

**THE INTERNET AS
AN INFORMATION SOURCE
FOR TRANSLATORS**

by

Krista Kelly

School of Translation and Interpretation
University of Ottawa

Under the supervision of

Ingrid Meyer, Ph.D.
School of Translation and Interpretation

Thesis submitted to
the School of Graduate Studies and Research
of the University of Ottawa
in partial fulfillment of the requirements
for the degree of M.A. (Translation)

© Krista Kelly, Ottawa, Ontario, Canada, 1996



National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file *Votre référence*

Our file *Notre référence*

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-612-19974-6

Canada



UNIVERSITÉ D'OTTAWA
UNIVERSITY OF OTTAWA

ACKNOWLEDGEMENTS

I would like to express my deepest thanks to my thesis supervisor, Dr. Ingrid Meyer. She provided continual support, as well as helpful and timely feedback on all aspects of my work. I am grateful to her for making this thesis an invaluable learning experience for me.

I am also indebted to the following professors at the University of Ottawa: Dr. Douglas Skuce, for generously letting me use the technical facilities in the Artificial Intelligence Laboratory of the Department of Computer Science; Dr. Roda Roberts, for providing me with valuable information on documentary research; and Dr. Barbara Folkart, Dr. Sylvie Lambert, Mr. John Price, and Ms. Jane Ann Klowak for allowing me to use their take-home assignments during my study.

I am also thankful to Judy Kavanagh and Charles Tran, two graduate students in the Department of Computer Science, for answering the many technical questions I had while I learned to use the Internet.

I would like to express my gratitude for the University of Ottawa Admission Scholarship (awarded by the School of Graduate Studies and Research), as well as for the Special Scholarship to further women's studies in computing (awarded by the Faculty of Arts and by University Research Services), that helped make this thesis possible. I am also grateful for the Research Assistantships provided by the School of Translation and Interpretation, which allowed me to serve as the School's Computer Lab Assistant, and hence to gain invaluable knowledge of computers.

Finally, I would like to thank several friends who supported me in various ways. I am grateful to Valérie Deschênes for being a supportive roommate, and for generously letting me use her computer. I am also grateful to Annette Jessen and Lynne Bowker for kindly proofreading my work. And I am thankful to Matthieu LeBlanc for translating my abstract, and for his many words of encouragement.

ABSTRACT

The purpose of this thesis is to examine the Internet as a source of information for translators. Specifically, its goal is to determine the usefulness and efficiency of the Internet as a means of providing some of the linguistic and domain knowledge required during the translation process.

This thesis is divided into four chapters. In Chapter 1, I examine the unique set of factors that gives rise to translators' information needs, and, in particular, how translators' information needs differ from those of unilingual writers. Next, I examine some of the tools that translators have *traditionally* used to find various kinds of information, and I end this chapter by providing an overview of the trend toward the automation of translation tools.

In Chapter 2, my focus turns to the Internet. I explore its history and current state, as well as the technological concepts that are at the heart of network communication. Next, I examine in detail several Internet tools, with a particular emphasis on how each of them can be of use to translators.

In Chapter 3, I carry out a practical exploration of the Internet, which involves actually translating three specialized texts, with the Internet being used as the sole source of information. I then assess the usefulness and efficiency of the Internet for the translation of the three texts. The results of this exploration indicate that the Internet's value can vary significantly from one type of text to another.

Finally, in Chapter 4, I provide an overall assessment of the strengths and weaknesses of the Internet as a tool for translators, and I conclude this thesis by outlining some additional issues raised during the study.

RÉSUMÉ

La présente thèse a pour objectif d'explorer l'Internet en tant que source d'information pour les traducteurs. Elle vise plus spécifiquement à déterminer l'utilité et l'efficacité de l'Internet à fournir certaines des connaissances linguistiques et thématiques préalables à la traduction.

Cette thèse comporte quatre chapitres. Au premier chapitre, j'examine d'abord l'ensemble des facteurs qui sous-tendent les besoins en information des traducteurs et, surtout, comment les besoins des traducteurs diffèrent de ceux des rédacteurs unilingues. Je me penche ensuite sur les outils auxquels les traducteurs ont *traditionnellement* eu recours pour se documenter, pour enfin donner un aperçu de la tendance vers l'automatisation des outils du traducteur.

Au chapitre 2, je m'intéresse à l'Internet : son histoire, son état actuel et les fondements technologiques à la base de la communication par réseau. Par la suite, j'examine en détail plusieurs outils qui nous permettent d'avoir accès à l'Internet en mettant l'accent sur leur utilité aux traducteurs.

Le chapitre 3 consiste en une exploration pratique de l'Internet par la traduction de trois textes spécialisés à l'aide de l'Internet comme seule source d'information. Cet examen me permet ensuite d'évaluer l'utilité et l'efficacité de l'Internet relativement à la traduction de ces trois textes. Les résultats de cette exploration montrent que la valeur de cet outil varie de façon considérable d'un type de texte à l'autre.

Enfin, au chapitre 4, je procède à l'évaluation globale des forces et des faiblesses de l'Internet en tant que source d'information pour les traducteurs, et je termine en signalant certaines questions soulevées au cours de cette étude.

TABLE OF CONTENTS

LIST OF FIGURES	ix
INTRODUCTION	1
CHAPTER 1	5
1 The information needs of translators	5
1.1 Why do translators need information?	6
1.2 The translator's traditional information resources	13
1.2.1 Lexicographic vs. non-lexicographic resources	14
1.2.2 Textual vs. non-textual resources	15
1.2.3 Computerized vs. non-computerized resources	17
1.3 Translators' resources in an electronic age	17
CHAPTER 2	21
2 The Internet	21
2.1 The history of the Internet	21
2.2 The current status of the Internet	23
2.3 How the Internet works	23
2.3.1 The TCP/IP protocol	24
2.3.2 The Domain Name System	24
2.3.3 Client/server systems	25
2.4 Connecting to the Internet	26
2.4.1 Indirect Internet connectivity	27
2.4.2 Direct Internet connectivity	27
2.4.2.1 Connecting through a network	27
2.4.2.2 Connecting through a SLIP/PPP account	28
2.4.3 Advantages and limitations of indirect connectivity	28
2.4.4 Advantages and limitations of direct connectivity	29
3 Knowledge networking tools	31
3.1 Electronic mail	31
3.1.1 Accessing e-mail	32
3.1.2 Using e-mail	32
3.1.3 Advantages of e-mail	33
3.1.4 A limitation of e-mail	33
3.2 Listserv	34
3.2.1 Accessing Listserv	34
3.2.2 Using Listserv	35

	3.2.2.1	Moderated and unmoderated mailing lists	36
	3.2.3	Advantages of Listserv	36
	3.2.4	Limitations of Listserv	36
3.3		Usenet	37
	3.3.1	Accessing Usenet	38
	3.3.2	Using Usenet	38
	3.3.3	Advantages of Usenet	40
	3.3.4	Limitations of Usenet	41
4		Knowledge Retrieval Tools	41
	4.1	Gopher	42
	4.1.1	Accessing Gopher	42
	4.1.2	Using Gopher	43
	4.1.3	Gopher's "hidden" utilities	44
	4.1.4	Advantages of Gopher	45
	4.1.5	Limitations of Gopher	45
	4.2	Veronica	46
	4.2.1	Accessing veronica	47
	4.2.2	Composing veronica queries	48
	4.2.3	Advantages of veronica	49
	4.2.4	Limitations of veronica	49
	4.3	Wide Area Information Server (WAIS)	50
	4.3.1	Accessing WAIS	51
	4.3.2	Advantages of WAIS	52
	4.3.3	Limitations of WAIS	53
	4.4	World Wide Web	53
	4.4.1	What is hypertext?	54
	4.4.2	Accessing the World Wide Web	54
	4.4.3	Using the World Wide Web	55
	4.4.3.1	Browsers	55
	4.4.3.2	Uniform Resource Locators and home pages	56
	4.4.3.3	Finding home pages on the Web	57
	4.4.4	Advantages of the World Wide Web	57
	4.4.4.1	Resources for translators on the World Wide Web	58
	4.4.5	Limitations of the World Wide Web	63
5		Remote access applications	63
	5.1	FTP	64
	5.1.1	Accessing FTP	64
	5.1.2	Retrieving files through FTP	65
	5.1.3	Advantages of FTP	66
	5.1.4	Limitations of FTP	66
	5.2	Archie	67
	5.2.1	Accessing archie	68

5.2.2	Composing archie queries	68
5.2.3	Advantages of archie	69
5.2.4	Limitations of archie	69
5.3	Telnet	69
5.3.1	Accessing Telnet	70
5.3.1.1	Telnet commands	70
5.3.2	Advantages of Telnet	70
5.3.3	Limitations of Telnet	72
6	Additional Internet services	73
6.1	Commercial service providers	73
6.1.1	Accessing through a commercial service provider	73
6.1.2	Using a commercial service provider	74
6.1.3	Advantages of commercial service providers	76
6.1.4	Limitations of commercial service providers	76
6.2	Freenets	77
6.2.1	Accessing Freenet	78
6.2.2	Using Freenet	78
6.2.3	Advantages of Freenet	79
6.2.4	Limitations of Freenet	80
CHAPTER 3		81
7	Practical explorations of the Internet	81
7.1	Criteria for the selection of texts	81
7.2	Methodology	83
Text 1		85
Text 2		92
Text 3		99
7.3	Traditional information sources vs. the Internet	106
CHAPTER 4: CONCLUDING REMARKS		109
8	General remarks	109
8.1	General assessment of the Internet	109
8.1.1	The most useful Internet tools	109
8.1.2	Main limitations of the Internet	111
8.1.3	Main strengths of the Internet	112

8.1.4	User-friendliness	114
8.2	Additional issues raised during the study	115
8.2.1	Learning the Internet	115
8.2.2	Reliability	116
8.2.3	The prodominance of English on the Internet	116
8.3	Conclusion	117
APPENDIX 1: Listserv mailing lists (Translation and linguistics)		118
APPENDIX 2: Translated texts on the World Wide Web		120
APPENDIX 3: On-line Library Catalogues via Telnet		121
APPENDIX 4: Canadian FreeNets		122
BIBLIOGRAPHY		123

LIST OF FIGURES

Figure 1: Client/server model	26
Figure 2: E-mail message	32
Figure 3: Listserv mailing lists	34
Figure 4: University of Ottawa Computer Science department's main Gopher menu	43
Figure 5: Hierarchical structure of Gopher	44
Figure 6: Gopher menu featuring <i>veronica</i> item	47
Figure 7: WAIS screen from the University of North Carolina	51
Figure 8: Main Gopher menu featuring WAIS item	52
Figure 9: Illustration of hypertext document	56
Figure 10: Translator's Home Companion	59
Figure 11: OTIAQ World Wide Web site	60
Figure 12: Human Languages Page	61
Figure 13: FTP login procedure	65
Figure 14: Federal Government Departments link on the World Wide Web	87
Figure 15: CRTC link on the World Wide Web	87
Figure 16: Scanner and OCR World Wide Web site	94

INTRODUCTION

OBJECTIVES

The purpose of this thesis is to explore the Internet and its usefulness as a source of information for translators. In particular, I investigate 1) the *usefulness* of the Internet as a means of filling the gaps in domain and linguistic knowledge that translators face, and 2) the *efficiency* of the Internet as an information source; that is, whether the Internet can help translators meet their information needs in a timely manner.

The motivation for this thesis is twofold. First, the Internet is gaining tremendous popularity as a means of obtaining various kinds of information. It is therefore worthwhile to investigate how the apparent wealth of information that exists on the Internet can serve translators. Second, although some research has been carried out in the area of automated workstations for translators, the Internet has thus far been given little attention in the translation literature as a possible component of these workstations. While a limited number of articles have appeared on the subject of the Internet, I propose to push this research further; that is, to explore a wider range of Internet resources, and, through various practical exercises, to determine how profitable these resources can be.

METHODOLOGY AND ORGANIZATION

I begin, in Chapter 1, by examining the various traditional information needs that translators must meet during the translation process, as well as the factors that give rise to these needs. In particular, I discuss how the needs of translators differ from those of unilingual writers. What becomes clear is that the information needs of translators are many and varied, ranging from a

need for specialized terminology to a need for conceptual domain knowledge. I explore the ways in which translators have *traditionally* met their information needs; that is, the various knowledge-gathering tools that translators use during the course of their work. I then lay the groundwork for the study of the Internet by exploring the role of automation in the translation process.

Next, in Chapter 2, I turn my focus to the Internet. First, an understanding of the Internet is gained through an examination of its history, its current state, and an overview of what I refer to as "Internet fundamentals" (i.e., the basic technological concepts that form the "backbone" of the Internet). This is followed by an extensive practical experimentation with, and an analysis of, the various tools that exist for Internet navigation, with a special focus on how each of them can be of use to translators. During the course of this research, I spent several months acquiring *hands-on* technical expertise on the Internet, using the following facilities: the University of Ottawa's mainframe and Unix computers, the Department of Computer Science's Unix computers, my personal subscription to CompuServe, and a variety of Freenets. The various Internet tools that I chose to examine for this study include knowledge networking tools (e-mail, Listserv and Usenet), knowledge retrieval tools (Gopher, veronica, Wide Area Information System [WAIS] and the World Wide Web), and remote access applications (File Transfer Protocol [FTP], archie and Telnet). The discussion of Internet tools ends with an examination of resources (commercial service providers and Freenets) that are on the periphery of the three types mentioned above.

In Chapter 3, in an attempt to ascertain the *practical* use of the Internet as an information source for translators, I carry out an exploration of the Internet. This exercise consists of

actually translating three specialized texts using the Internet as the sole source of information.¹

The following are the texts chosen for study:

- Test 1: A press release in the field of telecommunications
- Test 2: A magazine article on computer scanners
- Test 3: A summary of a legal decision.

For each text, I describe the methodology used. I also explain precisely how the Internet was used in the translation of each text, and conclude with a discussion of the results. The tests are intended to demonstrate both the usefulness and the efficiency of the Internet in meeting the information needs that arise during the translation process. The findings of the three tests may elucidate not only the usefulness and efficiency of the Internet, but also whether these factors vary according to the *type* of text translated (i.e., Is the Internet stronger as a tool for translating in certain domains than in others?).

Finally, in Chapter 4, I provide a general assessment of the Internet as an information source for translators, looking at its strengths as well as its weaknesses. I conclude by discussing additional issues raised during this study.

SOME PRACTICAL CONSTRAINTS

a) Internet tools chosen for study

It would be difficult, within the scope of this thesis, to discuss the myriad of Internet tools that exist. I therefore focus on what I consider to be the most important and widely-used tools. With

¹ A printed bilingual dictionary was used once during my practical exploration, to successfully complete the translation of a text for which all terms but one were found through the Internet.

respect to commercial service providers (companies that require users to pay for Internet services), financial constraints prohibited me from subscribing to more than one of the numerous companies that exist. I therefore chose to join one of the biggest commercial service providers, CompuServe.

b) The rapid growth rate of the Internet

The Internet is ever-changing, and this poses a considerable constraint in terms of time. Each day, new resources are added the Internet, just as other ones disappear. Consequently, this thesis discusses the Internet tools and resources that were available up to January 31, 1996. It must be borne in mind, however, that these resources are likely to change considerably over time.

c) The Internet for commercial and research purposes

In this thesis, I have chosen to exclude the *commercial* uses of the Internet for translators--that is, how the practising translator can use the Internet to advertise services. Instead, I have preferred to focus on how the Internet can be used in the translation process, *per se*. With respect to the Internet as a *research* tool, although this is not the main focus of this thesis, it is not excluded from this study either. Whenever possible, I include resources that can assist students and professors in performing research about the translation process *per se*, as opposed to background research on one particular text to be translated.

CHAPTER 1

1 The information needs of translators

In *La traduction raisonnée*, Jean Delisle asserts that "On ne traduit bien que ce que l'on comprend bien"², and he duly points out that, in an effort to understand their texts, translators must consult various sources of information. Roda Roberts clearly explains the reason why translators must turn to outside sources of information:

Contrary to popular belief, a translator is not a walking encyclopedia nor a walking dictionary. While he must have wide general knowledge and a sound command of his two working languages, he cannot be expected to have all the knowledge he may require to translate a large variety of texts, stored, ready to use, in his long-term memory. A good translator is thus invariably a good researcher, who knows where to go and find the information he lacks to produce an accurate and polished translation.³

Thus, as a group, translators are known to search for information frequently. This information can be obtained through a variety of means: the use of lexicographic sources, the use of non-lexicographic sources, or consultation with people. Whatever their means of obtaining information, it is clear that translators must know where to look for information and, perhaps more importantly, how to find the information that best satisfies their needs *quickly*. In times of economic restraint, fees for freelance translation may drop, and, as a result, translators may be forced to produce more work in less time. Similarly, budgetary restrictions can mean that translators employed in both the private and public sectors must increase their output quotas.

² Jean Delisle, *La traduction raisonnée*, p. 85.

³ Roda P. Roberts, "Exploring the Frontiers of Documentary Research In the Translation Process", p. 361.

These realities, coupled with what are often close deadlines, make time a matter of great importance for translators: "Pouvoir se documenter vite et bien est une des conditions de l'efficacité d'un traducteur"⁴, states Jean Delisle. The objective of this research is to examine the Internet and its potential use as an effective and efficient information source for translators. Before beginning, it is useful to discuss the principal information needs of translators, as well as the ways in which translators most often meet these needs.

1.1 Why do translators need information?

There is an important characteristic of translators' work that sets it apart from the work of other classes of writers: translators always base their writing on *other people's texts*. Rather than compose texts from scratch as do unilingual writers, translators must constantly compare the target language text they are composing with a pre-existing source language text written by another person in another language. This unique situation gives rise to several types of information requirements among translators. The amount and kinds of information required depend largely on two factors, according to Roda Roberts: "... the knowledge and experience of translators, and the specialized nature and level of difficulty of the text".⁵ It is impossible to prescribe *a priori*, however, the amount of research required by any particular field, as explained by Christine Durieux: "En effet, la nécessité de procéder à une recherche documentaire n'est pas liée au texte lui-même. On ne peut pas dire que certains sujets, plus que d'autres, justifient une

⁴ Jean Delisle, *La traduction raisonnée*, p. 85.

⁵ Roda P. Roberts, "Exploring the Frontiers of Documentary Research In the Translation Process", p. 362.

telle recherche".⁶ Nor can it be said that any given translator must perform more research than other translators: "Par ailleurs, la recherche documentaire n'est pas non plus le lot exclusif des traducteurs débutants. Il serait faux d'imaginer que les plus anciens dans la profession peuvent naturellement s'y soustraire".⁷

The information requirements faced by translators can be grouped into two categories: information about the source language and the target language (linguistic elements) and information about the domain (non-linguistic elements).⁸ Lack of knowledge in these two fundamental areas often gives rise to the biggest obstacle to the translation process, namely lack of comprehension: "Quelles sont les causes de l'incompréhension, si fréquente dans l'apprentissage de la traduction? L'incompréhension est le résultat d'une faille dans la connaissance linguistique, dans la connaissance thématique [*non-linguistique*], ou dans les deux".⁹

Let us first examine how a lack of linguistic knowledge can create information needs during the translation process. The source language is the one that is usually learned deliberately by the translator.¹⁰ Translators must apply much of their knowledge of the source language to

⁶ Christine Durieux, "La recherche documentaire en traduction technique : conditions nécessaires et suffisantes", p. 669.

⁷ Ibid.

⁸ Neubert and Shreve discuss other information requirements (which they refer to as the *inputs* to a textual process whose *output* is translation), such as: knowledge of social interaction, knowledge of the world (and its domains), knowledge of texts and knowledge of translation.

⁹ Monique C. Cormier, "Traduction des textes destinés à des spécialistes : approche pédagogique", p. 446.

¹⁰ By *learned deliberately* I mean learned in addition to the speaker's first language (i.e. a person's second, third, fourth language, etc.).

the translation of a document. They are concerned with the recognition of word meanings, the recognition of levels of style, the ability to detect words in both languages that resemble each other but do not share the same meaning (*faux amis*), an understanding of various grammatical and syntactic structures, and various other issues. The target language is often the translator's first language. In some countries and in certain work situations, however, the language into which a person translates may not be the person's first language. Translators are expected to have a clear understanding of various aspects of the target language, including the proper use of grammatical structures, the proper choice of words and levels of style, the ability to distinguish between dialects (e.g. Canadian French and French from France), and various other issues.

Monique Cormier explains how a lack of linguistic knowledge can lead to incomprehension:

Lorsque l'incompréhension est liée à la connaissance linguistique, c'est soit la connaissance de la langue de départ qui n'est pas suffisamment complète pour permettre la compréhension, soit l'interférence entre l'anglais et le français qui vient s'immiscer dans la compréhension et la brouiller, soit encore l'interférence entre la langue générale et la langue de spécialité qui la fait dévier.¹¹

Proficient though translators may be in their knowledge of the source and target languages, they must also understand the subject within which a translation falls. Since "every text abounds in (theoretical) ambiguities...",¹² translators must be familiar with the domain in which they translate, and remain so for as long as they translate within it (for example, to keep abreast of recent developments and changes in terminology). The need to possess domain

¹¹ Monique C. Cormier, "Traduction de textes destinés à des spécialistes : approche pédagogique", p. 446.

¹² John B. Sykes, "The Intellectual Tools Employed", p. 43.

knowledge creates a requirement for non-linguistic information among translators. Roda Roberts considers there to be two types of non-linguistic elements that may give rise to problems during the translation process: specific and general. She lists proper names, dates and figures among the *specific* non-linguistic elements that translators may have to research.¹³ As for *general* non-linguistic elements, these can be defined more or less as the background knowledge of a domain required by a person translating within a given field. Knowledge of non-linguistic elements, which Monique Cormier terms *connaissances thématiques*, is essential in avoiding many translation errors: "Le manque de connaissances thématiques peut aussi être à l'origine d'erreurs de traduction. En effet, l'étudiant n'est pas toujours au courant des réalités de la vie politique, économique et sociale, et la méconnaissance de telles réalités est souvent préjudiciable à la traduction".¹⁴

It is useful to consider examples that illustrate the reasons why translators need both linguistic and non-linguistic information to translate successfully. The most common types of linguistic elements requiring research are target language equivalents for terms found in the source language text. According to Roda Roberts, the search for terms is often a two-step process: "Once the term is comprehended through appropriate documentary research, then further research will no doubt be required to identify the standard term covering the concept in the target language".¹⁵ Consider the following passage from a technical field:

¹³ Roda P. Roberts, "Exploring the Frontiers of Documentary Research In the Translation Process", p. 363.

¹⁴ Monique C. Cormier, "Traduction de textes destinés à des spécialistes : approche pédagogique", p. 445.

¹⁵ Roda P. Roberts, "Exploring the Frontiers of Documentary Research In the Translation Process", p. 362.

There are two main types of programs: (a) system programs, written in *assembler code*, which are independent of particular languages; these are control and utility programs, such as those responsible for dictionary look-up routines; and (b) translation programs which are broken down into a number of stages, each with separate program modules.

Faced with the above passage, a translator unfamiliar with the term *assembler code* would need linguistic information to determine either the meaning of the source language term, the target language equivalent, or both of these. The search for equivalents, however, is not the only type of linguistic research that translators perform. Other linguistic elements that may require research are abbreviations and acronyms, syntactic structures, style and spelling.

Technical translation requires a great deal of documentary research by the translator. This research, however, is not restricted to the search for term equivalents; what the technical translator often seeks is an *understanding* of the source text:

Or, la démarche mise en oeuvre pour effectuer la traduction d'un texte technique va bien au-delà de la recherche de termes ou de tournures, elle exige une *compréhension* du texte. (...) Les vrais problèmes de la traduction technique ne sont pas tant d'ordre lexical que *notionnel*, d'où la nécessité de procéder à une recherche documentaire de nature à éclairer le traducteur sur le sujet traité.¹⁶

The importance of understanding in the translation of technical texts is echoed by Monique Cormier in an article on the teaching of technical translation:

Comme on ne peut traduire ce que l'on ne comprend pas, il faut bien sûr acquérir d'abord une certaine connaissance technique, c'est-à-dire une connaissance de compréhension et non nécessairement d'application, mais aussi être en mesure de faire des raisonnements techniques et de suivre une argumentation à caractère

¹⁶ Christine Durieux, "La recherche documentaire en traduction technique : conditions nécessaires et suffisantes", p. 669.

spécialisé. On verra une fois de plus que la terminologie n'est pas sans poser de problèmes, mais que la compréhension reste au coeur de la problématique.¹⁷

The use of non-linguistic resources during the process of understanding a text is often an excellent means of obtaining terminological equivalents: that is, when translators consult documentation in both the source and target languages, they often encounter the terminology they are seeking *in context*, which can be more reliable than finding terms in lexicographic sources (i.e., *out of context*): "La recherche documentaire ... occupe alors une place prépondérante dans la phase *sémasiologique* et joue également un rôle clé lors de la phase *onomasiologique*, dans laquelle elle remplace avantageusement la recherche terminologique ponctuelle."¹⁸ (emphasis added.) This statement is supported by Jean Delisle, who writes: "Il arrive souvent, par ailleurs, qu'une recherche documentaire bien menée permette de résoudre les problèmes terminologiques en même temps que les difficultés de compréhension".¹⁹

Texts often contain references to historical or political events. Take the following headline as an example:²⁰

BRITISH LEFT WAFFLES ON FALKLANDS

¹⁷ Monique C. Cormier, "Traduction de textes destinés à des spécialistes : approche pédagogique", p. 441.

¹⁸ Christine Durieux, "La recherche documentaire en traduction technique : conditions nécessaires et suffisantes", p. 669.

¹⁹ Jean Delisle, *La traduction raisonnée*, p. 85.

²⁰ This example was presented in W. John Hutchins and Harold L. Somers, *An Introduction to Machine Translation*, p. 86.

To translate this passage successfully, the translator must have sufficient general non-linguistic knowledge (in this case, political knowledge) to know that:

The political left wing of the British government is undecided about what to do in the Falkland Islands.

and not:

The British left their pastries on the Falkland Islands.

In essence, the significant information needs faced by translators can be seen as the crux of the problems faced by machine translation researchers in developing computers that can produce human-quality translations:

There is nothing that a person could know, or feel, or dream, that could not be crucial for getting a good translation of some text or other. To be a translator, therefore, one cannot just have some parts of humanity; one must be a complete human being.²¹

Machine translation systems are often unable to translate successfully certain sentences which, although seemingly straightforward to humans, are ambiguous to the computer. For example:²²

Time flies like an arrow.

This sentence, which would be clear to most human translators, contains several homographic elements. More precisely, the words *time* and *like* can both be interpreted as verbs, and the word *flies* can be interpreted as a noun, resulting in the following possible translations:

²¹ W. John Hutchins and Harold L. Somers, *An Introduction to Machine Translation*, p. xi of foreword.

²² Example taken from Claude Bédard, "Les mots de tête de la machine", p. 7.

Le temps vole comme une flèche.

Les mouches du temps aiment une flèche.

Chronométrez les mouches comme une flèche.

While all three translations seem nonsensical to humans, they are syntactically plausible in the eyes of the machine translation system. The vast amounts of knowledge possessed by humans, as well as the knowledge that they must seek through documentary research and other information gathering methods, are what enable translators to produce quality texts: this is in contrast to machine translation programs which, by virtue of their lack of human knowledge and information gathering capacities, often produce what are considered inadequate--perhaps one can speak of *sub-human*--translations.

I now examine the sources of information that translators have traditionally turned to in order to supplement whatever linguistic and non-linguistic knowledge they lack during the translation process.

1.2 The translator's traditional information resources

In an article on the roles of documentation and terminology in teaching specialized translation, Geneviève Mareschal states that translators, when faced with a *situation d'incompétence notionnelle et linguistique* ²³, must gain a general understanding of the text so as to be able to a) determine the subject; and b) search quickly and efficiently the *information tools* that the translator will need for a deeper understanding of the text and for the translation process itself.

²³ Ibid.

In what follows, I propose a general typology of the various information resources used by translators. There are several ways to classify the resources that translators use to meet the information needs imposed by the translation process: lexicographic vs. non-lexicographic resources, textual vs. non-textual resources, and computerized vs. non-computerized resources.

1.2.1 Lexicographic vs. non-lexicographic resources

Lexicographic resources can be defined as:

... ouvrage[s] de référence contenant les mots ou une catégorie de mots d'une (ou plusieurs) langue, généralement rangés dans un ordre alphabétique et accompagnés de renseignements destinés à satisfaire les besoins des usagers.²⁴

There are, however, several types of lexicographic resources, which can be differentiated on the basis of several criteria: language(s) covered, scope of coverage, size, user characteristics, aspect of language covered, size and type of lexical items treated.²⁵ Lexicographic resources include, but are not limited to: general unilingual dictionaries (*Oxford English Dictionary*, *Webster's Third*, *Le Petit Robert*, etc.), general bilingual dictionaries (*Robert & Collins*, *Harraps*, etc.), etymological dictionaries (*Trésor de la langue française*), special-purpose dictionaries (e.g. synonyms, Canadianisms, proper nouns), thesauri, specialized dictionaries (e.g. administration, medicine, computers) and term banks (e.g. Banque de terminologie du Québec,

²⁴ Henri Rahaingoson, "Les différents types d'ouvrages lexicographiques", p. 15.

²⁵ Roda P. Roberts, "Exploring the Frontiers of Documentary Research In the Translation Process", p. 364.

Termium, Eurodicautom). These items are essential tools for translators who must fill the gaps in their *linguistic* (or more precisely, *lexicographic*) knowledge.

Non-lexicographic resources are also very important tools for translators, and there is virtually no limit to the variety of non-lexicographic resources that exist. They include grammars, style guides, standards (e.g. ISO), encyclopedias, almanacs, journals, newspapers, fact books, and parallel texts to name but a few. By *parallel texts*, I mean texts in the target language that fall into the same domain as the text to be translated (and that also use a similar terminology and style): they are very useful for translators, allowing them to check proper usage, find phraseological equivalents, determine the idiomaticity of a given domain, locate bilingual terminology, etc.

One of the greatest virtues of non-lexicographic resources is that they allow translators to fill in the gaps in their *conceptual knowledge*. Particularly when translators deal with specialized or technical texts, non-lexicographic resources are essential in providing the background knowledge required to translate competently. Moreover, non-lexicographic documents present words and phrases in context. In this way, translators can find useful clues as to how various ideas should be formulated in a given domain.

1.2.2 Textual vs. non-textual resources

A second way in which to classify translators' information resources is according to whether they are textual or non-textual. I propose to classify all the lexicographic and non-lexicographic resources seen in section 1.2.1 as textual resources. Textual resources stand in contrast to what I will refer to as non-textual resources; by this I mean *human informants*. Human informants are

any persons that a translator consults for information during the translation process. As stated by Louis Kelly: "One tends to think of translators working with their dictionaries before them; to some extent this has been true. But long before dictionaries appeared, translators called on experts in the subject of their texts..."²⁶

What kind of information can be obtained through human informants? Since the knowledge that can be transmitted from person to person is essentially limitless, it is impossible to group it according to categories such as lexicographic, non-lexicographic, etc. People can provide translators with information on virtually anything: the subject field, terminology, grammar, etc. Just as the types of information provided by human informants are varied, so too are the kinds of people that translators contact for information: experts in a subject field, other translators, information specialists, clients, etc. Louis Kelly provides an example of two bible translations, one that dates back a millennium and one from the present day, which shows the various ways in which translators can seek the help of other people: "In translating the Hebrew Old Testament, Jerome employed a rabbi as informant. It would seem that all Jerome was after was linguistic help: 1,000 years later, Wycliffe's team seems to have included not only experts in Latin but also theologians".²⁷

As Roda Roberts states, however, there are advantages and disadvantages to the use of textual and non-textual resources, which she refers to as documentary resources and human resources (consultants) respectively:

²⁶ Louis Kelly, *The True Interpreter*, p. 26.

²⁷ Ibid.

The use of consultants provides quicker results (the time it takes to contact the consultant) and more up-to-date or specific information which is not readily available in recorded form. However, the quality of the information obtained depends almost entirely on the qualifications and conscientiousness of the consultants contacted. While documentary research is often more labourious and complex, documentation has the advantage of being more reliable and often more readily available. Thus, experienced translators use a combination of consultants and documentation to obtain the information they require.²⁸

1.2.3 Computerized vs. non-computerized resources

A third category for the information resources used by translators is computerized vs. non-computerized resources. The automation of translation tools has increased significantly over the past few years. In the following section, I will examine the ways in which computerized resources have affected the work of the translator.

1.3 Translators' resources in an electronic age

As the previous section showed, translators must consult a variety of resources to meet the requirements of the translation process. Traditionally, translators have had to physically leave the text they are translating to access these resources. Whether going to a library or consulting a term bank, translators must often perform tasks that take them away from their desks. More and more, however, translation tasks are becoming automated, so that translators need not constantly leave their workstations during the translation process. Elliott Macklovitch lists telecommunicating texts, consulting remote data banks, managing personal glossaries, producing

²⁸ Roda P. Roberts, "Exploring The Frontiers of Documentary Research In The Translation Process", p. 361.

concordances, and converting word processing files as just a few of the tasks that translators now perform using personal computers.²⁹

Furthermore, in recent years, translators' text-based tools have increasingly been transformed from paper-bound resources to electronic ones. Take, for example, the case of electronic dictionaries; *The Robert Electronique*, the *Oxford English Dictionary*, *Termium*, and the *DOC* of the Office de la langue française are just some of the lexicographic resources now available on CD ROM. In addition, non-lexicographic resources like encyclopedias and databases (statistical, bibliographic, historical, etc.) have also been produced in electronic form.

In 1989, the Canadian Workplace Automation Research Centre (CWARC)³⁰ presented the Canadian federal government with its version of the *Poste de travail du traducteur*, commonly referred to as the PTT. Though the CWARC maintained that the PTT was not a *fixed* concept but one that could be adapted to meet the needs of a given translator, it did put forth that the electronic word processor--undoubtedly writers' most widely-used electronic tool--would be at the heart of the PTT. In addition, the PTT would be comprised of a variety of *computer aids* that would assist translators in performing the tasks that characterize them as a group: personal terminology databases, telecommunications software, concordancing programs, document management software and electronic dictionaries (the last two were only introduced in the PTT's

²⁹ Elliott Macklovitch, "The translator's workstation ... In plain prose", p. 4.

³⁰ This institution is now known as the Centre for Information Technologies Innovation (CITI).

second version in 1994).³¹ In her recent book, Mariane Lederer also discusses the translator's workstation:

... aujourd'hui, travaillant sur un ordinateur, [le traducteur] a à sa portée les données nécessaires sans avoir à quitter son poste de travail. Les traducteurs n'ont plus besoin de se constituer d'énormes bibliothèques de dictionnaires et de documentation de toute sorte, ils les consultent en ligne. Non seulement leurs propres glossaires se trouvent en machine, accessible pour utilisation et mise à jour, mais encore ils peuvent faire appel à tous les dictionnaires figurant sur disques compact (CD ROM), à des dictionnaires techniques spécialisés, ainsi qu'à des banques de données documentaires et terminologiques générales ou spécialisées.³²

Lederer also notes that in 1992, at the Interagency Meeting on Language Arrangements held at UNESCO, it was stated that computer aids accounted for a 30% increase in productivity among translators.

Though word processing, telecommunications and terminology management software are commonly used by translators, it is worth investigating whether the Internet can be an additional *component* of the translator's workstation. Currently, it seems that relatively few translators have begun to use the Internet as a component of their workstation. At a recent (October 1995) Internet workshop hosted by l'*Ordre des traducteurs et interprètes agréés du Québec* (OTIAQ), I noted that only a few of the approximately 50 translators in attendance claimed to ever have used the Internet. While the reason behind this apparent lack of Internet use among translators remains to be seen, it may be attributable to the fact that the Internet is a relatively new resource,

³¹ The advent of *windowing* interfaces (e.g. Mac *Finder* and *Windows*) has only increased the usefulness of computer aids since they allow the user to perform multi-tasking: that is, to switch between applications so as to work on one task without closing other uncompleted ones.

³² Mariane Lederer, *La traduction aujourd'hui: Le modèle interprétatif*, p. 193.

and that it is still unclear precisely what it has to offer translators. It does, however, seem striking that such a limited number of translators take advantage of a resource that is said to offer vast possibilities for accessing information.

It is also interesting to note that the literature currently available on translators' workstations often fails to mention the Internet as a possible component of the PTT.³³ It is my hope that by examining the Internet--its history, the tools that are available for navigation, and whether these tools can indeed help satisfy translators' information needs--we may make a step in the direction of filling the current gap in Internet knowledge among translators and in the translation literature.

³³ Previous studies of the Internet as a tool for translators include an article by Gerhard Obenhaus, "The Use of Computer Networks for Translators" (*Language International*, 5.1: 1993), as well as a special issue of *Circuit* entitled "Pleins feux sur les technologies de l'information" (numéro 48, été 1995).

CHAPTER 2

2 The Internet

The Internet (*Interconnected Network*) is the world's largest computer network. In May 1995, it was estimated that nearly 35 million users were connected to the Internet.³⁴ The Internet is actually a "network of networks", since it is comprised of personal computers, computers linked closely together (Local area networks) and computers spread out over large areas (Wide area networks). It is for this reason that some refer to the Internet as the ultimate *GAN*, or Global Area Network.

2.1 The history of the Internet

The Internet was born in 1969 out of an initiative by the US Department of Defense to establish a network linking the military establishment, the university community, and defence contractors. The resulting network was named *ARPANET* (Advanced Research Projects Agency Network); by 1972, ARPANET linked 50 university and research institutions.

Because ARPANET was a military network, its creators' foremost concern was with ensuring that enemy forces be unable to sabotage the network. Believing the network to be a likely target, they wanted to ensure that the *entire* computer system would not break down because of any one single attack:

And how would the network itself be commanded and controlled? Any central authority, any network central citadel, would be an obvious and

³⁴ *Windows plus : la référence des utilisateurs Windows*, n°20, p.133.

immediate target for an enemy missile. The centre of the network would be the very first place to go.³⁵

As a result, ARPANET was developed as a network *without* any central authority to govern its operations. This explains why, even today, the Internet has no central governing authority.

In the mid-1980s, the National Science Foundation (US) began linking universities through a high-speed network known as *NSFNet*. Many publicly and privately-funded networks emerged subsequently, and by 1990 these networks--including ARPANET--had merged with NSFNet. NSFNet grew rapidly as various networks joined it: from 80,000 computers in 1990 to 1 million in 1994.³⁶

As NSFNet evolved in the US, the research and academic networks *NetNorth* and *CDNNet* emerged in Canada. In 1989, these two networks merged to form the main Canadian network, *CA*net*, and soon thereafter *CA*net* merged with NSFNet. The merging of *CA*net* with NSFNet was representative of a larger pattern--that of the computer networks in various countries linking together primarily through NSFNet to form the Internet.

The year 1989 was pivotal in the history of the Internet in Canada: until then, only the research and academic community had access to the Internet. The birth of *commercial service providers* (Cf. section 6.1), however, meant that anyone with a computer and a modem could connect; soon people would connect free of charge as various cities established free, public-access networks called *Freenets* (Cf. section 6.2).

³⁵ Bruce Sterling, *Internet*, http://bit.csc.lsu.edu/tutorial/the_internet.html.

³⁶ *Ibid.*, p. 9.

2.2 The current status of the Internet

The last two years have seen a striking amount of publicity concerning the Internet. It is increasingly rare that one picks up a newspaper or watches the news without hearing mention of the Internet, a word that has entered the popular vocabulary of many people. The hype over the Internet has especially centered on the exalted *Information Highway*. To illustrate how exaggerated the press coverage of the Internet has occasionally been, a columnist noted that the *Information Highway* evolved to the *Information Superhighway* in 1994, and predicted that by 1997 it would be known as the "*Super-duper tubular mega-wow I can't believe it's not butter highway*."³⁷

One can, however, attempt to transcend the hype by determining where the Internet stands today. Linking millions of people across the world, the Internet is revolutionizing global communication by freeing the flow of information and by making vast amounts of knowledge available to anyone with a computer and a modem. It must be borne in mind, however, that this revolution has only recently begun. The Internet is still an infant with much growing to do. For this reason, people need not feel that the world is passing them by if they are not yet "surfing the Net".

2.3 How the Internet works

Before discussing the programs that have been developed for navigating the Internet, it is useful to examine the backbone of the network. In section 2.3.1, I examine the TCP/IP protocol and in

³⁷ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p.5.

section 2.3.2, the Domain Name System, two systems that are at the heart of the Internet. In section 2.3.3, I discuss the important client/server concept.

2.3.1 The TCP/IP protocol

The university community has always had significant influence over the Internet. Since most universities' research computer systems are dominated by the Unix operating system, Unix has become the main system used in developing Internet programs. Unix is also at the heart of the networking protocol *Transmission Control Protocol/Internet Protocol* (TCP/IP).³⁸ TCP/IP has become the standard means by which computers connected to the Internet communicate with one another. For this communication to take place, protocols are vital: "*Protocols* are agreed-upon methods of communication used by computers and, for that matter, by people".³⁹ A common protocol enables networked computers to make various decisions: which computer begins or ends the communication, how errors are handled, etc.

2.3.2 The Domain Name System

The Domain Name System (DNS) is the addressing system of the Internet. Each computer that has its own Domain Name (more commonly known as an *IP address*) is considered a *host* computer on the Internet. The basic syntax of an IP address is:

- **system name. location name. domain name**

³⁸ It should be noted that although TCP/IP was originally developed on a Unix platform, it does not run *only* on Unix machines. The TCP/IP is *Unix-based* but can run on DOS, Mac, and other operating systems.

³⁹ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p. 6.

e.g. aix1.uottawa.ca

However, some may contain more or fewer parts:

e.g. bcdic.sti.uottawa.ca

bnr.ca

At the far right of every IP Address is the code for the top-level domain. The top-level domain is either a country code or a descriptive zone code. In the above example (*aix1.uottawa.ca*), the top-level domain is a country code (*ca* for Canada). Some countries, especially the United States, more frequently use descriptive zone codes. Thus, IP addresses in the US typically end in:

.com Commercial organizations; **.edu** Educational institutions; **.gov** Government institutions; **.int** International organizations; **.mil** Military organizations, etc.

2.3.3 Client/server systems

Software programs that are designed for use with the Internet are based on the *client/server* model: a *client* computer runs a software program that accesses data located on a *server* computer. A computer can be called a *client* when it runs client software programs, such as Netscape (for accessing the World Wide Web), that allow the user to connect to a server. A computer can be called a *server* when it stores files, and allows client computers all over the Internet to search for and/or retrieve those files.⁴⁰

⁴⁰ As section 2.4.1 will show, the client program is not always located on the user's desktop computer. If users have an *indirect* connection to the Internet, they will actually be dialling into a client program located on a *remote host computer*. This means that downloaded information will arrive on the *host computer's* hard disk and not on that of the user's desktop computer.

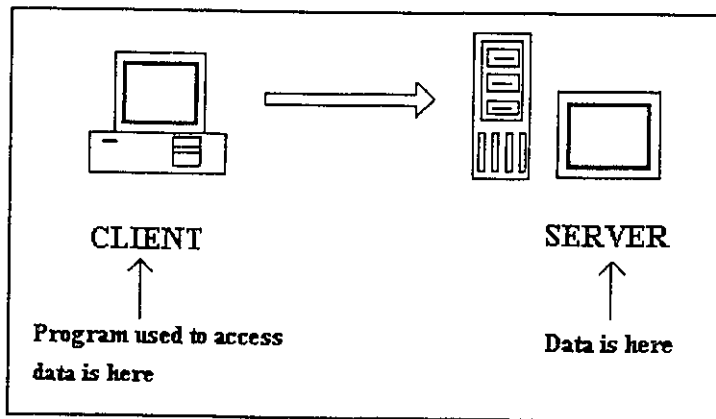


Figure 1 Client/server model

"The client/server model is at the heart of the Internet, as; a) each participant in the Internet is a client, and b) each resource on the Internet is located on a server somewhere in the world".⁴¹

2.4 Connecting to the Internet

The various methods of connecting to the Internet determine the extent to which one can use Internet services. Users may have an *indirect connection* or a *direct connection*. Users with an indirect connection possess *shell accounts*; they connect, via modem, to an Internet host computer and use terminal emulation software to access the Internet. Users with a direct connection access the Internet through either a physical connection to a host computer, or through a *Serial Line Interface Protocol/Point to Point Protocol* (SLIP/PPP) connection (via modem) to a host computer.

⁴¹ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p. 71.

2.4.1 Indirect Internet connectivity

Users with an indirect connection dial into a remote computer that acts as the Internet host computer. Once connected to the host, the user's computer uses terminal emulation software to access the services that the host provides. To gain indirect connectivity to the Internet, users require a modem (a speed of 9,600 baud per second is adequate, although for increased performance a faster modem is needed), terminal emulation software, and a shell account. In return, the user gains access to the Internet services that his host computer provides. Within the university, faculty and students can generally obtain shell accounts at no cost to them by dialling in to one of their school's host computers. Those outside the university must often pay commercial service providers for Internet access, or take advantage of Freenets, if available in their community.

2.4.2 Direct Internet connectivity

With a direct Internet connection, users run TCP/IP and all client software on their own computer, and thus become an equal peer among all the computers, large and small, that are connected to the Internet. There are two ways to gain a direct Internet connection: through a network connection or through a SLIP/PPP account.

2.4.2.1 Connecting through a network

Users with a direct network connection are physically *hardwired* to the Internet. That is, a *network server* is linked directly to the Internet with physical cables, and each computer on the

network is physically connected to the network server. The user's own computer then becomes a workstation on the network, and runs TCP/IP and client programs directly.

2.4.2.2 Connecting through a SLIP/PPP account

Those who want a direct connection but do not have access to a network require software that provides a SLIP/PPP connection to the Internet: "SLIP (Serial Line Interface Protocol) and PPP (Point to Point Protocol) provide full TCP/IP capabilities to the casual dial-up user, and hence allow you to be 'directly connected' to the Internet".⁴² Computers with a SLIP or PPP connection run TCP/IP and therefore have their own IP address. Thus, the user's computer can link directly to any computer on the Internet without the limitations of terminal emulation (Cf. section 2.4.4). To acquire this type of connection, users require SLIP/PPP software, as well as TCP/IP and any client programs they wish to run. Also required is a modem with a transmission speed of no less than 14,4 kilobaud per second, although this speed is quickly becoming outdated due to ever faster modems.

2.4.3 Advantages and limitations of indirect connectivity

Several major commercial service providers (CompuServe, America Online, etc.) are vying for a share of the shell account market. Consequently, many offer special incentives that make connecting to the Internet all the more appealing. The benefit of indirect connectivity for users within the university community is even more obvious: free and easy access to a wealth of Internet resources make shell accounts an attractive tool on many campuses. Moreover,

⁴² Ibid., p.206.

obtaining a shell account is easy because the hardware and software requirements are less than those for obtaining a direct account.

There are two main disadvantages to indirect connectivity. The first is that it does not give users access to the full range of Internet services that exist, as it does not have the technical capacity to support very sophisticated Internet tools. For example, many World Wide Web *browsers* (Cf. section 4.4.3.1) can support images, video and sound. However, only users with a direct connection can benefit from these multimedia capabilities. Secondly, users may find that having a shell account makes the Internet less user-friendly than having a direct connection. This is because the user's computer is running terminal emulation software, not actual TCP/IP software, and only *pretends* to be the remote host computer. This can be problematic when the user runs various client/server programs through a shell account: "Since the client is not on the PC of the user, [the client] is less sophisticated and more difficult to use".⁴³ This is also a concern when it comes to file transfer programs: when files are transferred from a server to a client by users with indirect connections, the file actually ends up on the hard disk of the remote host computer. Users must download the file from the host to their own hard disk. Consequently, file transfer is a two-step process for those with indirect connections to the Internet.

2.4.4 Advantages and limitations of direct connectivity

There are two principal advantages to direct connectivity, which is by far the fastest and most complete kind of Internet connection available. The first is that it allows the user to run more

⁴³ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p. 79.

Internet software in a friendlier environment. Individuals with a direct connection to the Internet are using the TCP/IP protocol as well as their own client programs, and as a result the applications they run interact far more smoothly with other computers on the Internet.

Secondly, direct connectivity through a network results in increased performance speed. Because the user's computer is hardwired to an Internet host, issues of modem speed and bandwidth⁴⁴ are non-existent.

There are also two disadvantages to direct connectivity. The first applies to network connections: setting up a "hardwired" connection is expensive and requires expertise. For a direct connection to work, TCP/IP must be running on the user's computer; yet installing and configuring network protocols can be very challenging for the novice. As a result, this type of connection is usually not practical for individuals. Rather, it is more suited to someone who uses a workstation on a network that is hardwired to the Internet (many companies and organizations employ a network administrator who is responsible for the operation of the LAN).

The second disadvantage applies to SLIP/PPP connections, and is essentially one of speed. More precisely, the bandwidth available during a modem connection will determine the speed at which programs perform. The faster the modems on both ends of the connection, the more satisfactory the performance of the SLIP/PPP connection. If a user's modem is slow, so will be the connection. As stated earlier, a 14,4 Kbps modem is the absolute minimum in terms of speed.

⁴⁴ *Bandwidth* refers to the amount of data that can be sent through a given communications circuit per second.

Having discussed the fundamental workings of the Internet, I will now examine the programs that allow users to explore the vast resources of the Internet.

3 Knowledge networking tools

The Internet enables people all over the world to communicate with one another and exchange information. I will refer to the tools that allow users to communicate over the Internet as *knowledge networking tools*. Knowledge networking is defined as: "the ability to harness online information ... by seeking information or answers to questions by discussing a topic with others online".⁴⁵ There are three primary tools for knowledge networking: e-mail, Listserv and Usenet. I examine these tools in sections 3.1, 3.2, and 3.3 respectively.⁴⁶

3.1 Electronic mail

Electronic mail (e-mail) consists of messages exchanged electronically between computers connected to a network. The speed and efficiency of e-mail have revolutionized the way people communicate with one another, and an ever-increasing number of people are now using e-mail: "In February 1993, 476 million messages were transmitted via the Internet, which was double the number sent in 1992. By February 1994, the number doubled again, rising to 837 million".⁴⁷

⁴⁵ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p. 117.

⁴⁶ Another knowledge networking tool is *Internet Relay Chat* (IRC), best described as a CB Radio for the Internet. Using IRC, users participate in "live" online discussions with other IRC users. To use IRC, one must have a direct connection to the Internet as well as the IRC client software. Also required is a remote IRC server. IRC topics are organized into discussion areas called *channels*.

⁴⁷ *Ibid.*, p. 118.

3.1.1 Accessing e-mail

Users can access e-mail through two types of connections: through a Local Area Network (LAN) or through the Internet. The *network* over which e-mail messages are exchanged is not necessarily the *Internet*; some e-mail systems operate on a LAN and are *not* connected to the Internet. When an e-mail system is limited to a LAN, its users may only communicate with others within the organization. Those with access to Internet e-mail can communicate with all other Internet e-mail users. Users access Internet e-mail through a wide variety of programs, which vary in terms of sophistication (from the antiquated program *Mail* to more sophisticated programs like *Pegasus Mail*).

3.1.2 Using e-mail

To use e-mail successfully, it is helpful to understand the structure of a message, as well as the various functions available with e-mail programs. An e-mail message consists of two parts: the *header* and the *body* of the message. A typical e-mail message resembles this:

Date: Thu, 20 Jul 1995 16:18:55 -0400 (EDT)
From: Krista Kelly <xyx@aix1.uottawa.ca>
To: Lyne Giroux <yxy@aix1.uottawa.ca>
Subject: Re: Deadline for registration

Regarding the workshop, you must give your name to the secretariat by October 25. Limited number of spaces. Talk to you soon.

Krista

Figure 2 **E-mail message**

Besides the **date**, **from**, **to**, and **subject** fields, other ones may include **cc:** (carbon copies), **bcc:** (blind carbon copies), **organization:** (name of service provider) and **att:** (attachment).

3.1.3 Advantages of e-mail

Since e-mail allows for rapid communication with people all over the world, it is easy to imagine how translators can benefit from it. Translators can use e-mail to contact the author of a source text and, within a short time, receive a reply. Similarly, they might e-mail other knowledgeable persons in a subject field to acquire background or terminological information. They can use e-mail to perform other tasks that traditionally would be done by phone, fax or regular mail. For example, translators can use e-mail to send administrative information to a client (rates, deadlines, etc.), receive the source text and send the target text, send invoices and, eventually, even receive "virtual money"⁴⁸ for services rendered!

3.1.4 A limitation of e-mail

One problem with e-mail is that it is not necessarily secure. For an e-mail message to reach its destination, it must be *routed* through different paths on the complex web of the Internet. During this trajectory, the message may pass through several computer systems and can possibly be compromised on its route. This security problem translates into a concern for users' privacy; when sending information over networks that are accessed by millions of people, users can never be guaranteed that their data will be uncompromised.

⁴⁸ A bank called *First Virtual* is already aiming to establish itself as the merchant banker of the Internet. (source: <http://www.ex.ac.uk/~RDavies/arian/money.html>).

3.2 Listserv

Listserv is a program that manages the thousands of mailing lists that exist on the Internet, covering a wide range of topics.⁴⁹ Once subscribed to a list, users receive a copy of each message sent to the list, and use e-mail to send messages of their own to the list. While most Listservs are discussion-oriented, some are purely “distribution” lists (journals, newsletters, etc.).⁵⁰

3.2.1 Accessing Listserv

A Listserv mailing list is a collection of the e-mail addresses of persons subscribed to a list. When users send messages to the address of Listserv, the messages are automatically forwarded to every subscriber. An e-mail account is the only requirement for participating in a Listserv mailing list:

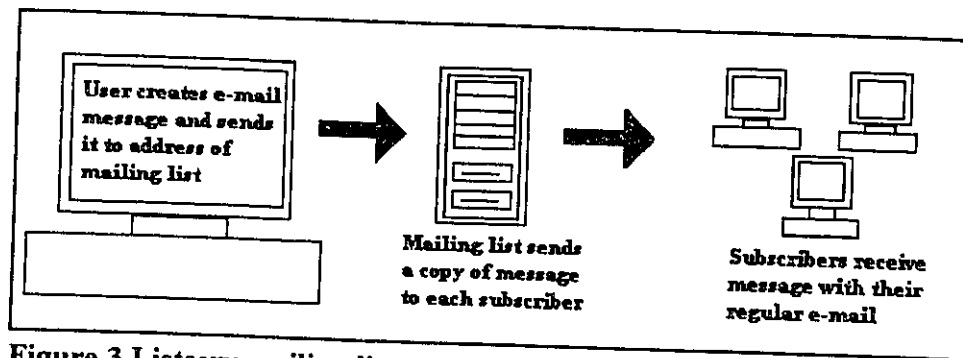


Figure 3 Listserv mailing lists

⁴⁹ It should be noted that Listserv, although the most common manager of mailing lists, is not the only one. Other automatic list managers on the Internet include "majordomo" and "mailserv".

⁵⁰ The definitive summary of Internet mailing lists can be obtained through anonymous FTP at *rtfm.mit.edu* in the directory *pub/usenet/news.answers.mail*. The file name is *mailing-lists*.

3.2.2 Using Listserv

First, the user must subscribe to the mailing list by sending an e-mail message to the address of the mailing list. The syntax of the subscription message sent by the user is predetermined by the automatic list manager. In the case of Listserv, the subscription line must read as follows:

subscribe [name of mailing list] [first name] [last name]

e.g. subscribe lantra Krista Kelly

The following are two messages that were sent to the *Lantra-L* mailing list (The Translation and Interpretation newsgroup):

Date: Thu, 20Jul 1995 11:13:44 -0400
Reply-To: Howard_Scott@xxx.montreal.qc.ca
Sender: "Interpreting (and) translation" <LANTRA-L@SEARN.SUNET.SE>
From: Howard Scott <Howard_Scott@XXX.MONTREAL.QC.CA>
Organization: Babylon, Montreal, Canada
Subject: French > English question
To: Multiple recipients of list LANTRA-L <LANTRA-L@SEARN.SUNET.>

A story I've been working on uses the term "trucologue." As far as I know it's a coinage. Has anyone seen it before? I've tentatively translated it as "what's-it-ologist." (or maybe "thingamologist"?)

I checked Termium to see if there was anything and found:

FR
 trucosaure
 EN
 thingodoton

Date: Thu, 20 Jul 1995 16:47:55 -0400
Reply-To: "Interpreting (and) translation" <LANTRA-L@SEARN.SUNET.SE>
Sender: "Interpreting (and) translation" <LANTRA-L@SEARN.SUNET.SE>
From: François Lavalée <Francois_Lavalée@XXX.UQUEBEC.CA>
Subject: Help E->F
To: Multiple recipients of list LANTRA-L <LANTRA-L@SEARN.SUNET.>

Howard,

"Trucologue" is certainly a coinage. Your translation seems most appropriate to me.

Take care,

François

3.2.2.1 Moderated and unmoderated mailing lists

Some mailing lists are moderated by an individual who reads all messages to ensure that they are focused on a particular topic; if a message is deemed unrelated, it is discarded. Moderated mailing lists therefore remain tightly focused on their particular topic. Mailing lists that distribute journals, dissertations, etc. are generally moderated.

In an unmoderated mailing list, messages are automatically distributed to each subscriber. Though this can cause clutter, most discussion-oriented mailing lists are unmoderated.

3.2.3 Advantages of Listserv

Please Note: See Appendix 1 for a list of translation and language-related Listservs, as well as some Listservs for domain specialists.

Listserv mailing lists are an excellent source of information on various topics. Participants to mailing lists are from all over the world, with various experiences and backgrounds.

Consequently, mailing lists are an excellent way to gain information from people with varying perspectives.

3.2.4 Limitations of Listserv

Listserv's main limitation lies in the volume of mail that subscribers may receive: if one is subscribed to several lists, the volume can become unmanageable. Since every message sent to the list automatically ends up in the user's mailbox, the user must spend time weeding through large numbers of messages. This limitation does not exist with Usenet, since the latter does not

send messages directly to the user's mailbox but instead allows users to peruse messages at their convenience.

3.3 Usenet

Created in 1979 by two Duke University graduate students, Usenet consists of thousands of *newsgroups*, each of which deals with a specific topic. Like Listserv, Usenet provides a way for people to exchange messages on various topics. Yet Usenet differs significantly from Listserv: Usenet discussions do not occur through the intermediary of e-mail, but through a system of their own in which "real-time" exchanges take place.⁵¹ Moreover, Usenet newsgroups are usually unmoderated, and therefore tend to be more spontaneous (some might say anarchical) than Listserv.

Usenet is organized hierarchically. At the top of the hierarchy are the most general subject-field categories. The major ones are:

biz.	Business
comp.	Computer
misc.	Miscellaneous
news.	Internet and Usenet-related news
rec.	Recreational
sci.	Scientific
soc.	Sociological
talk.	Debate-oriented topics
alt.	Alternative (covers a wide range of topics, including more controversial ones).

In turn, each of these categories is divided into progressively narrower categories. For example:

news.software.readers
rec.arts.sf.movies

⁵¹ In computer terms, "real-time" refers to exchanges that occur almost instantaneously. Just as two people sitting together in a cafe are conversing in real-time, so are users who converse on Usenet.

sci.lang.translation
 soc.religion.buddhism
 talk.politics.environment
 alt.fan.tv

3.3.1 Accessing Usenet

Usenet newsgroups are accessed through *newsreader* software (e.g., *rn*). Newsreaders allow the user to access virtually all newsgroups in the world (except those that may be excluded by the administrator of the user's site). Some newsgroups can also be accessed through the World Wide Web.

3.3.2 Using Usenet

To participate in Usenet newsgroups, one must know how to subscribe to newsgroups, how to read and post Usenet messages, and how to follow Usenet etiquette. Users can subscribe to any number of newsgroups by providing their name and e-mail address to the newsgroup administrator. Once subscribed, the user may read and post *articles*. The following is a *thread* (string of articles on one topic) from the *sci.lang.translation* newsgroup.⁵²

Translating English to Dutch by software
 From: llango@xxx.co.uk (John Ellis)
 Date: Sun, 17 Sep 1995 09:23:22 GMT
 Organization: The Internet in Nottingham
Newsgroups: sci.lang.translation

Does anyone have experience of using PC Translator or other similar packages for translation of technical texts. I am presently translating a large manual into Dutch, soon to be followed by other languages. The strategy employed is to (a) simplify the English to make it more suitable for computer translation (b) build up word dictionaries and phrase dictionaries © have the objective of avoiding any final manual translation on computer-translated text (since this

⁵² Note that the body of a Usenet article resembles that of an e-mail message. The primary difference is that the heading of a Usenet article includes a reference to the newsgroup(s) to which the article was posted.

leads to severe maintenance problems whenever the English source text is amended). Progress so far is satisfactory, but I would be very interested to hear of the experience of others, particularly in Dutch, French or German.

Re: Translating English to Dutch by software

From: mark@xxx.tc.umn.edu (Mark Brose)

Date: Mon, 18 Sep 1995 04:45:13 GMT

Organization: University of Minnesota, Twin Cities

Newsgroups: sci.lang.translation

I have used Power Translator for Windows from Global Link to translate documents from German to English. I haven't utilized all of its features for computer translation conversion yet. The few times I've tried I've had relatively unsatisfactory results. I am building the dictionary, though, and over time it may become more effective for longer documents to let the software do the translation. Currently I use it more as a dictionary or for clarifying certain phrases. Your process is solid, though (a-c from above). I know Power Translator also has specialized dictionaries. I tend to do translations of all kinds so haven't invested in these yet, but they may be useful if you are more specialized.

Re: Translating English to Dutch by software

From: Geoff Butler <Geoff@xxx.demon.co.uk>

Date: Mon, 18 Sep 95 17:53:40 GMT

Organization: leisure

Newsgroups: sci.lang.translation

IBM's Translation Manager is pretty good at that sort of thing. It holds phrases and sentences, and it will help you find similar text that you might want to reuse. It will also greatly reduce maintenance problems because it can tell you just what needs to be retranslated following a change in the original.

On the other hand, it's not very cheap.

Geoff Butler

Re: Translating English to Dutch by software

From: lricha3340@xxx.com (LRicha3340)

Date: 19 Sep 1995 11:21:55 -0400

Organization: America Online, Inc. (1-800-827-6364)

Newsgroups: sci.lang.translation

....and you will need to proofread for mistranslations and correct practically every sentence done by a machine translator. Save your money.

Lou Richards

Mirna Dagher

Due to the "real-time" nature of newsgroups, Usenet has a unique online culture and "those who do not respect this culture do so at their own peril".⁵³ Respecting the culture of Usenet involves following a certain etiquette, also referred to as *netiquette*. The best way to learn about the Usenet culture is to "lurk" in a group for some time without posting. People who post offensive or solicitous articles have been known to receive thousands of angry messages (*flames*) from Usenet users.⁵⁴

Most newsgroups have their own *Frequently Asked Questions* (FAQ) document that answers many questions that new subscribers typically pose. The FAQ ensures that experienced users need not repeatedly encounter the same questions in the actual newsgroup.

3.3.3 Advantages of Usenet

Since human contacts are important resources for translators, Usenet is a very effective tool for translators. Usenet provides a means for obtaining answers to questions, seeking knowledge or tracking specific topics (as the example in 3.3.2.1 showed). When an article is posted to a newsgroup, every subscriber to that newsgroup can access it. Therefore, the chances of getting a

⁵³ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p. 136.

⁵⁴ When two lawyers from Arizona created a program that placed an advertisement for their legal services in almost every newsgroup on the Internet (some 5,500), Internet users responded by sending angry e-mail messages to the perpetrators. Within minutes, thousands of *flames* poured into the lawyers' e-mail box and caused their system to crash. After three days, the company that provided the lawyers with Internet access pulled the plug on their account, and programmers from Norway created a program that specifically sought out mass mailings from these lawyers in order to cancel them before they spread. (source: "Battle for the Soul of the Internet". In: *Time*, July 25 1994).

response within a matter of hours are quite good. Some newsgroups that may be of use to translators are:

- sci.lang.translation
- sci.lang
- alt.usage.english
- alt.usage.german

Besides these few newsgroups that deal specifically with language and culture, there are thousands of newsgroups on specialized topics that allow the translator to get information from others. Here are just a few:

- | | |
|------------------------|------------------------|
| • soc.culture.british | • fr.comp.ia |
| • soc.culture.american | • fr.comp.infosystemes |
| • soc.culture.canada | • fr.comp.os.unix |
| • soc.culture.french | • sci.aeronautics |
| • soc.culture.quebec | • sci.electronics |
| • comp.ai | • sci.med |
| • comp.ai.nat-lang | • sci.op-research |
| • comp.protocols.misc | • sci.psychology |
| • comp.robotics | • sci.engr.metallurgy |

3.3.4 Limitations of Usenet

The primary disadvantage with Usenet is that users may not encounter a newsgroup that deals with the particular field that interests them (for example, a preliminary search showed that no newsgroups exist yet in the fields of terminology or lexicography). Yet with thousands of topics, Usenet remains an important source of information.

4 Knowledge Retrieval Tools

In the previous section, I examined knowledge networking tools, which allow users to access information by contacting *other people* through the Internet. There also exist Internet programs,

which I will call *knowledge retrieval tools*, that allow users to *retrieve* information *directly* from the Internet. In section 4.1 I examine Gopher, a tool that has been described as a "surf-board" for the Internet. In section 4.2 I discuss veronica, a search engine that helps users sort through Gopher servers. In section 4.3 I examine WAIS, a search engine that performs full-text searches on indexed documents and finally, in section 4.4, I examine the World Wide Web, the newest and most exciting knowledge retrieval tool for the Internet.

4.1 Gopher

Developed at the University of Minnesota and released in April of 1991, Gopher allows users to search, view and retrieve files that are located on Gopher servers all over the Internet. It makes a logical presentation of what are otherwise scattered bits of information by guiding users through *hierarchical* levels of Internet data.

4.1.1 Accessing Gopher

There are two ways to access Gopher. First, users can access Gopher if their host computer has the Gopher client software. By typing **gopher** at their command prompt, users are shown their host's main Gopher menu. Users can access remote Gopher sites directly by typing **gopher** followed by the address of the remote Gopher site, or by clicking on a Gopher icon if they are using a Windows interface. Second, for those without access to a Gopher client, Telnet (Cf. section 5.3) can be used to run a Gopher client at a remote site.

4.1.2 Using Gopher

Gopher is a popular tool for several reasons.⁵⁵ First, Gopher superimposes a hierarchical index on top of files located on Gopher servers. This index is menu-driven, letting users tunnel through Internet resources without requiring them to have a precise location in mind. Integrated into each Gopher server are links to other Gopher servers, which, in turn, lead to other Gopher servers, and so on: "... the Gopher software, like the gopher animal, can burrow through the Internet to find data for you."⁵⁶ Figure 4 is an example of a main Gopher screen (taken from the Gopher server at the University of Ottawa's Computer Science Department):

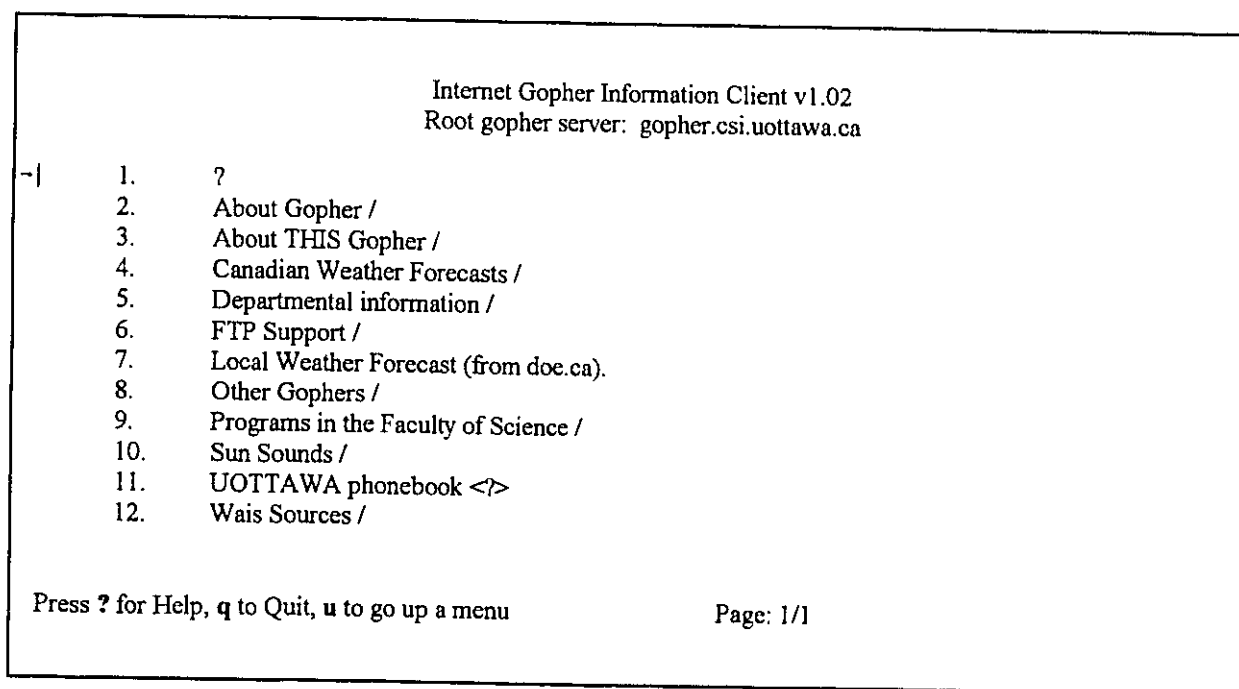


Figure 4 University of Ottawa Computer Science department's main Gopher menu.

⁵⁵ Currently there are over 7000 Gopher servers, and the annual rate of increase in Gopher traffic is estimated at 997% (*Internet : Le guide survie de l'internaute*).

⁵⁶ Richard J. Smith and Mark Gibbs, *Navigating the Internet*, p. 136.

As users select Gopher menus, the hierarchical divisions get narrower and narrower until, finally, they locate the particular information they seek:

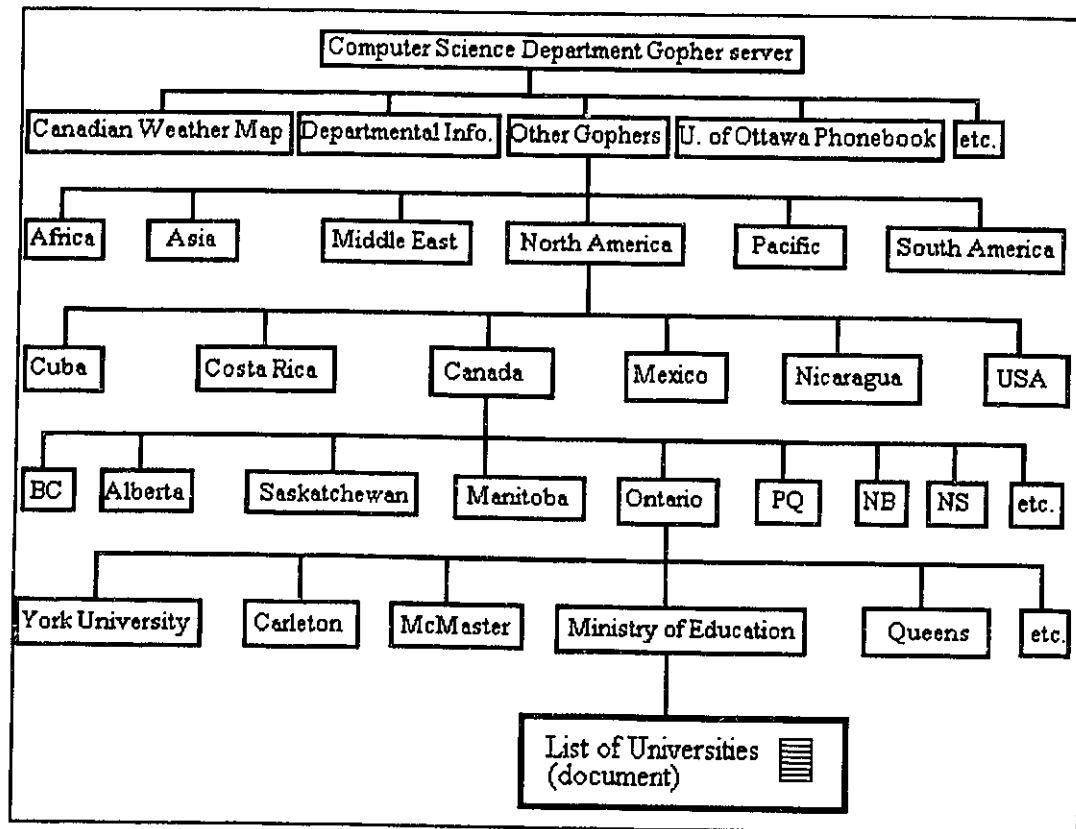


Figure 5 Hierarchical structure of Gopher (University of Ottawa, Computer Science Department)

4.1.3 Gopher's "hidden" utilities

Another reason for Gopher's success is the integration of two remote access applications: File Transfer Protocol (FTP) and Telnet. As section 5.1 will show, FTP allows users to transfer files located on remote computers. Through Gopher, users can download files by selecting the FTP link that is embedded into Gopher and all the work is done for them--no need to remember file names, directory locations and domain sites. Users can also access remote Internet servers

through Gopher by selecting embedded Telnet links. To access sites using Telnet, one must memorize addresses and login protocols; with Gopher, the user need only select the embedded Telnet link to connect to a remote site. Since Gopher provides seamless access to Telnet and FTP, why should a user use these tools? Gopher provides access to only a portion of the Telnet and FTP sites that exist, and so one must use Telnet and FTP to access those sites that are not accessible through Gopher.

4.1.4 Advantages of Gopher

By structuring information into various levels of menu items, Gopher provides an orderly arrangement of what are otherwise scattered chunks of information. As Chapter 1 showed, translators must often gain an understanding of a subject field through documentation. By using knowledge retrieval tools such as Gopher, translators can gain access to a wealth of useful documents. For example, Gopher can be an important source for translated texts, which can be useful as a source of bilingual terminology and, as automated corpus analysis tools become more and more common, as a source of bilingual corpora. Canadian Government Gopher sites, for example, store many documents in French and English. It should be borne in mind that the World Wide Web (Cf. section 4.4) is increasingly the preferred site for all kinds of documents, both governmental and non-governmental.

4.1.5 Limitations of Gopher

Though Gopher goes a long way to structure Internet data, it is nonetheless a system with limitations. As Figure 5 showed, there are several menus and menu items that users must tunnel

through before arriving at the files they seek. This process can be lengthy, particularly if users already know the location of the file they want to access. Therefore, Gopher cannot totally replace a tool like FTP, which lets users directly access the files they need. Moreover, one can never be certain that the menu item one selects is the one that will lead to the desired information. Users may tunnel their way down many levels in the hierarchy, only to arrive at the bottom and not find the file sought. *Veronica* (Cf. section 4.2), a tool that allows users to locate Gopher menu items through keyword searches, is therefore a necessary complement to Gopher.

Also, Gopher is not an exhaustive representation of all the resources that exist on the Internet. The files stored on Gopher servers are only those chosen by the administrators of each Gopher site.

Another one of Gopher's drawbacks is speed. Like many Internet tools, Gopher's performance speed will depend on a number of factors: the time of day, the location of the server one is contacting through Gopher, and the size of the directory or file being downloaded from the Gopher server to the user's host.

4.2 Veronica

As the previous section showed, users may find it difficult to locate information through Gopher. Veronica is a program that resides on many Gopher servers and maintains an index of Gopher menu headings and performs keyword searches of those menus headings. It was developed to help find files located on Gopher servers (one might say it was developed to find a needle in the

haystack that is Gopher). As of November 1994, approximately 15 million Gopher items⁵⁷ were indexed in veronica,⁵⁸ and in January 1995, approximately 5057 Gopher servers, out of the 7000 that exist, were indexed in veronica⁵⁹.

4.2.1 Accessing veronica

Veronica is found as a menu item on many Gopher servers that is often called "Search Titles in Gopherspace using veronica" or something similar⁶⁰. The following is a McGill University Gopher server featuring a veronica item (sifon.cc.mcgill.ca):

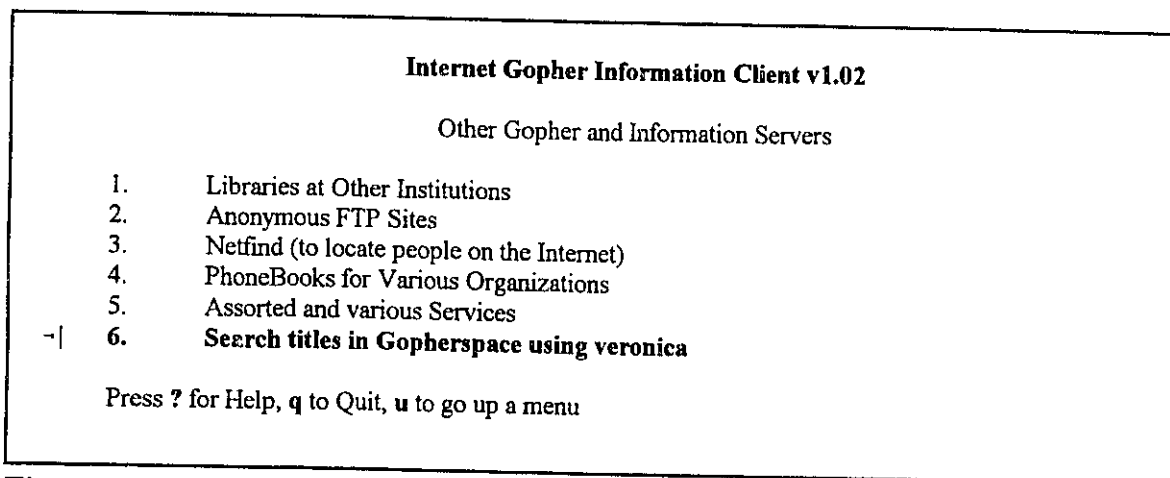


Figure 6 Gopher menu featuring *veronica* item

⁵⁷ The term *Gopher item* refers to all selectable entries in a Gopher menu.

⁵⁸ *Common Questions and Answers about veronica* (gopher.tc.umn.edu).

⁵⁹ Ibid.

⁶⁰ It should be noted that the word "title", as in *Search Titles in Gopherspace using veronica*, actually denotes the *headings* of Gopher menu items and is referred to as such throughout this paper.

4.2.2 Composing veronica queries

Veronica queries allow users to search Gopher menu items for particular words or phrases.

Veronica can perform several types of searches. First, users may choose to search either one particular veronica server⁶¹ or to perform a "simplified" veronica search. In theory, searching one veronica server would yield the same results as searching another. In practice, however, the various servers do not all update their indices at the same time. As a result, the response to a query may vary from one veronica server to another. Rather than search individual veronica servers, users may perform a "simplified" veronica search; that is, one in which the most accessible veronica server is searched.

Second, veronica menus allow users to either *search Gopherspace by Title words* or to *search Gopher directories by Title words*. The first type of search will find *all* Gopher items (i.e., directory *or* file) whose headings contain the keyword specified by the user. The alternative to this search is the one called a *Find Gopher Directories by Title words* search. As its name implies, this type of search will find only Gopher *directories*⁶² whose headings contain the keywords specified by the user.

⁶¹ A *veronica server* maintains an index of the *headings* of Gopher menu items (directories and files).

⁶² Gopher directories are any Gopher menu items which lead to further items (as opposed to files, which are at the bottom level of the directory structure).

4.2.3 Advantages of veronica

If users want to search a particular topic but do not where to begin, veronica is an essential resource since it allows them to query keywords and locate Gopher menu items. The following are a few keyword searches performed with veronica and some results:

Keyword search: machine translation

Results:

- Machine translation and the lexicon: details of conference (host site: nora.hd.uib.no)
- TRAN1 Machine translation program: English/Spanish (host site: cs.arizona.edu).

Keyword search: translation studies

Results:

- Canadian Association for Translation Studies (CATS) 1995 Congress Schedule (host site: tornade.ere.umontreal.ca)
- Abstracts for CATS Congress Papers (host site: same as above)
- TTR Journal: Table of Contents (host site: same as above)

4.2.4 Limitations of veronica

Veronica has three main limitations. The first is speed: the execution time for veronica queries can be lengthy, and this is a clear disadvantage for the translator. Secondly, searching veronica does not guarantee that all Gopher menus containing the keywords searched will be retrieved, since some Gopher sites are excluded from veronica indices. Finally, veronica does not perform full-text indexing of Gopher, but indexes only the headings of menu headings. Consequently, if a user were querying veronica by keywords that were present in the Gopher file but did not appear in the Gopher menu itself, the search would yield no results. For example, if users wished to find information on literary translation, they might search veronica using the words *translation* and *literary*. However, since both these words must appear in the heading of the

menu item, the results of the search may be less than optimal (i.e., if information on literary translation appeared under some heading other than "literary translation"). In the following section, I examine WAIS, an Internet search tool that *does* perform full-text indexing on documents.

4.3 Wide Area Information Server (WAIS)

Like veronica, WAIS locates information throughout the Internet; yet WAIS differs from veronica in two fundamental ways. First, WAIS indexes the full text of documents instead of just menu headings. Second, each WAIS server stores only a subset of all the WAIS-indexed texts in the world, unlike veronica, which contain most of the indexed filenames and menu items that are available on Gopher. Through keyword searches, the user asks the WAIS client program to retrieve documents stored on various servers: "WAIS (pronounced *ways*) attempts to harness the vast data resources of the Internet by making it easy to search for and retrieve information from remote databases, called *sources* in WAIS terminology."⁶³

Databases that store indexed documents are located on each WAIS server.⁶⁴ Currently, over 750 databases exist on topics ranging from music to robotics to beer-making. After receiving a WAIS query and searching the full-text index, the database server returns the files containing the keyword or phrase.

⁶³ Richard J. Smith and Mark Gibbs, *Navigating the Internet*, p.123.

⁶⁴ Since it is difficult to judge the content of a WAIS source by its title, it is useful to download a directory-of-servers document, which lists WAIS sources and provides descriptions of their contents. This directory-of-servers document is available via anonymous FTP from *ftp.wais.com* in the directory */pub/directory-of-servers*. The file name is *wais-sources.text*.

4.3.1 Accessing WAIS

There are two main ways to access WAIS. First, users can access a WAIS client through their host computer, or connect to one at a remote site through Telnet (for example, the University of North Carolina WAIS client at **sunsite.unc.edu**). This will allow the user to search the University of North Carolina's 76 WAIS sources. Figure 7 shows the first screen of this WAIS client:

WAIS		Source Selection	Sources: 76
#	Server	Source	Cost
001:	[sunsite.unc.edu]	alt-sys-sun	Free
002:		American-Music-Resource	Free
003:		avi_files	Free
004:	[calypso]	bush-speeches	Free
005:		carter-oh	Free
006:		clinton-speeches	Free
007:		clinton-speeches	Free
008:	[calypso]	cold-fusion	Free
009:	[sunsite.unc.edu]	Community-IdeaNet	Free
010:	[calypso-2.oit.unc.]	Dr-Fun	Free
011:		eisenhower-oh	Free
012:	[sunSITE.unc.edu]	eric-digests	Free
Keywords:			
<space> selects, w for keywords, arrows move, <return> searches, q quits, or ?			

Figure 7 WAIS screen from University of North Carolina

The user selects a set of databases to be searched⁶⁵ by keyword. Using the University of North Carolina WAIS client, a search was performed on the *Bill Clinton Speeches* and *White House Papers* databases for any documents containing the word *Haiti*. The search returned headlines to

⁶⁵ When using the intermediary of Gopher to access WAIS, the user can not select more than one database at a time.

29 documents that contained the keyword searched. The desired document can be retrieved simply by hitting enter.

Second, users can use Gopher as an intermediary between themselves and the WAIS server, as shown in figure 8:

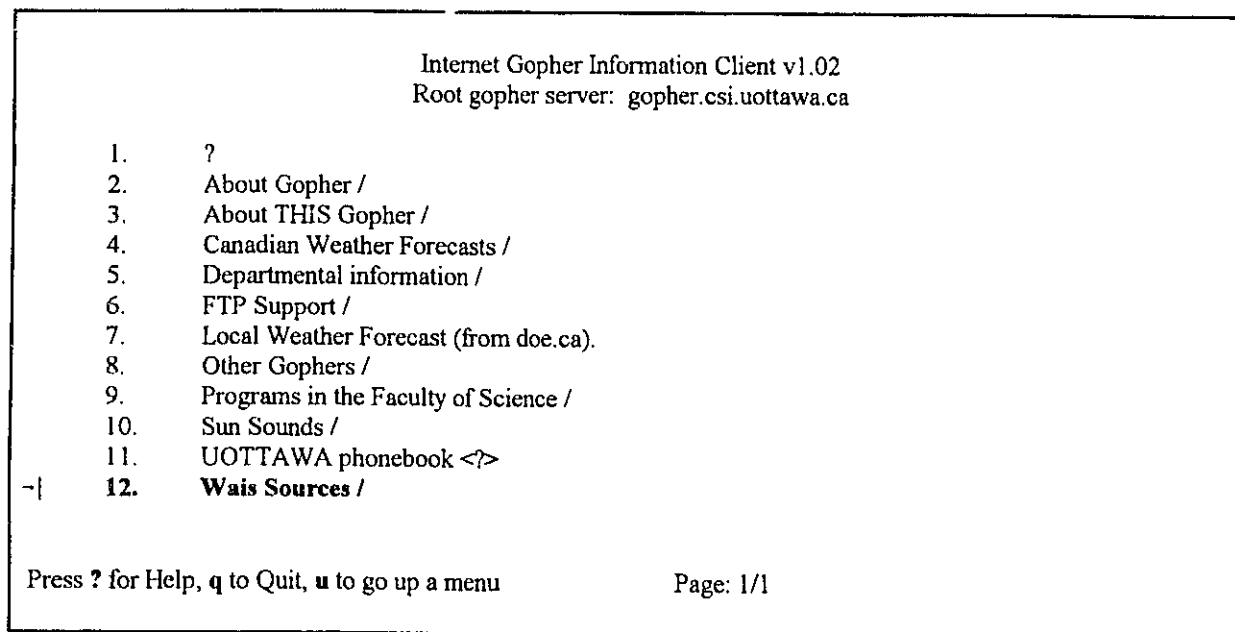


Figure 8 Computer Science Department's main Gopher menu (University of Ottawa)

By selecting 12. *Wais Sources*, users are shown a screen that displays a list of WAIS databases.⁶⁶

4.3.2 Advantages of WAIS

WAIS can be a useful tool for the practising translator or translation student who is looking for domain information. For example, the political speeches on Haiti found through my search could prove useful to someone translating a French document on the same subject. WAIS is

⁶⁶ Again, it is important that the user consult the directory-of-servers document before choosing a source, since the names of sources do not always accurately describe their contents.

clearly a valuable source of both domain information and terminology. Also, WAIS is a definite improvement over other Internet search tools, such as veronica. While the latter performs searches only on menu items, WAIS searches the entire body of the documents it indexes.

4.3.3 Limitations of WAIS

The obvious problem with WAIS is finding the information that one needs. Though many WAIS databases exist, their names may not accurately describe their content. When looking for information on Haiti, it is difficult to know if one should look in the *Bill Clinton Speeches* source, the *White House Papers* source, the *US State Department* source or the *World Factbook* source. The WAIS directory-of-servers document is helpful in solving this problem, although it does so only in part. Users are never guaranteed that the databases searched will contain the information sought.

WAIS also presents a major speed problem. Often it takes several minutes before a server responds to a query, and this can prove frustrating to the user.

4.4 World Wide Web

Created in 1989 by CERN (the European Laboratory for Particle Physics), the World Wide Web, also known as *WWW*, *the Web*, or *W3*, is a hypertext and multimedia information retrieval system that provides an innovative way to access Internet data. The World Wide Web is becoming increasingly popular among users.⁶⁷ To many, it is "an application whose time has

⁶⁷ The annual rate of increase in WWW traffic is estimated at 341,634% (as compared to 997% for Gopher), and in April 1995 there were over 3 million WWW users (*Internet : Le guide de survie de l'internaute*).

come",⁶⁸ and one that stands head and shoulders above more traditional Internet tools. To understand what makes the World Wide Web unique, I will compare it to Gopher, another knowledge retrieval tool. Gopher allows users to *tunnel* through hierarchical levels of information. However, Gopher's model differs significantly from the World Wide Web's. While Gopher's model is a hierarchical menu structure, WWW's model is to treat all Internet data as *hypertext*.

4.4.1 What is hypertext?

Hypertext is simply a text with non-sequential links to other texts. Hypertext documents contain a series of *pointers*. A pointer is a link made from any piece of information (a *node*) to another piece of information. In a hypertext document, if one wants more information on a particular subject, one simply clicks on the hypertext keyword to link to an associated document: "The idea is to have links between different parts of the document, to enable the information to be explored *interactively* rather than just in a *linear fashion*".⁶⁹ Hypertext uses a model that is associative--much like that of the human brain--rather than one that is hierarchical or linear.

4.4.2 Accessing the World Wide Web

Although one can access the WWW through a shell account, an *indirect* Internet connection for the WWW is far from ideal: with an indirect connection, users can only access the Web through textual browsers such as Lynx, which present the Web in *character mode* (i.e., without a

⁶⁸ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p.182.

⁶⁹ Richard J. Smith and Mark Gibbs, *Navigating the Internet*, p.168.

graphical interface). To take full advantage of the graphical browser programs that provide access to the Web, one requires a *direct* Internet connection.

4.4.3 Using the World Wide Web

I now examine the various ways in which one uses the World Wide Web. In particular, I will discuss WWW browsers, the addressing system of the WWW and, finally, how to locate particular sites.

4.4.3.1 Browsers

WWW browsers are the client programs that allow users to access and *browse* WWW sites. Some common browser programs are *Netscape*⁷⁰ and *Mosaic*. Many browsers provide users with a *graphical* interface to the Web, thus allowing them to select hypertext links by moving to an underlined word or icon with a mouse and clicking. Furthermore, graphical Web browsers incorporate a concept called *hypermedia*, a combination of hypertext and multimedia. For example, one Canadian government Web site features a world map. By clicking on a particular country, the user visits a Web site from that country:

⁷⁰ *Netscape* is currently the most popular Web browser. Netscape signals when it has connected to a site, displays the number of bytes to be downloaded and displays the number of bytes transferred at a given moment. Most importantly, Netscape *phases in* graphics. This means that unlike many other browsers, users do not have to wait for all graphics to appear on the screen before reading the text (text is generally transferred much more rapidly than are graphics).

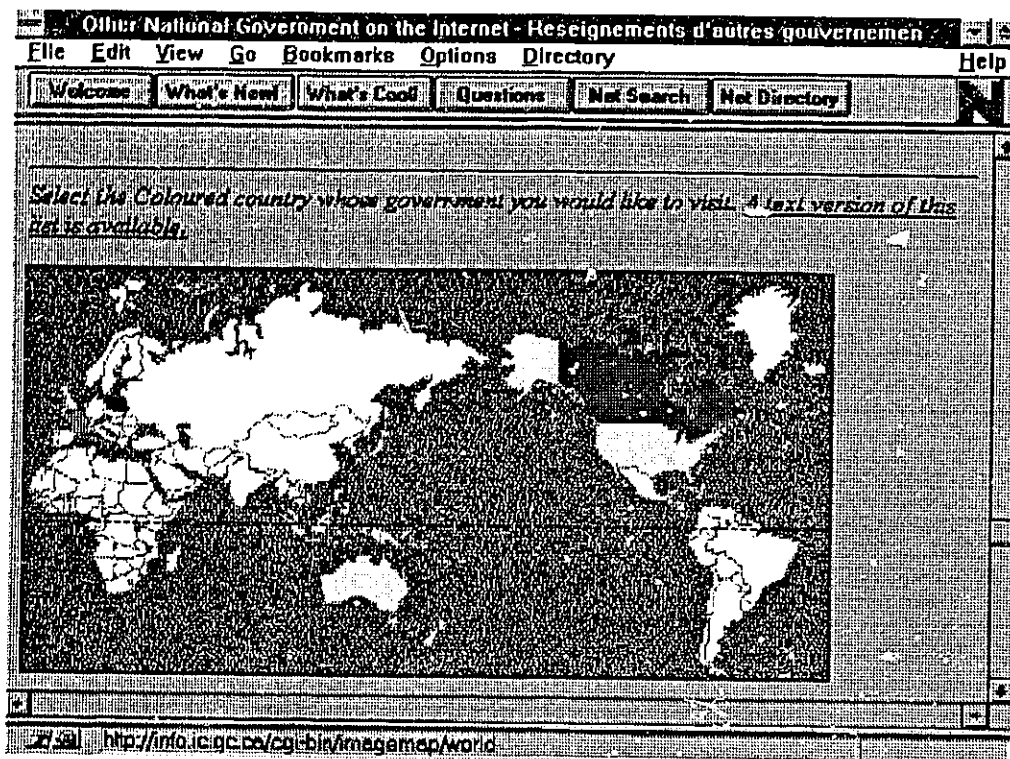


Figure 9 Illustration of hypertext document

Along with hypertext, the graphical component is what makes the Web such an innovative and user-friendly tool. WWW browsers are truly *multimedia* in the sense that they provide not only graphical support, but can also feature image, voice, sound and even video capabilities.

4.4.3.2 Uniform Resource Locators and home pages

Unlike Gopher, the WWW does not have any one level in a hierarchy. Instead, users begin exploring the WWW at a *home page*. To visit other home pages, users select hypertext links or specify the Uniform Resource Locator (URL) of the home page they wish to reach. URLs look like this:

<http://www.csi.uottawa.ca>

A home page is the first page one encounters when accessing a Web site. Home pages are often set up with text and images, and with highlighted words that contain links to other documents.

4.4.3.3 Finding home pages on the Web

Although there is no single catalogue listing of the plethora of home pages on the World Wide Web, there are a number of search engines that arrange WWW sites according to topic, thereby allowing the reader to locate the URLs for many sites. The following are some "catalogues" of WWW sites:

- *NetSearch* (<http://home.mcom.com/home/internet-search.html>)
- *Yahoo* (<http://www.yahoo.com>)
- *The WWW Virtual Library*
(<http://www.w3.org/hypertext/DataSources/bySubject/Overview.html>)
- *The Central Index of Canadian WWW Servers*
(<http://www.csr.ists.ca/w3can/Welcome.html>)
- *WebCrawler* (<http://webcrawler.com.html>)
- *InfoSeek* (<http://www.infoseek.com> instance)

4.4.4 Advantages of the World Wide Web

The World Wide Web is the most useful and user-friendly tool that I have discussed. Because of its hypertextual interface, the WWW is intuitive and takes little time to learn. Saving files, for example, can be less challenging through the World Wide Web than through more traditional tools. As one author puts it:

Tell novices how to download files using Unix commands, and you can see their eyes glaze over. But put them on the Web and show them how to

click from one place to another, and they don't want to let go of the mouse.⁷¹

The Web is also a useful tool since every day hundreds of new sites are added, making it an invaluable source of information. I now focus on those Web sites that can be of particular use to translators.

4.4.4.1 Resources for translators on the World Wide Web

At present there are several sites on the WWW that cater specifically to language professionals. We will mention three of those sites: two that target translators specifically, and another that provides extensive linguistic information.

I will now present some of the resources that exist on these Web sites, and will include screen dumps from their respective home pages:

The Translator's Home Companion (Northern California Translator's Association)

This page is located at <http://www.rahul.net/lai/companion.html>:

⁷¹ Henrik Drescher, "Browsing the Wild, Wild Web", p.42.

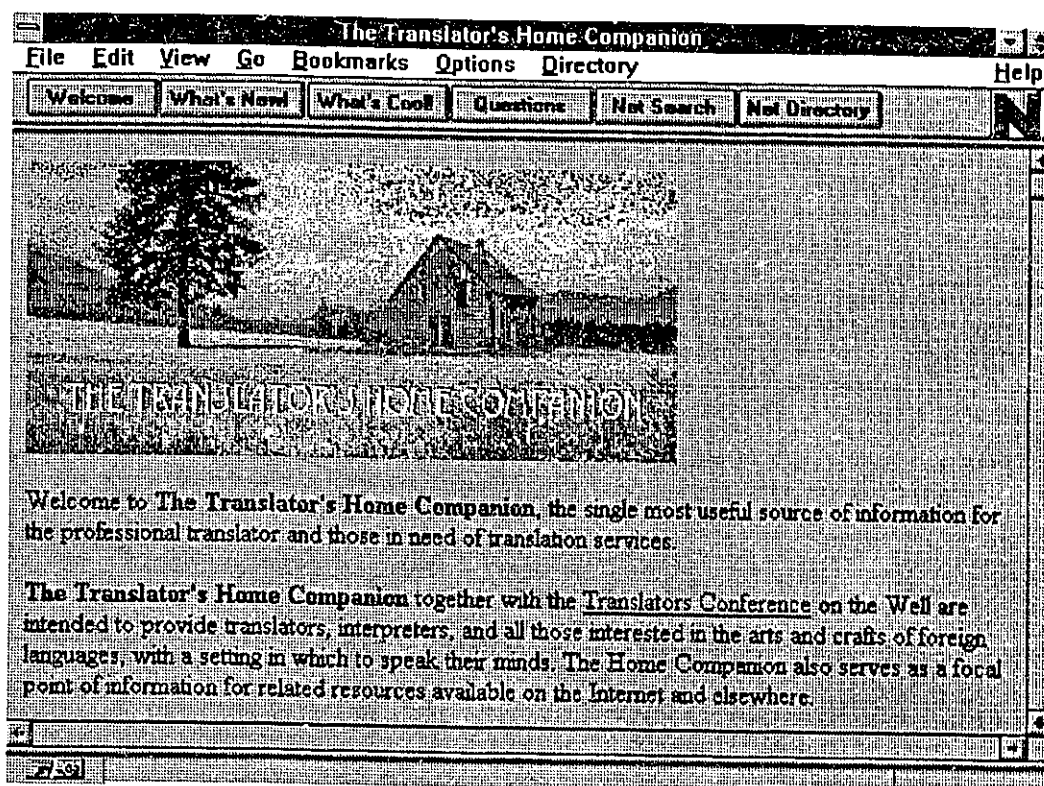


Figure 10 Translator's Home Companion

Some translation-related resources found at this site include:

Online Dictionaries and Glossaries:

Acronym Dictionary (En)	Vietnamese Computer Glossary
JDIC Japanese-English Dictionary	Langenscheidt's E-G/G-E Dictionary
Computing Terminology Dictionary (En)	Eurodicautom
Software Engineering Glossary (En)	Small Spanish-English Dictionary
Dictionary of Technical and Natural Language	Small English-Spanish Dictionary
Roget's Thesaurus	Vietnamese Computer Glossary
English-French Dictionary	Sun Microsystems glossary of terms
French-English Dictionary	ITU Telecommunications Terminology Database
German-English Dictionary	(TERMITE) in English, French, Spanish, and Russian

The Aquarius Directory of Translators and Interpreters

Directory of Translation Agencies

Directory of Translation Organizations Information on Conferences and Seminars

Online Library Catalogues

Library of Congress

Harvard online catalogue

International News Services

Clarinet International News

The Electronic Newsstand
 Voice of America Newswire
 French Language Press
 German Language Press
 Der Spiegel

Another translation site on the Web was very recently set up by the *Ordre des traducteurs et interprètes agréés du Québec* (OTIAQ), available at <http://www.vli.ca/clients/otiaq>:



Figure 11 OTIAQ WWW site

The OTIAQ site is an excellent resource for translators. It contains several useful sites, which are grouped into the following categories:

Langue et traduction
 Outils de recherche sur Internet
 Répertoires de sites
 Ressources documentaires

Sites francophones
 Internet et World Wide Web
 Quelques coups de coeur

Also, the OTIAQ site will eventually contain discussion groups, some of which may cater to various technical fields. The OTIAQ site will also eventually feature a *Coin des étudiants*.

The Human-Languages Page (HLP)

(<http://www.willamette.edu/~tjones/Language-Page.html>):

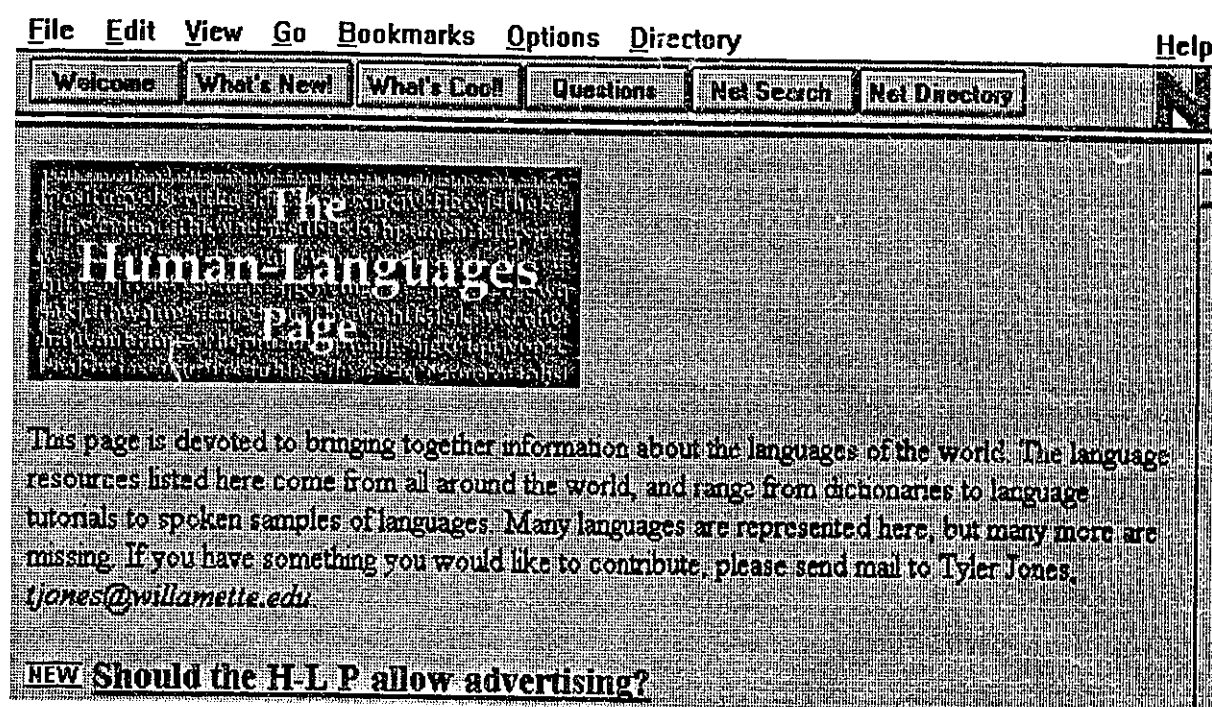


Figure 12 Human Languages Page

The HLP brings together resources on various languages in the world including:

Language-related events
 Languages and Literature:

Afrikaans, Arabic, Bulgarian, Catalan, Chinese, Croatian, Danish, Dutch, English, Finnish, French, German, Greek, Hebrew, Italian, Japanese, Norwegian, Persian, Portuguese, Russian/Eastern European, Serbian, Spanish, Swedish, Vietnamese, Yiddish/Shetl

Books/Text Collections
Linguistics labs and institutions on the Internet
Commercial Resources

Other sites on the Web that may be useful to translators include:

- Hypertext Webster Interface: An English dictionary on the Web with links between words in definitions and other entries. <http://c.gp.cs.cmu.edu:5103/prog/webster>
- Webster - Web Webster Gateway. <http://www.fwi.uva.nl/htbin/webster.cgi>
- Middle English Dictionary: A searchable Middle English dictionary
<http://etext.lib.virginia.edu/mideng/browse.html>
- Computing Jargon - WWW-to-Hyper-G Gateway; Hyper-G server at the Graz University of Technology.
<http://iicm.tu-graz.ac.at/Cjargon>
- Dictionary of Computing <http://wombat.doc.ic.ac.uk/>
- Software Engineering Glossary <http://dxsting.cern.ch/sting/glossary-intro.html>
- NASA Terminology Collection <http://www.sti.nasa.gov/nasa-thesaurus.html>
- Unix and Internet dictionary <http://www.nnsg.net/kadow/answers.html>
- Real Estate and Mortgage Glossary <http://www.homebuyer.com/realestate/common.dir/glossary.html>
- Credit, Financial and Legal Glossary <http://www.teleport.com/~richh/glossary.html>

French-language resources on the Web

- Institut national de la recherche scientifique: <http://www.inrs-urb.quebec.ca>
- Le gouvernement du Québec: <http://www.gouv.qc.ca>
- Le centre de recherches informatiques de Montréal: <http://www.crim.ca>
- Le Monde diplomatique: <http://www.ina.fr/CP/MondeDiplo/mondediplo.fr.html>
- Le coin des francophones et des autres grenouilles: <http://web.cnam.fr/fr/>
- Internet en français: <http://www.uqat.quebec.ca/~wwweduc/franc.html>
- Le quartier français du village global: <http://www.ensmp.fr/~scherer/servers/gv/gvfrench.html>
- Les grenouilles câblées: <http://www.hooked.net:80/users/bounie/>
- La toile du Québec: <http://www.vir.com/~wily/quebec.htm>
- FRANCO-L - pour les francophones universitaires: <http://www.ualberta.ca/~fmillar/franco.html>
- Paris Links: <http://www.paris.org/Links/>
- Hapax French Resources on the Web: <http://hapax.be.sbc.edu>
- La baguette virtuelle: <http://www.mmania.com/>
- WebNautes francophones: <http://www.lanternette.com/hugo/francais.html>

Besides the resources already mentioned, the World Wide Web is an excellent tool for finding domain information. Furthermore, the WWW can be an important source for translated texts; in Canada, we are fortunate to have many translated texts online. In particular, the Government of Canada has several WWW sites that contain translated material. For example:

Government of Canada Open Government Project
<http://www.compusult.nf.ca/opengov/>

From the *Open Government* home page, users can link to the home pages of several government departments that contain various documents.

4.4.5 Limitations of the World Wide Web

The World Wide Web represents a clear improvement over earlier Internet tools such as Gopher and WAIS. At present it seems that its main limitation is in terms of hardware, since it requires a more sophisticated type of connection than do other tools (if used in graphical mode). The World Wide Web--when combined with a graphical browser--offers multimedia capabilities. However, many Internet users access the Internet through an indirect connection, and therefore cannot take advantage of the Web's click-and-point, graphical interface. To this extent, the Web is a tool that, at least for now, is restricted to users with a direct connection.

5 Remote access applications

Remote access applications allow users to access and actually log on to other computers connected to the Internet. In section 5.1, I examine a remote access application called File Transfer Protocol (FTP), the tool for transferring files between computers on the Internet. In section 5.2, I discuss archie, a tool that helps users locate files located on FTP servers. Finally, in section 5.3, I examine Telnet, a tool that allows users to run programs that reside on other computers.

5.1 FTP

"The Internet contains a treasure trove of computer programs, documents and images that you can retrieve for your own use."⁷² These computer programs, documents and images are located on file servers all over the Internet, and to access them, users must use the Internet protocol FTP.

5.1.1 Accessing FTP

To transfer files through FTP, users must link to one of the various FTP file servers located on the Internet. If users have direct access to an FTP client program through their host computer, they may reach an FTP server simply by typing **ftp**, followed by the address server's host:

- **ftp ftp.ulaval.ca** (to link to Université de Laval's FTP server).

Many FTP servers permit "anonymous" logins, which allow anyone on the Internet to access the files on that particular server: "[Anonymous FTP] essentially will let anyone in the world have access to a certain area of disk space in a non-threatening way. With this, people can make files publicly available with little hassle."⁷³ With anonymous FTP, users enter their e-mail address as a password. Figure 13 shows the login procedure for the FTP server at ftp.ulaval.ca:

⁷² Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p.147.

⁷³ Brendan P. Kehoe, *Zen and the Art of the Internet*, p.19.

```

$ ftp ftp.ulaval.ca
Connected to nemesis.sit.ulaval.ca
220 nemesis FTP server (UNIX System V Release 4.0) ready.

Name (ftp.ulaval.ca: kkelly): anonymous

331 Guest login OK, send ident. as password.

Password: 060248@acadvm1.uottawa.ca

230 Guest login OK, access restrictions apply.

ftp>

```

Figure 13 FTP login procedure

If users access FTP through a Windows interface, they will only need to click on an FTP icon.

5.1.2 Retrieving files through FTP

The commands that are most often needed to retrieve files through FTP are⁷⁴:

cd - change directory

dir - directory listing

get - retrieve file

mget - retrieve multiple files

ascii - sets FTP to ASCII mode, the default mode for transferring text files

bin - sets FTP to binary mode, used for transferring non-ascii files (graphics, audio, etc.)

To retrieve a file, the user must know the address of the FTP site, the directory location of the file and the file name. Once users locate the file they seek, they retrieve it by typing **get**

followed by the name of the file, for example: **get internet.txt**⁷⁵

⁷⁴ A complete set of commands for the Unix version of FTP can be listed by typing **help** at the **ftp>** prompt.

⁷⁵ If users know the name and directory location of the file they want, there is no need to sift through FTP directories. Instead, users can type the **get** command followed by the path and filename when they first arrive at the **ftp>** prompt.

With this command, the file is transferred from the remote FTP server to the user's computer (if there is a direct connection) or to the user's host computer (if there is an indirect connection).

5.1.3 Advantages of FTP

Since retrieving documents from the Internet can be an excellent means for translators and translation researchers to obtain information, FTP is an useful tool for them to learn. The following are some translation-related resources available through anonymous FTP:

- Terminology/corpus analysis

To access a bibliography featuring corpora-related references, users can go by FTP to the server **nora.hd.uib.no**. Here, in the **pub/icame** directory, they will be able to retrieve (**get**) a file called **biblio.after.1989.rtf**.

- Morphology software

To access morphological parsers from the Summer Institute of Linguistics, users can go by FTP to the server **ftp.sil.org**.

- Machine translation software

To access the TRAN1 machine translation program (English-Spanish), users can go by FTP to **cs.arizona.edu** and retrieve the software in the directory **icon/contrib/tran1sp.zip**.

5.1.4 Limitations of FTP

FTP has two major limitations. The first is that it has a *command user interface* (CUI)⁷⁶.

Moreover, the commands that the user must memorize are based on the Unix operating system.

Since translators are less likely to know Unix than other operating systems (most PC users are

⁷⁶ A CUI requires that the user input various commands, as opposed to a *graphical user interface* (GUI), which presents the user a list of possible commands from which to choose.

familiar with the Mac operating systems or DOS), Unix commands may seem foreign to them and difficult to recall.

The second limitation of FTP is that users must know the precise locations of the files they want to retrieve. Without such information as the address of the FTP server, the directory location of the file and the file name, users are unable to download the information they need. As stated in *PC Magazine*: "FTP servers are great, but finding the one among thousands that has the file you want can be a daunting task. That's what led to the development of *archie*, a tool for searching FTP servers."⁷⁷

5.2 Archie

While the Internet is fast becoming a standard way for people to access information of all types, it is often said that finding this information is the real stumbling block for most users: "The Internet is the largest functioning anarchy in the world... Every day millions of words are added and build an immense distributed document, one that is under eternal construction, constant flux."⁷⁸ Archie is a tool that makes sense of this "functioning anarchy" by searching files located on FTP file servers.

Archie is a collection of database systems that search FTP file servers to find out what is available. Archie servers periodically scan FTP servers to see what files are available, and, as a result, the archie database is constantly being updated. When archie finds a particular word or

⁷⁷ Rick Ayre, "Making the Internet Connection", p.135.

⁷⁸ Jim Carroll and Rick Broadhead, p.18.

phrase the user has searched, it responds by showing the name, directory location and host site of the file found. With this information, the user then uses FTP to download the document.

5.2.1 Accessing archie

There are two ways that users can access archie. If users have direct connectivity to an archie client--that is, if their host computer runs the archie client software--then they have direct access to archie. If, however, users' Internet service providers do not provide access to archie, they must Telnet to an archie site. Users can Telnet to one of the following archie sites⁷⁹: archie.mcgill.ca; archie.sura.net; archie.unl.edu; archie.ans.net; or archie.rutgers.edu.

5.2.2 Composing archie queries

The syntax of an archie search is as follows: **archie -x search string**, where *x* is the switch and where *search string* is the keyword or file name entered by the user. While the **-e** switch is the archie default, a much broader search can be performed with the **-s** switch, which allows users to enter a case insensitive substring search (e.g. archie -s translation). Archie switches can be used in combination with each other

⁷⁹ There are currently fourteen publicly-accessible archie servers that index files on over a thousand FTP servers (Smith and Gibbs, p.103).

5.2.3 Advantages of archie

For those interested in file transfer, archie is an indispensable tool. As the number of files stored on FTP servers continues to increase, archie will become an even greater asset for those wishing to locate a particular file.

5.2.4 Limitations of archie

Archie's principal limitation is that its databases index only those files that are available through anonymous FTP.⁸⁰ This means that all other FTP sites--even those which a user may have access to but which nonetheless are not classified as anonymous--will not be represented in archie.

With archie, therefore, users are not locating all the files that actually exist on FTP sites.

Also, archie provides only limited information on a given file. It tells users nothing in the way of the file's contents, size or type. This again relates to the issue of time; searching through archie would be more efficient if the system revealed more about the files it locates.

Finally, like veronica, archie is limited by the fact that it searches only file *titles*, and not file *contents*. This can be problematic when the file's contents do not correspond to its name.

5.3 Telnet

While FTP allows users to *fetch things* from other computers' file archives, Telnet lets the user *log on to* other computers; in other words, to use a remote computer as if it were the computer on the user's own desk.

⁸⁰ Anonymous FTP represents that part of an FTP server to which the public has access. That portion of an FTP server which is not anonymous is accessible only to those who are account holders on the particular server.

5.3.1 Accessing Telnet

There are two ways to access Telnet. The first is by using a Telnet client if available through the user's host computer. Secondly, as section 4.1.3 showed, Telnet can be accessed through the intermediary of Gopher. With Gopher, the user selects menu items followed by the symbol **TEL**, and Telnet is automatically engaged (the address of the Telnet site is encoded in the Gopher menu item). In this way, Gopher provides conveniently "seamless" access to Telnet.

5.3.1.1 Telnet commands

The most commonly used Telnet commands are:

close: terminates the connection to the remote computer.

open: connects user to remote site if user is already at **telnet>** prompt.

quit: leaves the Telnet program.

The commands listed above are only those that the user must know to run Telnet. Once users connect to a remote site, they must learn to use the various commands that are required by whatever software they are running remotely.

5.3.2 Advantages of Telnet

Telnet is useful for translators and translation students alike. In a research environment, for example, it is not uncommon for a person to have accounts on many computers. This is often the case at universities, where there are numerous departments, each of which can have their own operating systems. Telnet enables users to access any of their accounts regardless of which computer they are connected to at a given moment. Similarly, Telnet can be advantageous for

those whose work requires them to travel--when away from the workplace, users can Telnet to their home computer to check e-mail, run programs, etc.

Telnet is also widely used for the purpose of accessing large databases. By using Telnet to connect to university libraries, for instance, users can search online catalogues. Appendix 3 provides a list of Telnet addresses and login procedures for some of Canadian university libraries.⁸¹ There are other Telnet sites that translators might find of particular use. For example, the European Community's terminological bank EURODICAUTOM is available through Telnet at the address **echo.lu** (log in as **echo**). The ECHO site features the following resources:

1. EURODICAUTOM
2. A demo of Systran's machine translation program
3. A thesaurus
4. An index of translated books

The *Electronic Newsstand*, an online database of journals and newspapers, is available at the address **enews.com** (log in as **enews**). Translators may also use Telnet to connect to Freenets (Cf. section 6.2.).

Finally, Telnet allows users to access various Internet tools that may not be available at their host site. Among the Internet tools that can be accessed via Telnet are Gopher (and veronica), archie, FTP and WAIS.

⁸¹ Jim Carroll and Rick Broadhead, *Canadian Internet Handbook*, p 667.

5.3.3 Limitations of Telnet

When using Telnet, users are in fact accessing other computers which their own computer is only imitating through *terminal emulation*:

"Terminal emulation" when using Telnet is one of the necessary evils of the Internet. When using Telnet, you could be linking into all kinds of different computers around the globe, each of which might run differently. Your computer has to pretend to be the proper type of "terminal" for each system that it might access, and given the different number of systems out there, it can't pretend to be everything to everyone.⁸²

Terminal emulation will probably cause users of Telnet some frustration. For example, the f8 key on one system may only work as <esc> 8 on one terminal, or the delete function may only work by hitting the backspace key. Consequently, terminal emulation means that the user must sometimes learn a new set of keystrokes depending on the terminal he is using.

Furthermore, Telnet requires users to learn different sets of commands for the various systems they access. The commands used from one remote system to the next can vary greatly, and users must learn the commands for each piece of software that they are running remotely.

Finally, Telnet presents a similar problem to FTP in that both systems require users to know the precise location of the site they wish to reach. Yet unlike FTP, Telnet has no tool similar to archie that allows users to locate particular sites.

⁸² Ibid., p. 145.

6 Additional Internet services

In section 2.4, I discussed the various ways to connect to the Internet, and mentioned that people without Internet access through their university or workplace can pay commercial service providers or access Freenets in order to gain Internet access. In section 6.1 I discuss commercial service providers, and in section 6.2 I examine Freenets (in particular, the National Capital Freenet).

6.1 Commercial service providers

Commercial service providers are companies that *sell* Internet access. They may provide either indirect or direct access. Generally, users must pay a monthly fee for their Internet services.

While many online services are free of additional charges, certain extended services require that the user pay an additional hourly rate. The following are the rates charged as of August 1995 by *CompuServe*, a major US service provider:

<u>monthly rate:</u>	\$9.95
<u>basic services:</u>	free
<u>extended services:</u>	\$4.80/hour (certain magazines, reference works, etc.)
<u>E-mail:</u>	\$0.10 per message, \$9.00 e-mail credit per month (for both CompuServe and Internet e-mail)

6.1.1 Accessing through a commercial service provider

To gain access to the Internet through a commercial service provider, users require only a modem and a telephone line. Users then register with the service provider either by calling the commercial service provider or by sending information to the company through their modem connection.

6.1.2 Using a commercial service provider

There are many commercial providers, and the services they provide can vary significantly. I will explore CompuServe, one of the leaders in Internet services with over 1,000,000 subscribers. Although CompuServe is a US company, it is accessible via a local phone call in most major Canadian cities, including Ottawa.

CompuServe comes with a Windows-based program called *CompuServe Information Manager* (CIM). Once installed on the user's computer, CIM allows the user to navigate CompuServe through a graphical interface. Through PPP software, CompuServe provides access to Internet tools like the World Wide Web, Telnet, FTP and WAIS. The commercial service providers *Prodigy* and *America Online* also provide access to these Internet tools. The following are some additional services offered by CompuServe:

E-mail: CompuServe e-mail (communication with other CompuServe members)
Internet e-mail (for communication with all Internet e-mail users)

Forums: Aviation
Science/Technology
Finance
⇒ **Foreign Language**
Electronic Publishing
Professional
Software
Travel

CompuServe e-mail refers to messages exchanged between registered CompuServe users, and *Internet e-mail* refers to messages exchanged all over the Internet. *Forums* are discussion groups where users participate in "real-time" conversation. They are similar to Usenet newsgroups in that they allow users to exchange information on a particular topic (however, forums are only accessed by members of a particular commercial service provider).

CompuServe features a *Foreign Language* (FL) forum, which, like the *sci.lang.translation* newsgroup, is an excellent venue for translators who wish to communicate with other professionals in their field. The FL forum is organized into various groups, a few of which are:

English
French
Spanish
Italian

Translation (help) - for punctual translation questions, i.e. What is the Spanish for *hacker*?

Translation (misc) - general discussion of the theory and practice of translation.

Jobs/Careers

etc.

In addition, CompuServe offers a database of translators and translation agencies registered with the service. Two other invaluable services for translators are the *Magazine Database* and the *Business Database*. The Magazine Database yields a list of more than 100 articles, and the Business Database, a list of more than 400. Many are journal articles that contain a short glossary of technical terms. For example, in the *Business Wire* edition of March 9, 1995, one finds "A glossary of anti-lock braking system / ABS terms" which explains many technical terms related to ABS.

Other information services offered by Compuserve include, but are not limited to:⁸³

News:	Associated Press Online: News reports updated hourly
	US News and World Report
	Der Spiegel
	CNN Online
	US News and World Report Online
	Newspapers
	Detroit Free Press
	Jerusalem Post
	Le Monde

⁸³ Most online newspapers and magazines appear in an abridged format.

Magazines:	Maclean's Online Consumer Reports New York Magazine Online Computer Magazines Consumer Magazines Business Magazines/Newsletters Financial Publications
Reference:	Academic American Encyclopedia The Hutchinson Encyclopedia Consumer Reports American Heritage Dictionary Information Please Almanac Demographic and Government Information Computer Library Online

6.1.3 Advantages of commercial service providers

There are two main advantages of commercial service providers. The first is for those who cannot access the Internet through their work, research institution or university. Commercial service providers allow those people to explore Internet services that were once out of reach. Moreover, even people with free Internet access may find it advantageous to use commercial service providers. For example, researchers may find certain professionally-oriented forums to be useful for communicating with other researchers in their field.

Secondly, many commercial service providers are accessed through Windows-based interfaces. This stands in contrast to some of the more traditional Internet tools--such as WAIS and FTP--which can often seem archaic and difficult to use.

6.1.4 Limitations of commercial service providers

The number of services provided by commercial service providers can be somewhat restricted. The services offered by CompuServe, for example, represent only a part of the information that

exists on the Internet. The information one accesses through a commercial service provider is only the information that the company *chooses* to offer, and does not necessarily include all the information that a user may need.

6.2 Freenets

Freenets are locally-run, non-profit networks that provide free Internet access to members of a given community. The concept of Freenet is explained clearly by the board of Ottawa's *National Capital FreeNet* (NCF):

The best way to understand the dynamic of a Freenet is to think of it as a public space just like a city hall or a city park. It is an open place where individuals, organizations, and institutions can interact and exchange information. The heart of a Freenet is a central computer network dedicated to storing and retrieving thousands of files of information and to relaying thousands of messages each day among community members and organizations.⁸⁴

By dialing a single number via modem, members of a community can gain free access to the Internet. Freenets provide a shared platform for various community organizations, and for users this means "one-stop" access to many community-based utilities that they normally would have to access separately. Victoria, B.C. established Canada's first FreeNet, and since then the number of communities that have established Freenets has increased considerably.⁸⁵ Since Freenets do not charge for their services, they normally depend on government grants, corporate sponsorships and private donations to cover their operating costs.

⁸⁴ National Capital FreeNet FAQ (available at freenet.carleton.ca).

⁸⁵ Appendix 4 provides a list of Canadian FreeNets.

6.2.1 Accessing Freenet

There are two ways to access Freenet. First, users can dial up, via modem, the number of their local Freenet. Once registered, the user gains access to a variety of Internet tools. The National Capital Freenet provides access to:

- E-mail
- Usenet newsgroups
- Gopher
- World Wide Web
- Chat (NCF version of Inter Relay Chat).

Second, users can sometimes gain access to Freenet through terminals located in various public places. In the case of the NCF, several Public Access Stations have been installed throughout Ottawa-Hull.

6.2.2 Using Freenet⁸⁶

Once users log on to Freenet, they are presented with a menu of options from which to choose:

E-mail, Usenet, WWW (through Lynx), Telnet and Chat.

There are also menus that contain various other types of information, such as:

Government	Municipal governments
	Provincial governments
	Federal government
	International embassies
Non-Government	Business
	Civic Action
	Environmental issues
	Community associations
	Professional associations
	Religion and spirituality
	Science and technology

⁸⁶ This section will describe features available on the National Capital FreeNet

Newsstand	Newspapers Radio and television La presse de France Le Droit
Libraries	Various libraries in Ottawa and the surrounding area
French menu	Babillard général français Comité francophone Groupes d'intérêt Administrations publiques Médias Le Droit

While the NCF provides translators with many types of information, there is one feature in particular that is invaluable. The *Translation SIG* (Special Interest Group), like a forum or newsgroup, is a place for translators to meet and discuss issues in their field. The *Translation SIG* frequently features questions about translation problems, discussions about the status of the profession, and various job announcements. In addition, SIGs exist on a variety of specialized topics that could be useful to technical translators.

6.2.3 Advantages of Freenet

There are significant advantages to community Freenets. Because they are free of charge, they allow everyone in the community to use Internet resources. This is particularly important for those users who normally would not have Internet access through their work or school.

Moreover, Freenets provide a common place for citizens to meet, exchange information, and keep abreast of news in their community.

A Freenet account can also be advantageous to those who already have Internet access. Because Freenets are very focused on their particular community, they provide the kind of *local information* that one would have trouble finding through other services.

6.2.4 Limitations of Freenet

Like commercial service providers, Freenets provide a limited amount of Internet resources. This problem may vary with each Freenet, as some will provide more services than others, depending on their funding situation. Moreover, as with all dial-up connections, Freenets can pose problems in terms of speed. The slower the user's modem speed, the longer it takes to access services. In addition, Freenets can only handle as many users at a time as there are phone lines. If a Freenet has relatively few phone lines compared to a large number of callers, users may frequently have difficulty connecting.

CHAPTER 3

7 Practical explorations of the Internet

Chapter 2 focused on Internet tools and resources, with a particular focus on those which, in *theory*, might be useful to translators. In this section, I explore how these tools can be of use to translators in *practice*. This exercise will involve the translation of three French texts, with the Internet being used as the sole source of information. By doing this, I hope to illustrate, in a modest way, the strengths and weaknesses of the Internet for translating various kinds of texts. The texts chosen for this exercise are:

- Text 1: a federal government communiqué (from the CRTC)
- Text 2: a magazine article from *Science et vie micro* (on computer scanners)
- Text 3: a synopsis of a legal decision (dealing with attorney-client relations)

7.1 Criteria for the selection of texts

The texts were selected according to three criteria: 1) that they be representative of the types of documents student and professional translators may encounter; 2) that they deal with a subject matter that was largely unfamiliar to me, and 3) that they present a significant number of information needs.

The first criterion was that they be representative of the kind of work that both translation students and professional translators might encounter. As an official document of the federal government, text 1 (the CRTC communiqué) is a kind of text that government translators may

deal with.⁸⁷ Text 2, a French magazine article on computer scanners, deals with a topic that is widely-discussed in the field of computers. As such, it is a text that could be used in a technical translation course.⁸⁸ Professional translators also encounter computer-related texts more and more frequently in their work. Text 3, a synopsis of a legal decision, was obtained from a professor at the School of Translation and Interpretation, who used the text as an assignment in a fourth year specialized translation course⁸⁹.

The second criterion for the selection of texts was that they deal with subject fields with which I was largely unfamiliar. This criterion stemmed from a desire to choose texts that would ensure a significant need for the use of Internet tools and resources. Telecommunications (text 1) and legal decisions (text 3) are topics with which I have little experience. It seemed therefore that while translating these texts, there was a great need for Internet tools and resources, for both conceptual and linguistic information. Text 2 (on computer scanners) deals with a subject with which I am somewhat more familiar than the previous two, since I have taken a number of computer courses given at the School of Translation and Interpretation, and since I have had a general interest in computers for some years. However, I had little specific knowledge of computer scanners and the technological concepts that relate to them. Therefore, text 2 also required significant use of Internet tools and resources.

⁸⁷ The CRTC communiqué used in this study does in fact have an official English equivalent, which can be located at the Morisset Library (the English version does not exist on the Internet). However, this does not detract from the use of this text for the study, since it remains plausible that this type of document could be encountered by a professional translator.

⁸⁸ Ingrid Meyer, who has taught technical translation at the School of Translation and Interpretation, also considers this a possible text for a technical translation course.

⁸⁹ The person referred to is John Price, an instructor at the School of Translation and Interpretation.

The third criterion was that the texts present a significant number of information needs. In other words, I was looking for texts that would highlight a variety of types of information needs that translators often face. In Chapter 1, I noted that the most significant information needs faced by translators involved knowledge of linguistic and non-linguistic elements. It was shown that when translators must supplement the knowledge they lack in these two areas--in other words, when they are in a position of linguistic and/or conceptual uncertainty--they must frequently consult various outside sources of information (we may recall that these sources of information were grouped according to several categories, including: lexicographic vs. non-lexicographic, and textual vs. non-textual). I analysed the three texts and determined that they presented a variety of information needs. Therefore, during the translation, I encountered a sufficient number of gaps in my linguistic and conceptual knowledge so as to determine the usefulness of the Internet as a means of supplementing these gaps.

7.2 Methodology

For each text, the initial step (following traditional translation methodology) was to read the text carefully to get a general feel for the topic. This was followed by a second reading of the text, during which unfamiliar terms and concepts were noted.

As stated in Chapter 1, one of the most significant obstacles faced by translators is a lack of understanding of the given domain. Since several concepts, or non-linguistic elements, in the texts used in this study were unclear, an Internet search was performed to find resources that would provide non-linguistic information. Chapter 1 also showed that the search for non-linguistic elements can provide information needed during both the semasiological and

onomasiological phases; indeed, during this study, the conceptual information gleaned from the Internet often supplied the terminological information needed. With background knowledge of the domain enhanced, the next step was to deal more specifically with the various linguistic problems in the text. Once as much information as possible had been garnered from the Internet, I proceeded to translate the texts (though some terminological equivalents were often still lacking, I nonetheless proceeded with the translation, leaving the missing terms untranslated). My final step was to have the English translations revised. Text 2 was revised by Ingrid Meyer, who has extensive experience in teaching technical translation. As for text 1, some time after having selected it for this study, I discovered that the official English version exists. I therefore relied on the English version for the revision of my translation. I chose to not revise text 3 since it was, in the final analysis, in a completely non-revisable state.

The discussion of this exercise now begins with text 1:

Text 1

LE CRTC APPROUVE LA DISTRIBUTION DU RÉSEAU FOX, TOUT EN MAINTENANT DES RESTRICTIONS SUR LES RÉSEAUX DE TÉLÉVISION AMÉRICAINS AU SERVICE DE BASE DU CÂBLE

OTTAWA-HULL - Le CRTC a approuvé aujourd'hui la distribution de FOX comme quatrième réseau commercial conventionnel américain et assoupli sa «politique de 3+1» régissant la câblodistribution des services de télévision américains (avis publics CRTC 1994-107 et 1994-108; décisions CRTC 94-702 à 94-705). Ces décisions font suite à l'examen des demandes présentées par des câblodistributeurs de l'Ontario et des provinces de l'Ouest et par Les Communications par satellite canadien Inc. (CANCOM) en vue d'obtenir l'autorisation d'ajouter FOX à leur gamme de services.

«Si les Canadiens souhaitent retrouver le plus grand nombre possible d'options canadiennes dans leur service du câble, ils s'attendent aussi à avoir accès à un vaste éventail de services étrangers», a déclaré le président du CRTC, M. Keith Spicer. «La recherche d'un équilibre entre ces demandes parfois contradictoires--comme dans le cas du réseau FOX--constitue un défi de taille pour le CRTC au fur et à mesure que de nouvelles techniques et de nouveaux services surgissent dans le marché».

Assouplissement de la «politique de 3+1»

«Après avoir examiné attentivement les demandes soumises par plus de 50 câblodistributeurs et par CANCOM, ainsi que les interventions à ces demandes», a expliqué M. Spicer, «le Conseil a conclu que la meilleure démarche serait de permettre aux câblodistributeurs d'offrir un quatrième réseau conventionnel américain, mais sur un volet facultatif plutôt qu'au service de base. Nous maintenons ainsi notre «politique de 3+1» pour ce qui est du service de base, tout en donnant aux câblodistributeurs la souplesse voulue pour satisfaire les besoins de leurs abonnés.»

Conformément à cette décision, les entreprises de câblodistribution qui comptent 2000 abonnés ou plus peuvent offrir, à leur service de base, trois des quatre réseaux commerciaux conventionnels américains (ABC, CBS, NBC et FOX) en plus du réseau non commercial PBS. Un quatrième réseau commercial conventionnel américain peut être offert dans un bloc de services facultatifs, sous réserve des règles du CRTC relatives à l'assemblage. Ces règles définissent la manière dont les câblodistributeurs peuvent assembler les services étrangers distribués par satellite, avec les services canadiens de programmation spécialisée et de télévision payante.

Les entreprises de câblodistribution dans les régions isolées ou mal desservies ou qui comptent moins de 2000 abonnés peuvent ajouter un quatrième réseau commercial conventionnel américain soit à l'intérieur d'un volet facultatif, soit à leur service de base.

Text 1

1. Information needs

Non-linguistic information required:

Background information on telecommunications and, more specifically, on the distribution of cable services (les services de bases, le volet facultatif, and l'assemblage).

Linguistic information required:

Terminology:⁹⁰

réseau commercial conventionnel

«politique de 3+1»

avis publics

Communications par satellite canadien Inc.

gamme de services

(paragraph 1)

interventions

volet facultatif

abonnés

(paragraph 3)

réseau non commercial

bloc de services facultatifs

assembler les services

sous réserve de

assemblage

services étrangers distribués par satellite

services canadiens de programmation spécialisée et de télévision payante

(paragraph 4)

⁹⁰ I use the term *terminology* loosely here, to include the odd general-language item (e.g., "sous réserve de") as well.

2. Use of the Internet

Conscious of the need for background information on some of the concepts involved in cable distribution, I found it necessary to search for Internet resources that would provide non-linguistic information on cable distribution. To this end, I located the Canadian Government site on the World Wide Web, which features information on the CRTC. By visiting the *Open Government home page* (<http://info.ic.gc.ca/opengov>), I was able to locate a site with a link to federal departments, which in turn led to a link to the CRTC Web site:

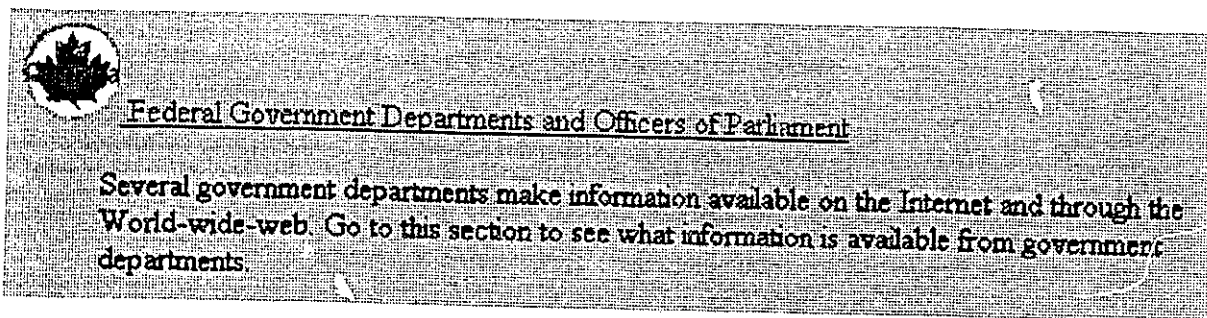


Figure 14 Federal Government Departments link on the World Wide Web

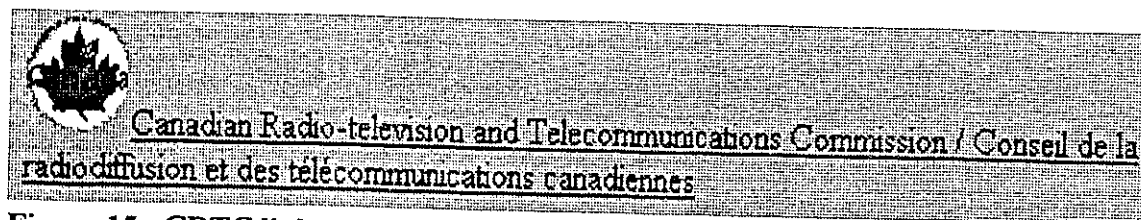


Figure 15 CRTC link on the World Wide Web

By selecting the CRTC's French-language site, I located the part of the CRTC Web site that discusses the distribution of cable services, and in particular a document that addressed several

of the cable distribution concepts encountered in my text:

(http://www.crtc.gc.ca/eng/info_sht/cdbt4e.htm).

This document was highly useful in supplying some of the domain information needed.

Moreover, since the CRTC is an agency of the federal government, all information on the Web site is available in both French and English. It therefore seemed likely that if I located the English version of the site and, in particular, the English version of the document on cable distribution, I would be able to locate English equivalents for the French terms mentioned above. In fact, the English text was located, as were the following English equivalents: "intervention" (*intervention*), "abonné" (*subscriber*), "volet" (*package*), "règles d'assemblage" (*linkage rules*), "avis publics" (*public notices*), "réseau commercial conventionnel" (*conventional commercial network*) and "assembler les services" (*balance services*). The English document was also useful in providing background information on the subject of cable distribution. Having grasped the basic cable distribution concepts that were unclear, I began to focus on solving the terminological problems that remained. Besides the cable distribution document, another document that was located on the CRTC Web site and scanned for terms was The Broadcasting Act (Loi sur la radiodiffusion). The French version of the act provided the English term for "gamme de services" (*range of broadcasting services*).

Next, the CRTC Web site was again consulted, in particular, the *Glossaire du CRTC concernant la télédistribution*. Since this glossary is maintained by the CRTC at their official Web site, I considered the terms to be accurate. In the glossary were four of the terms for which equivalents were required. To locate the English equivalents for these terms, the CRTC glossary found in the English section of the CRTC Web site was consulted. It contained a number of

equivalents for terms in this text, including "service de télévision payante" (*pay television service*), "service facultatif" (*discretionary service*), "bloc de services" (*package of services*), and "services canadiens de programmation spécialisée ou de télévision payante" (*Canadian specialty and Pay Television services*)

With the World Wide Web search for broadcasting documentation completed, FTP file servers were scanned for any further broadcasting documents. Archie was used to locate CRTC documents located on FTP servers; however, this search yielded no results. Nevertheless, archie was useful in locating one of the problem terms in the text: CANCOM. The search revealed several FTP sites containing documents that included the term CANCOM, including: <ftp.cdnnet.ca>. At this site was an English text that indicated that the acronym CANCOM stands for "Communications par satellite canadien Inc" (Canadian Satellite Communications Inc.).

Having found all equivalents but one (*sous réserve de*), two general French-English dictionaries were consulted (<http://mlab-power3.uiah.fi/EnglishFrench/FE.html> and http://humanities.uchicago.edu/forms_unrest/FR-ENG.html). However, these sources did not contain the term sought. My last attempt at finding this term was to Telnet to EURODICAUTOM. Unfortunately, the term was not found here either. The term *sous réserve de* was the only one for which an equivalent was not found through the Internet. This underlined one of the drawbacks to the Internet with respect to lexicographic information: very few bilingual dictionaries exist on the Internet. Furthermore, none of the very best unilingual or bilingual English/French dictionaries do (e.g., *Le Petit Robert*, the *Oxford English Dictionary*, the *Robert and Collins*, Termium). The two mentioned in this study were the only bilingual

dictionaries located, and they were rather limited in terms of number of entries (approximately 20,000 each).

3. Observations

The Internet proved to be a highly useful tool for the translation of the CRTC communiqué. In particular, the CRTC World Wide Web site provided a wealth of documents, in both English and French, that provided useful non-linguistic information. Archie was also of minor use. The documents found supplied all but one of the terminological information required (I found *sous réserve de* quickly in a paper dictionary--the *Robert and Collins*). Moreover, the Internet was an *efficient* resource for the translation of the text. It took relatively little time to find all the information that was lacking--all documentary research for text 1 was performed in two to three hours. In fact, using the Internet as a resource for translating this document was as efficient--if not more so--than if sources other than the Internet had been consulted, such as hard copies of government documents. Using the Internet proved less efficient when it came to finding general language terms (e.g., *sous réserve de*). As mentioned earlier, there is no evidence that the Internet yet provides much in the way of high-quality bilingual or unilingual dictionaries.

Text 1 (Translation)

CRTC APPROVES DISTRIBUTION OF FOX NETWORK, WHILE MAINTAINING RESTRICTIONS ON U.S. TV NETWORKS ON BASIC CABLE

OTTAWA-HULL - The CRTC today approved the distribution of FOX as a fourth conventional commercial U.S. network, a ruling that lent flexibility to its "3+1" policy governing the cable distribution of U.S. television services (Public Notices CRTC 1994-107 & 1994-108; Decisions CRTC 94-702 to 94-705). Today's decisions follow an examination of applications made by cable companies from Ontario and the Western provinces and from Canadian Satellite Communications Inc. (CANCOM) seeking to add FOX to their range of broadcasting services.

"While Canadians want as many strong Canadian options as possible in their cable television line-up, they also expect to have access to a wide range of foreign services," said CRTC Chairman Keith Spicer. "Balancing these sometimes competing desires is, as in the case of the FOX network, an ongoing challenge for the CRTC as new technologies and services are added to the marketplace".

Increased flexibility for the "3+1" policy

"After an in-depth consideration of the applications received from over 50 cable systems and CANCOM as well as the interventions to these applications," Mr. Spicer explained, "the Commission concluded that the best approach would be to allow cable companies to offer a fourth conventional U.S. network, but on a discretionary basis rather than as part of the basic service. This maintains our "3+1" policy for basic cable, while giving cable companies the flexibility to meet the needs of their customers".

As a result of this decision, cable companies with at least 2000 subscribers may offer three of the four conventional commercial American networks (ABC, CBS, NBC and FOX) as part of their basic services, in addition to the non commercial PBS network. Companies may offer a fourth conventional commercial American network as part of their discretionary services, subject to CRTC linkage rules. These rules govern the way in which cable companies may balance foreign satellite services with Canadian specialty and Pay Television services in their programming line-up.

Cable companies located in isolated or poorly-served areas, or with less than 2000 subscribers, can add a fourth conventional commercial American network as part of either their discretionary or basic services.

Please note: The quote from CRTC Chairman Keith Spicer is taken directly from the official English version of this press release, which was located after I translated the French version.

Text 2

Le scanner
par Marty JEROME

Il existe trois types de scanners, différenciés essentiellement par la manière dont la page qui contient l'image, et la tête de numérisation du scanner qui la lit, se déplacent l'une par rapport à l'autre. Dans un scanner à rouleau, le document est entraîné devant la tête de numérisation qui se déplace latéralement, comme une tête d'imprimante matricielle. Dans un scanner à plat, le document est posé sur une vitre, comme sur un photocopieur, la tête de numérisation se déplaçant à la fois sur la largeur et sur la longueur de la page analysée. Quant au scanner à main, il requiert comme son nom l'indique la main de l'utilisateur, qui balaye de haut en bas le document à numériser.

Chaque méthode comporte ses avantages et ses inconvénients. Le scanner à plat exige toute une série de miroirs pour renvoyer l'image qui sera captée par la tête mobile vers une lentille qui la dirigera à son tour vers un capteur. Comme aucun dispositif à miroir n'est parfait, chaque fois que l'image est reflétée, elle subit une déformation. En revanche, l'avantage du scanner à plat est qu'il peut balayer des documents de grandes dimensions ou très épais, des livres notamment.

Inversement, si avec un scanner à rouleau l'image est captée avec plus de fidélité, on est ici limité à la numérisation de documents peu épais. Ce type de scanner est sans doute le meilleur pour des applications telles la reconnaissance de caractères, pour laquelle la précision est extrêmement importante.

Le scanner à main est quant à lui un compromis. Il est capable de balayer des pages de livres, mais sa "fenêtre" de numérisation est beaucoup plus petite que celle des deux autres catégories de scanners. De plus, la qualité du résultat dépend essentiellement de la fermeté de la main de l'utilisateur.

Les performances d'un scanner résident principalement dans sa capacité à traduire en données numériques les variations analogiques de tensions induites par sa tête de lecture. Quelques scanners peuvent seulement distinguer le noir du blanc. D'autres modèles plus précis différencient, eux, les nuances de gris. ...

Text 2

1. Information needs for text 2

Non-linguistic information required

Background information on scanning technology--in particular, the various types of scanners and the mechanisms involved in their operation.

Linguistic information required

Terminology:

tête de numérisation
scanner à rouleau
entraîné devant
tête d'imprimante matricielle
scanner à plat
se déplaçant
scanner à main
(paragraph 1)

tête mobile
capteur
dispositif à miroir
(paragraph 2)

fidélité
reconnaissance de caractères
(paragraph 3)

fenêtre de numérisation
(paragraph 4)

variations analogiques de tension
tête de lecture
nuance
(paragraph 5)

Also:
à la fois sur la largeur et sur la longueur
(paragraph 1)

2. Use of the Internet

To acquire background information on computer scanners, a World Wide Web search was performed using the search engine *Net Search*. Among the sites that were located was a *Scanner FAQ* (Frequently Asked Questions) at: <http://www.cs.purdue.edu/homes/gwp/scantips.faq>.

This FAQ document was useful in providing a general overview of scanners. It was, however, brief, and focused more on scanner technology than on the different types that exist (*scanner à main*, *scanner à rouleau*, etc.). Still using the *Net Search* search engine, other Web sites were visited in an attempt to find information on the various types of scanners discussed in text 2.

Among these was a site containing a document called *Scanners and OCR*, which discussed general scanning concepts (<http://sable.ox.ac.uk/departments/humanities/scanners.html>):

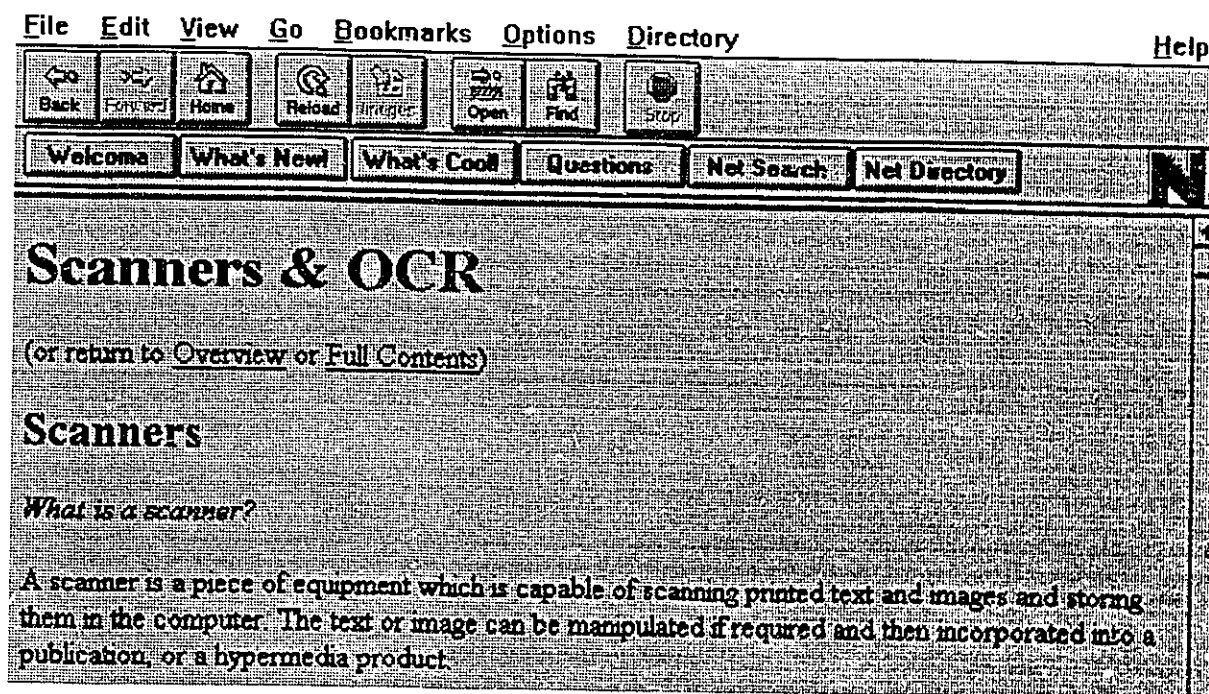


Figure 16 Scanning and OCR WWW site.

The *Scanner and OCR* site contained a kind of introductory text on scanners. It was in this text that I located equivalent terms for *scanner à plat* ("flatbed scanner") and *scanner à main* ("hand scanner"). Two additional scanner sites were then located through *Net Search* (commercial sites maintained by private companies that sell scanners):

PSI Photo Systems, Inc.: (<http://www.photosys.com/imaging/scanners/scanners.html>)
 Info Product Scanners: (<http://www.info-products.com/>).

While these sites did not provide any additional terminology, they did serve to confirm the usage of *flatbed scanner* and *hand scanner*. Through the use of an additional WWW search engine, *Yahoo*, another useful document was located: an article in *Macweek* magazine on scanners. (http://www.ziff.com/~macweek/mw_020695/pw1.html)

The *Macweek* article provided additional terminological information, such as the equivalents for *capteur* ("sensor"), *tête de numérisation* ("scanner head"), *fidélité* ("detail" or "fidelity"), and *variations analogiques de tension* ("electrical charges"). The article also revealed that the sentence *se déplaçant à la fois sur la largeur et sur la longueur* can be rendered as "sweeps across" (this is the action performed by flatbed scanners).

The Dictionary of Computing (<http://wombat.doc.ic.ac.uk>) was then searched for English terms relating to scanning. One term located in this dictionary was "dot matrix print head", the equivalent for *tête d'imprimante matricielle*. Unfortunately, the Dictionary of Computing did not include any of the other terms sought. I then used this dictionary to search for the English terms that I thought *could* be equivalents for the French terms sought, but none were found (e.g., "read head" for *tête de lecture*).

While many of the scanner documents consulted discussed both flatbed and hand scanners, none spoke of the third type mentioned in text 2, the *scanner à rouleau*. I therefore

decided to contact human informants who could possibly provide the English term for *scanner à rouleau*. Since I was not personally acquainted with scanner specialists, I decided to join the Usenet newsgroup *alt.graphics*. After lurking in the group, I determined that it was frequented by a number of people who frequently spoke of scanner technology. Eventually, I posted my own message to the group. In this message, I described the concept of *scanner à rouleau* based on the information provided by the French text, and then asked if any participant knew the name of this type of scanner. I received two helpful replies to my message the day after it was sent. Both respondents indicated that the term I sought was "sheet-feed scanner" (one respondent said that "document-feed scanner" was sometimes used, albeit less frequently). One respondent explained that the sheet-feed scanner was in fact the most recent of the three types discussed in text 2, and that sheet-feed scanners did not yet figure prominently in the scanner literature. Since I did not know just how reliable these human informants were, I attempted one last document search in order to confirm the use of the term "sheet-feed scanner". Unfortunately, neither the term nor the concept it denotes were found in any of the scanner literature on the Internet. A traditional documentary search (or a phone call to a computer hardware store) would be advisable at this point to confirm the use of the term.

Next, I consulted EURODICAUTOM (Telnet echo.lu) for any of the remaining terms. The only term that this dictionary contained was *reconnaissance de caractères* ("character recognition). To find the remaining terminological equivalents, a number of additional Internet resources were used. I attempted to locate scanner documents on Gopher servers. To do this, I performed a variety of keyword searches using veronica (keywords: scanner, flatbed scanner, etc.). Although the keyword "scanner" did reveal a number of Gopher files, none of these were

useful in providing the terminology sought. I also performed a WAIS search on several computer-related databases (there are no WAIS databases that relate specifically to scanners). Unfortunately, WAIS did not locate any scanner-related documents. Finally, I used CompuServe to try to locate additional terminology. In particular, I perused a number of computer magazines in the hopes of finding information on scanners. CompuServe features an effective search engine that allows users to search for keywords in titles. While I did locate several articles related to computer graphics, none of them discussed general scanner concepts or provided scanner terminology.

3. Observations

It is clear that the Internet was a reasonably useful and efficient (though not perfect) tool for the translation of text 2. Computer-related texts abound on the Internet, and finding information on computer scanners is relatively easy. In particular, the World Wide Web was a good source of scanner documentation--two simple keyword searches turned up several documents that provided essential background information, as well as numerous terminological equivalents. The use of knowledge networking tools--in this case, Usenet--was also profitable during the translation of text 2. The use of the *alt.graphics* newsgroup showed that consulting people through specialized newsgroups can be an efficient way to gather both linguistic and non-linguistic information. Other search tools were less effective in locating scanner information. While scanner texts were found on both CompuServe and Gopher, none of these contained the specific terminology I was seeking, though they probably would have been useful for other types of texts on scanners.

Text 2 (Translation)

Scanners

by Marty Jerome

There are three types of scanners, each of which is distinguished by the manner in which the page to be scanned and the scanner head interact with one another. With a sheet-feed scanner, the document is [entraîné devant] the scanner head which, like a dot matrix print head, moves from side to side. With a flatbed scanner, the document is placed on a glass surface, as it would be on a photocopier, and the scanner head sweeps across it. As its name suggests, the hand scanner requires that the user manually scan the document from top to bottom.

Each method has advantages and disadvantages. The flatbed scanner requires a series of mirrors to send the image captured by the [tête mobile] to a lens which, in turn, sends the image to a sensor. Since no [dispositif à miroir] is perfect, the image is deformed each time it is reflected. On the other hand, the advantage of the flatbed scanner is that it can scan large or very thick documents, such as books.

Although the sheet-feed scanner captures images in more detail than does the flatbed scanner, it is limited to scanning very thin documents. This type of scanner is undoubtedly best suited to character recognition, which requires a significant degree of precision.

The hand scanner is something of a compromise. While it is able to scan book pages, its [fenêtre de numérisation] is much smaller than those of the other types of scanners. Furthermore, the quality of the result depends largely on the steadiness of the user's hand.

The performance of scanners depends principally on their ability to translate electronic charges, produced by the [tête de lecture], into numerical data. Some scanners can only distinguish between black and white. Other, more precise, ones can distinguish various shades of grey. (...)

Text 3

LE PRIVILEGE DES COMMUNICATIONS ENTRE AVOCAT ET CLIENT

Le privilège ne s'applique pas aux comptes en fidéicommiss

Louis Normandin c. La Reine (Cour supérieure du Québec)

Faits: Un avocat faisant l'objet d'une vérification par le Ministère s'est objecté à remettre à celui-ci ses livres relatifs à ses comptes en fidéicommiss. Le Ministère lui a donc fait parvenir une demande péremptoire. L'avocat réclama le privilège en vertu de l'article 232 de la L.I.R.

Question en litige: Le contenu d'un compte en fidéicommiss, est-il visé par l'exception prévue à l'alinéa 232(1)(e) sur les "relevés comptables d'un avocat"?

Réponse: Non. L'exception contenue à l'alinéa 232(1)(e) doit être interprétée de façon stricte, étant donné que la règle générale favorise le privilège. Le Juge a dit devoir se référer à la loi provinciale pour connaître l'étendue et l'application du privilège, ceci en raison de la référence à la loi provinciale contenue à l'alinéa 232(1)(e).

Le Québec a toujours considéré le respect du secret professionnel comme très important. Ceci peut se voir dans la Loi du Barreau, dans le Code des professions et dans la Charte québécoise des droits et libertés de la personne.

De plus, si l'on regarde les règlements de la Loi du Barreau, on peut conclure que les comptes en fidéicommiss sont ceux du client et non de l'avocat. Ce ne sont donc pas des "relevés comptables d'un avocat".

Bref, si le législateur fédéral veut avoir accès aux comptes en fidéicommiss, qu'il le dise clairement. Seule une législation expresse pourrait changer la situation (ou une renonciation du client) et selon l'arrêt Descoteaux de la Cour suprême du Canada en 1982, une telle exception doit être interprétée restrictivement.

Les "relevés comptables d'un avocat" selon l'alinéa 232(1)(e) sont ceux qui ne se rapportent qu'à ses propres affaires.

Text 3

1. Information needs

Non-linguistic information required:

Background information on legal decisions, in particular, legal decisions emanating from the Cour supérieure du Québec, and more specifically, those dealing with attorney-client communications and accounting records.

Linguistic information required:

Terminology:

comptes en fidéicommiss
demande péremptoire
en vertu de
article
privilège
(paragraph 1)

question en litige
visée par
prévue à
alinéa
(paragraph 2)

favorise
l'étendue
l'application
(paragraph 3)

secret professionnel
Loi du Barreau
Code des professions
(paragraph 4)

règlements
(paragraph 5)

législateur fédéral
législation expresse
arrêt
interprétée restrictivement
(paragraph 6)

also: *Louis Normandin c. La Reine*, Cour supérieure du Québec

2. Use of the Internet

To acquire background knowledge on legal decisions, the World Wide Web was searched for any sites containing documents from the Cour supérieure du Québec. No such sites, however, were located. The World Wide Web site that features Supreme Court of Canada decisions was therefore consulted:

http://www.droit.umontreal.ca/CSC/arrets/recent/ascii/shropshi_fr.txt)

The specific decision consulted was the *R. v. Shropshire* case (June 15-16 1995). Although this site featured decisions from the Supreme Court of Canada--unlike text 3, which is a decision from the Cour supérieure du Québec--it was nonetheless useful in providing a general sense of the structures and styles used in legal decisions.

All Supreme Court Decisions on the Web are available in French and English. Thus, apart from providing background information on legal decisions, the *R. v. Shropshire* decision was a useful source of information on some of the terminological problems encountered in the text. The items located were *c. La Reine* (v. R.), *arrêt* (ruling), *en vertu de* (under), article (section), *alinéa* (paragraph), and *prévus à* (provided by).

The Supreme Court Decision site, although useful as a source of general legal terminology, did not provide information on some of the concepts and terminology unique to attorney-client communications or accounting records. I therefore set out to consult other legal sources on the World Wide Web. One problem that became apparent was the lack of legal information in both languages on the Web; while all federal government sites

feature information in French and English, legal sites maintained by law schools and legal associations tend to present information in only one language (usually English). For example, I consulted (with no luck):

Centre de recherche en droit public (Université de Montréal): <http://www.droit.umontreal.ca>
 Dalhousie University Law School: <http://ac.dal.ca/~law.index.html>
 Osgood Hall Law School: <http://www.yorku.ca/faculty/osgood>
 WWW Virtual Law Library: <http://www.law.indiana.edu:80/law/lawindex.html>
 Canadian Bar Association: <http://www.algonquinc.on.ca:80/cba/engmenu.html>?
 American Bar Association: <http://www.abanet.org>

With the search for World Wide Web resources completed, other Internet tools were used to try to find additional information and terminology. A veronica search was performed to scan Gopher sites for some of the key terms relating to the decision; this search, however, proved fruitless. Similarly, a search of FTP sites using archie did not provide any useful results.

WAIS was used to find information relating to this text, but unfortunately the searches yielded no results. However, WAIS must not be discounted as a source of legal information. Several law-related WAIS databases exist (databases from law schools and various state Supreme Courts in the US), and although none provided the specific terminology I required, they may be useful for other texts.

I then tried consulting several lexicographic sources in an attempt to find some of the general language items (e.g., *visée par, l'étendue*) in the text. I used the same general bilingual dictionaries that I used for text 1, and once again they did not contain the terms I sought.

It is evident that few resources exist on the Internet to assist in the translation of this type of text. It was particularly disappointing, for example, that the Cour supérieure du Québec did not have a Web site. Parallel texts would have been an invaluable source of information on the

particular style of writing for this Court, and on specific terminology. While information does exist, much of it is in English, and therefore does not provide assistance in terms of bilingual terminology. It can even be difficult to search English legal sites for specific information, since few effective search engines exist to pinpoint specific legal topics (in this case, attorney-client relations, accounting records, etc.). What could potentially be more helpful is a search engine (such as WAIS) that performed full-text searches of various legal sites.

Another possible search avenue to pursue was to consult specialists in the domain. However, since such a large number of terms were still lacking following the documentary research, it was decided that it would be unadvisable to pose that many questions to human consultants. As Christine Durieux notes with respect to consulting specialists during the translation of technical texts:

...le traducteur ne doit pas hésiter à interroger des spécialistes. Toutefois, ces derniers n'apprécient guère d'être dérangés par des néophytes et jugent leur temps précieux. C'est pourquoi, s'il veut obtenir des spécialistes des réponses utiles, le traducteur a intérêt à bien circonscrire et préparer ses questions en précisant *à partir de quel point il ne comprend plus* le fonctionnement d'un mécanisme ou le déroulement d'un processus, et ce qu'il a besoin exactement de savoir et de comprendre.⁹¹ (emphasis added.)

Given the fact that the Internet provided only a small fraction of the solutions required for text 3, the translator would be advised to turn to traditional documentation sources and pursue the research further rather than immediately turn to human consultants.

⁹¹ Christine Durieux, "La recherche documentaire en traduction technique : conditions nécessaires et suffisantes", p. 672.

3. Observations

More dramatically than either of the two previous texts, text 3 showed the limitations of the Internet as a tool for translating certain kinds of texts. While a few of the problems encountered were solved quickly, these were mostly problems on the borderline between legal and general language (e.g., *en vertu de*, *alinéa*, *prévue à*). The legal decisions found on the Internet proved useful in supplying this kind of linguistic information. However, it was difficult to find more specific legal terminology through the Internet. This is due, in part, to the lack of parallel legal texts on the Internet. It is even difficult to find unilingual information on legal sites. For example, when seeking specific information on the topic dealt with in text 3, it was virtually impossible to determine the precise location of a document among the many laws, regulations and rulings available. In total, more than 5 hours were spent on Internet searches during the translation of text 3, and in the end only a fraction of my problems had been solved. I therefore conclude that the Internet was neither an efficient nor an effective tool during the translation of text 3.

Text 3 (very rough draft translation)

[LE PRIVILEGE DES] ATTORNEY-CLIENT COMMUNICATIONS

[Le privilège] does not apply to [comptes en fidéicomis]

Louis Normandin v. R. (Cour supérieure du Québec)

Facts: A lawyer under audit by the Department objected to disclosing records relating to his [comptes en fidéicomis]. The Department therefore sent him a [demande péremptoire]. The lawyer claimed the [privilège] under section 232 of the Income Tax Act.

[Question en litige]: Do the contents of a [compte en fidéicomis] [visée par] the exception provided by paragraph 232(1)(e) with respect to the “accounting records of a lawyer”?

Answer: No. The exception provided by paragraph 232 (1) (e) must be given a strict interpretation since the general rule [favorise] the [privilège]. Because of the reference to provincial law found in paragraph 232(1)(e), the judge thought it necessary to consult provincial law in order to determine the [l'étendue et l'application] of the [privilège].

Quebec has always accorded great importance to the respect of [secret professionnel]. This is manifest in the [Loi du Barreau], the [Code des professions], and in the Quebec Charter of Human Rights and Freedoms.

Furthermore, the regulations made under the [Loi du Barreau] allow one to conclude that [comptes en fidéicomis] belong not the lawyer but to the client.

In short, if [le législateur fédéral] wants access to [comptes en fidéicomis], he must say so clearly. Only [une législation expresse] (or a waiver by the client) could change this situation, and, according to the Supreme Court of Canada's 1982 Descoteaux ruling, such an exception must be given a [interprétée restrictivement].

A “lawyer’s accounting records” as referred to in paragraph 232(1)(e) are only those that relate to his personal affairs.

7.3 Traditional information sources vs. the Internet

Now that we have thoroughly examined the various Internet resources that exist, and have applied them to the translation process, it is useful to compare the Internet, in an explicit way, with the traditional information sources that were discussed in Chapter 1.

One of the most obvious differences between the two types of information sources is that the Internet is *electronic*, while traditional information sources are usually *book-based*. From this one fundamental difference emerge various other differences between the Internet and traditional information sources, including differences of content, speed of accessing information, and search mechanisms.

First, let us examine how the content of the Internet differs from the content of traditional information sources. Through the use of traditional, book-based sources, which have long dominated as researchers' preferred means of obtaining information, translators can access most of the lexicographic and non-lexicographic resources that they require. This is not the case with the Internet, which is a much newer means of obtaining information. For example, during the course of my study I found that the Internet does not contain a number of the lexicographic resources that are available in printed format. There are virtually no high-quality unilingual or bilingual dictionaries on the Internet. By contrast, there is no lack of high-quality *book-based* (or CD-ROM) unilingual and bilingual dictionaries. Some other resources that are somewhat lacking on the Internet, but that are easily accessible in printed format, include bibliographic and terminological documentation.

There are, on the other hand, resources that can be accessed more easily through the Internet than through traditional sources. For example, my study showed that the Internet

contains a wealth of translated material that is easily accessed through various government sites. This type of information, though theoretically available in printed format, is practically at the fingertips of translators who use the Internet as an information source. Similarly, unilingual texts are often more easily accessible through the Internet than through traditional translation resources.

Second, another stark contrast between the Internet and traditional information sources is the speed with which each allows translators to access information. If translators, using the Internet, know where to access the information they require, then the Internet doubtless allows them to access information more quickly than through traditional sources. As we saw in Chapter 1, increased speed--and, in turn, increased productivity--often accompany the use of electronic tools for translators, including the Internet.

It would, however, be incorrect to assume that the Internet is *without exception* a faster information source than are traditional information sources. For those types of resources that are not well-represented on the Internet (such as lexicographic and terminological resources), the use of traditional, paper-bound information sources is undisputably faster than the use of the Internet. Furthermore, speed of access on the Internet can be slowed down because of technical problems and high Internet traffic.

When examining the Internet and traditional information sources in terms of the speed with which they allow translators to locate information, we must consider the methods that translators use to find the information they require. This is why the issue of speed is closely tied to the third contrast between the Internet and traditional information sources: search mechanisms. When using traditional information sources, translators are limited in a number of

ways. First, traditional searches usually allow translators to search only one source at a time (for example, if one were using library catalogues to search for a reference book, one would have to perform searches on separate library catalogues until one located the book). By contrast, many Internet search engines search "across boundaries", so to speak (for example, an archie search will search all FTP file servers, not only individual ones). Second, when using traditional information sources, translators can only perform a limited *variety* of searches. For example, if one were looking for a particular dictionary through a library catalogue, one would be limited to certain types of queries (such as querying by title and by author). By contrast, Internet search engines are becoming increasingly sophisticated, so that users may perform more extensive searches. For example, WAIS is a program that does full-text indexing of documents, thereby allowing users to query by keyword. A WAIS search will yield any document containing the keyword used in the query. World Wide Web searches are also more sophisticated than are searches through traditional means: the hypertext nature of WWW documents means that when users are presented the results of a search, they also have the option of linking to any number of related topics.

Throughout this thesis, many of the contrasts between the Internet and traditional information sources have undoubtedly become evident. It is my hope that by expressly listing some of these contrasts, they may become even more manifest to the reader.

CHAPTER 4: CONCLUDING REMARKS

8 General remarks

The objectives of this thesis have been to investigate the *usefulness* and the *efficiency* of the Internet as an information source for translators. I began by examining the numerous information needs that translators must meet during the translation process, and I discussed some of the tools that they have traditionally used to meet those needs (Chapter 1). I proceeded to examine the Internet from a variety of angles. First, I discussed the history and current state of the Internet, as well as basic Internet concepts. Second, I explored in detail a number of Internet tools, and for each tool, identified resources of interest to translators. Finally, I carried out a practical exploration of the Internet to assess, in a modest way, both the usefulness and the efficiency of Internet use during the translation process (Chapter 3).

8.1 General assessment of the Internet

I now provide a general assessment of the Internet, with a special focus on the most useful Internet tools, the main limitations and strengths of the Internet, and the issue of user-friendliness.

8.1.1 The most useful Internet tools

Although all the Internet tools that have been examined have their value, I consider that some are more useful to translators than others. And while it is difficult to actually rank these tools, I will discuss those that are perhaps the most useful.

The World Wide Web is one of the most profitable tools on the Internet, and this is attributable to several factors. First, it is the most user-friendly tool that has thus far been developed. Second, the World Wide Web incorporates several other Internet tools--such as FTP, Telnet and Gopher--and thus provides an inviting graphical interface to less user-friendly tools. Finally, and most importantly, as the current preferred means for Internet users to make information available, it is a tool that offers tremendous possibilities for accessing all kinds of information. Translators, in particular, can find many worthwhile resources on the Web to assist them in their search for domain and linguistic information.

E-mail is another Internet tool whose usefulness cannot be overstated. It is currently a preferred means of communication for people all over the world, and this is a trend that will undoubtedly continue. I also consider Listserv to be a useful tool for translators. Listservs that cater to translators specifically, as well as those that deal with specialized domains, are an excellent way to communicate with others and obtain information.

Telnet is another highly useful tool. The ability to access remote computers is essential for those whose work takes them away from their computer, and Telnet affords users this opportunity. Furthermore, Telnet is an excellent means for those who wish to access library catalogues, Freenets, and any programs to which they do not have direct access.

FTP, in conjunction with the search toolarchie, is another of the best Internet tools. It is an effective means for making files available on the Internet, as well as for accessing those files. Although it is one of the less user-friendly tools, its benefits nonetheless outweigh this disadvantage.

As I said, all the Internet tools that have been examined are useful to some degree. I have simply underlined the *very best* of these tools.

8.1.2 Main limitations of the Internet

The Internet is not a tool without limitations for translators. One significant disadvantage is the amount of time it can take to locate information, and this is a twofold problem. On the one hand, *technical* factors can be the cause of delays that users may face when using the Internet: geographic location, the time of day, the complexity of some tools (e.g., WAIS), and the number of people accessing a particular resource are a few of the factors that can make Internet tools exceedingly slow. On the other hand, a lack of sophisticated search mechanisms also plays a role here. In other words, the problem does not lie in the *number* of resources that exist--in fact, to some degree the Internet has caused us to be inundated with information--, but in the difficulty users encounter in *locating* specific information within those resources.

Another of the Internet's limitations is financial. As I said in Chapter 2, members of the university community generally have free access to the Internet, as do some people in the public and private sectors. However, people on the margins of these groups do not have the benefit of free Internet access, and must pay for the services they use. The prices charged by commercial service providers may appear, on the surface, to be affordable. However, users are advised that the actual rates may be higher than they seem. Take the example of CompuServe: while their basic monthly fee is only \$ 9.95 per month, they require that users provide their credit card number when they subscribe (this is the procedure for many other commercial service providers,

as well). As a result, fees for "extended services" can mount insidiously, and users may face an unpleasant surprise when their monthly credit card statement arrives.

The Internet has certain limitations in terms of its content. As Chapter 3 showed, the Internet is stronger as a tool for certain domains than for others. For translators working in a domain that is poorly represented, Internet resources would be of little use. In particular, the absence of parallel texts in some fields poses a definite limitation to the Internet's usefulness (my practical exploration, for example, suggested that while bilingual government documents are well-represented on the Internet, legal and computer-related documents are less so). Furthermore, even when abundant documentation does exist, there is the problem of a lack of effective search mechanisms. Although a plethora of documents may exist on a given topic, the difficulty for translators is in locating the precise term or concept for which they require information. I have also determined that there is an unfortunate lack of high-quality dictionaries, both unilingual and bilingual on the Internet. This poses definite problems for the translator who uses the Internet as a source of lexical information.

When considering the limitations of the Internet as a tool for translators, one must consider that these limitations, while significant, may be temporary. As I stated in Chapter 2, the ever-evolving Internet has much growing to do, and its current weaknesses may be rectified over time.

8.1.3 Main strengths of the Internet

In several ways, the Internet is a strong resource for translators. If one considers the knowledge networking aspect (e-mail, etc.), one finds that the Internet presents translators with a fast and

effective means of communicating with others, and of gaining some of the information needed during the translation process. Another of the Internet's strengths is that it makes available vast amounts of information through knowledge retrieval tools. For the practising translator, this can mean access to documents that provide useful linguistic and domain information. Furthermore, Internet resources devoted specifically to translators are on the increase (such as the *Translator's Home Companion* and the OTIAQ's Web site). These sites provide translators with access to useful resources, and they are also a unique way for translators to keep in touch with members of their profession.

As I said at the beginning of this thesis, although my focus is on the value of the Internet as a tool for translators, a secondary focus is to gain some insight into how it can serve graduate students and professors. I find that the Internet has many strengths with respect to translation research. Researchers will find the knowledge networking aspect of the Internet to be highly useful as a means of communicating with others. Tools such as Listserv, for example, are useful in keeping researchers abreast of translation conferences and new publications in the field. Increasingly, translation researchers are constructing their own home pages, which colleagues all over the world can consult. Remote access applications can also be of significant use to researchers: for example, Telnet is highly useful for searching remote library catalogues.

My own thesis is an illustration of how the Internet can assist students in performing translation-related research. I began my study as an Internet novice, having had experience with none of the tools or resources that I have discussed throughout this thesis (with the exception of e-mail). To learn about the Internet, I consulted a number of paper sources on the topic (mainly books and magazine articles). However, I soon discovered that the Internet itself was one of the

most valuable resources for finding information on the various tools I had to learn. Using a variety of the search tools discussed in this thesis (Gopher, the World Wide Web, archie, etc.), I was able to locate documents, many of them very current, that shed light on the workings of the Internet. As a result, my bibliography contains references to several online sources, in addition to paper ones. Furthermore, I cannot overstate the usefulness of e-mail during the writing of this thesis. It was my primary means of communicating with many people on issues relating to my research.

8.1.4 User-friendliness

The issue of user-friendliness is extremely significant to this study. As Chapter 2 showed, certain Internet tools are easier to use than others. The World Wide Web is currently the model of user-friendliness among Internet tools, while other programs, such as WAIS and FTP, are markedly less easy to use. It is a testimony to the lightning-speed evolution of the Internet that when this study was begun nine months ago, we had yet to experience the virtual explosion of the World Wide Web as the preferred Internet tool. This leads us to consider whether the World Wide Web will eventually replace less user-friendly tools, as users opt for graphical interfaces and hypertext links over sometimes cryptic commands. While the World Wide Web will undoubtedly continue to grow in popularity, I believe that the other tools discussed in this study remain highly useful. For example, although users can access various remote computers through the World Wide Web, Telnet remains a fast and effective tool for users who know the precise address of the computer they wish to log on to. Furthermore, search engines such as WAIS,

archie, and veronica continue to be effective ways to locate files that are otherwise difficult to access.

8.2 Additional issues raised during the study

The following are some additional issues that have emerged during the course of this study.

8.2.1 Learning the Internet

I have addressed the issue of Internet efficiency from primarily one angle (i.e., do a sufficient number of Internet resources exist to make the use of the Internet profitable for the translation of a given text?). Yet it must be borne in mind that the efficiency of the Internet depends, to a great extent, on how proficient a person is in using it. If translators are to make efficient use of the Internet, they must somehow gain the skills necessary to become proficient users. I propose that these skills can be acquired as part of translator training, while students are still gaining many of the skills required for the professional world. Internet training can be a component of pre-existing translation courses, such as courses on documentary research or computers and translation. As for *practising* translators, I believe that Internet workshops, such as those offered by the *Ordre des traducteurs et interprètes agréés du Québec*, are an effective means for translators to acquire Internet skills. Must translators learn to use *all* of the Internet tools that exist? Obviously, to do so would entail a rather long learning process. I propose that translators be taught only the tools that most satisfy their particular needs. For example, as the World Wide Web grows in both resources and in popularity, it will undoubtedly be the focus of much attention in Internet courses, including ones aimed at translators.

8.2.2 Reliability

It is important to raise the issue of reliability when examining the Internet as a resource for translators. Just as translators are well-advised to be judicious in their choice of traditional documentary sources, they must also be discerning in their use of the Internet. This is due to the fact that Internet resources, like paper ones, are not of equal quality or reliability. In fact, translators may need to be even more cautious when using the Internet, as there is much less quality control for Internet resources than for paper ones (the democratic nature of the Internet means that *anyone* can make virtually *any* resource available online). Translators must, therefore, to the best of their ability, determine that the Internet resources they use are reliable.

8.2.3 The predominance of English on the Internet

To some, the Internet is yet a further example of the anglicization of the world of communications. To be sure, English is the dominant language of the Internet. Lack of foreign character support is one of the major obstacles to the use of French on the Internet (ASCII characters are composed of seven bits, rather than the eight bits required for accented characters). While communication in French is possible, users are often obliged to type with unaccented characters. Several organizations, however, like the *Office de la langue française*, work to expand French-language resources on the Internet, and to promote an Internet terminology for French. The result is that French-language resources are growing at a dramatic rate on the Internet (Cf. section 4.4.4.1 for several French-language WWW sites).

8.3 Conclusion

This study has explored various aspects of the Internet, and has provided a clearer understanding of the Internet's usefulness and efficiency as a source of information for translators. Throughout this study, I have attempted to highlight both the advantages and disadvantages of Internet tools. In the end, it can be said that the Internet is a tool that is worth exploring, and that translators will undoubtedly benefit from using it in conjunction with their traditional information sources. As I said at the very beginning of this thesis, the Internet can indeed be a useful component of the translator's *poste de travail*.

APPENDIX 1: Listserv mailing lists (Translation and linguistics)

Translation Listservs

TRANSLAT: listserv@wuvmd.bitnet

Translat is an open forum for the discussion of the theory and practice of translation, with emphasis on literary translation and contemporary theory. It is not intended to be used as a forum for requesting particular equivalents (e.g., what is the French for "user-friendly").

LANTRA-L: listserv@searn.sunet.se

Forum for discussing practical aspects of translation and interpretation.

Computational Linguistics Listservs

CMP-LG E-Print Archive: cmp-lg@xxx.lanl.gov.

A fully automated electronic archive and distribution server for papers on computational linguistics, natural-language processing, speech processing, and related fields. The service archives and distributes electronic preprints on these topics. Subscribers automatically receive a listing of title/author/abstract information for newly submitted papers on days papers are received, and can retrieve the full papers from the archive.

BILDIL. Natural language processing of Turkish: listserv@trmetu.bitnet

LN. Computational Linguistics: listserv@frimop11.cnusc.fr

NL-KR. Natural language processing and knowledge representation nl-kr-request@ai.sunnyside.com

SCHOLAR. Natural language processing: listserv@cunyvm.cuny.edu

Terminology Listservs

TERM-LIST Terminology Science and terminological methods: listserv@uwasa.fi

Linguistics Listservs

CLRN. Cognitive Linguistics Research Notes is a bi-annual, moderated electronic journal of cognitive linguistics research: listserv@ucsd.edu

COLIBRI. FoLLI newsletter on language, speech, logic and information
colibri-request@let.ruu.nl

FUNKNET. Functional approaches to linguistic theory: tgivon@oregon.uoregon.edu

GERMANIC GENERATIVE SYNTAX NEWSLETTER. Syntax of Germanic Languages other than English:
Beatrice Santorini, beatrice@zora.ling.nwu.edu

INFO-SIL. Public communication forum for persons interested in the work of the Summer Institute of Linguistics:
mailserv@sil.org

LAGB. Linguistics Association of Great Britain: listserv@essex.ac.uk

LATAMLIN. Linguistics and languages in Latin America: listserv@mitvma.mit.edu

L-C. Interdisciplinary research about language, culture, and social interaction
listproc@cs.uchicago.edu

- LFG. Lexical-Functional Grammar: majordomo@list.stanford.edu
- LINGUIST. General topics in linguistics: listserv@tamvm1.tamu.edu
- NAT-LANG. Languages of aboriginal peoples: listserv@tamvm1.tamu.edu
- PSY-LANGUAGE. Discussions of: theories of language and speech and their relevance for the study of psychological phenomena; listserv@netcom.com

Miscellaneous

- ADS-L. The American Dialect Society: listserv@uga.cc.uga.edu
- CORPORA. Information and questions about text corpora such as availability, aspects of compiling and using corpora, software, tagging, parsing, bibliography, etc listserv@uib.no
- FLN. Figurative language: listserv@icineca.bitnet

Listserv mailing lists (Domain Specialists)

Business

- AFA. Finance, business and economics. Subscription information: contact the moderator at marm@clermson.edu
- CTI-ACC-AUDIT. Aspects of auditing. Subscription information: mailbase@mailbase.ac.uk
- CU-TALK. Management, operations, marketing and investment. Subscription information: listserv@usa.net

Science

- MERSENNE. Science, technology, and medicine. Subscription information: mailbase@mailbase.ac.uk
- FISICA-L. Discussion of physics. Subscription information: listserv@VM1.LCC.UFMG.BR
- GENTALK. Discussion of genetics and biotechnology. Subscription information: listserv@usa.net
- CHEMCOM. Chemistry. Subscription information: listserv@ubvm.cc.buffalo.edu
- CCES-L. Canadian Federation of Engineering Students. Subscription information: listserv@unbvm1.csd.unb.ca
- MILITARY. Military technology and related matters. Subscription information: military-request@att.att.com

Law

- BIZLAW-L. Business law. Subscription information: listserv@umab.umd.edu
- CJUST-L. Criminal Justice. Subscription information: listserv@cunyvm.cuny.edu
- FORENS-L. Forensic medicine and science. Subscription information: forens-request@acc.fau.edu

APPENDIX 2: Translated texts on the World Wide Web

<http://info.ic.gc.ca/ic-data/ppd/innovative.eco/full.report.francais.txt>
<http://info.ic.gc.ca/ic-data/ppd/innovative.eco/full.report.eng.txt>
 (Document on rebuilding the economy)

<http://info.ic.gc.ca/ic-data/ppd/new.media.e>
<http://info.ic.gc.ca/ic-data/ppd/nouveaux.medias.f>
 (Document on the media)

<http://info.ic.gc.ca/ic-data/regulatory/gatt.documents/Uruguay.round.FAQ>
<http://info.ic.gc.ca/ic-data/regulatory/gatt.documents/version.francais/faq.de.uruguay.round>
 (Gatt FAQ)

<http://www.crtc.gc.ca/eng/highway/hwy9505e.htm>
<http://www.crtc.gc.ca/frn/highway/hwy9505f.htm>
 (Document on managing the info highway)

<http://www.gov.on.ca/renewal.txt>
<http://www.gov.on.ca/frenewal.txt>
 (Document on government renewal through information technology)

http://www.gc.ca/oag/Report_May_1995/oag95/nze/nze1.html
http://www.gc.ca/oag/Report_May_1995/oag95/nzf/nzf1.html
 (A document about public service reform in N-Z and its relevance to Canada)

<gopher://gopher.fin.gc.ca:70/00/fincan/fine/framework/framee.txt>
<gopher://gopher.fin.gc.ca:70/00/fincan/finf/framework/framef.txt>
 (A finance department report on a new economic policy)

<gopher://gopher.fin.gc.ca:70/00/fincan/fine/fiscal/fiscale.txt>
<gopher://gopher.fin.gc.ca:70/00/fincan/finf/fiscal/fiscalf.txt>
 (A finance department report on restauring a healthy fiscal climate)

<http://info.ic.gc.ca/opengov/finance/budget95/speeche/speeche.txt>
<http://info.ic.gc.ca/opengov/finance/budget95/speechf/speechf.txt>
 (Budget'95 speech)

<http://info.ic.gc.ca/ic-data/ppd/sp-reform.html>
<http://info.ic.gc.ca/ic-data/ppd/sp-reforme.html>
 (Paper on the reform of social programs)

APPENDIX 3: On-line Library Catalogues via Telnet

University of British Columbia

telnet library.ubc.ca

Instructions: Press *enter* at the "Enter your id" prompt. Type *LIB* for the catalogue.

University of Calgary

telnet library.ucalgary.ca

Instructions: Enter terminal type. Follow on-screen instructions.

Carleton University

telnet library.carleton.ca

Instructions: Press *enter* at "option" prompt.

Dalhousie University

telnet novanet.dal.ca

Instructions: Follow instructions.

Laurentian University

telnet laulibr.laurentian.ca

Instructions: At "username" prompt, type *netlib*.

Université Laval

telnet ariane.ulaval.ca

Instructions: Type *ariane* at the "username" prompt.

Université de Moncton

telnet 139.103.2.2

Instructions: At the "service?" prompt, type *champ*.

Ottawa Public Library

telnet ottlib.carleton.ca

Instructions: Select 1 to search catalogue.

Université du Québec

telnet sigird.uqam.ca

Instructions: Select 2 to search catalogue.

Queen's University

telnet qlineascii.queensu.ca

Instructions: Follow instructions.

University of Toronto

telnet library.utoronto.ca

Instructions: Type *utlink* at "username" prompt. Press *enter* at "password" prompt.

APPENDIX 4: Canadian FreeNets (list is not exhaustive)**National Capital Freenet (Ottawa-Hull)**

Modem: (613) 564-0808
Telnet: [freenet.carleton.ca](telnet://freenet.carleton.ca)
Login: guest

807-CITY (formerly the Thunder Bay FreeNet)

Modem: (807) 346-7870
Telnet: [tourism.807-city.on.ca](telnet://tourism.807-city.on.ca)
Login: guest

Toronto FreeNet

Modem: (416) 780-2010
Telnet: [freenet.toronto.on.ca](telnet://freenet.toronto.on.ca)
Login: guest

Fredericton Area FreeNet

Contact: mikemac@unb.ca (Michael J. MacDonald)

Chebucto FreeNet (Halifax)

Modem: (902) 494-8006
Telnet: [cfn.cs.dal.ca](telnet://cfn.cs.dal.ca)
Login: guest

Vancouver Regional FreeNet Associations

Modem: (604) 222-4723
Telnet: [freenet.vancouver.bc.ca](telnet://freenet.vancouver.bc.ca)
Login: guest

Victoria FreeNet

Modem: (604) 595-2300
Telnet: [freenet.victoria.bc.ca](telnet://freenet.victoria.bc.ca)
Login: guest

Calgary FreeNet

Modem: (403) 282-4075 or (403) 282-3707
Telnet: [freenet.calgary.ab.ca](telnet://freenet.calgary.ab.ca)
Login: guest

Edmonton FreeNet

Modem: (403) 428-3929
Telnet: [freenet.edmonton.ab.ca](telnet://freenet.edmonton.ab.ca)
Login: guest

BIBLIOGRAPHY⁹²

-
- Andrieu, Olivier. *Internet: Guide de connexion*. Paris: Eyrolles, 1994.
- Astor, Philippe and Frantz Corantin. "Internet." *PC Expert (Edition réseau : techniques et solutions)* 35 (April 1995).
- Ayre, Rick. "Making the Internet Connection." *PC Magazine* 13(17) (October 1994).
- Bardy, Christophe, Denis Delbecq, Fabrice Neuman and Anne Pichon. "Votre passeport pour Internet." *Science et vie micro* 128 (June 1995).
- Barr, Christopher. "All You Need to Go Online." *PC World* (June 1995).
- Bédard, Claude. "Le PTT au CCRIT et ailleurs : Les douze fonctions logicielles de votre poste de travail." Supplément de *Circuit* Q8 (September 1990).
- . "Les mots de tête de la machine." *Circuit* (December 1987).
- Brewster Kahle Thinking Machines Corporation, Art Medlar Scolex Information Systems. *An Information System for Corporate Users: Wide Area Information System*. April 1991. Online. Internet. 20 June 1995. Available FTP: <ftp.think.com/wais/wais-corporate-paper.text>
- Butler, Mark. *Internet...tout de suite !*. Trans. Cécile Pierchon. Paris: Dunod, 1994.
- Cajolet-Laganière, Hélène, Pierre Collinge and Gérard Laganière. *Rédaction technique et administrative*. Sherbrooke: Editions Laganière, 1986.
- Carroll, Jim and Rick Broadhead. *Canadian Internet Handbook: 1995 Edition*. Scarborough: Prentice Hall, 1994.
- "Communicating on the Internet." *Language International* 7(2) (1995).
- Condat, Jean Bernard and Nicolas Pioch. *Collection informatique: Internet*. Montréal: J.C.i., 1994.

⁹² A number of online sources are included in this bibliography, in conformity with the *MLA Handbook for Writers of Research Papers*. 4th ed. MLA, 1995. (section 4.9.3: Citing Material Accessed through a Computer Network.)

- Cormier, Monique C. "Traductions de textes destinés à des spécialistes : approche pédagogique." *Meta : Journal des traducteurs Translator's Journal* 36 (2/3) (1991).
- Davies, Roy. *Electronic Money and Money in History*. Online. Internet. 25 July 1995. Available World Wide Web: <http://www.ex.ac.uk/~RDavies/arian/money.html>
- Delisle, Jean. *L'analyse du discours comme méthode de traduction*. Ottawa: Editions de l'Université d'Ottawa, 1984.
- . *La traduction raisonnée : manuel d'initiation à la traduction professionnelle de l'anglais vers le français*. Collection "Pédagogie de la traduction". Ottawa: Presses de l'Université d'Ottawa, 1993.
- Drescher, Henrik. "Browsing the Wild, Wild Web." *Netguide* (March 1995).
- Dumontier, Michel. "Comment «surfer» sans se ruiner." *Windows plus : la référence des utilisateurs Windows* 20 (May 1995).
- Durieux, Christine. "La recherche documentaire en traduction technique : conditions nécessaires et suffisantes." *Meta : Journal des traducteurs/Translator's Journal* 35(4) (1990).
- Elmer-Dewitt, Philip. "Battle for the Soul of the Internet." *Time* (July 1994).
- . "Take a Trip into the Future on the Electronic Superhighway." *Time* (April 1993).
- "E-mail: It's a throwback to Victorian times when letters were delivered six times a day." *The Ottawa Citizen* January 4, 1995: F3
- Foster, Steven. *Common Questions and Answers about Veronica, A Title Search and Retrieval System For Use With the Internet Gopher*. 1995. Online. Internet. 15 May 1995. Available Gopher: <gopher.scs.unr.edu:70/00/veronica/veronica-faq>.
- Gaffin, Adam. *Big Dummy's Guide to the Internet: A Round Trip Through Global Networks, Life in Cyberspace, and Everything*. Texinfo Edition 2.0, February 1994. Online. Internet. 22 June 1995. Available World Wide Web: http://bit.csc.lsu.edu/tutorial/bigdummy/bdg_toc.html
- . *EFF's Guide to the Internet, v.3.1*. Washington: Electronic Frontier Foundation, 1995. Online. Internet. 29 May 1995. Available World Wide Web: <http://www.eff.org/papers/eegtti/eegttitop.html>
- Gibbs, Mark and Richard J. Smith. *Navigating the Internet*. Indianapolis: Sams Publishing, 1994.

- Hobbes Zakon, Robert. *Hobbes' Internet Timeline v2.2*. The MITRE Corporation, 1995. Online. Internet. 20 June 1995. Available World Wide Web: <http://info.isoc.org/guest/zakon/Internet/History/HIT.html>
- Hutchins, John W. and Harold L. Somers. *An Introduction to Machine Translation*. London: Academic Press Limited, 1992.
- Kchoe, Brendan. *Zen and the Art of the Internet*. 1992.
- Kelly, Louis. *The True Interpreter: A History of Translation Theory and Practice in the West*. Basil Blackwell, 1979.
- "Le carnet d'adresses d'Internet." *Atout Micro* 8(8) (April 1995).
- Lederer, Mariane. *La traduction aujourd'hui : Le modèle interprétatif*. Paris: Hachette F.L.E., 1994.
- Létourneau, Jocelyn. "Comment se documenter et maximiser son travail en bibliothèque." *Le coffre à outils du chercheur débutant*. Toronto: Oxford University Press, 1989.
- Lewis, Peter H. "E-mail: the good, the bad and the ugly." *The Globe and Mail* September 13, 1994: A4.
- Lombard, Pierre. "Internet pionnier sur l'autoroute." *Informatiques magazine* 5 (April 1995).
- Macklovitch, Elliott. "The translator's workstation ... In plain prose." Proceedings of the American Translator's Association Conference, 1991.
- Maillot, Jean. "La documentation multilingue." *La traduction scientifique et technique*. Paris/St-Hyacinthe: Technique et Documentation/Edisem, 1981.
- Marcil, C. and R. Chiasson. "La recherche rapide de l'information." *Comment chercher : Les secrets de la recherche de l'information*. Saint-Nicolas/Québec: Editions MultiMonde4/Documentor, 1992.
- Mareschal, Geneviève. "Le rôle de la terminologie et de la documentation dans l'enseignement de la traduction spécialisée." *Meta : Journal des traducteurs/Translator's Journal* 33(2) (June 1988) Special issue: translator teaching in Canada.
- Meyers, Jennifer. *World Wide Web Tutorial!*. Northwestern University EECS UNIX Lecture Series. May 1994. Online. Internet. 5 August 1995. Available World Wide Web: http://bit.csc.lsu.edu/tutorial/www_tutorial/tutorial.html

Network Working Group. "What is the Internet?" May 1993. Online. Internet. 2 August 1995. Available World Wide Web: <http://yoyo.cc.monash.edu.au/~mist/Folklore/RFC1462.html>

"NetSurfing." *INFOPC* 107 (October 1994).

Neubert, Albert and Gregory Shreve. *Translation as Text*. Kent, Ohio: The Kent State University Press, 1992.

Newmark, Peter. *Approaches to Translation*. New York: Pergamon Press, 1981.

———. *A Textbook of Translation*. New York: Prentice-Hall International, 1988.

Nida, Eugene A. "Principles of Translation as Exemplified by Bible Translating." *On Translation*. 2nd ed. Ed. Reuben A. Brower. New York: Oxford University Press, 1969.

Nida, Eugene A. *Towards a Science of Translating With Special Reference to Principals and Procedures Involved in Bible Translating*. Leiden: E.J. Brill, 1964.

Obenhaus, Gerhard. "The Use of Computer Networks for Translators." *Language International* 5(1) (1993).

"Plains feux sur les technologies de l'information." *Circuit* 48 (Summer 1995).

Roberts, Roda P. "Exploring the Frontiers of Documentary Research In the Translation Process." *Proceedings of the 33rd Annual Conference of the American Translators Association*. Ed. Edith F. Losa. San Diego, California, November 4-8, 1992.

Rahaingoson, Henri. "Les différents types d'ouvrages lexicographiques." *Guide de recherche en lexicographie et terminologie*. Ed. André Clas. Paris: Agence de coopération culturelle et technique, 1985.

Sohier, Danny. *Internet : Le guide de survie de l'internaute*. Montreal: Logiques, 1994.

Sterling, Bruce. *Internet*. F&SF, February 1993. Online. Internet. 25 July 1995. Available World Wide Web: http://bit.csc.lsu.edu/tutorial/the_internet.html

Sykes, John B. "The Intellectual Tools Employed." *The Translator's Handbook*. Ed. Catriona Picken. London: Aslib, 1983.

What is Wais? Online. Internet. 5 July 1995. Available World Wide Web: <http://dawwww.essex.ac.uk/wais.html>

Wais FAQ. Online. Internet. 5 July 1995. Available FTP:
<ftp://rtfm.mit.edu/pub/usenet-by-group/news.answers/wais-faq/getting-started>

Willmott, Don. "The World Wide Web: A Guided Tour of 100 Hot Sites." *PC Magazine*
April, 1995.

World Wide Web FAQ. Online. Internet. 28 July 1995. Available World Wide Web:
http://suncite.unc.edu/boutell/faq/faq_www.html