VERB FORMS AND STYLE IN MEDICAL TRANSLATION

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A study carried out at the University of Córdoba showed that most of the participating research scientists had abandoned using translation as a route to publication and had opted to write directly in English.[1] The reason stated was: «The likelihood of a translator being completely fluent in the two languages and also having appropriate scientific knowledge and sensitivity is small». Apart from this damning statement about translators of scientific texts in Córdoba, the article contained other stimulating information. Researchers found Spanish lacking as a scientific language; it is «less precise, longer, and more variable in structure». However, the author confirmed that scientific articles written in Spanish followed the same basic structure and principles as those written in English. The problems she identified tended to be localized: restructuring of sentences, changes in word order and word choice.

From another point of view, whether a text is translated in its entirety, or partly written in English and partly translated by the researcher, its acceptability will depend on its being in the correct register and being natural. Naturalness, according to Newmark,[2] is largely dependent on the principle of frequency. In a background study, I compared the frequency of verb use in the two selected translations[3] with three of the references cited in each.

The study brought some interesting facts to light. It showed that the research reports were highly specific in terms of verb use. In an average-length text, most verbs occurred once and few were used four or more times. Two-syllable verbs represented 50% of verbs, with monosyllabic and multisyllabic verbs both at 25%. 53 (n=406) verbs were common to two, three or four texts within one re-

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[1] M. J. St. John: «Writing processes of Spanish scientists publishing in English», in *English for Specific Purposes, 6,* 1987, 113-120.

[2] Peter Newmark: «A layman's view of medical translation», in *British Medical Journal, 2,* 1979, 1405-1407.

[3] M. Carbajo, R. Ondiviela, F. Garijo, F. Val-Bernal, L. Buelta & C. Blanco: «Peritumoral invasion of the pulmonary vessels in the prognosis of lung cancer», in *Diagnostic Oncology,* 1, 1991, 330-333.

A. Güezmes, F. Fernández, F. Garijo, & F. Val-Bernal: «Glomerular morphometry of adriamycin-induced focal and segmental glomerulosclerosis in the rat», in *American Journal of Nephrology, 12,* 1992, 437-441.

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search type, but did not meet the fre quency criteria in the other type, and only 27 were important in both series. Moreover, the translations were found to conform to the standard both for choice of lexical verbs and for voice, tense and verb forms.

My interest in the study reported here was to see how far the original Spanish texts had influenced the final result, and to determine what adjustments and changes had been required. I classified the verbs into the following categories:

a) full cognates, all instances of a given verb were translated by the cognate form in English;

b) partial cognates, only some instances were translated by the cognate form;

c) full equivalent, all instances of a given verb were translated by what would normally be accepted as the equivalent translation (e.g. *dar*, «give»);

d) partial equivalent, some instances were translated by such an equivalent form but others were not;

e) false cognates, other solutions were sought where use of the cognate would have produced an incorrect or an unnatural translation;

f) choices, other cases where no one-to-one translation was used.

Table 1 gives the number of occurrences in each of the categories for the two texts, together with combined totals expressed in real numbers and as a percentage of the total sample (n=357).

60% of the total occurrences of finite and non-finite verbs in the source language texts were translated by literal one-to-one translations. These can be divided: 44% went into English in the same form, tense and voice; 16% required grammatical adjustment: finite to non-finite forms and vice versa; active-passive transpositions; or tense change.

40% were other solutions. 10% were false or misleading cognates, 10% were alternatives to straight translations, and 20% were free choices in the interest of naturalness and acceptability.

This more than confirms Newmark's statement that «there are perhaps as many true friends as there are *faux amis*» (1979) - at least for verb use.

1. ONE-TO-ONE TRANSLATIONS: GRAMMATICAL CHANGES

Tense changes were minimal in the straight translations. They were mostly adjustments on what Malcolm[4] called the two axes of orientation: the referential axis, referring to the performance of the experiment (past tense); and the deictic axis, referring to the report itself, and the act of writing and reading (present tense).

1. *Cuando* se realizaron *las curvas de supervivencia con los pacientes N0 y cualquier estadio T,* se obtiene *una sobrevida del 68,75% para los tumores N0 con PL negativa...*	When the survival curves *were drawn* for N0 patients and any T stage, a 68.75% survival rate *was obtained* for PLI-negative N0 tumors...

[4] L. Malcolm: «What rules govern tense usage in scientific articles?», in *English for Specific Purposes, 6,* 1987, 31-43.

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In English both verbs are on the referential axis and greater coherence is achieved.

Similarly, there were few changes in voice if one considers the *se* reflexive form to be passive. In the next example, the switch to the first person active form avoids displacement of the verb in the sentence:

2. Se presenta *una serie de 82 pacientes...*	*We present* a series of 82 patients...

The most important grammatical changes affecting one-to-one translations were from finite to non-finite forms and vice versa. These changes are governed by certain general characteristics of Spanish and English. Spanish uses the reflexive passive in preference to the true passive, and prefers subordination whereas English uses the passive or inanimate subjects with active verbs, and prefers coordination and chronological order, especially in the Methods section. Spanish main clauses with inanimate or impersonal subjects seem to allow the use of infinitives and gerunds with an implicit agent, but English does not; full finite clauses are required to avoid «hanging» particles (infinitives and -ing participles).

3. Al realizar *el análisis multivariante, la primera variable que seleccionó el modelo fue el estadio N...*	*When the multivariate analysis was performed*, the first variable selected by the model was N status...
4. Comparando *la evolución de estos parámetros con la del área del penacho capilar glomerular parece que...*	*When the evolution of these two parameters is compared* with that of glomerular capillary tuft area, it seems that...

Infinitives expressing «finality» and explanatory gerunds were often translated by coordinated finite verbs:

5. *La significación de la PL disminuyó* hasta desaparecer *a favor del estadio N.*	The significance of PLI decreased *and disappeared* in favor of N classification.
6. *El área del penacho capilar glomerular fue mayor...* alcanzando *su valor máximo...*	Glomerular capillary tuft area was greater... *and reached* its maximum value...

Another difference is that Spanish non-finite adjectival forms are marked for gender and number, and antecedents can, therefore, be readily identified.

7. *La adriamicina... induce un síndrome nefrótico en la rata* caracterizado, *al principio, por lesiones glomerulares mínimas... que no responde al tratamiento con esteroides y que posteriormente evoluciona a una glomeruloesclerosis focal y segmentaria.*	Adriamycin... induces a nephrotic syndrome in the rat *which is characterized* initially by minimal glomerular lesions... *does not respond* to treatment with steroids and later *develops* into focal and segmental glomerulosclerosis.

The full relative disambiguates, at least in part, the referent for «characterized» -marked in Spanish by the masculine ending. The sequence of three verbs completes the job.

In contrast, Spanish relative clauses with active verbs can become English *-ing* forms. These changes avoid the deadening effect of too much «that» and «which».

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8. *Bettelheim et al... pudieron comprobar peor pronóstico en los* tumores que presentaron *émbolos tumorales en dichas estructuras capilares...*

Bettelheim et al... found a poorer prognosis in those *tumors presenting* with tumor cell emboli in these vascular structures...

2. PRE- OR POST-MODIFIER

An important rhetorical and stylistic device is the use of past participles in what I have called «identification labels». They give clarity to the text in comparative studies of some complexity. In Güezmes, *tratado* occurred 11 times, always placed after the noun it qualified. In English the position of the participle can vary. In the Abstract, *tratados con adriamicina* occurred three times. In English «treated» occurred four times (one was added for clarity) in the following sequence.

9a ...when the *groups treated with Adriamycin* were compared with controls.
9b ...significantly greater in *Adriamycin-treated groups* than in controls.
9c ...the mesangial area of *treated animals*... in comparison with controls.
9d ...lower in *treated animals* than in controls.

The sequence goes from long to short: postmodifier, premodifier with the drug and then simply the participle. In other sections, where additional information was added, a postmodifier was required:

10. ...in rats *treated* with Adriamycin and resection of renal mass...

In all cases, the rule should be «as long as necessary and as short as possible».

Establecer (used 8 times) was a «theme» word in Carbajo and was translated straight. English also had an additional gerund transposed from *establecimiento*. Although three contexts lent themselves to the use of other verbs such as «identify» (groups of patients) or «detect» (the presence of tumor cells), all instances of *establecer* became «establish», providing the reader with an important communicative clue.

Thematic use contrasts with more general use where stylistic variants are sought. *Considerar* was a partial cognate of high frequency (7 times in Carbajo) and went straight to «consider» five times, became «admit» once, and was eliminated once as two verbs *estudiar* and *considerar* were fused into «study». However, a compensatory effect was seen in two gains from *controlar* and *valorar*. In the first case, use of *control* would have required additional context to avoid a hanging particle or ambiguity:

11a *Dicho mal pronóstico se mantuvo* controlando *los efectos de otros factores pronósticos importantes...*

This poor prognosis was maintained when the effects of other important prognostic factors... *were considered.*

The agent of *controlando* could have been added:

11b This poor prognosis was maintained *when evaluated in multivariate models controlling for* the effects of other important prognostic factors...

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The second gain was due to sentence structure:

12. *En el cáncer de mama* se ha valorado *la infiltración de los capilares linfáticos como factor pronóstico importante...*	In cancer of the breast, infiltration of the lymphatic vessels *has been considered* an important factor...

The usual translations of *valorar* («assess» or «evaluate») do not fit the verb pattern. Since *considerar* occurred twice in the following 7 lines, a variant was found for one instance:

13. ...*si bien* consideraron *la posibilidad de error y...*	...although they *admitted* the possibility of error and...

The verb collocates naturally with «possibility of error».

3. FALSE COGNATES

There were 16 misleading cognates (36 occurrences). Only two occurred in both translations (*realizar* and *disminuir*) and only 5 were used more than once (*realizar* 11, *aumentar* 6, *utilizar* 3, *valorar* 3, *disminuir* 2).

Aumentar was translated by «increase» both as a finite and non-finite verb. In context, an intransitive verb was required for all the finite forms. The cognate «augment» is mainly transitive. «Increase» was a significant verb in the frequency study. *Ascender* was translated by «rise», and described a trend visible in a graph. «Ascend» is rare but occurred in «ascending grades of alcohol». *Disminuir* was intransitive and was translated by «decrease»; «diminish», like «augment», is basically a transitive verb. Curiously, the background study showed a higher frequency for increase than for all verbs representing «decrease»: in medicine more things go up than come down.

Comunicar was translated by «report», which is common in citing other research. *Conducir* went to «lead», which was on a par with «result in» to express cause-effect relations in the frequency study. *Encontrar* went to «find», one of the most general and most frequent verbs. *Extirpar* was translated by «remove», which collocates with whole structures like kidneys. *Incluir* in the specialized sense became «embed» –curiously not included even in some specialized dictionaries. *Intervenir* was translated by «play a role», a stock phrase in medical literature. *Localizar* covers both «localize» and, as here, «locate», but was recast in a prepositional phrase: «in the lumen».

Objetivar was translated by the much commoner «observe»:

14. *La permeación tumoral de los capilares linfáticos pulmonares* se objetivó *en el 79,3% de los pacientes...*	Permeation of the pulmonary lymphatic vessels by tumor *was observed* in 79.3% of the patients...

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Equivalent frequency was not the key to naturalness here. The Spanish verb is as rare as «objectify» but «observe» seemed the most acceptable choice in the context.

Obligar was recast as «must» (just as *permitir* is often best expressed by «can»):

15. *...el mecanismo de extensión tumoral a las adenopatías* pasa por *una fase* obligada *de invasión de capilares linfáticos.*	...the mechanism of tumor extension to the lymph nodes *must go through* a phase of lymphatic vessel invasion.

Realizar is one of those general verbs, more frequent in Spanish than in English, that make the language imprecise. One instance was recast in the active:

16. *En el presente trabajo* se ha realizado *un estudio...*	The present paper *presents* a morphometric study...

Repetition of «present» was unfortunate but use of active verbs with inanimate subjects is normal in scientific articles;[5] «describe» would have solved the problem.

The collocations usually indicate which verb is best to use and the English is usually more specific. Thus, «curves» were «drawn»; «samples» were «prepared»;

17. *Con todas las variables* se realizó *también el análisis de regresión múltiple de Cox.*	The Cox multiple-regression analysis *was also applied* to all variables.

This sentence occurred at the head of a paragraph and repeated a sentence pattern used two paragraphs earlier. The focus of the Spanish could have been maintained with either «submit to» or «subject to» analysis, but I preferred the parallel structure. «Perform» was used four times and «carry out» once. In fact, «perform», in combination with computer software, occurred twice in the paragraphs with «apply». «Carry out» was used with «study». Despite the criticism of stylists and their insistence on «do» or «make», the background study showed that «perform» and «carry out» are commoner; «make» was used in specific collocations while lexical «do» only occurred as a weak past participle.

For *sumergir*, I used «dip» but «immerse» would have been a better choice because of the length of time involved, though this was not stated in the text.

Utilizar was translated by «use» and once by a preposition. «Use», but not «utilize», was a significant verb in the background study.

18. *El estudio fue realizado* utilizando *21 ratas Wistar...*	The study was performed *on* 21... Wistar rats...
19. *...un analizador de imágenes... que* utiliza *la versión 5.41...*	...an image analyzer *using* the 5.41 version...

Valorar was translated by «assess» twice, and «consider» (as seen in example 12).

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[5] P. Master: «Active verbs with inanimate subjects in scientific prose», in *English for Specific Purposes*, 10, 1991, 15-33.

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20. *El objetivo de este estudio es* valorar *la influencia de...*	The aim of this paper is to *assess* the influence of...

«Assess» plus a general abstract noun often introduces the aim of the research.

4. OTHER SOLUTIONS

Some Spanish verb forms, particularly non-finites, were expressed by other means in English including adjectives, adverbs, prepositions, determiners and nouns.

Adjectives: *el riñón* restante, «the *remnant* kidney» (a term); *parámetro* aislado, «*individual* parameter» (parameters are taken individually or singly).

Adverbs:

21. *...para* volver a *disminuir...*	...and *then* decreased...
22. *...la diferencia* sigue siendo *significativa...*	...the difference *is still* significant...

Prepositions:

pacientes afectos de *cáncer de pulmón;*	patients *with* lung cancer;
con el fin de conseguir *una selección adecuada;*	*for* adequate selection;
aplicándose *el test* t *de Student;*	*by means of* Student's *t* test.

Determiners: The deictic function of *decir* requires other devices in English. Four of the five past participles became demonstratives «this» and «these» and one became «no» in a negative context. The other use of the verb —*Es decir*— was translated by «In other words» as a sentence link and by «that is». «Say» was not found in the background study.

Nouns: factor *discriminante*, a «discriminant»; *estudiando*, in their «study» of;

23. *...cuando las adenopatías no estaban* infiltradas...	...when there was no lymph node *involvement...*

In addition, some weak past participles, e. g. obtenido, estudiado, cuantificado, add little to the text and can safely be eliminated, sometimes being replaced by transposition:

24. *...ratas ...de un* peso comprendido *entre 185 y 210 g.*	...rats *weighing* between 185 and 210 g.

All are standard translation procedures. They are mostly governed by the rule of economy. Some structural changes avoid hanging particles. Some elements form part of the terminology. The objective is always clarity and a more natural expression.

The most interesting cases are those where there are various options. The stylists recommend short rather than long verbs. However, structure, proximity to the same verb (either to avoid repetition or to repeat it for emphasis), whether the verb is a main verb or a non-finite form –all these factors can influence choice.

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Spanish *aportar* has no direct one-to-one translation and was translated by «provide», «contribute» and «afford». When only the direct object was present, «provide» was the choice: «*provide* prognostic information». If the indirect object was mentioned «contribute» was preferred: «the factors *contributing* information to the model appear in descending order of importance». The third example involved a comparison:

25. *La información pronóstica de dicha invasión era similar a la* aportada *por la afectación de la adenopatías axilares.*	The prognostic information *provided* by this invasion was similar to that *afforded* by axillary lymph node involvement.

Use of «provided» in the first half of the comparison required a variant in the second.

However, brevity is the main factor. I used monosyllables for some verbs: *comprobar*, «bear out» (c.f. verify, corroborate, substantiate); *dirigir*, «aim» (c.f. direct); *dividir*, «split» (c.f. divide); *determinar*, «find» (c.f. determine); *parecer*, «seem» (5 times, c.f. appear once); *resultar*, «stem» (c.f. result). Nevertheless, I could not bring myself to use «kill» for *sacrificar* or «tie» for *ligar*, as authors on style have recommended: «I know there are professors in this country who *ligate* arteries». Other surgeons only tie them, and it stops the bleeding just as well (Oliver Wendell Holmes, Sr., quoted in Day).[6] In introductory or explanatory clauses, short verbs can be used instead of cognates:

26. *...como se puede* observar;	... as can be *seen*;
27. *...siendo* considerada *como significativa* $p \leq 0,05$.	... *with* $p \leq 0.05$ *being* taken *as significant*.

Verbs like *constituir*, *representar*, particularly when found with other verbs like «seem» and «appear», are best shortened to the verb «be». Spanish *existir* is almost always rendered by impersonal «there + be». Empty verbs plus a noun often become a single verb: *guardar relación con*, «relate to»; *comprobar el peso*, «weigh»; *dar lugar a*, «cause».

Spanish avoids the passive with dummy verbs such as *quedar*, *resultar*, *encontrarse* plus past participle. These are shortened in English:

28. *Con estas condiciones la serie* quedó reducida *a 82 pacientes.*	With these criteria the series *was reduced* to a total of 82 patients.

Spanish reflexive verbs for which a one-to-one translation requires a reflexive in English or an additional passive are usually translated by an active: *producirse*, «occur»; *mantenerse*, «remain»; *tratarse*, «involve». This last example from Güezmes would not have been chosen in Carbajo because it could clash with the thematic verb:

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[6] R. A. Day: *How to write and publish a scientific paper*, Phoenix AZ, Oryx Press, 1988.

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29. ...*número de adenopatías axilares* afectas; ...number of lymph nodes *involved*;

However, a parallel structure in Güezmes was translated by the cognate:

30. ...*número de glomérulos* afectos; ...number of *affected* glomeruli;

Frequency was seen to influence certain groups of verbs. For example, «assess», «evaluate» and «determine» overlap in meaning and usage, but «assess» (which has no cognate form in Spanish) has a more general meaning and a higher frequency overall than the other two. In Güezmes, therefore, one instance of *evaluar* went to «assess», and one of two instances of *determinar* became «evaluate». Through this kind of compensation, all three verbs were represented in appropriate contexts.

The background study indicated that «show» is, after «be», the most frequent and general verb; it was used 66 times and was found in all eight texts. The Spanish verb usually translated by «show» is *mostrar*, but this verb did not occur in Carbajo. However, just as some verb forms are lost, others are created in translation. The final count in the English text was five: three were created in recast sentences, one came from *detectar* («detect» is a low frequency verb) and one from *tener* («have» often competes with both «be» and «show»). In the final assessment, frequency is a textual concept. When the pundits suggest that «exhibit», «reveal» and «demonstrate» can, or should, be replaced by «show», it does not mean that these verbs will never appear in a research report, but that they should perhaps never outnumber «show».

Some of the more generally used verbs gain in frequency because of their structural flexibility. «Find», «see», «show», «know», «consider» –all can take an infinitive after a passive verb. This allows an inanimate subject or «patients» to occupy the subject position and avoids the ambiguity of sentences beginning with impersonal «it»:

31. Se comprobó *PL positiva el 79,3% de los casos y PL negativa el 20,7%.* 79.3 and 20.7% of the patients *were found to be* PLI positive and PLI negative, respectively.

Brevity, clarity, structural flexibility, avoidance of repetition, deliberate use of repetition, fulfilment of expectations in terms of frequency and lexical choice can all help to achieve naturalness. On the other hand, in highly specific contexts, cognates and accepted equivalents will often prove the right choice. While I cannot offer translators much help in the acquisition of «the appropriate scientific knowledge and sensitivity», I hope this contribution will perhaps make them more aware of some of the textual and stylistic qualities required by scientific reporting.

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TABLE 1

Number of instances of literal and other translations in the two texts, together with combined totals expressed in real numbers and as a percentage of the total sample.

	Literal translation				Other translation			
	Carbajo	Güezmes	Total	%	Carbajo	Güezmes	Total	%
Full Cognate	49	65	114	32	-	-	-	-
Partial Cognate	12	16	28	8	7	16	23	6
Full Equivalent	9	7	16	4	-	-	-	-
Partial equivalent	28	28	56	16	7	7	14	4
False Cognate	-	-	-	-	19	17	36	10
Choise	-	-	-	-	40	30	70	20
Totals	98	116	214	60	73	70	143	40

Total number of occurrences = 357

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ASPECTOS DE LINGÜÍSTICA ESPAÑOLA APLICADA A LA TRADUCCIÓN

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