[*Translating and the computer 13: The Theory and Practice of Machine Translation – A Marriage of Convenience?*
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SOFTWARE LOCALISATION: A CASE HISTORY

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Lotus Development

COMPANY BACKGROUND

US

Founded in 1983 in Cambridge, MA. Initial product Lotus 1-2-3 spreadsheet. Now have a suite of products in addition to 1-2-3: Freelance, Ami Pro, Notes, Symphony, Agenda, Magellan, cc:Mail.

Ireland

Manufacturing facility founded in Dublin in 1985, currently shipping 1,000,000 plus units per year in 17 languages to customers in 65 countries.

Product Development founded in 1987, currently responsible for the localisation of Lotus products in up to 17 languages. In 1991, we will localise 29 products into a total of 150 variants.

LOCALISATION OBJECTIVES

It is our mission "to be the industry leader in providing the best products and services which meet the needs of the customer in the international marketplace."

This in effect means translating Lotus products (software and documentation) to a high linguistic standard and shipping these as closely as possible to the US First Customer Shipment (FCS) date. For major products and languages, for example, 1-2-3 for Windows in French and German, this means the same time. This year, 1-2-3 for Windows (code-named Rockport) shipped in English (in the United States and worldwide) and in French and German all in the week of September 3rd.

This paper will explore these objectives of shipping high quality language products with a reduced time to market using the case history of Rockport localisation to illustrate the points.

Rockport - the Product

1-2-3 for Windows represents 1-2-3 Release 3.1 functionality but designed for Microsoft Windows 3.0. It features pull-down menus, dialogue boxes, SmartIcons, a WYSIWYG Graphical User Interface (GUI), Adobe Type Manager, Presentation-Quality printing, Equation Solver, Relational Database, etc, and complete compatibility with previous versions of 1-2-3 by virtue of the Classic '/-key' activated command menu as an alternative to the GUI menu.

The Plan

Development work on Rockport started in Cambridge in late 1990. At that time, we established an objective to ship the French and German versions at the same time as the US product followed by Swedish, Spanish, Italian, Dutch, Danish, Norwegian, Portuguese and Finnish within three months of that dale.

1-2-3 for Windows consists of the following:

20,000 words of software text – menus, dialogue boxes, error messages, etc.
200,000 words of online documentation (Help)
175,000 words (700 pages) of Documentation.

Therefore, in order to ship language versions to schedule, we had to start the localisation process well in advance of the completion of product development in Cambridge. This requirement has led to our development of computer tools to cope with the on-going updating and editing process. More discussion of these will follow.

The Resources

The localisation team for the Rockport translation into 10 languages consisted of the following:

Dublin
1 Project Manager
1 Product Specialist
1 Third Party Documentation Support Specialist
6 Software Engineers
10 Software Quality Assurance Engineers

International Documentation Services Group, Staines, UK
6 Language Coordinators
11 Editors
62 Translators (mainly external agencies)
1 Production Manager
8 Production Specialists

The Methodology

The major six languages – French, German, Swedish, Italian, Spanish and Dutch –were all translated using resources internal to Lotus in Dublin and Staines for software engineering, testing, editing and documentation production with a mixture of in-house staff and external agencies contracted to carry out most of the actual translation work. Danish, Norwegian, Portuguese and Finnish were all turn-key projects entirely contracted out to Third Parties responsible for all translation, editing, testing and documentation production tasks, essentially to deliver to Lotus finished software and documentation. Third Parties receive kits of tools and source material and engineering support during the project. However, these projects are planned to be delivered up to three months after the French and German products and can therefore be started later on more stable source material.

French Rockport

To better examine the process, let us focus on the French project. The translation/editorial team for this consisted of:

1 project leader (17 weeks)
2 translators on software text (menus, dialogue boxes, sample files, error messages, editing) (14 weeks)
3 translators of Help (14 weeks)
6 translators on Documentation (12 weeks)
2 production specialists (2 weeks)
3 Software Engineers
5 Quality Assurance Engineers.

The Software and Quality Assurance engineers in Dublin represent half the total team which was simultaneously working on supporting the other nine languages, as were the production staff in Staines.

THE PROCESS

Software Translation

The product has been designed such that virtually all of the software text – messages, menu items, Help information – is held in resource files separate to the main program software such that the product need not be recompiled. There are two main advantages to this: a) with the text separated from the program, it is easy to identify and translate and b) eliminating the need to recompile the source means that we do not have to perform lengthy quality assurance on the basic product functionality.

The language coordinators and editors carry out preliminary terminological groundwork early on in the product's development cycle. This work concerns standardising on suitable terms for either a new platform environment (e.g., Microsoft Windows) or functionality (e.g., the Equation Solver).

When translation is about to start, it is the software engineers' responsibility to prepare a kit containing all the text files and editing tools needed to translate them. This kit is then sent to the software translators who will be trained in their use. The language coordinator and translators will then prepare a glossary and begin translation of the software which is, of course, still undergoing development at this stage of 18 weeks prior to First Customer Shipment. As software is translated, it is returned to Dublin for the software engineers to update the text with any changes/additions that may have been made by the development team in Cambridge. It is this ability to manage the process of frequently updating early translations without losing work-to-date that is key to the Lotus objective of shipping French and German at the same time as the UK product. Updated and/or new files are sent out to translators and this is repeated until all the software has been translated. The same process applies to the Help files.

At certain stages in the process, the software engineers will produce language builds for testing. For example, one stage might be when all the menus and dialogue boxes have been translated; a further stage would include all error messages; finally, Help would be included and at this stage we would have a Beta build. At each stage, the Quality Assurance team run a series of tests on the product to check that text has been translated, then it displays correctly,

that the product functions correctly, etc. Any bugs found are reported back to software via a Software Performance Report (SPR) database. Software engineers, with the help of translators if necessary, then fix any bugs and produce a new build for further testing. When Quality Assurance have run a complete set of tests without finding any bugs the product is declared complete and a final set of 'Gold' diskettes are produced from which manufacturing will duplicate.

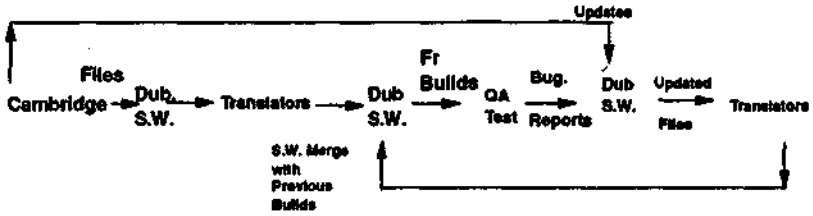

Figure 1 The software translation process

Documentation Translation

Ideally, once the software menu structure and dialogue boxes have been translated, work can begin on the documentation, although in practice only a preliminary translation of the software text may have taken place due to schedule constraints. Translation is based on the electronic Interleaf files produced by the US documentation team, thereby preserving all of the page-layout information: heading formats, indexing, etc. As each book is translated, it is edited and compared with the software to ensure consistency and accuracy. Books cannot be finalised until the translated software is sufficiently functional to produce screen dumps ('captured' examples in print of how the product actually appears on the computer screen). As the software may continue to evolve during the project, this may be an added constraint towards the end of the project. Translated books are finalised by the production specialists and postscript files are sent to Dublin for distribution to printers, without the need for typesetting. Figure 2, much simplified, describes the process in essence.

Major Constraints

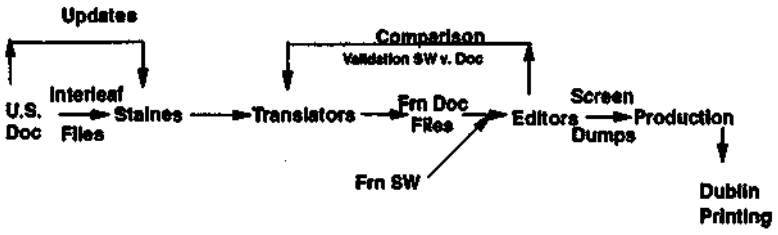

Figure 2 The documentation translation process

There are a number of factors over which we have little control.

The First Customer Shipment date is determined by the completion of development in Cambridge and we must translate in parallel with their schedule.

We cannot begin translating the documentation until we have completed the first pass at the software and until the original English documentation is at least past the first edits stage in Cambridge. Although, translation of *some* of the documentation may be in when *some* of the software has been translated.

Documentation production must be complete with postscript files delivered to the Purchasing Department in Dublin 20 days before FCS. Although, in practice, this may be reduced to 15 days.

The translated software must be complete and the final set of diskettes (Golds) handed to manufacturing 5 days before FCS.

Reduced time-to-market; French and German to ship at the same time as US product.

Key Factors

Given the constraints above which combine to reduce the total time available for the translation, there are a number of factors that are key to achieving our objectives of shipping a high quality translation at the same time as the US.

Tools

Probably the most important of these are the tools used to translate the software. We have a tools development group in Dublin with the sole function of developing tools to assist in the localisation process. There are a variety of tools for editing Help, dialogue boxes, menus and other program text.

One objective is to display the text to the translator in a 'What You See Is What You Get' (WYSIWYG) format so that the translator can see the words in context which is very important for a high linguistic quality.

A second objective is that the tools must be able to merge already translated text into new version of the developing product. This may be done automatically in cases where existing text has not changed but new text has been added, in which case new text would be highlighted to the translator as requiring translation; or semi-automatically where text is similar but has changed somewhat in which case text is highlighted as requiring attention with an indication of the closest possible matching existing text.

Lotus Product Development in Dublin has its own Tools Development group which has produced a number of editing tools such as RED (Resource EDitor) and Phoenix.

RED allows translators to systematically work through the dialogue boxes of a product. Each dialogue box is displayed on the screen just as it appears in the product itself. This means that the translator can relate the text to the function – important for accurate translation of meaning. In addition the translator can adjust the size of the dialogue box to accommodate the expansion of the translated text.

Phoenix is a general purpose tool used for editing Help text files. Its main advantages are that it protects programming 'hooks' from accidental destruction and allows the translator to concentrate on the linguistic tasks. It also keeps the translated text in sequence with the original US sources, thereby allowing already-translated text to be merged into new versions of the Help files from the US.

Documentation System

Lotus uses the Interleaf system for authoring, translating, formatting and production of documentation. This system has many advantages, for example retaining of formatting information from the original US documentation across language versions and the subsequent ease of production; the ability to produce postscript files for delivery to printers, eliminating the time consuming and costly need to generate film.

Product Design

It is of course essential that the original product is designed with localisation in mind. This means separate program text resources, proper international character support, agreement not to change or add text gratuitously late in the project, the use of non-American examples (e.g., no references to baseball!)

SUMMARY

The objective of shipping high quality translated products at the same time as English products is achievable but requires the following:

- an English product designed with localisation in mind
- the development of sophisticated tools capable of allowing translation to start early but keeping up-to-date with on-going development
- large, experienced and dedicated translation teams
- experienced software engineering and Quality Assurance teams capable of providing support and training in the use of tools, for example
- integrated documentation authoring, translation and production systems.

These approaches will have enabled Lotus to have shipped three major products, 1-2-3 Release 2.3, 1-2-3 for Windows and 1-2-3 for the Macintosh, near-simultaneously in English, French and German this year. Whilst not attempting to achieve this on every product, it certainly represents our on-going objective to reduce the time-to-market and to continue to improve the processes involved, including our continued commitment to the development of tools to aid the translation process – our contribution to translating and the computer!

AUTHOR

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