d: 52)

In this example, in both the Russian and the Italian – the only two target languages in which the rich image of the original is modified to a non-rich image – this shift, from rich image to non-rich image, is brought about by a change of mapping, from REFUTING IS DEFUSING to REFUTING IS OVERTURNING and REFUTING IS PUTTING TO FLIGHT respectively.

This tendency occurs in ten out of the twelve (English-language) examples in which there is a modification in two target languages, and in the single cases where one takes place in three and four languages. The motivation, however, is unclear. One can, perhaps, postulate that some feature of the source segment creates similar problems for the translators regardless of their target language. In this way, it can be argued that this data throws interesting light on the manner in which translators attempt to resolve the tension that exists between the requirements of the source text and the evolving shape of the target text.

3.5. Culturally embedded expressions

There appears, not surprisingly, to be a clear correlation between richness and the extent to which an expression is embedded in a particular culture. It is worth noting that bold source language rich image metaphorical expressions that appear to be embedded in the source culture are sometimes (but not always) retained:

> English: tiny cellular **butlers** … fetch the specified amino acids
> French: de minuscules **majordomes** cellulaires ... assemblent les acides aminés adéquats.
> [miniscule cellular **butlers** … assemble the appropriate amino acids]
> Italian: minuscoli **«maggiordomi»** cellulari ... vanno a cercare gli amminoacidi specificati
> [miniscule cellular **butlers** … go in search of the specified amino acids]
> (Freeland and Hurst 2004a: 86; 2004b: 61; 2004c: 90)

This expression is on the other hand omitted in German, removed in Russian and modified to 'couriers' in Polish, even though appropriate equivalents exist in all those languages.

In the 38 target-language examples examined, the most frequently selected procedure was clearly retention, with the fifteen examples either presented or listed above. After that, the other three procedures were selected with approximately equal frequency, metaphorical expressions being removed in seven examples, omitted in eight and modified in eight.

3.6. Conclusion

The data analysed in the study yields evidence of a total of nine different procedures. When a rich image is translated by a non-rich image, this could entail (in decreasing order of frequency) a change of mapping, a move from more to less vivid wording, partial deletion of the metaphorical expression, a move from greater to less experiential immediacy, a shift towards greater abstraction and an increase in the level of generalisation. In cases where a non-rich image is translated by a rich image, the only procedures identified in the data are a shift from less to more vivid forms of expression, a change of mapping (once again) and explicitation. Finally, in instances in which a non-rich image remains such it is simply possible to identify straight translation with or without a change of mapping as procedures. However, in this third category, and also in cases where rich images are rendered by rich images, the analysis has not up to now allowed us to identify many specific procedures.

In general terms, many of the procedures identified can be characterised as shifts along a number of different, though sometimes related, axes: vividness, experiential immediacy, abstraction, generality and explicitness. This listing does not claim to be exhaustive: in the case of vividness the data contains examples of moves in both directions, whereas for the others,

examples have only been found for shifts in one direction (e.g. there are instances of explicitation but not of implicitation). Not surprisingly, perhaps, given the status of mapping and richness as presumably independent metaphor parameters, changes of mapping are not uniquely associated with any of the four categories of richness shift that formed the basis for the discussion in Section 3.2 but appear to be ubiquitous.

What we can see overall is a far greater tendency to replace a rich image with a non-rich image in translation than *vice versa*, and in line with this, loss of specificity and vividness is more common than the opposite tendency. As stated in Section 3.1, this provides some evidence against Kloepfer's hypothesis that claims a direct link between the boldness of a metaphorical expression and the ease with which it can be translated into another language. The result of this is that (with the exception of German) rich images represent a slightly rarer group of metaphorical expressions in the target texts than in the English originals (an average proportion of 34:66 across all target languages as against 40:60 in the English data). The implications of this are perhaps not entirely clear at this stage.

Besides these concrete conclusions, it is also worth noting that including metaphorical expressions that have been added in translation is of vital importance if we are to build up a complete picture of metaphor in translation. This insight of course has implications that reach far beyond research into metaphor in translation: clearly, all text-based descriptive translation studies research could arguably benefit from implementing this extra procedure. In terms of the multilingual nature of the data, it seems that in instances where richness shifts occur in more than one target language, the nature of all the shifts has a strong tendency to coincide, although once again the exact implications of this are unclear.

Bibliography

- **Al-Harrasi, Abdulla** (2001). *Metaphor in (Arabic-into-English) Translation with Specific Reference to Metaphorical Concepts and Expressions in Political Discourse*. PhD thesis. Aston University.

- **Blanqui, Louis Auguste** (1872). *L'Éternité par les astres*. http://classiques.uqac.ca/classiques/blanqui_louis_auguste/eternite_par_les_astres/Blanqui_eternite_astres.pdf (consulted 22.10.11).

- **Dobrovol'skij, Dmitrij and Elisabeth Piirainen** (2005). *Figurative Language: Cross-Cultural and Cross-Linguistic Perspectives*. Oxford: Elsevier.

- **Fields, R. Douglas** (2004a). "The Other Half of the Brain." *Scientific American* 290(4), 54-61.

- **Fields, R. Douglas** (2004b). "Die unbekannte Seite des Gehirns." *Spektrum der Wissenschaft* September 2004, 46-56.

- **Fields, R. Douglas** (2004c). "Niedoceniane komórki mózgu." *Świat nauki* May 2004, 26-34.
- **Fields, R. Douglas** (2004d). "L'altra metà del cervello." *Le Scienze* 430 June 2004, 48-56.
- **Fields, R. Douglas** (2004e). "La moitié oubliée du cerveau." *Pour la Science* 323 September 2004, 56-61.
- **Fields, R. Douglas** (2004f). "Другая часть мозга." *В мире науки* July 2004, 22-31.
- **Freeland, Stephen J. and Laurence D. Hurst** (2004a). "Evolution Encoded." *Scientific American* 290(4), 84-91.
- **Freeland, Stephen J. and Laurence D. Hurst** (2004b). "Le code de l'évolution." *Pour la Science* 319 May 2004, 60-65.
- **Freeland, Stephen J. and Laurence D. Hurst** (2004c). "Il codice dell'evoluzione." *Le Scienze* 429 May 2004, 88-95.
- **Freeland, Stephen J. and Laurence D. Hurst** (2004d). "Der raffinierte Code des Lebens." *Spektrum der Wissenschaft* July 2004, 86-93.
- **Gibbs, W. Wayt** (2004). "Synthetic Life." *Scientific American* 290(5), 74-81.
- **Johnson, Mark** (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason*. Chicago and London: University of Chicago Press.
- **Kimmel, Michael** (2002). *Metaphor, Imagery, and Culture. Spatialized Ontologies, Mental Tools, and Multimedia in the Making*. PhD thesis. University of Vienna. http://sammelpunkt.philo.at:8080/6/1/zentralpdf.PDF (consulted 28.12.08).
- **Kloepfer, Rolf** (1967). *Die Theorie der literarischen Übersetzung. Romanisch-deutscher Sprachbereich*. Munich: W. Fink (Freiburger Schriften zur Romanischen Philologie 12).
- **Lakoff, George** (1987). *Women, Fire and Dangerous Things: What Categories Reveal about the Mind*. Chicago and London: University of Chicago Press.
- **Nestler, Eric J. and Robert C. Malenka** (2004a). "The Addicted Brain." *Scientific American* 290(3), 78-85.
- **Nestler, Eric J. and Robert C. Malenka** (2004b). "Мозг наркомана." *В мире науки* June 2004, 50-57
- **Snell-Hornby, Mary** (1995). *Translation Studies: An Integrated Approach. Second Edition*. Amsterdam and Philadelphia: John Benjamins Publishing Company (first published 1988).
- **Solms, Mark** (2004a). "Freud Returns." *Scientific American* 290(5), 28-34.
- **Solms, Mark** (2004b). "Freud wiecznie żywy." *Świat nauki* June 2004, 74-81.
- **Solms, Mark** (2004c). "Freuds Wiederkehr." *Spektrum der Wissenschaft* October 2004, 76-83.
- **Solms, Mark** (2004d). "Фрейд возвращается." *В мире науки* August 2004, 54-61.

- **Solms, Mark** (2004e). "Psychanalyse et neurosciences." *Pour la Science* 324 October 2004, 76-81.
- **Tegmark, Max** (2003). "De l'Univers au multivers." *Pour la Science* 308 June 2003, 60-66.
- **Turner, Mark** (1991). *Reading Minds: The Study of English in the Age of Cognitive Science*. Princeton, N.J. and Oxford: Princeton University Press.
- **Vettiger, Peter and Gerd Binnig** (2003a). "The Nanodrive Project." *Scientific American* 288(1), 46-53.
- **Vettiger, Peter and Gerd Binnig** (2003b). "Unterwegs zum Nanolaufwerk." *Spektrum der Wissenschaft* May 2003, 90-97.

Biography

From November 2000 until September 2013 Mark Shuttleworth was based at Imperial College London where his main brief was to run the MSc in Scientific, Technical and Medical Translation with Translation Technology. In October 2013 he moved to University College London where he continues to research, teach and supervise PhD students on a wide range of different translation-related topics within the School of European Languages, Culture and Society. His publications include the *Dictionary of Translation Studies*, which appeared in 1997 and which was translated into Chinese in 2005, and works on metaphor in translation, translation technology, translator training and medical translation.