Making Sense of Complex Computer Language in Text Revision and Teaching English for Scientific Purposes[1]

David Shea
University of Las Palmas de Gran Canaria

The job of enhancing the English quality in technical publications involving complex computer language would seem to be the province of engineers. More general, less scientifically oriented linguists can play a useful role in revision and teaching of English if there is open communication between the scientists and philologists involved. Here a number of observations are presented concerning the development of this communication.

1. Introduction

A devoutly (un)orthodox Reformed Jewish colleague wrote to say he had taken on a seemingly impossible task: explaining the current Middle East conflict to a group of pre-teen Quakers at their Sunday discussion group after Meeting.

«I enjoy trying to boil down complex concepts into words and concepts that they can wrap their minds around,» he wrote. «Someone said that if you can't explain something in such a way that a child could understand it, you probably don't really understand it yourself.»

My friend is a scholar and teacher in the finest rabbinical tradition (though he holds no formal titles). His words about communication across cultures echoes in the the observations offered below relating to the joint research project described in this paper involving highly specialized computer scientists and general linguists. We also offer a few observations about language sensitivity in the context of English as a world language.

2. Across the lines

After 10 years translating and editing medical documentation, I

began in July 2002 to work with computer language in collaboration with the Applied Microelectronics Research Institute (IUMA) and specifically with the Ada Compiler project.

Although I possess no special insights nor any technical grounding in computer science apart from 25 years typing away on a word processor, I took on this project at the behest of ULPGC colleague, Javier Miranda, who lectures in telecommunications and does research for the IUMA. In essence, my task was to enhance the English quality of his technical publications and also, to help Dr. Miranda to improve his written and spoken expression in English. As with many medical professionals, his command of technical English and ability to discuss his work seemed sound. However, he perceives a need to attain a wider breadth of the language, to be handle more general situations.

3. Getting to grips with Ada

In basic terms, Ada is the programming language, designed and standardized to support and foster widely accepted software engineering principles of «reliability, portability, modularity, reusability, programming as a human activity, efficiency, maintainability, information hiding and abstract data types.» For non-engineers, it is important to recognize that Ada is not a superset or extension of any other language and that there are set conventions within the language that must be maintained so that the texts read well. Once these set terms are learned, the language becomes open to non-specialized linguists.

Given the nature of Ada use (in applications ranging from banking, medical devices, telecommunications, air traffic control, airplanes, railroad signaling, satellites and rockets to washing machines and vacuum cleaners), it does not permit the dangerous practices or effects of old languages, although it does provide standardized

mechanisms to interface with other languages such as Fortran (more commonly used by mathematicians), Cobol, and C. Ada is generally recognized as an excellent vehicle for education in programming and software engineering, including for a first programming course. Interdisciplinary cooperation between our translation faculty and other departments, with the emphasis on basic skills in the language promoting the general text level.

Thus this is work for specialized engineers, but more general linguists may serve a useful purpose in the edition of such manuals if there is an open atmosphere of give and take between specialized scientists and more general applied linguists. One of the major problems is not any lack of computer insights but rather the fixed ideas many engineering colleagues hold as to what is acceptable technical language to describe the very complex procedures being described. All these colleagues are non-native English speakers but their command of the language is sound. The disparity between spoken and written skills can create some significant challenges which must be addressed for the project to be carried out successfully. The first obstacle is defining the type of English that is being sought and the challenges of designing our coursework accordingly. As Dr. Miranda has a solid command of English on a reading and listening level, the more active productive skills of writing and speaking need to be fostered.

Also the English that we are working with is clearly an international standardized form which will be acceptable for both French and US academics for fluid communication purposes. I limit my observations to these two countries because they are the ones with which Dr. Miranda is currently working on a daily basis. Clearly what is normal English discourse to a native English speaker needs to be altered in a world language context.

4. Loaded international language

Many academics cringe at the notion of English as a world language which smacks of imperialism and hegemonic destruction of peripheral languages. Nowhere is this fact more evident than in the use of some form of English as a *lingua franca* in Internet communication, particularly in rapid correspondence. Some authors suggest that the «hidden agenda» plays more of a part in this communication than we would like to admit.

As translation theorist Allison Beeby (1998) has written, «new technologies, such as the Internet, are 'redesigning' English and Spanish, creating new genres, new texts and new identities.» As Beeby acknowledges, it is dangerous to attempt to predict the effects of globalisation on language use and some stereotypes still function. «Knowing the 'norms' will help students to produce 'pragmatic' English text that will be acceptable in the US and the UK»(Ibid).

Beeby describes such a collaboration with an Eastern European colleague comparing different documentation sources for translating Spanish business letters into English for countries from the former Soviet Union. Both Beeby and her colleague, Inna Koslova, evaluated students' letters on a very different basis as the author notes, «I was giving priority to the norms of the 'English' business letter (brevity, clarity and clear reference), but the translation task Inna had designed was part of a business negotiation in English with a non-English culture (Kazachstan) where politeness was more important than brevity, clarity and clear reference — if communication was to be maintained (Koslova 2002).

From her experience, Beeby concludes that Spanish translators working into English as an international language «should be aware that in some cases, non-English pragmatic strategies should be used to avoid breakdowns in negotiation. Countries that are obliged to use English as an international language for foreign trade may not have

standardised business genres and the translator may have to adapt these genres, creating 'hybrid' genres that combine the norms of the English language with local pragmatic strategies» (Ibid).

In a similar sense, there is a hidden agenda in the work with computer engineers who have been working with English as a lingua franca for many years. For example, their perceived to come up expert systems to improve their texts may present a pitfall for teachers of English for Specific Purposes. Language acquisition and linguistic development does not lend itself easily to the creation of such expert systems which may improve texts for publication but not advance the author's command. Thus Dr. Miranda's ability to program a customized style checker within the LINUX programming for word processing is superior to any Microsoft grammar or spelling revision but it does not negate the need for understanding the revisions being made on a deeper level.

5. Some preliminary observations

In the following tables, we have some of the first corrections and suggestions provided to Dr. Miranda and his research team. The list is by no means conclusive but has already been incorporated into the project design in an effort to create expert systems for the revision of future chapters. To enhance both this work and future publications by the author, I have tried to organize the corrections in categories, which will make it easier for study. For example, figure 1 covers misuse of the article:

1. to the people interested in it	any interested people
2. all the tasks	all tasks
3. most of the researchers	most researchers
4. for a year	for one year

Table 1: the use of the definite and indefinite article, with the suggestions in the right column.

The use of the definite and indefinite article may cause problems not only on in grammatical terms but also in matters of style. Number 3 is not wrong but the suggestion is obviously more concise and, particularly in longer texts, preferable. These examples do not present any problems in terms of technical English. The following table presents those expressions which need to be considered within the context of this specific discipline.

1	actions done by	actions performed by (carried out by)
2	automatically modify :	automatic modification of
3	bytes stream	byte stream
4	cleanly	clearly
5	close equivalent to	closely equivalent to
6	dynamically add or replace	dynamic addition and replacement of
7	feel quite comfortable	feel familiar with, feel well-versed with
8	gives	provides
9	priority of the activator	activator priority
10	right access to	direct access to

Table 2: potentially challenging expressions, with the suggestions provided in the right column.

Many of these suggestions are related to the style of the journals in which the manuscripts will be considered but the editor or translator would need to understand, on at least a superficial level, what terms such as bytes, activator and access.

6. Conclusions: Learning from our students

Through the recent collaboration work with Dr. Miranda and the IUMA, we have begun to explore a new area of technical writing, useful both for language for specific purposes and inverse technical translation teaching (Spanish to English, in this case). Future comparative studies between medical and computer-related writing could be of interest although such work would need to be limited in scope.

Although I have expressed some reservations about the development of expert systems as part of the language development process, such systems are extremely useful for drawing conclusions about style. Thus Dr. Miranda has generously shared several years of correspondence which he has maintained with editorial board representatives from journals in his field. These include many important corrections and suggestions that tell us much about the style that these journals endeavor to maintain. The final table below provides an important illustration:

in this fashion	Thus
I thank :	I would like to thank ...
request your help	welcome your help
to facilitate the understanding of	to better understand
we named	we have given the name
when it is analyzing	when analyzing
when needed	when necessary

Table 3: suggested expressions provided by various editorial boards of specialized computer journals, with their suggestions provided in the right column (used with the permission of Dr. Javier Miranda).

We need to be open as instructors and language researchers to different disciplines which may challenge our notions of what is good or appropriate technical English for specific purposes. The shift from medical translation work to computer has proved refreshing. Each field requires considerable time and specialization, so as in Tolstoy's fable, we may have to choose the path of the hedgehog, the generalist who knew much about one area, to the fox who knew a little about many things.

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