

**AN EMPIRICAL STUDY OF
DICTIONARY USE IN *VERSION***

by

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ABSTRACT

This thesis reports on an empirical study of dictionary use in translation from a foreign into a native language (*version*). The purpose of the study was to gather information on how student translators use dictionaries in *version*, particularly when translating specialized texts, and to see what effects certain aspects of dictionaries have on them. The study consists of two tests conducted on translation students (Francophone and Anglophone) at the University of Ottawa. The first test was designed to gather *general* information about students' use of dictionaries in *version*. The main issues explored in this test are the following:

- Integration of dictionary use into the *version* task;
- Most common reasons for consulting dictionaries;
- Types of dictionaries most frequently consulted;
- Elements of entries most frequently used;
- Most common and most satisfactory dictionary-use strategies;
- Major causes of dissatisfaction;
- Choice of definitional metalanguage.

The second test was designed to further explore some of the findings of test 1 on the issue of definitional metalanguage. Specifically, it was conceived to measure the ability of translation students to cope with L1 and L2 definitional metalanguage.

In chapter 1, I demonstrate the increasing need for dictionary-use research, and present some existing theoretical and empirically-based perspectives relevant to the issues explored in my tests.

In chapter 2, I discuss the methodologies for the two tests. Test 1 involved direct observation of students doing a specialized translation. The students were asked to speak aloud while using dictionaries, and their dictionary use was recorded on forms designed for this purpose, as well as on audio tape. Test 2 involved a controlled experiment in which translation students were given various

L1 and L2 definitions chosen for their comparable degree of complex definitional metalanguage. This chapter also outlines the methodology used to analyze the results of the two tests (construction of two databases, followed by extensive queries with a database query tool).

In chapter 3, I present and analyze the results of the two tests. The most important results indicate that:

- most dictionary look-ups were done *while* translating;
- the subjects often had *both* comprehension problems and a need for equivalents, and they often used *both* equivalents and definitions to resolve their problems, particularly with specialized items;
- the most commonly used dictionaries in the testing were specialized hybrid dictionaries (i.e. those which provide both definitions and equivalents for specialized items);
- incomplete macrostructure and microstructure were the most common causes of dissatisfaction;
- the subjects used dictionaries very thoroughly (in some cases, too much so);
- the subjects (particularly the Anglophones) avoided L2 definitions whenever possible;
- the Anglophones had good reason to avoid L2 definitions, for they often do not cope well with L2 definitional metalanguage.

In the final chapter, I outline some implications the test results could have for dictionary design and the teaching of dictionary use. These implications are presented along with other ideas as suggestions for future research. I conclude the thesis with a discussion of the potential of electronic dictionaries for implementing some of my ideas.

RÉSUMÉ

La présente thèse est l'aboutissement d'une étude empirique sur l'utilisation des dictionnaires dans la pratique de la version. L'objectif était de recueillir de l'information sur la façon dont les apprentis traducteurs se servent des dictionnaires en version (surtout pour traduire des textes spécialisés) et d'observer comment ils réagissent à certains aspects de ces ouvrages. L'étude repose sur deux tests auxquels ont participé des étudiants en traduction (francophones et anglophones) de l'Université d'Ottawa. Le premier servait à recueillir des données *générales* sur la façon dont les étudiants utilisent les dictionnaires en version. Voici quels ont été les principaux éléments observés :

- la place accordée aux dictionnaires dans la pratique de la version;
- les principaux motifs de consultation;
- les types de dictionnaires les plus consultés;
- les éléments les plus utilisés dans les entrées;
- les stratégies de consultation les plus courantes et les plus satisfaisantes;
- les principales causes d'insatisfaction;
- le choix du métalangage de la définition.

Le second test, axé sur le métalangage de la définition, servait à poursuivre l'analyse de certains résultats du test précédent. Il avait été conçu spécialement pour mesurer l'aptitude des étudiants en traduction à comprendre le métalangage des définitions rédigées dans leur langue première et leur langue seconde.

Au chapitre I, je montre que des recherches sur l'utilisation des dictionnaires sont de plus en plus nécessaires. J'y expose aussi quelques perspectives théoriques et empiriques se rapportant aux éléments observés dans les tests.

Le chapitre II porte sur la méthodologie des deux tests. Au premier, j'ai observé des étudiants en train de traduire un texte spécialisé. Je leur avais demandé de parler à voix haute lorsqu'ils

consultaient un dictionnaire pour que je puisse enregistrer sur bande leur raisonnement et consigner mes observations sur des fiches prévues à cet effet. Au deuxième test, les étudiants devaient travailler avec diverses définitions choisies pour leur degré comparable de complexité métalinguistique. Les méthodes utilisées pour analyser les résultats des deux tests (création de deux bases de données et consultations approfondies au moyen d'un logiciel d'interrogation) sont aussi expliquées au chapitre II.

Au chapitre III, je présente et j'analyse les résultats des deux tests. On retiendra surtout que :

- dans la plupart des cas, les sujets consultaient les dictionnaires *pendant* le processus de traduction;
- les sujets éprouvaient souvent *à la fois* des difficultés de compréhension et le besoin de trouver des équivalents, et résolvaient leurs problèmes en utilisant *à la fois* des équivalents et des définitions, surtout lorsqu'il s'agissait de termes spécialisés;
- les ouvrages les plus utilisés pendant le test étaient des dictionnaires hybrides spécialisés (c.-à-d. ceux où l'on trouve à la fois des définitions et des équivalents pour les termes spécialisés);
- les lacunes de macro ou de microstructure étaient les principales causes d'insatisfaction des sujets;
- les sujets passaient beaucoup de temps à consulter les dictionnaires (trop, dans certains cas);
- les sujets (surtout les anglophones) évitaient dans la mesure du possible les définitions rédigées dans leur langue seconde;
- les anglophones avaient de bonnes raisons d'éviter les définitions rédigées dans leur langue seconde, car ils avaient souvent du mal à en saisir le métalangage.

Au dernier chapitre, j'explique comment les résultats de mes tests pourraient, à certains égards, servir à ceux et celles qui conçoivent des dictionnaires et qui en enseignent l'utilisation. J'en profite aussi pour suggérer d'autres pistes de recherche. En conclusion, j'expose les possibilités qu'offrent les dictionnaires électroniques pour mettre en oeuvre certaines de mes idées.

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INTRODUCTION

OBJECTIVES AND METHODOLOGY

This thesis reports on an empirical study of dictionary use in *version*, that is, in translation from a foreign into a native language.¹ The purpose of the study was to gather information on how student translators use dictionaries in *version*, particularly when translating specialized texts, and to see what effects certain aspects of dictionaries have on them.

The study consists of two tests conducted on students from the School of Translation and Interpretation (STI) at the University of Ottawa in the spring of 1994. The first test was an inductive test in which 15 students were observed while using dictionaries to translate a specialized text into their native language.² This test was designed to gather *general* information about students' use of dictionaries in *version*, and particularly their use of dictionaries in specialized *version* (i.e. *version* involving specialized texts). The second test, a deductive test in which a controlled experiment was used to measure 106 students' comprehension of various definitions, was conceived to further explore some *specific* findings of test 1 that I found particularly interesting.

It is my hope that the findings of these two tests will provide insight into how dictionaries could be designed specifically for use in *version*, and how *version* translators could be better trained to

¹ This type of translation is also often referred to as L2-L1 translation, but for the sake of brevity, I have chosen the French term *version*. It should be noted, however, that Delisle (1984:41) considers the term *version* to refer uniquely to L2-L1 translation as a pedagogical exercise, not translation as it is practised in the professional world. Usually such pedagogical exercises are used in foreign-language teaching rather than in translation teaching. Delisle quotes Ladamir as saying that the terms *thème* and *version* "définissent un type tout à fait particulier de traduction: la traduction comme exercice pédagogique". The *Petit Robert* apparently agrees with Delisle and Ladamir, for it defines *version* as: "Exercice scolaire de traduction dans la langue de l'élève." For the purposes of this thesis, however, I use the term *version* in a looser sense, to simply denote L2-L1 translation.

² The first test was run within the context of the FIDELIS (Finding Information in Dictionary Entries: Long-term International Survey) project, a project run by a dictionary-use interest group of the European Association of Lexicography (EURALEX).

use their dictionaries. In other words, I hope these tests will help show how to better tailor dictionaries to *version* translators, and how to better tailor *version* translators to their dictionaries.³

Test 1

Test 1 was the more important of the two tests, and the bulk of this thesis is therefore devoted to it. However, because this test rendered more data than can possibly be analyzed within the scope of a Master's thesis, I have had to focus on a limited number of areas of interest. The areas I focussed on are as follows:⁴

a) Integration of dictionary use into the *version* task

I wanted to know how student translators integrate dictionary use into the *version* task as a whole. Do they look up all unknown items *before* translating, do they look them up *while* they translate, or do they follow some other method? Does one method appear to be more effective than another? Such knowledge would be useful for teaching dictionary use in *version*.

b) Most common reasons for consulting dictionaries

If we are to know what types of information to include in *version* dictionaries and how to teach *version* translators more effective dictionary use, we must determine what problems most frequently cause *version* translators to consult dictionaries. We need to establish what general types of problems (e.g. comprehension problems, the need to verify meaning and the need for an equivalent) are most

³ More emphasis will be put on how dictionaries can be tailored to *version* translators than the reverse, for I am more interested in the implications of my research for lexicography than for translation pedagogy. Also, because of the specialized nature of the text used in test 1, more emphasis will be put on how to design dictionaries for specialized *version* than for *version* in general.

⁴ I did not necessarily have specific goals in mind before doing my testing, but in looking at the results, these were the questions that seemed to be of greatest interest.

common, and we also need to examine these problems more closely in light of the type of lexical item that causes them (e.g. general-language, specialized, or semi-specialized).

c) Types of dictionaries most commonly consulted

For further insight into dictionary design and the teaching of dictionary use, we also need to know which types of dictionaries are most commonly used by *version* translators. We should look at this question in terms of the number of languages covered in the dictionaries (e.g. bilingual or monolingual or a combination of the two), the kind of coverage (e.g. standard or combinatory), and the language type covered (e.g. general-language or specialized). It may also be of value to know which specific dictionaries of those I provided in my testing (e.g. *Petit Robert*, *Webster's*, etc.) were most commonly used.

d) Elements of entries most frequently used

By establishing which elements of dictionary entries are most frequently used in *version*, we could gain a clear indication of what type of information the *version* translator finds most useful, and therefore, what type of information should be included in a *version* dictionary.

e) Most common and most satisfactory dictionary-use strategies

By combining the findings of areas b, c, and d above, that is, by determining which dictionaries, and which particular elements of those dictionaries, are used most commonly and most satisfactorily to resolve specific problems encountered in *version*, we should come up with even more telling answers as to what type of information best serves the *version* translator. Furthermore, the most satisfactory dictionary-use strategies identified by such results could be emphasized in translation courses.

We also need to examine other aspects of *version* translators' strategies for dictionary use. For example, we need to discover how thoroughly they use dictionaries, how much information they seem to want in dictionaries, and how they access that information.

f) Major causes of dissatisfaction

We need to investigate the most common causes of dissatisfaction in dictionary use in *version*. In so doing, we may identify the weaknesses of existing dictionaries and possibly the weaknesses of strategies employed by *version* translators.

g) Choice of definitional metalanguage

This is an area which has personally caused me difficulties, and, therefore, one in which I am particularly interested. I have long wondered why there are not more dictionaries in which the definitional metalanguage is the native language of the target group. Not only must *version* translators use L2 in order to understand L2, but the L2 definitions they must grapple with often use very complex language. Even the L1 definitional metalanguage they must cope with is often hopelessly complex. I think it is important that someone investigate whether or not L2 metalanguage, and complex metalanguage in general, is a source of problems for *version* translators.

We need to establish, for instance, whether *version* translators choose L1 definitions over L2 definitions when given the choice. We also need to see whether they use L2 definitions when no other choice is available. Finally, we need to see whether their strategies revolve around avoiding L2 definitions.

Test 2

As definitional metalanguage is an area I am particularly interested in, and as test 1 produced interesting results in this area, I decided to conduct a second test to further explore this issue. Test 1 had looked at *version* translators' general reactions to definitional metalanguage; with test 2, I wanted to investigate more specifically their ability to cope with different types of definitional metalanguage.

The findings of test 2 could have implications for the teaching of dictionary use in *version*, as well as for the design of a dictionary suited to the *version* task. For example, if tests such as this show that *version* translators avoid L2 definitions even though their performance is actually not affected by them, then perhaps it is the teaching of *version* that should be altered (i.e. *version* translators should be taught not to avoid L2 definitions). If, on the other hand, it is found that they have good reason to avoid L2 definitions, then we should probably assume that it is the dictionaries that need to be changed.

If indeed it is found that dictionaries need to be changed, we must determine exactly how they should be changed. We should look closely at what types of definitional metalanguage, both L1 and L2, cause the greatest number of problems in *version*.

ORGANIZATION

This thesis is organized as follows:

Chapter 1

Chapter 1 provides some background information on dictionary use. In the first section of this chapter, I show why dictionary use is becoming an increasingly important issue requiring more research, and in particular, research on specific user groups such as *version* translators. In the second

section, I provide some relevant theoretical perspectives, that is, I give theorists' opinions on the various issues I am interested in. Finally, in the third section, I discuss empirical research that has been done to support (or refute) those theoretical opinions.

Chapter 2

Chapter 2 outlines the methodologies of the tests. First I describe the method used in the actual testing, and then I explain the method used to analyze the test results (construction of two databases, followed by extensive queries using a database query tool).

Chapter 3

Chapter 3 presents the results of the tests and my analysis of them. The results focus on various issues, each one corresponding to an area I have outlined above in the objectives proposed for this thesis.

Chapter 4

Chapter 4, the final chapter, discusses what the findings of the tests could imply for dictionary design⁵ and for the teaching of dictionary use. These implications are presented along with other ideas as suggestions for future research. I conclude the thesis with a discussion of the potential of electronic dictionaries for implementing some of my ideas.

⁵ The implications for dictionary design focus on computerized dictionaries because I feel this type of dictionary offers the greatest potential. However, some of the changes I suggest could possibly be incorporated into paper-based dictionaries for *version* as well.

CHAPTER 1

DICTIONARY USE IN *VERSION*: THEORETICAL OPINIONS AND EMPIRICAL OBSERVATIONS

This chapter provides some background information on dictionary use. In the first section of the chapter, I explain the need for more dictionary-use studies, particularly those focussing on specific groups such as *version* translators. In the second section, I present some theoretical opinions on the various issues addressed in my study. Finally, in the third section, I discuss empirical research that has been done to support (or refute) theoretical opinions.

1 Need for dictionary-use studies

1.1 Neglect of the user perspective

In these times of user-friendliness in everything, dictionaries should be no exception. Yet lexicography⁶ has been slow to adopt a user-oriented perspective. Traditionally, other concerns have dominated the approach to dictionary making. Whether those concerns be practical, such as limited resources, or theoretical, such as the desire to produce a linguistically sound, or empirically correct, document, it seems that there has usually been something more important than addressing user needs and abilities. In the following, I look at some of the perspectives which have traditionally taken higher priority than the user perspective.

1.1.1 The compilation-oriented perspective

Of all the concerns shaping lexicography, the practical, compilation-oriented constraints have had the most profound effects. Financial constraints inevitably influence every

⁶ For the sake of brevity, I use the term *lexicography* here and throughout this thesis to refer to both lexicography and terminography.

lexicographical project, frequently causing user-related concerns to fall by the wayside. Perhaps even more frustrating for the lexicographer, however, are the space constraints inherent in paper-based dictionaries. It has been said that lexicographers spend more of their time trying to figure out what they can omit than what they can add.

When financial constraints are combined with space restrictions,⁷ the lexicographer's plight worsens. The pursuit of profitability forces dictionary houses to compile dictionaries that will appeal to as many different user groups as possible. Yet the size of paper-based dictionaries is necessarily limited, and it is therefore not feasible to include *all* the different types of information required by *all* the various user groups. The result has generally been an unfortunate compromise, by which dictionaries may please some users some of the time, but they never please any users all the time.

1.1.2 Other perspectives

Theoretical concerns have also played a part in the traditional approach to lexicography. Some lexicographers have been more interested in producing linguistically valid dictionaries than dictionaries that are tailored to the needs and abilities of their users. This was particularly true when the dictionary was seen primarily as a prescriptive tool, in which lexicographers presented what they thought users *should* need.

More recently, some lexicographers have concerned themselves mainly with producing a document that is true to empirical evidence. In this empirically-oriented approach to lexicography, great efforts are made to gather relevant corpora and carefully excerpt the desired information from those corpora. Although this approach, and the linguistically-oriented approach, undoubtedly have their

⁷ To a certain extent, space restrictions *result from* financial constraints. Not only are very large paper-based dictionaries unwieldy, they are also expensive to produce.

merits, the efforts they require may come at the expense of concerns that are more user-related. In the following, I look at how some of those user-related concerns have begun to evolve.

1.2 Shift to a user perspective

1.2.1 Beginnings of the user perspective

Although it seems that lexicography has traditionally been dominated by perspectives not related to the user, in this century there has nevertheless been *some* interest shown in the user perspective. Certain theorists (e.g. Kromann *et al.* 1991: 2715) credit the first important signs of interest in dictionary users to the Russian linguist L.V. Ščerba, who pointed out in a treatise on dictionary types (1940) that dictionary users translating from a native to a foreign language have quite different needs than those translating from a foreign language into their native tongue.

Ščerba's interests were, however, almost uniquely focussed on the use of bilingual dictionaries. According to some theorists (Hartmann 1987: 11, Zöfgen 1991: 2896), interest in dictionary users in general did not appear until later, at a 1960 symposium held at Indiana University, now commonly referred to as the Householder and Saporta conference.⁸ The predominant feeling at the conference was that dictionaries had not been doing enough for their users, and the primary recommendation in the summary report was that: "Dictionaries should be designed with a special set of users in mind and for their specific needs" (Householder and Saporta 1962: 279). Zöfgen (1991: 2896) claims that this recommendation "marked a turning point in the history of lexicography insofar as it laid the foundations for the user perspective."

⁸ The proceedings of this conference have been published in Householder/Saporta (1962).

According to Kromann *et al.* (1991: 2713), viewing lexicography from a user-oriented perspective "involves consideration on the part of the lexicographer for the dictionary's target group, its needs and competence, and the types of user situations that occur." Yet, before the lexicographer can consider target user groups, those groups must be identified, and their needs and abilities assessed. As Kromann *et al.* (1991: 2714) point out, "We lack the guidelines that could provide us with a sound definition of the user group at which a given dictionary project is aimed. In other words, we need sociological user surveys that describe potential user groups, their linguistic competence and their needs."

1.2.2 Progress of the user perspective

Although the need for user profiles was identified over thirty years ago, we can see from the above comment, made by Kromann *et al.* just a few years ago, that there has been little response to this need. One explanation for such apathy could be that even if user profiles are established, the needs and abilities of those users can never be satisfactorily addressed in a paper-based dictionary. The problem remains that there is simply not enough space to include all the information required by a cross-section of user types. And Hartmann (1989: 106) points out that surveys have shown user types to be more differentiated than previously assumed.

Furthermore, even if massive amounts of information could be included in a paper-based dictionary, no user would want to sift through it all, for much of it would be superfluous to the task at hand. Theoretically, it is possible to design smaller paper-based dictionaries aimed only at one specific user group,⁹ but such ventures do not always prove highly profitable.

⁹ Some examples of dictionaries designed specifically for *version* users are Bielfeldt's Russisch-Deutsches Wörterbuch for translation from Russian into German by German speakers only, and the Van Dale dictionaries, which have a *version* (as well as a *thème*) component just for Dutch speakers.

To address the needs and abilities of a greater number of more specific user groups, a format without space restrictions and without a fixed presentation is needed. The answer could lie in electronic dictionaries. It was with the computer that the concept of user-friendliness really caught on, and it may be the computer that finally brings user-friendliness to dictionaries.¹⁰ Below, I explain some of the possibilities for user-tailored electronic dictionaries.

1.2.3 User-tailored electronic dictionaries

In speaking of dictionaries for translation purposes, Starren and Thelen (1990: 447) claim that "For a dictionary to be helpful, it should be organized in such a way that the information contained in it is easily accessible on the one hand, and as exhaustive as possible on the other." However, as I have explained above, exhaustiveness and truly easy accessibility, particularly in combination with each other, are simply not feasible in paper-based dictionaries. Yet these two areas are precisely those where the computerized dictionary can excel.

In his predictions for future lexicography, Zgusta (1991: 3161-3162) explains how a modularized, multi-functional electronic dictionary could overcome the drawbacks of the paper-based format:¹¹

...improvements in a dictionary usually are accompanied by or consist in an increase in the amount of information offered; which, in its turn, tends to make the dictionary too large. The usual way out of this impasse lies either in the selective reduction of entries (the principles of such reduction are not always easy to find), or in an increased succinctness of presentation which in its turn makes the text of the dictionary difficult to consult, and often negatively affects the dictionary's style...It would seem that this is

¹⁰ Although the term *user-friendliness* is generally used only with respect to user *abilities*, here I use it with respect to both user *abilities* and *needs*. Sager (1990: 194) indicates that the concept of user-friendliness has recently been extended to cover not only ease of use but also user-satisfaction with the response given.

¹¹ For other discussions on the advantages of electronic dictionaries over paper dictionaries, Cf. also Kromann *et al.* (1991: 2724); Sager (1990: 48, 140, 169, 187, 192, 196); Varantola (1993: 259); and Steiner (1989: 255-256).

a situation in which 'the computer' could be particularly useful. We can confidently suppose that the computer's capacity and the finesse and multifarious character of its programs will continue to increase rapidly without any particular increase in its physical bulk. In this case, one can suppose that electronic dictionaries will be constructed that will contain much information of diversified types and that the user will be able to activate selectively that block of information in which he is interested...

It has become clear that the traditional excuses for ignoring dictionary users are no longer valid. There is now the space and the flexibility to satisfy many types of users and to tailor dictionaries to very *specific* user groups. The need to understand specific user groups has therefore become all the more urgent, and should not be ignored.

In this study, I attempted to gain an understanding of one particular group of dictionary users: *version* translators (specifically student translators). I focussed on *version* because it is the type of translation that is most commonly taught and practised in Canada. Furthermore, it is the type of translation in which I am most interested, and with which I have the most experience.

Before delving into unknown aspects of dictionary use in *version*, however, we must first examine those aspects which have previously been explored. In the following section, I give a synthesis of some existing theoretical opinions on the following topics:

- Analysis of the *version* process and dictionary use in that process (section 2.1);
- Issues to consider when making a dictionary for *version* (section 2.2);
- Issues to consider in teaching dictionary skills for *version* (section 2.3).

2 Theoretical opinions relevant to dictionary use in *version*

2.1 The *version* process

2.1.1 Analysis of *version*

The *version* process has been analyzed by various theorists. Gouadec's model (1974: 15) breaks down the process into *two* distinct and essential stages: "la compréhension du texte (situation de

départ) et la réexpression." For Gouadec (1974: 16), "l'exercice de version est avant toute chose un exercice de compréhension, d'explication de texte antérieur à la traduction proprement dite." He feels that comprehension is not only the most prominent task in *version*,¹² but also the most difficult, and acknowledges that this task will likely necessitate the use of dictionaries (both monolingual and bilingual). For the reformulation stage, Gouadec (1974: 38-39) highly recommends the use of an analogical dictionary.¹³

Delisle (1984: 70) sees *version* (and translation in general) as having *three* broad stages: 1) la compréhension, 2) la reformulation, and 3) la justification. He has also classified those stages as being the stages before, during and after translation, and has broken them down as follows (1993: 84-88):

Before translating:

- mise en situation (determining the parameters of the text, such as its author, its function, its audience, etc.);
- lecture (reading the text several times over without turning to dictionaries);
- compréhension (developing a thorough understanding of more difficult aspects of the text. This task can necessitate consultation of various reference sources, including dictionaries);

While translating:

- réexpression (creating a first draft, with as little interruption and correction of style as possible);

After translating:

- vérification (critical re-reading with quality control and correction).

Although Delisle (1993: 85-86) acknowledges that dictionary use may be necessary in the comprehension stage, and that bilingual works cannot be ignored, he warns that it is often preferable to

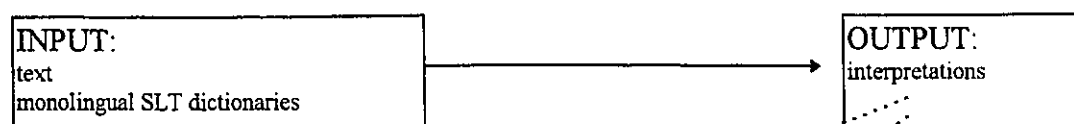
¹² This opinion is also held by Béjoint (1981: 209).

¹³ *Analogical dictionary* is my translation of *dictionnaire analogique*.

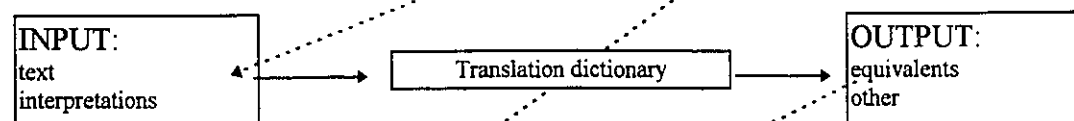
use non-lexicographical sources written in the target language (TL), particularly in cases where a translator is unfamiliar with a more technical subject. However, like Gouadec, he does highly recommend the use of an analogical dictionary in the reformulation stage (1984: 78-79).

Another interesting analysis of the *version* process, with a more specific focus on dictionary use, is presented by Starren and Thelen (1990: 449). They see the *version* process as having *four* distinct stages:

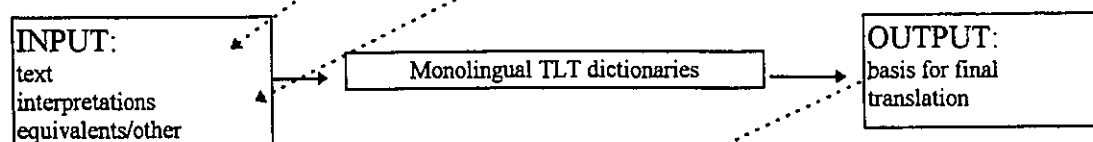
STEP 1: DISCOVERING MEANING



STEP 2: FINDING RECEPTOR LANGUAGE EQUIVALENTS



STEP 3: CHECKING MEANING OF RECEPTOR LANGUAGE ITEM



STEP 4: FORMULATION OF FINAL TRANSLATION

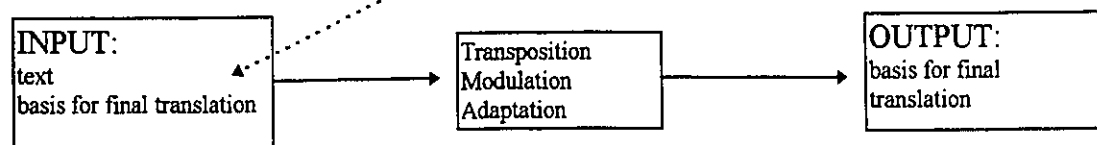


Figure 1. The *version* process according to Starren and Thelen.

Although Starren and Thelen's diagram provides us with a general idea of dictionary use in *version*, they do not explain precisely what the dictionaries they mention consist of, nor do they explain exactly how those dictionaries are used in the various stages. In the following, I attempt to provide more specific explanations of what types of dictionaries can be used in *version*, and how they can be used.

2.1.2 Dictionaries and dictionary use in *version*

Dictionaries have been classified in a number of typologies based on various characteristics, but three categories seem to be most relevant to *version*: a) general-language vs. specialized dictionaries, b) bilingual vs. monolingual vs. multilingual vs. hybrid dictionaries, and c) decoding vs. encoding dictionaries.

a) General-language vs. specialized dictionaries

Dictionaries can be categorized according to their level of specialization. General-language dictionaries focus on the general lexicon, while specialized dictionaries¹⁴ concentrate on a specific part of the lexicon, such as the terminology of one or several specialized domains. General-language dictionaries are used in *version* for many different purposes, but they alone are usually not sufficient for the translation of more specialized or technical texts. For such texts, specialized dictionaries or terminological data banks are usually required.

¹⁴ Sometimes called LSP (Language for Special Purposes) dictionaries.

b) Bilingual vs. monolingual vs. multilingual vs. hybrid dictionaries

Dictionaries can also be classified by the number of languages they cover. *Version* can involve the use of monolingual, bilingual, multilingual or hybrid dictionaries.

When *version* translators need a tool that explains in their native language (L1) what L1 lexical items mean, they can use a monolingual L1 dictionary. When they need a source for definitions of L2 lexical items, they can turn to monolingual L2 dictionaries. The primary purpose of monolingual dictionaries is to describe a given language, whether it be general language or a specialized one.

Bilingual dictionaries also occasionally assume descriptive tasks, but, with rare exceptions, they do not give definitions of lexical items. They provide equivalents rather than definitions. Kromann *et al.* (1991: 2712) define bilingual dictionaries as "dictionaries of two national languages, where the source language lemmata of the dictionary are supplied with equivalents in the target language. Such a dictionary may be general, specialized, or a mixture of the two." In *version*, bilingual dictionaries can be used as an aid to comprehension and production. According to Steiner (1989: 250),

...many users who are in search of a meaning in order to understand the text they are reading are able to derive meanings from the translation dictionary even though no formal definitions find a place in it, but if these users do not know the meaning of an equivalent in their own language, they must resort to a monolingual dictionary of meanings in order to find that meaning.

Like bilingual dictionaries, multilingual dictionaries also generally provide only equivalents. However, they fulfill fewer purposes than bilingual dictionaries because they are normally restricted to technical subjects, where less polysemy and anisomorphism is involved.¹⁵

Although it appears that there is a rigid dichotomy between monolingual and bilingual dictionaries, a form does exist which combines features of the two types. Such a form is often called a

¹⁵ However, Sager points out (1990: 141) that anisomorphism also exists in terminology. This is particularly true when a given technology develops in parallel in two different places (e.g. nuclear warfare during the Cold War).

hybrid dictionary. The term *hybrid dictionary* can be used in various ways. It can refer to a predominantly monolingual dictionary incorporating features of a bilingual (often called a *bilingualized* dictionary), or a predominantly bilingual dictionary incorporating features of a monolingual (sometimes called a *monolingualized* dictionary). I will therefore use the term *hybrid dictionary* in this loose sense to refer to any dictionary combining aspects of bilingual and monolingual dictionaries.

Although examples of hybrid dictionaries are still relatively rare, this type of dictionary has been in existence for quite some time. Kromann *et al.* (1991: 2712) mention a dictionary compiled in 1050 called *The Book of Hebrew Roots*, in which "the Hebrew headwords are transcribed into the Arabic alphabet, their meaning is explained in Arabic, and parallels are drawn to Arabic." More recently, some of the English learner's dictionaries have been translated into various languages,¹⁶ and Fernando de Mello Vianna has published the *Diccionario inglés For Spanish Speakers* (Skokie: National Textbook, 1982) in which the English definition is translated into Spanish so that the Spanish reader can more easily understand it. In Canada, Fernand Sylvain *et al.* have produced a specialized accounting dictionary (*Dictionnaire de la comptabilité*, Toronto: L'Institut Canadien des Comptables Agréés, 1982) containing both definitions and equivalents.¹⁷ Furthermore, Atkins (1985: 22) claims that hybrid dictionaries are commonplace in Italy.

Atkins (1985: 22) suggests that the hybrid dictionary is a concept that should perhaps be pursued further. She feels that a combination of the best features of monolingual and bilingual dictionaries could result in a highly flexible resource. She suggests many ways in which features of

¹⁶ For example, translated versions of learner's dictionaries exist in Chinese (Chinese version of the *Oxford Advanced Learner's Dictionary*, Hong Kong 1984), Hebrew (Hebrew version of the *Oxford Student's Dictionary of Current English*), Japanese and Italian. Hartmann (1992: 67) claims to have found about 20 general bilingualized dictionaries aimed at foreign learners of English.

¹⁷ Hartmann (1992: 67) claims to have found several bilingualized dictionaries for special purposes.

these dictionaries could be combined (1985:22). For example:

Starting from a monolingual, L1 equivalents could be inserted at the beginning of each semantic category (sense); the metalanguage or even the definition could be in L1; the fixed phrases could be not only explained and exemplified in L2, but also translated into L1...the list of possibilities is endless...Or, starting from the bilingual, a number of monolingual features could be introduced: one could, for example, *not* translate phrases exemplifying straightforward use of the headword; the headwords, or better still the semantic categories (senses) of the headword, could be classified from the point of view of frequency, and entries for the less frequent items could contain a higher proportion of monolingual material.

To my knowledge, the hybrid dictionary has rarely been used in *version*, probably because of its limited availability. It may soon gain popularity, however, for as Atkins (1985: 22) points out, such a format is all the more feasible in electronic form. I feel the hybrid dictionary, particularly one in which the source-language (SL) item is defined in the user's L1 and the definitions are accompanied by L1 equivalents, has great potential for use in *version*. The possibilities of such use were therefore thoroughly investigated in the testing part of this thesis.

c) Decoding vs. encoding dictionaries

Dictionaries can also differ according to whether they focus on decoding (comprehension) or encoding (production). Most monolingual dictionaries are chiefly designed for decoding (Whitcut 1989: 90), although they can serve encoding purposes to a certain extent (particularly in the case of learner's dictionaries). Bilingual dictionaries are usually designed to serve both decoding and encoding needs, but many researchers argue that they *should* focus on one or the other.¹⁸

Version translators may have some problems encoding in L1, but in the opinion of various theorists (e.g. Ladmiral 1979: 56, Gouadec 1974: 15) decoding, or comprehension of L2, is usually the

¹⁸ As already discussed, Ščerba (1936 and 1940) was the first to suggest that bilingual dictionaries should differ according to whether they serve decoding or encoding purposes. Many others (e.g. Zöfgen 1991: 2896-2897, Al-Kasimi 1983: 157-158) have since supported this argument.

most challenging part of their task. For assistance with decoding problems, *version* translators often turn to monolingual L2 dictionaries and bilingual dictionaries. For more difficult cases where translators cannot understand the definitions in a monolingual L2 dictionary, and they are not familiar with the equivalents provided in a bilingual dictionary, they may also use a monolingual dictionary of their native language (i.e. they will look up the meaning of an L1 equivalent provided by the bilingual dictionary).

The decoding problems experienced by *version* translators are similar to those of native speakers faced with difficult lexical items in poor contexts. According to Delisle (1984: 70), "Devant un texte à traduire, le traducteur se trouve [...] dans une situation identique à celle d'un lecteur unilingue qui *prend* connaissance du contenu." Although Tomaszczyk (1983: 42) claims that "in comprehension we rely much more on contextual clues, linguistic and pragmatic, than on the kind of information one usually finds in dictionaries", when the context (or our understanding of it) is insufficient, dictionaries, whether they be monolingual or bilingual, are often a necessary aid.

From the above discussion, it seems evident that *version* translators need dictionaries for many different purposes, but it is not clear what exactly they need in those dictionaries. Very little theoretical research has been done on the specific needs of the *version* translator, but many issues which are relevant to *version* have been discussed in the context of other uses of dictionaries. In the next section, I present some of the discussions on the following issues:¹⁹

- What items should be included in a *version* dictionary? (section 2.2.1)
- What type of information is most appropriate for each item? (section 2.2.2)
- How much information should be included for each item? (section 2.2.3)
- What type of definitional metalanguage should be used? (section 2.2.4)

¹⁹ I will address only *some* of the issues relevant to *version*. There are certainly other questions which should be explored in future research, some of which I will mention in the discussion chapter.

2.2 Issues to consider in making a dictionary for *version*

2.2.1 What items to include?

With the space constraints of paper-based dictionaries, entry selection has traditionally proved a formidable task in lexicography. Zgusta (1971:247) is undoubtedly right in stating that respect of the purpose of the dictionary should be the most important criterion in entry selection. When the purpose of the dictionary is to meet the needs of user groups whose needs have not been empirically assessed, theoretically-based criteria are generally the lexicographer's only resort.

In the past, frequency of occurrence has often been used as a criterion for entry selection, but as the best-known frequency lists have become completely outdated (many of them were established in the 1950s), this criterion is no longer reliable. Furthermore, such a criterion is of little use in dictionaries for *version*, as *version* translators should have a good grasp of common lexical items and are generally more interested in less common ones.

Besides frequency of occurrence, and the dubious practice of deriving wordlists from those of previous dictionaries, there are no entry selection criteria that can be generally applied to the whole dictionary. Instead, there are a number of scattered theoretically-based heuristics. None of them were formulated specifically for *version* users, but some can be applied to *version* to some extent.

For example, heuristics proposed for decoding would seem to be relevant to *version* users, for as we have discovered above (Cf. section 2.1.1), decoding is considered the primary task in *version*. Béjoint (1981: 210) claims that, for decoding tasks, students of foreign languages (whose needs may be similar to those of student *version* translators, although perhaps more elementary) need the rarest among encyclopedic, cultural, and slang words, as well as proper names, idioms, and abbreviations.²⁰

²⁰ Béjoint (1981: 209) defines encyclopedic words as rarer, more technical words, and gives *mathematics*, *passport* and *multiply* as examples. He gives *bay window*, *stout*, and *double-decker* as examples of cultural words, *lay it on thick/with a trowel* as examples of idioms, and *nosh* and *fag* as examples of slang words.

To this list, Kromann *et al.* (1991: 2723) add regionalisms. Zgusta (1971: 133, 154) also adds compounds and other multi-word items whose meaning cannot be deduced from the sum of their parts. Béjoint (1981: 210) feels that if some words must be left out, it would do the least harm to omit those entries which can be found in other reference works, items such as international lexical items (e.g. telephone, automobile), and proper names (especially those with no particular relevance to the L2 culture). The general theoretical assumption is that words which are known to cause problems for non-native speakers, and even native speakers, should be included.

Items which would be unknown to the non-specialist should also be included, as *version* translators must often translate texts about subjects in which they do not specialize. You might not include common computer terms in a dictionary for specialists, for instance, but the *version* translator may very well need them. *Version* translators may also very well need terms in some specialized domains more than in others, for they will undoubtedly have to translate texts more frequently in certain domains (e.g. computing). Although Zgusta (1971: 245) once made the seemingly arbitrary suggestion that no one technical domain should be covered more exhaustively than another in a general dictionary, more user-oriented guidelines recommend giving greater coverage to the most commonly encountered terms. Varantola (1993: 251) mentions that some Finnish dictionary projects, for example, have tried to give the broadest coverage to terms used in the mass media.

In the construction of term banks, theoretical guidelines like those mentioned above have played a relatively minor role. The choice of entries for term banks such as TERMIUM has been largely user-driven (i.e. term banks have generally been approached as an information service responding directly to users' requests). According to Sager (1990: 220), "Some organisations feel that the direct contribution made to term bank development by the translator-users has been most beneficial because it has concentrated the work of development on what users need." As the needs of *version*

translators are very diverse, ever-changing, and therefore hard to analyse, perhaps their needs would be best met by a user-driven policy for entry choice.

2.2.1.1 Entry choice in electronic dictionaries

In electronic dictionaries of the future, however, it may very well be that *no* policy is required for entry selection. As Varantola (1992: 127) points out:

It is possible to store a great deal of material and different types of multi-layer information in electronic databases. Thus, it is no longer so important to follow very rigid lexicographical or terminological principles in deciding what to include in, or exclude from, a lexical database or term bank.

The ability to include many more entries than previously has been possible would undoubtedly benefit *version* users, for as many theorists have argued, the best dictionary for decoding is the one that contains the largest number of entries (Béjoint 1981: 210, Hatherall 1984: 189, Al-Kasimi 1983:158).

Yet the possibility of a massive *version* dictionary raises other questions. Should, for instance, such a dictionary contain both specialized and general-language items? A huge all-purpose dictionary would save *version* translators from having to use several sources, but the needs of those translators regarding the different types of items are often quite different (i.e. for general-language items, more linguistic information is needed, while for specialized items, more domain knowledge is needed). Varantola (1992: 122) has pointed out that "The methods and aims of lexicography and terminology are often so different that it is extremely difficult to combine them in a sensible way in a single dictionary." Further exploration as to entry selection for electronic dictionaries is obviously needed.

2.2.2 What type of information should be included for each item?

Choosing what to include in the dictionary *macrostructure* (i.e. the dictionary entries taken collectively) may be a contentious issue, but deciding what should be included in the *microstructure* (i.e. the information given for each individual entry) is perhaps an even thornier problem. The problem revolves largely²¹ around the question as to whether the user is better served by an equivalent or a definition.²² Much of the argument in this matter has focussed on the needs of the foreign-language learner, but some of it is also relevant to *version* translators, particularly student translators, who may not always have a solid grasp of their L2.

The question as to whether the *version* translator is better served by an equivalent or a definition is intimately tied to the question concerning what type of problem is most common in *version*, and how that problem is best resolved. As discussed above (in section 2.1.2), many theorists believe the major difficulty in *version* is decoding. From this we can deduce that comprehension problems must be quite common in *version*. But how are such problems best resolved?

We have seen (in section 2.1.2 above) that when *version* translators do not understand an L2 item, they can use definitions in L2 monolingual dictionaries, or L1 equivalents in bilingual dictionaries, and if they do not understand the L2 definition or the L1 equivalent, they can move on to definitions in L1 monolingual dictionaries. To determine which of these strategies is the most effective, theorists

²¹ I say "largely" because there are certainly other debated issues that are of relevance to *version*, such as whether definitions or contexts are more appropriate (Cf. Sager 1990: 223), whether connotative meaning and register should be given in addition to denotative meaning (Cf. Béjoint 1981: 210), whether equivalents should be translational or explanatory (Cf. Zgusta 1971: 320), what types of discrimination should be given (Cf. Kromann *et al.* 1991: 2721), etc. However, as I must restrict my interests in this thesis, I have focussed on what seems to be the most contentious issue.

²² In actual fact, this argument usually focusses on *what type of dictionary* (i.e. bilingual vs. monolingual) is most appropriate rather than *what type of information in a dictionary* (equivalent vs. definition) is most appropriate. However, for the purposes of this thesis, I will look at the question from the latter perspective, because dictionary types are evolving and I am most interested in a non-traditional type, the hybrid dictionary, in which various types of information are combined.

have tried to establish just what happens when a comprehension problem occurs. For such explanations, they have sometimes turned to psycholinguistic analyses of the meaning acquisition process.²³

2.2.2.1 Psycholinguistic analyses of meaning acquisition

Various hypotheses have been proposed to explain what happens in the meaning acquisition process.²⁴ Some researchers suggest that there is only one conceptual framework in a language learner's mind, and when new L2 lexical items are acquired, they join that pre-existing conceptual framework. Others argue that there is a separate conceptual framework for each language.

If we knew which hypothesis was correct, we could come to some conclusion as to whether definitions or equivalents are most appropriate for the acquisition of meaning. We would know, for example, whether dictionary users, when given L2 definitions, store them as a set of semantic features corresponding to the form in L2, or whether the L2 definition merely sends the users back to the L1 item that most closely corresponds to the referent described, in which case they perhaps could have used an equivalent in the first place.

The latest research suggests, however, that both hypotheses may be grossly over-simplified. Béjoint (1987: 142) explains that all that "has clearly been established is that there are always links between the two languages [...] though the exact nature of those links, and how they function, is not

²³ By *meaning acquisition*, I mean the process by which the meaning of an unknown lexical item is decoded, specifically through the use of a dictionary. Although *meaning acquisition* is frequently used in linguistics to refer to long-term retention of a lexical concept, I limit my definition here to the short-term retention required for the *version* process. Generally, it is not absolutely necessary that translators retain the meaning of a lexical concept after completion of the translation in which the concept occurs.

²⁴ Cf. discussions on this matter in Béjoint 1987 and Béjoint and Moulin 1987, and for a brief discussion as to how this matter relates to translation in particular, Le Dorze and Nespoulous (1984: 78-79).

fully understood." So we see that, as of yet, psycholinguistics has really provided no answers to the question regarding which kind of input is conducive to the most efficient acquisition of the meaning of a lexical item. Furthermore, Béjoint (1987: 144) points out that numerous contrastive studies of the effect of teaching L2 items through different means have also come to no clear conclusions. The foundations on which theorists base their advice regarding the most effective type of input therefore remain speculative. Yet theorists continue to give advice, some of which I present below.

2.2.2.2 The merits of definitions and the evils of equivalents

There has been little debate over the use of definitions in *version*. Definitions are often used by translators and their value for translation purposes is generally acknowledged. Yet Sager (1990: 49) feels that "The specialised translator should not need a definition for understanding the source text as he works from a context. He needs a definition of a target language equivalent only if he cannot trust the reference tool he uses." Sager's statement may seem rather surprising when one considers the number of times translators may simply not understand the source language context, and consult the dictionary for that very reason. His statement may also shock certain theorists, who argue vehemently that equivalents can be bad for you.

Béjoint (Béjoint and Moulin 1987: 100-101) claims that many bilingual dictionary users turn to equivalents under the assumption that every lexical item in a foreign language has an equivalent in their native language. He feels that this assumption is misguided in many cases, for they are bypassing the more complex question of content of both lexical units. He explains, for example, that such an assumption is misguided in the following cases (among others): 1) when the two languages are anisomorphous (Cf. also Tomaszczyk 1983: 48, Snell-Hornby 1987: 165, Kromann *et al.* 1991: 2718); 2) when the foreign item is highly polysemous and has such a complex rich extension that there are

many TL equivalents according to context (Cf. also Kromann *et al.* 1991: 2718); and 3) when the users are unfamiliar with the referent and, consequently, with the native language item. Each of these cases is discussed below.

Anisomorphism

Some authors question the validity of the anisomorphism argument when bilingual dictionaries are used for decoding purposes. Béjoint (1987: 145) himself points out that anisomorphism is not nearly so relevant a factor in this case because users will look at only one sense at a time rather than at a complete conceptual picture. Snell-Hornby (1987: 166-167), who strongly advocates the use of meaning discrimination and definitions in dictionaries for encoding to clarify problems of anisomorphism, concedes that in the bilingual dictionary for decoding, an undefined list of suggested equivalents is often sufficient (1987: 163). Kromann *et al.* (1989: 2720) agree that meaning discrimination can often be omitted in dictionaries for decoding.

However, Kromann *et al.* (1989: 2721) do acknowledge that it may be necessary to clarify polysemous equivalents, where only one meaning is relevant for the given lemma. Furthermore, Béjoint (Béjoint and Moulin 1987: 101) points out that in cases of complete anisomorphism (such as with culture-bound items that do not exist in the target-language culture), provision of an immediately-insertable equivalent is often impossible, and some sort of gloss or definition *must* be used to explain what the item means in the context of the foreign culture.

Contextual equivalence

The problem of contextual equivalence is perhaps a more difficult issue than anisomorphism in *version*. It has been argued that bilingual dictionaries can mislead users who do not realize the

impossibility of providing an equivalent for the headword in every context in which it could occur (Béjoint and Moulin 1987: 101).²⁵ Bilingual dictionaries could cause a misunderstanding of the SL item and direct translators to equivalents that may not be appropriate in the context in question.

Even if bilingual dictionaries do not mislead translators, they may not give them sufficient information to come up with a contextually appropriate equivalent. They may simply not give enough productive information, as professional translator Fritz Güttinger²⁶ laments: "Ein zweisprachiges Wörterbuch kann einem ein Wort erklären, aber es liefert kaum je die passende Übersetzung dafür."²⁷ Or, on a more serious level, an equivalent may not give enough information to decode the foreign-language item. Some theorists contend that to truly understand a lexical item and thereby produce an acceptable translation, more than an equivalent is needed. Baxter (1980: 325) feels, for instance, that for language learners, definitions are more effective. In some cases, the same may hold true for translators.

Unfamiliar referents

The need for more than an equivalent to understand a lexical item becomes most obvious when the referent is unknown. Rey-Debove (1991: 2860) states that specialized bilingual dictionaries should contain definitions because the equivalents are frequently unfamiliar to the user. Sager (1990: 47-48) claims that in term banks as well, translators often want more than just an equivalent. In order to fully understand a term, they may want more conceptual information.

²⁵ Although equivalents cannot be provided for all possible contexts, Roberts (1992b: 51) points out that because dictionaries are increasingly corpus-based, they are not necessarily limited to the most common significations.

²⁶ As quoted in Snell-Hornby (1987: 168).

²⁷ A bilingual dictionary can explain a word, but it hardly ever provides an appropriate translation for it (My translation).

Anisomorphism, contextual equivalence and unfamiliar referents have therefore often been given as reasons, among others, that translators need more than equivalents. Snell-Hornby (1987: 163) sums this feeling up most frankly with her statement that "it is illusory to believe that the general bilingual dictionary is sophisticated enough to be an ideal tool for the professional translator." Yet, for reasons I present below, the equivalents in bilingual dictionaries are very appealing to many translators, both student and professional.

2.2.2.3 Appeal of equivalents

Equivalents in bilingual dictionaries seem to appeal to translators for two major reasons: 1) L2 definitions are hard to use, and 2) equivalents offer the quickest route to the translation that they ultimately need.

Some theorists explain the appeal of equivalents by the fact that using L2 definitions may force the user to look for many other explanations of the words used in the definitions (Tomaszczyk 1983: 46; Stein 1990: 404). Tomaszczyk (1983: 46) feels that "While one can accept the claim that the beginning and intermediate learners shy away from the monolingual dictionary because they find it too difficult to use...this can hardly apply to advanced language learners and teachers." Yet one must consider that *version* translators often work with specialized dictionaries, and the definitional metalanguage in these dictionaries can be intimidating even for those with very advanced L2 competence.

Even when L2 definitions are not difficult to read, some translators prefer equivalents because they simply provide a more efficient route to the translation that is ultimately needed. Steiner (1989: 255) explains:

...a translation dictionary is much more efficient for decoding that (*sic*) it is for

encoding. When the decoding translator starts with the headword or entry word, a lexeme often foreign to him or her, he or she reads on beyond the headword and soon finds equivalents set in a language in which the translator's competence is usually native or near-native. To understand and use these equivalents, the translator uses an internalized monolingual dictionary. (This internalization is the result of learning experiences.) If there are gaps in the retrieval of material because of the inability to recall a certain item, the translator can refer for correction or emendation to a written monolingual dictionary, to an informant, to a thesaurus, or to an encyclopedia.

In other words, the equivalents in a bilingual dictionary can bring instant satisfaction (not only to grasp the meaning, but also to come up with a translation), and when they don't, the translator can always resort to less efficient routes anyway. So why not begin by trying the easiest route? The temptation is great.

With specialized items, the use of a bilingual dictionary is not only easier, often it is necessary. Without it, translators may not be able to come up with the translation they ultimately require, for such specialized L1 items may not form part of their mental lexicon. The equivalents in the bilingual dictionary may have to be the eventual route to a translation.

Regardless of what type of input the theorists think is most important for decoding, they cannot deny that translators eventually must produce an equivalent. A debate over what type of information to include in a *version* dictionary may therefore be a moot point. *Version* translators are likely to use both definitions and equivalents at various points in their task and perhaps it would be best to provide them with *both* in a single dictionary. The theorists' opinions on such a possibility are examined in the next section.

2.2.2.4 Inclusion of both equivalents and definitions

Many theorists recognize the need to provide, in a *version* dictionary, information for decoding L2 items as well as for the production of L1 equivalents. Martin and AI (1990: 396), for instance, have

expressed such an opinion:

More specific communicative functions (such as e.g. translating) require an adequate, specially adapted, user-oriented model... Translating dictionaries of the passive type e.g. should not only help users to understand the foreign language, but moreover provide them with contextually adequate expressions.

It has therefore often been suggested that the *version* translator's needs are best met by the use of *both* a monolingual L2 dictionary *and* a full-sized bilingual dictionary (Snell-Hornby 1987: 163-164; Zöfgen 1991: 2897). Yet if translators frequently need both types of dictionaries, why not consider combining the information they provide in a single dictionary?

Hybrid dictionaries that include both equivalents and definitions are not a novel idea. Iannucci (1957: 278-280) laid the groundwork for such a combination as early as 1957, and Tomaszczyk (1983: 47) claims that Russian theorists have long been proponents of such an idea. Now that hybrid dictionaries are beginning to become more common (Cf. section 2.1.2 above for some examples), Hartmann (1992: 66) has become one of their strongest advocates, and suggests that they are particularly good for decoding. Their advocates claim that if users are provided with both definitions and equivalents in the same document, they may be less likely to fall prey to the dangers of using just one or the other.

Hartmann (1993: 4) sees the equivalents provided in bilingualized dictionaries as a useful supplement to definitions, particularly when the definition is in L2, because they serve as "keys" to the meaning of the L2 items. That is, they can clarify definitions for the user, or provide assurance that the right meaning has been grasped. Furthermore, for *version* translators, equivalents are an obvious necessity, for a translation must eventually be produced.

On the other hand, definitions of L2 items can be seen as a useful supplement to equivalents. First of all, when an L1 equivalent is accompanied by a definition of the L2 item, translators inevitably

feel more secure in using that equivalent, because the definition clarifies the sense in question and confirms that the equivalent can be used in that particular sense. For instance, translators will be more content to use *portfolio* as an equivalent of *portefeuille*²⁸ when *portfolio* is accompanied by a definition that corresponds to the sense used in their L2 source text.

Secondly, by identifying the meaning of the L2 item, definitions can help translators identify the intended meaning of an L1 equivalent. This is particularly necessary when an L1 equivalent is polysemous, and especially when the polysemy is quite subtle. For example, if translators are given only the equivalent *allowance* for the item *réfaction*,²⁹ even if they understand the meaning of *allowance*, how are they to know whether this particular *allowance* refers to a reimbursement for expenses (as in a travel allowance), a sum of pocket money received regularly, the act of allowing, or some other sense, if the source text does not make it totally clear? A definition explaining that, in the sense of *réfaction*, an *allowance* is a discount offered upon delivery of defective merchandise³⁰ would make the intended meaning quite clear by eliminating all polysemy.

Thirdly, definitions can explain a concept where the referent is unknown to translators, or simply does not exist in their culture. For instance, to translators who are unfamiliar with the concept of an *interest-rate swap*, it is not really sufficient to know that it is called a *swap de taux d'intérêt* in French. An intelligent translation based on an understanding of the concept requires that a definition also be used.

Finally, definitions may prevent translators from developing a warped understanding of a concept. If *version* translators always understand L2 items in terms of L1 equivalents, certain concepts

²⁸ As is given in the index of the *Dictionnaire de la comptabilité*.

²⁹ As is given in the index of the *Dictionnaire de la comptabilité*.

³⁰ As is given in the main body of the *Dictionnaire de la comptabilité*.

will be misconstrued. For example, if translators rely on the translation of, say, "TGV" as "high-speed train",³¹ they may acquire a somewhat warped concept of a French TGV. For if they consider a French TGV to be equivalent to an English high-speed train, they will see it as a train that does not actually go that fast, and they will certainly not see it as a type of high-speed train specific to France. Yet if they were given a definition of TGV, they would realize that a TGV is not necessarily the same thing as an English high-speed train. For example, TERMIUM, although it does not give a definition, does clarify the distinction in meaning between high-speed trains in general and those specific to France by providing the following context: "Few other European countries are as committed to the future of rail travel as France. The French TGV - the first European high-speed train (HST) - recently broke its own world record by reaching a speed of 515.3 kmh." Armed with such information the translator could make the necessary adjustments to come up with an appropriate translation such as *French ultra-high-speed train*. If *version* translators are given both definitions and equivalents, *they* can be the ones to decide whether items are equivalent, without having to rely on the advice of the dictionary. We do not know for sure whether translators simply associate L2 concepts with L1 concepts (Cf. section 2.2.2.1 above), but by supplementing equivalents with definitions, and thereby clarifying the meaning, we may decrease the chances that they will do so unwarily.

Once it is decided *what type* of information should be provided in a *version* dictionary, then it must also be decided exactly *how much* of that information should be given for each item. I present some theoretical opinions on this matter in the following section.

³¹ As is given in the *Robert-Collins*.

2.2.3 How much information should be included for each item?

Determining how much information should be given for lexical items in a dictionary presents great challenges, for as Hudson (1981: 341) has said, "there is no known limit to the amount of detailed information [...] which may be associated with a lexical item."

There is, however, not much debate over how many equivalents to include in *version* dictionaries. As discussed above (in section 2.2.2.2), it is impossible to include an appropriate equivalent for every context in which a headword could appear. But it has been suggested that as many equivalents as possible should be included (Al-Kasimi 1983: 158).³² Because *version* translators should have a high level of competence in their native language, the chance that they will be confused or misled by long lists of L1 equivalents is minimized, particularly if the equivalents are supported by good discrimination, or, even more so, by definitions which clarify the meaning of the L2 item.

The question of how much definitional information should be included in a *version* dictionary is, however, a more debated one. Landau (1989: 6) claims that dictionary definitions usually contain only the information that the reader must have to understand an unfamiliar word. But just how much information does that entail? Actually, it's not just a question of *how much* information, but also *what type* of information, for often what is needed is a particular type of information known as *encyclopedic* information. Yet the line of demarcation between purely linguistic and encyclopedic information is a very fuzzy one.³³ Therefore, for the sake of simplicity, I will emphasize the fact that so-called

³² As Roberts has pointed out (1992a: 223), the number of sense divisions in a bilingual dictionary – and, consequently, the number of equivalents that can be provided – is also determined by the sophistication of the user, not just the nature of the task. Sophisticated users (as all professional translators, and most of the students translators in my study should be) can cope with, and are better off with, a great number of equivalents.

³³ For further discussion on the difference between linguistic and encyclopedic information, Cf. Zgusta (1971: 254-256), Landau (1984: 118-119), Sager (1990: 40-41, 49) and Stock (1992: 113-119). Also of interest is *Le dictionnaire Hachette de la langue française*, in which the distinction between encyclopedic and linguistic information has been made explicit.

encyclopedic definitions contain *more* information, as opposed to the fact that they contain a *different type* of information.

Theorists generally agree that dictionaries for non-native speakers (as a *version* dictionary would be) require more information than those aimed at native speakers. This opinion has been well expressed by Zgusta (1971: 299):

There are innumerable covert facts which the native speaker knows about his language and about his culture. If the dictionary is written primarily or exclusively for him, information about such covert facts can be omitted; but since a foreigner cannot be supposed to know them, he will require much more information.

Béjoint (1981: 210) feels that greater amounts of information are particularly necessary for non-native speakers in the case of culture-specific words. In such cases, he feels the lexicographer "must give information about the objects, institutions, etc., themselves, and this will require an encyclopaedic type of definition." Snell-Hornby (1987: 169) agrees that such items can be problematic, and declares that encyclopedic information and cultural knowledge is almost as important to translators as purely linguistic explanation.

The reason more information is needed for culture-specific items is that the concept or the entity itself is often unfamiliar. This is frequently the case with specialized items as well. Most theorists therefore argue that greater amounts of information are needed in specialized dictionaries. Zgusta (1971: 206), for instance, states that specialized dictionaries should contain many encyclopedic elements, for the user who is interested in scientific terms will usually be interested in the realities denoted as well. Kukulska-Hulme (1990: 149-150) considers "subject knowledge" necessary in translation to support the process of understanding, and by extension, the processes of transfer and rendition. She feels that in principle, the more knowledge is available the better. She emphasizes the benefits of computerized media for including more subject knowledge.

It's not always a question of "more is better", however. Often the issue revolves around scientific precision.³⁴ A more scientifically precise definition is not always longer (although this often tends to be the case), but it is always more complex. The complexity often stems from the metalanguage that must be used to obtain such precision. Definitional metalanguage is the topic of the next section.

2.2.4 What type of definitional metalanguage should be used?

Metalanguage, as defined by Rey-Debove (1989: 305) is "tout discours, oral ou écrit, qui a pour thème le langage, c'est-à-dire dont le signifié dénotatif est le langage lui-même et ce qu'on en dit." In the context of this thesis, I am particularly interested in definitional metalanguage, that is, the language used in dictionary definitions. I would like to determine what type of definitional metalanguage is most appropriate to *version* translators, such as those involved in my testing. By *type of definitional metalanguage*, I mean the *level of complexity* of language used in the definitions (Cf. section 2.2.4.1), as well as the *language system* (e.g. English, French) used (Cf. section 2.2.4.2). Although, to my knowledge, no research has been conducted on tailoring definitional metalanguage specifically to *version* translators, some of the theorists' opinions on definitional metalanguage in general are relevant.

2.2.4.1 Complexity in the definitional metalanguage

As mentioned above, translators often need scientifically precise definitions, which can entail

³⁴ I use *scientific precision* here, as it is used by Béjoint (1988: 364-365), to refer to the practice of defining words in their scientific or technical sense, as opposed to their common meaning. Béjoint gives the following definition of *fen* as a scientifically precise definition: "peatland which is alkaline to somewhat acid, and relatively well supplied with mineral salts". He contrasts it with the definition of the common meaning given in the *Webster's Ninth New Collegiate*: "low land covered partly or wholly with water unless artificially drained."

highly complex metalanguage. Sager (1990: 47) points out that the descriptive/analytical definitions frequently used in specialized dictionaries presuppose that the user is familiar with the subject field, as the terms used in the definition are of the same order of specialization as the term defined. Yet translators must often translate texts concerning domains in which they do not specialize, and such a presumption can therefore be somewhat dangerous. Complex metalanguage may drastically reduce their understanding of a definition. If there are too many words in a definition that they do not know, then the definition will not be very informative.

Even in general-language dictionaries, the definitional metalanguage often inhibits understanding. It seems that the lexicographer's rule of thumb dictating that you should try not to use words in a definition that are more complex (or less frequent) than the word being defined is a rule that is often broken. Martin and Al (1990: 395) point out that only very exceptionally is an effort made to adapt the definitional metalanguage in some general-language dictionaries to the knowledge level of the intended users.

Sometimes it seems there is not just a lack of effort, but even a deliberate attempt to use complex metalanguage for reasons of intellectual snobbery. As Landau (1989: 303-304) so aptly puts it:

[The] use of formal diction is not wholly accounted for by the need for brevity. Although it is considered by dictionary editors to be the style most fitting for a dictionary, there is, however much it may be denied, an element of social judgment in its use.

Even among users, there seems to be an element of social judgment. Galisson (1983: 85) claims that dictionary users accept complexity and hermeticism as part of a dictionary's cultural richness.

The definitional metalanguage of learner's dictionaries represents a dramatic shift away from such culturally-driven hermeticism. In the *Collins Cobuild* project, lexicographers were instructed to

use simple, common words in their definitions wherever possible. Other projects have put even stricter limitations on the definitional metalanguage. The *Longman Dictionary of Contemporary English* uses a strictly controlled vocabulary³⁵ of about 2,000 lexical items and morphemes to describe the meanings of all entries.³⁶ Neubauer (1989: 900) claims:

The main motivation for the application of defining vocabularies is to avoid "using words for the explanations of a headword which are more difficult than the word to be explained" [...], which may frustrate learners of a foreign language in their attempt to use a monolingual dictionary and make them turn to a bilingual dictionary instead...

This motivation is certainly relevant to some *version* translators. However, controlled vocabularies may sometimes be a little too simplified for more advanced translators. Varantola (1993: 255) finds the definitional style of some learner's dictionaries patronizing and condescending for more proficient users, and she feels that the lack of terminological stringency in such definitions often make them inadequate for the needs of the translator (1993: 252). Some sort of intermediate solution might be necessary.

Sager has suggested some intermediate solutions for specialized dictionaries. First of all, he feels that now that information on scientific and technological innovation is being disseminated on a wider scale than ever before, it would be worthwhile to develop an intermediate scientific and technical vocabulary for use by non-specialists and laymen (1990: 228). Such a vocabulary should be designed to make it easier to understand scientific concepts. Secondly, he suggests that future lexical data banks could incorporate several levels of specialization of definitional metalanguage to meet different user needs (1990: 47).

³⁵ Controlled vocabularies are also often called *restricted vocabularies* or *defining vocabularies*.

³⁶ Familiarity and frequency have generally been used as the basis for many decisions regarding the selection of items to be included in a controlled vocabulary. However, Neubauer suggests (1989: 903) that lexicographic usefulness (i.e. the usefulness of the item for defining other words) should play at least an equally important role.

In both specialized and general-language dictionaries, the level of complexity in the definitional metalanguage should be adjusted to the user. Yet, in determining what level is appropriate, lexicographers must also consider whether the metalanguage is the user's L1 or L2, for what seems complex in a non-native language may not be so in the native language.³⁷

2.2.4.2 L1 vs. L2 definitional metalanguage

L1 definitional metalanguage is almost always easier for the user to cope with than L2 metalanguage. Atkins (1985: 21) feels that one of the main reasons that monolingual dictionaries are not as popular as bilingual dictionaries is because they force students to *use* the foreign language in order to *understand* it, and there is therefore no guarantee that they will understand the definitions. Acknowledgement of users' difficulties with L2 metalanguage has led to suggestions that definitional metalanguage should be the native language of the primary group of users. Evidence that such suggestions are being taken seriously can be found in the fact that some learner's dictionaries, which are traditionally based on a monolingual model despite the fact that they are usually used by non-native speakers,³⁸ are now undergoing a bilingualization phase, in which the definitions are being translated into the user's native language.³⁹

It is not known, however, what effects the use of native-language definitions to define items of a foreign language may have. Béjoint (1986:144) claims that no research has been conducted to see the

³⁷ Although with specialized L1 definitions, users may often feel as if they are dealing with a foreign language.

³⁸ One of the reasons learner's dictionaries traditionally have contained definitions only in the language being described (i.e. an English learner's dictionary would only contain definitions written in English), is that such a practice allows for use of the dictionaries by speakers of many different languages learning English. Translating the definitions into the user's native tongue restricts use of the dictionary to speakers of that language only.

³⁹ The "bridge bilinguals" currently being compiled by *Collins Cobuild* are an example of this phenomenon.

effect of metalanguage on meaning acquisition. Some studies⁴⁰ have shown that instances of lexical interference are reinforced by the use of bilingual dictionaries, and it has therefore been recommended that only dictionaries with foreign metalanguage (i.e. monolingual L2 dictionaries in *version*) be used for meaning acquisition. But, as I have mentioned above (in section 2.2.2.1), recent psycholinguistic research indicates that there are always links in the mind between the two languages, in which case there may be little theoretical basis for such recommendations. This could be seen as an argument for more experimentation with L1 metalanguage.

Other arguments for the use of L1 metalanguage are made by authors such as Reif (1995: 8), who claims that for translators, who are assumed to be quite fluent in their L2, interference with the development of L2 competence is not a factor,⁴¹ and full L1 translation of all definitions would save them time and could be very reassuring. Sager (1990: 84-85) points out that the language in which we acquire knowledge can also affect our term formation habits; we tend to follow the term formation patterns of that language. *Version* could be seen as involving a type of term formation, for translators must sometimes produce their own equivalents where an equivalent L1 term does not exist. One could therefore argue that *version* translators may be better served by a definition in their L1, for it might lead them to produce a more idiomatic equivalent.

Although there has been no research done specifically on the advantages and disadvantages of L1 metalanguage for *version*, the opinions of theorists, such as those presented above, could serve as a starting point for such research. The same can be said of all the other issues explored in this theoretical section. Theory could also serve as a springboard for research on another dictionary-use issue, that of

⁴⁰ For example, that of Josh Ard (1982).

⁴¹ Furthermore, they are constantly switching languages in the translation process, so the use of L2 alone is impossible.

teaching dictionary use in *version*. Some theoretical opinions on this matter are examined in the following section.

2.3 Issues to consider in teaching dictionary use in *version*

As Atkins and Varantola (forthcoming) have pointed out, there are two direct routes to more effective dictionary use: 1) improving the dictionaries, and 2) improving the users. Although it seems that most theoretical efforts have been directed at improving the dictionaries, it is in fact pointless to work at improving dictionaries if you do not train the users sufficiently to take advantage of those improvements. Furthermore, despite the efforts of some pedagogical theorists to discourage dictionary use for tasks such as *version*, it cannot be denied that translators, and in particular translation students, *do* use dictionaries. So they may as well be taught to use them properly.⁴²

In order to teach dictionary use, we must have some understanding of what skills are involved. Various models and analyses of dictionary-use skills in other--often more general--tasks exist,⁴³ but the analysis which seems to be most appropriate to *version*, and which provides the most information on how to teach those skills, is that of Roberts (1992).

Roberts (1992b: 53) identifies four main dictionary-use skills required in the translation task:

- knowing what to look up in a dictionary (section 2.3.1);
- knowing where to look for lexical information (section 2.3.2);
- knowing how to interpret the lexical information provided (section 2.3.3);
- knowing when and how to consult dictionaries during the translation process (section 2.3.4).

⁴² The opinion that dictionary use must be taught in translation courses because translators inevitably will turn to dictionaries is one that is also expressed by Gouadec (1974: 46) and Roberts (1992: 69).

⁴³ Cf. for example, Müllich's OMEGA model (1990), which accounts for the use of a monolingual dictionary by non-native speakers translating texts into their mother tongue, as well as Scholfield's model (1982: 186-193) of dictionary use for comprehension, and Hartmann's adaptation (1989: 105) of Scholfield's model. Béjoint also provides a very detailed checklist (1989: 210-211) of skills that the ideal dictionary user should possess.

2.3.1 Knowing what to look up in a dictionary

Roberts (1992b: 53) claims that knowing what to look up in a dictionary is largely determined by the ability to identify different types of lexical items, particularly compounds, idioms and collocations. She therefore feels that teaching students to distinguish between these items will improve their dictionary use. Knowing what to look up in a dictionary also involves recognition of the limits of dictionaries. This can entail skills such as knowing how to break a text down into appropriate units that could be found in a dictionary, and knowing when to turn to other sources for non-lexicographic information, such as official names, uncommon abbreviations, etc.

2.3.2 Knowing where to look for lexical information

Roberts (1992b: 54) feels that students will be more capable of knowing where to look for lexical information if they are introduced to different types of dictionaries that are useful in translation. Novice *version* translators may not even be aware of certain types of dictionaries, such as learner's dictionaries (which Roberts feels are beneficial for clearer simpler definitions and syntactic information), combinatory dictionaries (which she recommends for verifying collocations), and dictionaries of neologisms (for finding new words). Roberts (1992b: 54) stresses that introducing students to different types of dictionaries "would go a long way towards increased use of the variety of dictionaries available." Once the students are familiar with the different dictionaries, Roberts (1992b: 56) suggests that they be asked to perform translation tasks in which the number of dictionaries is limited, thereby forcing them to consult the most pertinent ones.

Finding multi-word items in dictionaries presents challenges for even the most advanced translators. This is, however, a very complex problem that is far from being unique to *version*. It is also not an issue that is relevant to the use of electronic dictionaries, in which multi-word items have entries

of their own. I will therefore not examine this issue in this thesis.⁴⁴

Students should also be taught to apply alternative search techniques when looking for information in electronic dictionaries. For instance, they should learn to scan lists of similar terms and search through entire entries for terms, as opposed to just doing headword searches. To my knowledge, little, if any, theoretical research has been done on these matters. They were, however, investigated in my testing.

2.3.3 Knowing how to interpret lexical information provided

Roberts (1992b: 57-58) recommends that students be asked to analyze sample dictionary entries for specific types of information, such as meaning discrimination devices, the type and number of examples presented, the ordering of the senses and examples, etc., in order to improve their ability to interpret such lexical information.

Scholfield (1982: 188-193) suggests that the ability to identify the appropriate sense is also one that could--and should--be developed by practising various strategies. He suggests teaching students to use grammatical indications, to use stylistic information, to use collocational/selectional information, to narrow the dictionary's general statement of meaning to suit the specific context, or extract a common core of meaning from various synonyms given, and to use contextual clues and pragmatic knowledge to infer the meaning.

⁴⁴ For discussion of this issue, Cf. Bogaards' in-depth empirical research discussed in Bogaards (1992) and Bogaards (1990), as well as Tono's thesis (1987) and Béjoint's treatment of the issue in Béjoint (1981: 218).

2.3.4 Knowing when and how to consult dictionaries during the translation process

Rather than teaching dictionary skills only modularly, Roberts (1992b: 58-61) feels that it is important to tie all of the skills together by asking students to perform a specific translation task with guidance in each stage as to how dictionaries should be used. She breaks the task down into stages of analysis, translation and revision, with suggestions as to how dictionary use can be taught in each stage.

Analysis stage

Roberts (1992b: 59-60) suggests that, in the analysis stage, students be encouraged to first try to determine from the context the meaning of words they do not know, and only after doing so, look up words that remain vague, in a monolingual SL dictionary.

In Delisle's approach, the analysis stage is broken down into "le décodage des signes" (the stage in which dictionary use comes into play) and "la saisie des sens" (1984: 70-77). Delisle says that these two operations are concurrent and overlapping, and, unlike Roberts, does not specify that contextual interpretation should precede decoding. In fact, he states that contextual interpretation is based on decoding, that is, that the *signification* found in dictionaries can be used to determine the *meaning* of an item (1984: 56).

Regardless of the exact order suggested for these operations, Delisle and Roberts, as well as Gouadec (1974: 14) and Guitard and Guitard (1974: 9), all agree that dictionary use for comprehension purposes should be done *before* the student begins to translate. Furthermore, Delisle (1993: 86) and Roberts (1992b: 59-60) agree that for comprehension purposes, students should be encouraged to consult unilingual sources, and they must be taught to understand that dictionaries cannot provide equivalents for all contexts.

Translation stage

To prevent students from constantly turning to the bilingual dictionary in this stage, Roberts (1992b: 60) suggests that students only be allowed to look up standardized items.⁴⁵ For all non-standardized items, collocations and idioms, they should be required to first do a paraphrastic translation. She feels that paraphrastic translations will help the students to determine which of the equivalents suggested in bilingual dictionaries are appropriate to the context.

Delisle recommends even more minimal dictionary use in this stage. He stresses that a first draft be done relatively quickly, so as not to interrupt the rhythm and train of thought (1993: 87). As mentioned above (in section 2.1.1), however, both Delisle (1984: 78-79) and Gouadec (1974: 38-39) highly recommend that analogical dictionaries can be used to some extent in this stage.

Revision stage

In the revision stage, Roberts (1992b: 60-61) feels that students should be trained to use only unilingual TL dictionaries. She suggests they use general dictionaries to verify TL equivalents, combinatory dictionaries to verify their choice of collocates, and synonym dictionaries to diversify and improve their vocabulary choice.

In general, the suggestion that is most common to all pedagogical theorists is that translation students should be taught to minimize, or at least be cautious about, their use of dictionaries, particularly bilingual dictionaries (Delisle 1993: 76-79; Delisle 1984: 134; Gouadec 1974: 31; Meyer 1988b: 277). Roberts (1992b: 61) suggests that one way of teaching such a habit is to limit the period

⁴⁵ Roberts uses *standardized* to refer to items for which there is often only one equivalent, and *non-standardized* to refer to items which rarely have only one correct equivalent.

of preparation the students are given for translation exercises, so that they will use dictionaries only when strictly essential. Meyer (1988a: 375) suggests other strategies to teach cautious use of bilingual dictionaries: 1) provide the student with some theoretical background to the principles of bilingual lexicography, 2) provide the student with an overview of the potential pitfalls of the dictionary as used for their particular purpose, 3) provide the student with an understanding of how to complement bilingual dictionaries with other reference sources. Strategies such as these should help teach the translator not only how to use dictionaries, but how to *not* use them.

Dictionaries are, as Delisle (1993: 76) has so aptly put it, "les meilleurs amis et les pires ennemis du traducteur." Suggestions such as we have seen in this theoretical section on how to tailor dictionaries to their users, and how to tailor users to their dictionaries, promise to eliminate some of the animosity that exists in the dictionary-translator relationship. However, before the dictionary can truly become the *version* translator's best friend, those theoretical suggestions must be backed up by empirical research.

Only empirical research will allow lexicographers to compile a dictionary that is worthy of merit from a practical, rather than a theoretical, point of view. Hatherall (1984: 183) sees the compilation of dictionaries based on speculative theoretical assumptions as comparable to "Princess Anne imagining what it is like to live on the dole: one grasps the broader outlines (does one not?), but inevitably falls short on the nitty-gritty." To get at the "nitty-gritty" of dictionary users' needs and skills, one has to study the problems *real* users have with *real* dictionaries. In the following section, I present the results of some studies that have attempted to do so.

3 Empirical observations relevant to dictionary use in *version*

As interest in the user perspective is a relatively recent phenomenon (Cf. section 1.2. above), there has not been much empirical research done on dictionary use. Very little research has been conducted specifically on dictionary use in *version*, but some of the findings of studies focussing on other tasks are relevant to *version*. In this section I present only those relevant studies and findings. First I give a brief outline of the purpose and methodology of the studies, and then I look at the relevant findings in some detail.

3.1 Purpose and methodology of dictionary-use studies

The following table outlines the purpose and methodology of the empirical dictionary-use studies relevant to my own study. In order to keep this table brief, I have used codes to identify the method used in each of the studies. The following is an explanation of the codes and a brief definition of their meaning in this context:

- **q = questionnaire** (method in which subjects are required to provide written answers or reactions to pre-established questions (open or multiple choice) presented in a specific order on a printed form)
- **do = direct observation** (procedure in which the researcher, or someone acting on the researcher's behalf, observes subjects' behaviour during performance of a task, with or without determining in advance what particular aspects will be observed)
- **ce = controlled experiment** (technique whereby subjects undergo a test or experiment involving *strict control* of variables to allow the researcher to obtain data on a *specific* question)
- **t = test** (procedure in which the researcher tests subjects on one or more *general* questions in a test involving *limited control* of variables)
- **d = diary** (as in a log of dictionary consultations) (method in which subjects record in writing different aspects of a process or phenomenon, in a structured or unstructured format, with or without preconceived notions of what should be recorded)

Author	Year	Purpose	Sample	Method
Barnhart	1962	assess usefulness of information categories in dictionaries	108 American university teachers gave opinions of 56,000 students	q
Quirk	1973	assess users' attitudes, expectations and prejudices towards dictionaries	220 British university undergrads	q
Tomaszczyk	1979	investigate dictionary needs of foreign-language learners and translators	449 subjects: foreign-language students, language teachers, literary and technical translators--16 different languages and various competence levels	q
Baxter	1980	investigate use of dictionaries by Japanese students of English	342 Japanese university students	q
Béjoint	1981	investigate use of monolingual dictionaries by French students of English	122 French university students	q
Ard	1982	investigate composition strategies of EFL students	2 EFL students	do
Mitchell	1983	investigate strategies of dictionary use in reading among Scottish students	94 Scottish secondary-school students	do
Hartmann	1983	investigate dictionary needs of English learners of German	67 teachers and 118 learners	q
Galisson	1983	evaluate opinions and use of dictionaries among advanced foreign students of French	48 university students in Paris, 48 university students in U.S.A.	q
Greenbaum/Meyer/Taylor	1984	assess users' attitudes, expectations and prejudices towards dictionaries	240 American university undergrads	q
Tono	1984	investigate parameters of bilingual dictionary look-up in L2-L1 translation among Japanese university students	402 Japanese university students	ce + q
Hatherall	1984	investigate dictionary use in L2-L1 translation among English learners of German	22 English university students	q + d
Bensoussan <i>et al.</i>	1984	compare reading comprehension with/without dictionary use in EFL students	791 university EFL students	q + t
Miller/ Gildea	1985	investigate use of dictionaries by children in production tasks involving new words	group of 10- and 11-year-olds	t

Snell- Hornby	1987	investigate dictionary use by German learners of English	35 university students	q
Atkins/ Knowles	1990	assess how effectively dictionaries serve intended purposes among EFL users	1140 EFL students--4 languages and various competence levels	q
Müllich	1990	investigate use of monolingual dictionaries in L2-L1 translation	86 intermediate German students	do
Starren/ Thelen	1990	investigate use of monolingual and bilingual dictionaries in L2-L1 translation	34 third- and fourth-year Dutch university translation students	d
Nuccorini	1992	investigate dictionary use by Italian EFL students and teachers	11 university EFL students, 5 university EFL teachers	d
Laufer/ Melamed	1994	compare effectiveness of monolingual, bilingual and bilingualized (hybrid) dictionaries for use by EFL learners	123 high school and university EFL students	t
Atkins/ Varantola ⁴⁶	1995	observe dictionary use in L1-L2 translation, and, to a lesser extent, in L2-L1 translation	71 workshop participants (lexicographers, etc.) of various languages + 32 Finnish translation students	do

Figure 2. Dictionary-use studies -- Purpose and methodologies.

3.2 Findings of dictionary-use studies

In the following, I present some findings of the studies outlined above. I focus primarily on the findings that are of greatest relevance to my own study.⁴⁷

3.2.1 Most common reasons for using a dictionary

Almost all studies which have investigated this issue agree that the most common reason for

⁴⁶ Atkins and Varantola's study, like my own, is associated with the EURALEX-sponsored FIDELIS project.

⁴⁷ For the sake of brevity, in this section I have omitted dates in the references, for the reader can refer to the table on the preceding pages for this information. I also have not included specific page numbers when a finding is supported by various studies because otherwise the references simply become too long.

dictionary consultation is to find meaning (Barnhart, Quirk, Tomaszczyk, Béjoint, Galisson, Hartmann, Snell-Hornby, Nuccorini). One exception is the study of Greenbaum, Meyer and Taylor, which found spelling and encyclopedic information to be more commonly sought.

As for the second most common reason for using dictionaries, there is some divergence in the findings. Many studies found it to be spelling (Barnhart, Quirk, Tomaszczyk, Galisson), while others found it to be syntactic information (Béjoint, Hartmann). In studies focussed more specifically on translation, the need to find an equivalent or verify an equivalent has also been found to be a major reason for dictionary use (Atkins and Varantola, Snell-Hornby).

3.2.2 Types of dictionaries most commonly used

If meaning is the most commonly sought type of information in dictionaries, one would think that monolingual dictionaries, with their descriptions of meaning, would be the type of dictionary most commonly used. Yet nearly every dictionary-use study involving second-language tasks (i.e. foreign-language learning and translation), regardless of user group and context, has found that bilingual dictionaries are used far more frequently than monolingual ones (Tomaszczyk, Baxter, Hartmann, Bensoussan *et al.*, Atkins and Knowles, Atkins and Varantola). Atkins and Knowles (1990: 385), for instance, have found that bilingual dictionaries are used three times as often as monolinguals, while Baxter (1980: 332) found that 96.7% of his subjects preferred bilinguals over monolinguals.

In the studies that focus more specifically on translation, bilingual dictionaries were also found to be used most frequently, even when looking for meaning. In *version* tasks, the subjects in Atkins and Varantola's study (forthcoming) used bilinguals 63% of the time and monolinguals only 37% of the time. Atkins and Varantola found that their subjects used bilinguals particularly when looking for equivalents, while monolinguals were often used for secondary operations, such as confirming a hunch

about an equivalent, or gathering collocational information. In particular, the trained translators in their study often moved from a bilingual to a monolingual as a search progressed. Tomaszczyk (1979: 106) found that all of his subjects, regardless of their competence, used bilingual dictionaries most often, particularly for *version* tasks. He did find, however, that bilinguals were frequently used in conjunction with monolingual dictionaries (1979: 109).

Although the hybrid dictionary is, as of yet, not widely available and therefore not widely used, Hartmann (forthcoming) has recently conducted a study involving interviews and direct observation of subjects using such dictionaries. He found that if definitions and equivalents are juxtaposed in the same dictionary, users of many different proficiency levels will use both types of input when looking up unknown words.

Until hybrid dictionaries are more widely available, however, the theorists' fight against bilingual dictionaries may be a lost cause. Hartmann (1987: 22) feels that "the use of bilingual dictionaries is so entrenched within and outside formal language classes...that the idea of 'weaning away' the learner from the translation dictionary seems rather unrealistic."

The opponents of bilingual dictionaries need not despair, however. Studies have shown that the amount of bilingual dictionary use decreases with a higher level of education, greater proficiency, and immersion. Atkins and Knowles (1990: 10) found in their study that while overall only 34.7% of the subjects surveyed turned to a monolingual dictionary for help in understanding L2 items, 70% of those at a higher academic level did so. Tomaszczyk, Bensoussan *et al.*, Nuccorini, and Atkins and Varantola all concluded from their studies that the higher the proficiency of the user, the greater the proportion of monolingual over bilingual dictionary use. Similarly, Laufer and Melamed (1994: 575) found in their study that more proficient students tended to use the definitions in hybrid dictionaries more frequently than less proficient subjects. Galisson (1983: 37, 44) reported in his study that the subjects living in an

"immersion-type environment" used monolingual dictionaries more than those not exposed to such an environment.

3.2.3 Dictionary definitions and definitional metalanguage

Empirical research has shown that users prefer bilingual dictionaries over monolingual ones largely because they find dictionary definitions hard to cope with, especially because of their metalanguage. Quirk found this to be the case with L1 definitions, but it seems to be particularly true of L2 definitions, as several surveys have shown (Tomaszczyk, Baxter, Béjoint, Galisson, Bensoussan *et al.*). Bensoussan *et al.* (1984: 269) report that:

those [...] students who do complain about the monolingual dictionary say that the definitions contain too many difficult, unknown words which in turn have to be looked up as well. Some say that even after referring to the monolingual dictionary, they often have to turn to the bilingual dictionary if they really wish to understand the word.

Some of Tomaszczyk's subjects even found the definitions in learner's dictionaries hard to understand (1979: 110).

In addition to difficulties in understanding definitional metalanguage, some studies have found that users have great difficulty selecting the sense, or even the entry, relevant to the context (Bensoussan *et al.*, Müllich). Müllich (1990: 77) reports that approximately 30% of the errors made by his subjects occurred during this operation and explains that the subjects found the definitions too complicated or their differences too subtle to be able to choose the appropriate entry or sense.

3.2.4 Most effective types of dictionaries

Although monolingual dictionaries are hard to cope with, and are therefore generally used less often, empirical researchers have judged them to be more effective than bilingual dictionaries (Baxter,

Atkins and Knowles, Nuccorini). Nuccorini (1992: 99) found specifically that "Whenever a monolingual dictionary has been used for meaning finding together with a bilingual one, the monolingual has almost always proved to be more helpful..." Obviously the effectiveness of the dictionary depends on the task for which it is used,⁴⁸ but it seems that for finding meaning at least, the monolingual is considered more reliable.

The positive evidence for monolingual dictionaries is reinforced by negative evidence against bilinguals. Some empirical researchers have concluded that bilingual dictionaries can increase lexical interference and lead to unidiomatic literal translation or even outright errors (Ard, Hatherall).

Perhaps the most effective dictionary type may prove to be the hybrid dictionary, for it combines the "highly effective" definition with the "highly used" equivalent. Laufer and Melamed's study, the only one done to date to test the effectiveness of this format, seems to confirm such a hypothesis. They conclude (1994: 575-576) that a good hybrid dictionary is more suitable than a bilingual or a monolingual for all types of learners performing various tasks.⁴⁹ The hybrid dictionary proved particularly effective in the comprehension of new words, for the definitions successfully conveyed meaning and the equivalents helped to confirm the subjects' decisions about the meaning and use of those words.

3.2.5 Most satisfactory types of dictionaries

Not only do empirical researchers consider the monolingual dictionary more effective than the

⁴⁸ Atkins and Varantola (forthcoming) found, for instance, that much of the desired information was found in the headword translations of bilingual dictionaries. However, as most of their subjects were translating general texts from their first into their second language, the need for meaning was minimal compared with the need for a TL equivalent.

⁴⁹ With the exception of unskilled users performing production tasks, in which the bilingual dictionary proved most effective.

bilingual, the subjects of many empirical studies also feel it is the most satisfactory of the two types (Tomaszczyk, Béjoint, Ard, Nuccorini). The subjects seem particularly satisfied with the monolingual when they use it to find the meaning of L2 items (Tomaszczyk, Béjoint, Nuccorini).

Yet studies have also shown that, overall, users are often dissatisfied with dictionaries (Quirk, Tomaszczyk, Béjoint). User satisfaction seems to vary somewhat with the task being performed. Atkins and Varantola (forthcoming) found, for instance, that the satisfaction rate of dictionary use in *version* was much higher than that in *thème*. But even the satisfaction rate among *version* translators was quite low: only 55% of the look-ups and 72% of the searches (i.e. all the look-ups for a given item) were found to be satisfactory. Look-ups were found to be more successful when the users simply wanted to confirm information they already had in mind, as opposed to when they had no clear idea of what the solution might be.

User satisfaction also seems to vary with the abilities of the user. Atkins and Varantola (forthcoming) found that subjects with advanced L2 skills were more hesitant to say they had found a satisfactory solution. Of all their subjects, the trained translators were the most skeptical. They explain:

More trained translators expressed doubt over the success of their search. Their training undoubtedly leads them to be wary of possible translation traps: they were fully satisfied only if they got multiple confirmation from various sources that their choice was a correct and adequate one for the particular context.

Perhaps it is more a matter of training than ability, for unlike Atkins and Varantola, Galisson (1983: 84-85) found that his subjects, all of whom had advanced L2 competence, generally expressed satisfaction with their dictionaries, particularly when using them for decoding purposes. He did conclude, however, that their opinion may come partly from an ignorance of the dictionary; if they understood it better, they may not be so satisfied.

Part of understanding dictionaries is knowing what can be expected of them, and some user

dissatisfaction undoubtedly stems from unrealistic expectations. Tomaszczyk (1979: 116) found that the advanced users in his study seem to know what they can expect from dictionaries, but less advanced users frequently make unreasonable and contradictory demands of them, which inevitably leads to dissatisfaction.

3.2.6 Thoroughness of dictionary use

Another factor that undoubtedly plays a part in user satisfaction is the amount of effort exerted by the user. Perhaps some users simply do not deserve satisfaction because they do not put enough effort into using their dictionaries.

In their studies of dictionary use among children, Miller and Gildea (1987: 98) found that children will often focus on only one sense, or even one part of a sense, and ignore the rest. This is perhaps to be expected of children, but surprisingly enough other researchers have found similar behaviour among much more advanced students. Tono's experiment with a group of Japanese university students revealed that the students tended to choose an equivalent that appeared in the first sub-entry and ignore all that followed in subsequent sub-entries, unless there was an obvious negative clue which made the initial sense unlikely. In general, they tended to look at the beginning of the entry,⁵⁰ and when there was too much information, they were often discouraged from going through the whole entry. (Tono 1984: 82-83, 87). His subjects seemed to prefer simplicity and brevity. Laplanche *et al.* (1980) report similar results. Based on such results, Tono concludes that the most important information should be put first in dictionary entries,⁵¹ and students should be trained to use

⁵⁰ Müllich (1990: 77) also found that his subjects often randomly chose one part of an entry, usually the first or the last sense.

⁵¹ This suggestion seems simplistic to me, for what is considered *the* most important information will obviously vary by operation and by user, even in a specific task such as *version*, done by a specific group such as student translators.

dictionaries more exhaustively (Tono 1984: 87, 89).

Some people do use dictionaries exhaustively. Several studies have found that advanced users in particular can be very thorough in their dictionary use, often looking up the same information in several dictionaries (Tomaszczyk, Galisson, Hatherall, Atkins and Varantola). Atkins and Varantola (forthcoming) found that the trained translators in their study used the dictionary more than any other group (20 look-ups per hour as opposed to 14 for the other subjects), and, as mentioned above (in section 3.2.5), the translators even continued to consult dictionaries when they had already found an answer. Yet obviously thorough dictionary use does not necessarily guarantee satisfaction, for as we have also seen above, the trained translators were the least likely group to be satisfied.

It has been found that users who are willing to put considerable effort into dictionary use--and even some who are not--usually appreciate exhaustiveness in their dictionaries. Béjoint (1981: 215) found among his subjects that exhaustiveness was one of the most valued characteristics of dictionaries. The translation students in Atkins and Varantola's study (forthcoming) often expressed a desire for more comprehensive coverage. Tomaszczyk's subjects complained about incomplete macrostructure and microstructure. Many of them seemed to feel that there was no such thing as unnecessary information in dictionaries. Tomaszczyk (1979: 115) concluded that "the endless list of suggestions for appendices shows that quite a proportion of them would like to have an omnibus dictionary which would cover everything anyone has ever thought (*sic*) of including in dictionaries and encyclopedias."

3.2.7 Effectiveness of dictionary use

User satisfaction is also obviously intimately tied to how effectively dictionaries are used. As Gouadec (1974: 31) has said: "cet instrument [le dictionnaire] ... peut apporter le pire et le meilleur

suivant l'usage qui en est fait." Studies such as that of Galisson have revealed that many dictionary users do not know how to use their dictionaries. Dictionary use is undoubtedly a complex process, as Mitchell's study has shown so well. But the main reason that dictionaries are not used effectively seems to be that the teaching of dictionary use is simply not very widespread. In their survey of more than 1100 students in seven different countries, Atkins and Knowles (1990: 384) found that 60.4% had never been taught how to use a dictionary, and only 12.9% had received precise and systematic instruction in dictionary skills.

The findings of these empirical studies on dictionary use enlighten and support some of the theoretical positions presented above. They do seem to concentrate on specific areas, however. As Béjoint (Béjoint and Moulin 1987: 98) points out, most of the dictionary studies done thus far tell us about "such matters as the types of lexical units students look up most (or least) often in their dictionaries, the types of information they find most (or least) useful, and the dictionaries and dictionary types they prefer." This is no doubt valuable information, and more studies could look further into these issues, but many other questions remain unanswered. Furthermore, as the future promises the possibility of user-tailored electronic dictionaries, we need to conduct studies on more specific user groups performing more specific tasks. We also need more studies involving direct observation, as opposed to indirect reporting, of dictionary use. Atkins and Varantola (forthcoming) very successfully addressed both of these needs in their study, but they focussed primarily on *thème*. Similar research needs to be done for *version*. My study attempts to address this need. In the following chapters, I explain how I went about addressing it.

CHAPTER 2**THE METHODOLOGY**

This chapter describes, and provides justification for, the methodologies used in this study. The first section concerns the methods used in the actual testing processes of test 1 and test 2. Before I decided on these methodologies, they were critiqued by two professors at the University of Ottawa, one in the School of Translation and Interpretation (Dr. R.P. Roberts), and one in the Department of Linguistics (Dr. G. Neufeld). Two trial tests were also conducted to evaluate the methodology of test 1, and one trial test was conducted for test 2. The second section of this chapter describes the method used to analyze the results of the two tests.

1 Methodology for the tests**1.1 Method for test 1**

The methodology used in test 1 consisted of direct observation and a think-aloud protocol. In this test, students did a specialized *version* task with the help of various dictionaries and a term bank, thinking aloud as much as possible throughout the task, particularly when using dictionaries. I observed the students during this process, and recorded their actions and comments relevant to dictionary use on forms designed for this purpose. Their verbalization was also recorded on audio tape.

1.1.1 Choice of basic method

The primary reason for choosing the direct observation method was that this method is the one being used in the FIDELIS project, the EURALEX-sponsored project with which my study is associated. Furthermore, despite some drawbacks, this method seemed to be the most appropriate for my type of research. To compensate for the most significant drawback of direct observation, I chose to

supplement this method with a think-aloud protocol. The advantages and disadvantages of the two techniques are discussed below.

1.1.1.1 Advantages of the direct observation method

The majority of dictionary-use studies conducted up until now have been surveys by questionnaire. The popularity of the questionnaire stems largely from its ease of distribution and analysis. However, the validity of such indirect reporting has been questioned by some researchers, who argue that the information provided by subjects is often incomplete, confusing or unreliable. Hatherall (1984: 184), for example, asks:

Are subjects saying here what they do, or what they think they do, or what they think they ought to do, or indeed a mixture of all three?...When all is said and done, do we not, on this basis, arrive at a consensus on how subjects are likely to behave when faced with a particular questionnaire, rather than authentic data on what they use the dictionary for?

Many researchers (Hartmann 1987: 15, Hatherall 1984: 184, Béjoint 1989: 209) now recommend that indirect surveying of population samples be supplemented or replaced by procedures such as direct observation of people using dictionaries. Direct observation allows the researcher to see what dictionary users *really* do, rather than relying on what users *say* they do. Hatherall (1984: 184) feels that "whatever the difficulties, the only reliable method of collecting data on dictionary user behaviour is by direct observation."

1.1.1.2 Disadvantages of the direct observation method

Direct observation is not without drawbacks, however. Hatherall (1984:184) identifies the major disadvantages as being: 1) the difficulty for the subjects to behave normally under such conditions, 2) the time-consuming nature of the method (and consequently, restricted sample size), and

3) the fact that it does not provide access to some important non-visual information (specifically, cognitive processes).

It is undoubtedly true that subjects may not behave normally when being observed. Yet it is also true that most people do not behave completely normally under *any* kind of experimental conditions. Unless researchers can make themselves flies on the wall of the translator's office, they cannot acquire data on perfectly natural behaviour.⁵²

As for the restricted sample size, this was certainly a factor to consider. Within the scope of a Master's thesis, however, I would have had a relatively restricted sample size no matter what type of test I conducted. I therefore did not see this drawback as being a significant one for my purposes.

Finally, I completely agree with Hatherall that direct observation does not provide access to some important non-visual information. Although there are many aspects of dictionary use that can be accessed through direct observation (e.g. what dictionary the user turns to most often, etc.), I felt that using direct observation alone would have involved too much speculation on my behalf. Gerloff (1986: 243) points out that:

The usual methods of behavior observation and product assessment inevitably require inference on the part of the researcher, since the underlying processes which produced a language outcome cannot be seen, but only deduced. This reliance on researcher inference leaves considerable room for error and uncertainty.

It was this drawback that prompted Gerloff, among other researchers, to turn to introspective methods⁵³ for their research. For the same reason, I also decided to use an introspective method,

⁵² The possibility of monitoring devices in electronic dictionaries does, however, offer potential for data on unaffected dictionary use. To my knowledge, nothing of this sort has yet been attempted. I explore this idea further in the discussion chapter (Cf. chapter 4, section 5).

⁵³ Faerch and Kasper (1987: 9) define *introspective methods* as methods which "use as data, informants' own statements about the ways they organize and process information, as an alternative or supplement to inferring their thoughts from behavioural events."

specifically a think-aloud protocol, to complement the direct observation used in test 1.

1.1.1.3 Advantages of the think-aloud method

Gerloff (1987: 137) defines the think-aloud protocol as follows: "A think-aloud protocol is a moment-by-moment description which an individual gives of his or her own thoughts and behaviours during the performance of a particular task."

For dictionary-use research, introspective techniques such as think-aloud protocols offer the advantage of allowing the researcher to get at what happens in the dictionary user's mind. Having used such a technique, I feel I did indeed gain access to many thought processes that I could not have accessed otherwise. The think-aloud protocol offers one main advantage over retrospective methods⁵⁴: it does not require long-term recall of information, for the report is made *as* the process is happening. Subjects are less likely to forget, interpret, or elaborate on, their thoughts than if they have to report them after the fact.

1.1.1.4 Disadvantages of the think-aloud method

Criticism has been levelled at the think-aloud method for various reasons, the primary ones being that: 1) not all mental processes are accessible to verbal reports, 2) the instruction to verbalize may interfere with the normal thinking process, and 3) the verbal reports may be incomplete or incorrect (Börsch 1986: 200).

Ericsson and Simon (1980: 235) specify that the type of mental processes that are not

⁵⁴ Retrospective methods are a type of introspective method in which subjects report their thoughts *after* a task is completed. According to Cohen (1987: 84), "Retrospection can be immediate (e.g. within, say, an hour of the event) or delayed (a few hours, or even weeks after the event)." Cohen specifies that "It appears that the bulk of the forgetting occurs right after the mental event. Thus, data from immediate retrospection may only be somewhat more complete than data from delayed retrospection."

accessible to verbal reports are automatic processes (i.e. those that are not carried out under conscious attention). As Faerch and Kasper (1987: 13) have pointed out, non-professional translators carry out large parts of their task (such as dictionary use) under conscious attention, so this criticism is not an important one for my testing.

The criticism that verbalization can interfere with the normal thinking process is directed primarily at the use of think-aloud methods in non-linguistic tasks, such as the resolution of mathematical problems. Ericsson and Simon (1980: 227) predict that direct verbalization of information that is already verbally encoded--as is usually the case with information processed in linguistic tasks such as dictionary use--changes neither the course and structure nor the speed of cognitive processes. Furthermore, some of my subjects actually claimed that they tend to think aloud somewhat anyway when translating under normal conditions.

There are various reasons why verbal reports may be incomplete or incorrect. Ericsson and Simon (1980: 243) explain that when subjects "are working under a heavy cognitive load, they tend to stop verbalizing or they provide less complete verbalizations." Seliger and Shohamy (1989: 170) claim that subjects who are inexperienced with thinking-aloud tasks may find it difficult to perform two tasks simultaneously, and thus fail to verbalize important information. Subjects may also not verbalize thoughts they do not consider to be intelligent or that they consider to be self-evident. A few of my subjects definitely did not verbalize as much as I would have liked, and I did not always get all the information I was looking for, particularly in the area of definitional metalanguage. However, as Ericsson and Simon (1980: 243) emphasize, the incompleteness of reports does not render them useless. The data reported may be sketchy, but even sketchy accounts provide an informative glimpse at processes that cannot be accessed otherwise.

One of the main reasons given for inaccuracy in verbal reports is that subjects may be overly eager to please the experimenter and verbalize thoughts they feel the experimenter wants to hear, but which are not necessarily their own. I feel that such a drawback is minimized, however, when the subject and the experimenter are fellow students, as was the case in my testing. Furthermore, the effect of such behaviour is undoubtedly less significant than in indirect reporting methods (e.g. questionnaires) or even in retrospective methods, for in think-aloud situations, the subjects simply do not have much time to think about what they *should* say.

Because of the incompleteness and inaccuracy inherent in think-aloud procedures, some researchers (e.g. Faerch and Kasper, among others) feel that the validity of an investigation based on such methods is considerably enhanced when it is supported by data resulting from a different elicitation procedure. Faerch and Kasper (1987: 19) claim that "In SL studies, the most common combination of methods is the use of performance data and a concurrent or consecutive report, such as the product of a translation task and simultaneous verbalization." For my analysis, therefore, I used both the think-aloud protocols and recording sheets, as well as the written translations produced during the test.

1.1.2 Details of the methodology

1.1.2.1 Sample

The sample for test 1 was fifteen Master's students enrolled in TRA 5905 (a graduate-level Lexicology, Terminology and Documentation course at the STI). Ideally, I would have liked to have tested some professional translators as well, but as I did not have easy access to such subjects, I had to restrict my study to whomever was willing to volunteer. Furthermore, by concentrating on one specific group only, I had greater homogeneity in my sample.

Homogeneity in my sample was certainly a concern. Bogaards (1993: 2) points out that the samples of many dictionary-use studies (particularly questionnaires) have not always been homogeneous. For example, Tomaszczyk's sample included language teachers, literary translators, technical translators and language students of various nationalities, having dramatically varying levels of competence, and studying in a variety of settings. With the possibility of tailoring electronic dictionaries to specific user groups, it is becoming increasingly important that studies be conducted on more homogeneous samples (i.e. representative of a specific user group).

Although I was restricted in my choice of subjects, I feel that my sample is *reasonably* homogeneous. All the subjects had a similar academic background (approximately half of them had a B.A. in translation from the University of Ottawa, and those that did not had a B.A. in language studies of some sort). As they all were training to be translators and had nearly completed the same graduate course on lexicology and terminology, their dictionary-use skills should have been quite comparable.

A few of my subjects did have a greater degree of professional translation experience (through co-op practicums or freelance work) than other subjects, and in my analysis, I often took that into consideration (i.e. I accounted for some differences in my findings by distinguishing these three or four subjects from other subjects).

1.1.2.2 Time Limit

To attain the most "natural" performance possible, the subjects were asked to translate (for 1 hour and 15 minutes) at a pace which was normal for them, whether it was the pace at which they translate school assignments, or, for those that had had work experience, the pace at which they

translate in a work situation. The length of the text to be translated (approximately 250-300 words⁵⁵) had been established as reasonable by the results of two trial tests. There was, however, no pressure to finish the translation (although some of the subjects did complete it).

1.1.2.3 Recording procedure

As stated above (in section 1.1), I recorded the actions and verbalization of the subjects on forms designed for this purpose (Cf. Recording sheet in appendix 3), and I also recorded their verbalization on audio tape. Each of these methods has disadvantages, as described by Seliger and Shohamy (1989: 165):

Notes provide records, but depend on the opportunity and ability of the observer to record accurately what is observed. In addition, the presence of the observer may alter the subjects' behavior. Audio tapes can not only be intrusive; they are limited to capturing the vocal aspect of verbal interaction, and may vary in recording quality. Video tapes provide more elaborate data, although they are also dependent on the capability of the camera and what it focuses on; they may also be even more intrusive than audio tapes.

There is obviously no ideal solution, but a choice had to be made. I felt that note taking was the most appropriate method for my purposes,⁵⁶ for I was looking for some specific information, and a method as structured as taking notes on specially designed forms ensured that I was able to obtain most of that information in the minimal time allotted for each test. By taking notes, I also minimized the amount I had to intervene in the process (i.e. when subjects did not verbalize things that were obtainable through visual observation, I did not have to ask them to verbalize their thoughts for the sake of a recording).

⁵⁵ The text to be translated by the Francophones was about 250 words long, while the text that the Anglophones translated was approximately 300 words long.

⁵⁶ This is also the method used in the FIDELIS project.

It seemed useful to supplement note taking with audio recording, to serve as a back-up for information I might miss in the sessions (a precaution that proved invaluable, for it was quite difficult to keep up with the note taking on my own). Although audio recording is intrusive, it is less so than video recording. Videotaping did not even seem to be an option, because not only do I find it very intimidating and awkward for both the researcher and the subjects, it would have prevented me, as the sole observer, from doing other things such as taking notes. I also think it would have been very difficult to focus in on the minute fonts of dictionaries.

1.1.2.4 Amount of structure and intervention

The problem with thinking aloud that is completely undirected is that it can produce data that is hard to analyze. Yet as Cohen (1987: 93) has pointed out, "There may sometimes be a fine line between providing enough external structure so as to produce the desired type of data and providing so much that the respondents feel inhibited."

With so few subjects, it was necessary to control my testing somewhat in order to come up with data that was relevant and that could be compared to data produced by other subjects (i.e. the recording sheets had to be as complete as possible, and comparable for all subjects). To maintain relevance and consistency in my data, I therefore informed the subjects that I was primarily interested in dictionary use.⁵⁷

However, to obtain the most natural performance from my subjects, and therefore to acquire the most "real" data possible, I tried to minimize the pre-established structure and researcher

⁵⁷ Some psycholinguists may argue that this would affect the performance of the subjects, but as the subjects were all my classmates, they were well aware of my interests anyway. It would have perhaps been better to use subjects that I did not know, but my access to subjects was limited, and I did not have much of a choice. Furthermore, the fact that the subjects knew me seemed to make them more relaxed and therefore more natural in their performance.

intervention in the actual testing process. I did not give the subjects any indications as to the specific types of information I was seeking. I used a combination of self-initiated and researcher-initiated verbalization, but with most subjects, particularly those that were comfortable with thinking aloud, it was rarely necessary that I intervene.⁵⁸ With a few exceptions, the subjects seemed to naturally provide the information I was looking for. In a more ideal situation, however, I would have had more time with each subject, and perhaps more subjects, so that I could have obtained the required data without having to intervene or impose any structure on the testing.

1.1.2.5 Training

The subjects of my test were familiar with the tasks to be performed (i.e. translation and dictionary use), so they had only to get used to thinking aloud and being recorded while performing the tasks. I conducted a trial test on two subjects with no previous training, and, based on the performance of those subjects, I decided that training was not necessary. Furthermore, training tends to influence the behaviour of the subjects somewhat, an effect I was trying to avoid.

1.1.2.6 Process emulated by the testing

Atkins and Varantola (forthcoming), who conducted a test similar to my own, instructed their subjects to simply use the dictionary as they would *if* they were translating the text given to them, but to not actually produce a translation. I, on the other hand, required that my subjects produce a

⁵⁸ In order to keep the process as natural as possible, I tried to minimize my interventions, which sometimes meant sacrificing information that I would have like to have obtained. The most common interventions were to ask the subjects whether they were looking for an equivalent or for meaning, or to remind them to point to the part of the entry they were reading.

translation. I feel that to get a true picture of how dictionaries are used in translation, the testing process should emulate a natural translation process as closely as possible. This proved to be an appropriate decision in many cases, for most subjects preferred to look up words *while* translating (Cf. chapter 3, section 1.1), and even those that tried to look up all problem words *before* translating discovered other problem words in the translation process. Furthermore, the written translation served as a useful backup to the recording sheets and tapes, often clarifying matters that would not have been understood otherwise.

1.1.3 Documents used in test 1

The following documents were used in test 1:

- instructions for the test (Cf. Appendix 1),
- a cover sheet to record general background information about each subject (Cf. Appendix 2),
- a recording sheet to record the dictionary-use information I was interested in (Cf. Appendix 3),
- the actual texts to be translated in the test (Cf. Appendix 4),
- the background information sheet given to the subjects in advance of the testing, to provide them with specialized background information necessary to understand the text to be translated (Cf. Appendix 5).

1.1.3.1 Choice of text

There were many factors to consider in selecting a text to be translated in test 1. As the main goal of the test was to gather data on the use of dictionaries, the most important criterion for the text was that it had to elicit extensive dictionary use. I felt that a specialized text would best satisfy this criterion, as translation of a general-language text into their native language may not have caused the subjects to consult dictionaries very often, and a highly technical text would have required more

background knowledge than could be obtained through the use of dictionaries. It was also important that the text elicit *diverse* dictionary use. This meant that it should contain a variety of lexical items posing different types of problems.

The following is a more detailed explanation of the factors I considered in choosing a text, and justification for the choice I eventually made.

a) Language of the text

Initially I had intended to conduct my test only on Anglophones, so I chose a French text. However, as I eventually decided to test Francophones as well, I also needed an English text. The French text I had originally chosen (Cf. Appendix 4) therefore seemed all the more appropriate, as it had been well translated into English. Even if the back translation done by the Francophones was somewhat unnatural, I would never have been able to find original texts in each language that were as comparable in terms of subject matter, degree of difficulty, etc. as this text and its translation.

What I did not foresee, however, was that the Francophones would have fewer difficulties with the translated text than the Anglophones would have with the original text. This can perhaps be attributed somewhat to more effective dictionary use and translation skills on the part of the Francophones, but it seemed that their greater success stemmed largely from the fact that the translated text was better written than the original. The English translation also uses more standard terminology (i.e. the terminology, unlike that of the original French text, could all be found in the dictionaries provided⁵⁹). The results of the test therefore favoured the Francophone translators somewhat.

⁵⁹ For example, while the English translation contained the term *debt security*, which was easily found in the dictionaries, the French original used the term *titre de dette* instead of the more standard *titre d'emprunt*, thereby causing the English subjects great difficulties.

b) Subject field of text

I chose a text in the field of economics, because I felt that this is an area that would not be completely unfamiliar to the subjects. Many people come into contact with economics either through their own personal financial dealings or through the mass media. Furthermore, it is a subject that is taught in specialized translation courses at the STI. Consequently, most subjects should have had at least some exposure to the general subject field and should have at least some of the background knowledge required to translate in this field.

Whatever background knowledge the subjects were lacking should have been provided in the Background Information sheet (Cf. Appendix 5) I gave to them in the week prior to the test. Furthermore, the area of economics has been well covered in TERMIUM (according to David Miller, the professional translator specializing in economics who advised me in the selection of a text and dictionaries), and there is no shortage of good paper-based dictionaries for this domain.

c) Difficulty level

The text I chose was one of several texts suggested by David Miller, who has taught several translation courses at the STI. I chose this particular text because, although it has difficult lexical items in it, overall the writing is quite comprehensible. The difficulties lie within the lexical items themselves, and, of course, the concepts they represent (Cf. section on "Background information required" below), but the difficulties do not extend much beyond the lexical items and their associated concepts. That is, once the subjects established the meaning of the difficult lexical items in a sentence, they should have been able to understand the sentence, for they did not have to grapple with confusing sentence structure, or pretentious vocabulary for more simple concepts.

In general, the level of difficulty of the text proved to be reasonably appropriate. The translation of this text certainly lent itself to plenty of interesting dictionary use, which was the most important criterion.

d) Background information required

One of the main reasons I chose this text is that although it deals with a topic that is unfamiliar to most people (i.e. swaps), it does not assume in-depth background knowledge on swaps, as it is essentially an introduction to the topic. The text is by no means simple, but it is written for readers who *do not* know what certain concepts such as *interest rate swaps* or the *notional amount* are, and therefore provides explanation of such concepts. With these explanations and the background information sheet I distributed prior to the test, the subjects should have been able to cope with the more difficult unfamiliar concepts presented in the text. Certain other concepts that the reader is assumed to understand (e.g. *bon du Trésor* or *avantage comparatif*) are not overly difficult concepts, and the uninitiated should have been able to grasp them sufficiently with a good dictionary definition.

In general, most of the subjects, particularly those with professional translation experience, felt they had sufficient background information to translate the text reasonably well, although some subjects said they would have liked to consult more parallel documentation.⁶⁰ In retrospect, I realize I could have probably chosen a text that was slightly less specialized and still have obtained sufficient dictionary-use data for my purposes.

⁶⁰ Many of those who said they would have liked more parallel documentation wanted it more for gathering terminology than for background information, however.

e) Variety of lexical items

Another important reason for choosing this text is that it offers a wide range of technicality in the lexical items: there are highly specialized items (e.g. *swap*, *notionnel*) used in the narrow domain of *interest-rate swaps*, specialized items (e.g. *exercice financier*, *emprunt à taux fixe*) used in the broader field of economics, semi-specialized or "borderline" items (e.g. *dette*, *opération*) used both in the field of economics and in general language, and challenging general-language items (e.g. *afférent à*, *assorti de*). Such a range caused the subjects to use a variety of dictionaries and confronted them with choices as to which dictionary to consult.

f) Type of dictionary use elicited

The typical subject had to use the dictionary for various reasons in translating this text. Some of the reasons are described below.

Comprehension and Production: The text presents items in which both the signifier and the signified were completely unfamiliar to the average subject, items such as *swap* or *notionnel*. Subjects were therefore faced with both comprehension problems and production problems in dealing with these items. First they had to try to understand the concept, and therefore use a dictionary to resolve a *comprehension* or *decoding* problem. Yet they also had to produce a target-language equivalent, which was usually not in their vocabulary. They therefore often required the use of a dictionary to resolve a *production* or *encoding* problem. There were other items in which the L2 signifier was unfamiliar to some subjects, but whose signified they had encountered in their own language (e.g. *exercice financier*). In such cases, the dictionary simply served to decode the L2 item, and remind the users of the L1 equivalent when they could not come up with it on their own. Finally, the users often

needed help in encoding items that they understood, but for which they did not know the idiomatic equivalent (e.g. *se procurer du financement, emprunt à trois mois*).

Single-word vs. multi-word items: The text has a wide variety of single-word items and multi-word items. Among the multi-word items are compounds (e.g. *avantage comparatif* ⁶¹ and *exercice financier*), complex noun phrases (e.g. *titres de dette à long terme assortis d'un taux fixe*), collocations (e.g. *contracter un engagement, se procurer du financement*), and idiomatic expressions (e.g. *par le biais de, mettre en place*). Difficulties stemmed not only from identifying some multi-word items (e.g. Is *titre de dette à long terme assorti d'un taux fixe* a lexical item?), but also in looking them up (e.g. under what headword do you look for an item such as *titre de dette à long terme assorti d'un taux fixe*, in what dictionary and under what headword do you look up collocations such as *se procurer du financement*, etc.?).

Polysemy: Some of the lexical items in this text are polysemous. The item *engagement*, for example, is very polysemous (e.g. *engagement* has 31 records in TERMIUM, 6 of which belong to fields related to economics!). The item *bon du Trésor* also has more than one meaning in the field of economics (depending on the government the bill is issued by). Such polysemy lent itself to interesting dictionary use (i.e. how subjects reacted to it, how they discriminated between senses, etc.).

Untreated or poorly treated items: Although most of the lexical items in this text are reasonably well treated in the dictionaries I provided, there are a few items that do not have an entry (i.e. they are either not to be found at all, or they do not appear as a headword and can only be found in the context of

⁶¹ It is interesting to note that only three subjects even recognized *avantage comparatif/comparative advantage* as being a compound.

another definition in TERMIUM). Other items only have working files in TERMIUM. It was interesting to see how the subjects reacted to poor treatment of items (i.e. some got frustrated; some accepted working files, while others did not), and also to see how some subjects devised clever search techniques to find solutions for items that were not treated as headwords.

Metalanguage problems: One of the points concerning the lexical items of this text in which I was most interested was the definitional metalanguage problems they could give rise to. Before choosing this text, I looked up all the potentially difficult items in the dictionaries which were to be used in the test. In so doing, I discovered many metalanguage problems within the definitions for those items. Specialized lexical items were often defined by other specialized lexical items. I hoped that such definitions would provide me with interesting data on how subjects react to and cope with complex metalanguage. I did obtain some data in this area, but not as much as I would have liked.

In order to obtain results that would be somewhat generalizable, I tried to choose a text that would be considered relatively "typical" of the types of texts given to student *version* translators. However student *version* translators are faced with many different types of texts ranging greatly in difficulty and technicality, and no one test can investigate their dictionary use for all text types. It must therefore be borne in mind that my choice of text inevitably influenced the findings of this study. Most of the findings apply primarily to specialized *version*.

1.1.4 Choice of dictionaries to be used in the test

In the autumn of 1993, I conducted a dictionary survey on 30 translation students (many of whom were subjects for test 1) in order to establish their dictionary preferences, and consequently

determine which dictionaries should be made available to the subjects for the test. (The survey and its results can be found in Appendix 6). Based on the results of that survey, I used the following general-language dictionaries in test 1:

English monolinguals:

1) *Webster's Ninth New Collegiate Dictionary* (Markham: Thomas Allen & Sons Ltd, 1991)

2) *Gage Canadian Dictionary* (Toronto: Gage, 1983).

French monolingual:

Le Petit Robert 1 (A. Rey et J. Rey-Debove, Paris: Le Robert, 1991).

English-French/French-English bilingual:

Robert-Collins, Dictionnaire français-anglais anglais-français (Paris/London: Le Robert/Collins, 1990.)

Combinatory dictionary:

BBI Combinatory Dictionary of English (M. and E. Benson and R. Ilson, Philadelphia: John Benjamins, 1986).

Based on the advice of David Miller and on various other criteria (indicated where applicable),

I chose the following specialized dictionaries for the test:

English monolinguals:

1) *A Dictionary of Canadian Economics* (David Crane, Edmonton: Hurtig, 1980).

(I chose this dictionary because it focusses on *Canadian* economics, and the text to be translated was published by the Bank of Canada. Furthermore, its definitions are quite comprehensible.)

2) *Investment and Securities Dictionary* (Michael Thomsett, Jefferson, N.C.: McFarland & Company, 1986).

(I chose this dictionary because it uses fairly complex definitional metalanguage, and I wanted to see the subjects' reaction to such metalanguage.)

French monolingual:

Dictionnaire économique et financier (Yves Bernard et Jean-Claude Colli, Paris: Éditions du Seuil, 1975).

(I chose this particular dictionary because its definitions are very long and they present many metalanguage problems. I wanted to see the reaction of the subjects to such definitions.)

English-French/French-English Hybrid:

Dictionnaire de la comptabilité (Fernand Sylvain, Toronto: Institut canadien des comptables agréés, 1982.)

(I chose this dictionary because not only is it well reputed, but it uses a type of hybrid dictionary format. I wanted to see the subjects' reaction to a dictionary that presents definitions along with equivalents.)

English-French/French-English Hybrid Term bank:

TERMIUM (on CD-ROM).

(As my survey results had revealed that the majority of the students surveyed use *TERMIUM* for their specialized translation courses, I felt that *TERMIUM* had to be made available to the subjects of test 1. Although it complicated my test somewhat to use a term bank, dictionary-use test design must now accommodate the reality that dictionary users are consulting a combination of paper-based and electronic dictionaries. Furthermore, the fact that *TERMIUM* uses what is essentially a hybrid dictionary format provided further data on the use of hybrid dictionaries.)

Although the subjects might have used other reference sources, such as encyclopedias or parallel documentation, if they had translated this text in a non-testing environment, I chose not to provide any other form of reference, for to do so would have taken away significantly from my focus on dictionary use, and therefore probably would have seriously limited my data and greatly complicated my analysis. It must be borne in mind, however, that my choice of dictionaries, and the fact that I included no reference sources other than dictionaries, undoubtedly influenced the findings of this study somewhat.

1.1.5 Evaluation of the methodology

Overall, I was satisfied with the methodology chosen for test 1. The combination of direct observation and the think-aloud procedure proved much more powerful than either method would have been on its own. The back-up provided by the audio recording also proved useful as it is not easy for a single researcher to keep up with subjects' verbalizations.

Although it would have been interesting to test professional translators, I found that a student sample nevertheless provided me with plenty of interesting data. Furthermore, the fact that all of the subjects knew me may have made the process less intimidating and therefore more natural.

I found that the use of recording sheets was very valuable, for the structure they imposed allowed for effective comparison of results, and increased the possibility of establishing patterns in the analysis--much more so than would have been the case with unstructured direct observation. Although I had feared that a structured format may force me to intervene frequently, this did not prove to be the case.

The choice of text and dictionaries for the testing also seemed reasonably appropriate. A few subjects did find the text quite challenging; I could have perhaps chosen a text that required slightly less background knowledge. Yet the text elicited plenty of interesting dictionary use, and therefore satisfied what is the most important criterion for this type of testing.

Perhaps the greatest measure of the method's worth is the data it produced. Test 1 rendered more data than I could possibly analyze within the scope of this thesis, and the data satisfied many of my interests. Although the data on definitional metalanguage was not as plentiful as in some other areas, the findings in this particular area were nevertheless very interesting and generated ideas that I decided to explore further in test 2.

1.2 Method for test 2

Test 1 was essentially an inductive test designed to generate data and, in turn, hypotheses, on dictionary use by student *version* translators. In the area of definitional metalanguage, test 1 produced data which indicated that my subjects, particularly the Anglophones, tend to avoid definitions written in their L2 (Cf. Chapter 3, section 9). Based on this data, I hypothesized that they avoid L2 metalanguage

for a reason, namely that they are not nearly as capable of coping with L2 metalanguage as with L1 metalanguage, and that L2 metalanguage may therefore inhibit their acquisition of the meaning of new words. I further hypothesized that it is not just L2 metalanguage that inhibits meaning acquisition, but *complex* metalanguage⁶² in general. Test 2 was designed to explore these hypotheses.

As test 2 was designed to explore specific hypotheses, a methodology suited to a more deductive approach was required. The method I chose was a controlled experiment. In this experiment, the subjects were given nonsense words (i.e. made-up words) in L2 contexts. The nonsense words represented concepts with which the typical subject should be familiar (e.g. dandelion, wool, hélicoptère, araignée, etc.). The subjects were also given an L1 or L2 definition for each nonsense word, and asked to provide an L1 equivalent for the nonsense word (or failing that, an explanation of the concept in L1), based on the definition. I also asked them to underline any items they did not understand in the definition. For example, some Anglophones were given the following question:

Context: Il a vu *un soril* devant sa maison.

soril: Plante herbacée, vivace, (Composacées), à feuilles longues et dentées, à fleurs jaunes, à akènes pourvus d'une aigrette.

English equivalent or explanation:

Figure 3. Example question for test 2.

The desired answer in this case was the equivalent *dandelion*, or an appropriate explanation thereof, and subjects may have underlined items such as *herbacée*, *vivace*, *Composacées*, *akènes*, or *aigrette*.

⁶² By *complex* metalanguage, I mean language (specifically lexical items) used in definitions that is likely to be unfamiliar to the average dictionary user, whether it be technical words, rare words, etc. What is considered complex will probably vary according to whether the metalanguage is the L1 or the L2 of the user, however.

1.2.1 Choice of basic method

Controlled experiments have rarely been used in dictionary-use research. Tono (1984) has used such a method, as has Jorgensen (1984).⁶³ My experiment is loosely based on Jorgensen's test (1984: 23-33), in which subjects were given a context containing a nonsense word, along with dictionary definitions for the nonsense word (or rather, for the real word that the nonsense word had replaced). The subjects were asked to guess, based on the definitions, what the real item was for which the nonsense word had been substituted. The purposes of Jorgensen's test were different from my own. She used this test to evaluate the effectiveness of dictionary definitions in communicating sense differences, and a second, almost identical test (Jorgensen 1984: 69-85), to evaluate the overall quality of dictionary definitions.⁶⁴ However, the basic methodology seemed appropriate for my purposes as well.

As controlled experiments are still quite rare in dictionary-use research, there has been little discussion of their advantages and disadvantages. Some of the advantages and disadvantages of my particular method seem evident, however.

1.2.1.1 Advantages of the basic method

Perhaps the greatest advantage of this method is that it is quite simple, and therefore, the test can be administered to a large number of subjects relatively quickly and easily. With this method, I was able to test many subjects in one specific area, to complement the research in many different areas done on a small number of subjects in test 1.

⁶³ Jorgensen's experiment was done within the context of her Ph.D. thesis, under the direction of psychologist George A. Miller.

⁶⁴ For both purposes, Jorgensen actually devised a two stage test. However the first stage of each test differed from my own and is therefore not relevant to this thesis.

The basic methodology used in this test is also advantageous in that it emulates the process of dictionary use in *version* fairly effectively. Jorgensen (1984: 72) states that her tests "tried to simulate the experience of consulting the dictionary for information about a completely new word", and she feels that the use of nonsense words makes such a simulation more effective. By using nonsense words in a sentential context, I was able to simulate the process of encountering an unknown L2 word in an L2 passage to be translated, and having to look that word up in the dictionary.

By emulating the process of dictionary use in *version* as closely as possible, I felt I stood a better chance of determining what effects definitional metalanguage has in *version* specifically. I had originally thought of just giving the subjects dictionary definitions with no entry words and asking them to identify the concepts, but by using nonsense words in context, I was able to make the process seem more natural, and hopefully obtain more "real" results.

Other researchers have also found the use of nonsense words in context appropriate for similar types of testing. Tono, for instance, found that he too could emulate the process of dictionary use in *version* by using this technique. His subjects were given short passages containing various nonsense words, for which entries were created in specially conceived bilingual mini-dictionaries. The subjects were then asked to translate the passages using those dictionaries. From this process, he came to various conclusions about how dictionaries are used in *version* tasks. Van Daalen-Kapteijns and Elshout-Mohr (1981) also found it useful to use nonsense words in sentential contexts to test the acquisition of word meaning from contextual information.

1.2.1.2 Disadvantages of the basic method

The greatest advantage of this methodology is also perhaps its greatest weakness. The test is, out of necessity, somewhat crude. It would have been impossible to administer a very sophisticated test

to so many subjects, but the simple method I used introduces a number of problems. The problems emanate mainly from the artificiality of the test. Although I believe the basic methodology of the test simulates the process of dictionary use in *version* fairly effectively, I also realize that certain aspects of the test undoubtedly make the process somewhat unnatural.

First of all, the fact that the concepts defined in this test all had to be familiar to the subjects (otherwise they would not have been able to produce an equivalent even if they fully understood the definition) makes dictionary use seem somewhat artificial. It is unlikely that translators with the level of L2 competence of my subjects would be using dictionaries for such familiar concepts. Furthermore, it is also perhaps unlikely that they would use only a monolingual dictionary to come up with an equivalent. Monolingual dictionary definitions are generally used for comprehension (decoding) and this test also required production (encoding). I may have been asking too much by requiring that the subjects do a production task when only armed with a tool that is designed primarily for decoding, even if the equivalent or explanation they were required to produce was for a very familiar concept. However, I had to have some sort of measure to evaluate whether or not they grasped the concept, and identification of the concept (i.e. by labelling it with an L1 equivalent or explaining it) seemed to be the most effective measure.

The only other way I know of to measure comprehension in such a task is to provide the subjects with a list of possible equivalents (rather than asking them to produce an equivalent on their own), from which they must choose the most appropriate one based on the definition provided.⁶⁵ Although this method eliminates the production variable in the task, I feel it introduces another variable that has even greater effect. By providing the subjects with L1 equivalents, you may be "giving the

⁶⁵ Such a technique was used by Laufer and Melamed (1994) to measure the comprehension of information in various types of dictionaries.

meaning away". That is, it may not matter if certain aspects of the metalanguage inhibit their meaning acquisition; if they can just get some clues from the definition, the equivalent may make the meaning obvious. This is particularly true when the definitions are for familiar concepts. And one really has no choice but to use familiar concepts, for if the concepts are unfamiliar, the subjects would not be able to identify the correct equivalent no matter how comprehensible the definition. The only way I can see such a method working for my type of test would be to provide equivalents that are *very* subtly different from one another, and in so doing, I could have introduced other variables (e.g. the ability to discriminate between closely related meanings) that would perhaps affect meaning acquisition even more than definitional metalanguage. I feel that introducing such variables would have had more harmful effects on my test than the minimal production task I required of my subjects.

Furthermore, I did not base my evaluation of the effects of definitional metalanguage uniquely on whether or not the subjects were able to produce an equivalent or explanation. I also asked them to underline any unknown items in the definition, and I took this information into account in my analysis.

1.2.2 Details of the methodology

1.2.2.1 Sample

The sample for this test consisted of 106 students (41 Anglophones and 65 Francophones) in three separate translation classes at the STI, one second-year class, one fourth-year class, and one at the Master's level. I realize that, once again, there is a lack of homogeneity in my sample, but in order to have a large enough sample, I had to use subjects with varying levels of translation experience and L2 and L1 competence.⁶⁶

⁶⁶ Undoubtedly the experience and competence of the subjects also varied somewhat within each class as well.

Because of the different abilities of my subjects I was careful not to come to general conclusions in my analysis without considering this variation in abilities. To compensate for any variation, rather than analyzing the results of individual subjects, I analyzed the results as a *whole*. That is, I looked at the subjects as two linguistic groups rather than 106 individual cases. If I had looked at the results of an individual with very high competence, then I may have found that metalanguage did not cause a problem, while the results of an individual with very low competence may have indicated the opposite. However, if my results indicate that *overall* the L2 definitions caused difficulties, then I feel safer in coming to more general conclusions that L2 metalanguage can inhibit meaning acquisition.

1.2.2.2 Choice of definitions

The definitions used in this test are all actual dictionary definitions. They were taken from the *Petit Robert* and *Webster's Ninth New Collegiate Dictionary*, as these were the dictionaries found to be most commonly used by student translators in the dictionary survey I conducted for test 1 (Cf. section 1.1.4 above and Appendix 6).

I had to restrict my choice to definitions for concepts that would be quite familiar to the subjects, for as I have explained above (in section 1.2.1.2), lack of familiarity with a concept would have prevented the subjects from producing an equivalent even if they understood the definition. Furthermore, I felt that if I showed that complex definitional metalanguage could prevent subjects from understanding definitions for *familiar* concepts, it would seem clear that the use of complex definitional metalanguage in definitions for *unfamiliar* concepts could be extremely problematic. To ensure that different concepts did not present different challenges simply because of their varying degree of familiarity to the subjects, I tried to choose definitions for concepts that should *all* have been *quite* familiar.

The definitions were chosen mainly for their comparable degree of complex metalanguage. The comparability of the degree of complexity in the metalanguage was approved by an Anglophone translation professor and a Francophone translation professor.⁶⁷ I chose to use only definitions with complex metalanguage, such as those in native-speaker dictionaries, because I was working with subjects with a considerable degree of competence in their L2. I assumed that definitions written in simple L2 metalanguage, such as those found in learner's dictionaries, do not cause problems for subjects with relatively high competence, for, as I have explained above (in section 1.2), it is not just L2 metalanguage that causes problems, but complex metalanguage in general.⁶⁸

I tried to select a wide range of definitions to balance out the range of complexity in the metalanguage that naturally occurs in real definitions (as opposed to ones whose metalanguage has been designed specifically to meet the purposes of the experiment). In total, 40 different definitions were selected (20 French definitions and 20 English definitions). In using a larger number of definitions as opposed to just a few, I should avoid the trap of generalizing about difficulties caused by L2 metalanguage when it was really just one or two L2 definitions written in complex metalanguage that caused problems. In other words, if the subjects consistently had difficulties with a broad cross-section of L2 definitions, then my conclusions should be more generally applicable.

To further ensure that I could make generalizations about the results, I tried to present each definition to a sufficient number of subjects (both Anglophones and Francophones). The 40 definitions

⁶⁷ I would like to thank professors Geneviève Mareschal and Ingrid Meyer for their assistance in this matter.

⁶⁸ To further test the hypothesis that it is often *complex* metalanguage and not just *L2* metalanguage that causes problems, I had considered including in the test various definitions taken from learner's dictionaries, along with their counterparts taken from native speaker dictionaries. I felt that it might strengthen my hypothesis if non-native speakers were able to understand the definitions from learner's dictionaries and not those from native-speaker dictionaries. However, I came to the conclusion that introducing such a variable would have complicated the test more than it was worth. Furthermore, it seems to be a bit of a truism to prove that non-native speakers can understand the definitions in learner's dictionaries because that is precisely whom they are designed for.

selected were presented in various configurations on 10 different test sheets (5 test sheets for Francophones and 5 for Anglophones). In other words, each subject received one subset of the 40 definitions. By testing various subsets of a greater number of definitions on a number of different subjects, as opposed to just having one test sheet for each language group, the results should be more generalizable. And by testing the same subsets on both Anglophones and Francophones, I have a point of comparison. For example, if 10 out of 10 Francophones had problems with 5 different English definitions and 1 out of 10 Anglophones had problems with only 1 of those same 5 English definitions, then I should be able to conclude that L2 metalanguage caused problems. If 10 out of 10 Francophones and 9 out of 10 Anglophones had problems with a group of English definitions, then I should be able to conclude that it was primarily the complex metalanguage that caused problems. If 10 out of 10 Francophones had problems with a group of English definitions and 5 out of 10 Anglophones had problems with them, then I can probably conclude that both the L2 metalanguage and the complexity of the metalanguage contributed to the problem.

1.2.2.3 Choice of nonsense words

For reasons explained above (in section 1.2.1.1), I chose to use nonsense words in my testing. I felt that this method had advantages over simply using variables like X or Y to replace the real words, because it emulates the natural translation process more effectively. However, it was important that the nonsense words provided no clues to the identity of the real words, as this would have affected the variable I was trying to measure. I therefore created nonsense words which bear no resemblance to the real words they replaced, but which, in order to preserve the naturalness of the process, sounded like they could be normal L2 words. The subjects were informed that the nonsense words were indeed made up, and that they did not resemble the real words for which they substituted.

1.2.2.4 Choice of context

For reasons also explained above (in section 1.2.1.1), I chose to present the nonsense words in a sentential context. However, as I wanted to minimize the effect that context had on meaning acquisition (I am not measuring this variable and do not want it to interfere with the effects of definitional metalanguage), I invented contexts which give very few clues to the meaning of the lexical items in question.⁶⁹ For example, the context "As-tu jamais vu *un balin*?" was given to Anglophones and the context "He prefers the *quant*." was given to Francophones.

1.2.3 Documents used in test 2

I devised various test sheets, each one containing a series of L1 and L2 definitions for different concepts presented in a short context. Each test sheet contained eight L2 contexts, along with four English and four French definitions to go with the contexts. There were ten different test sheets in total (five for each language group), all of which can be found in Appendix 7.

1.2.4 Evaluation of the methodology

Overall, I was satisfied with the methodology used in test 2. I realize that its simplicity opens it up to criticism, but as a short and easy test that could be administered to a large number of subjects, I feel it fulfilled its purpose. It provided me with large amounts of data on a specific area of research, and that data, which is presented in the following chapter, clearly indicated patterns in the effects of definitional metalanguage on meaning acquisition in *version* translation students.

⁶⁹ For the most part, the only types of clues the subjects should have been able to derive from the context were hints as to the part of speech of the item, as to whether it was abstract or concrete, count or non-count, etc.

2 Methodology for the analysis

2.1 Method for test 1

2.1.1 Constructing the database

With the data gathered in test 1, I built two databases using dBase IV. The first database was a very small one, consisting of only fifteen records representing the cover sheets for all the subjects. A sample record from that database can be found in Appendix 8. The second database I built was much larger. It consisted of 496 records, each one representing one recording sheet. These records were then joined (by the subject number) to the corresponding records in the first database (i.e. all the recording sheets for a given subject were matched up to the corresponding cover sheet). A sample record from the second database can also be found in Appendix 8.

In transferring the data from the recording sheets into database records, I had to make many changes to the way the data was recorded. Some of these changes stemmed from my dissatisfaction with elements of the recording sheet (e.g. I did not find the categories of reasons for consulting the dictionary in question 4 on the recording sheet to be specific enough for my purposes). Other changes resulted from the need to present the information in a much more structured format, as is usually required in databases if one wants to establish patterns for comparison. In other words, I had to move from the somewhat prose-like form I had often used in recording data on the recording sheets (particularly for the comments) to a much more structured format using a series of codes that I developed for this purpose. The codes cover most of the scenarios that occurred in my testing. An explanation of them can be found in Appendix 9.

When building the database, I had not decided exactly what my specific queries would be,⁷⁰ so

⁷⁰ I did have some general ideas of what queries I wanted to do, but often the results of one query inspired other queries, so there is a substantial element of unpredictability.

I incorporated a great amount of detail into the database to allow for many possible queries. In the end, I had far more detail than could be used within the scope of this thesis. I could have settled for a simpler format as much of the potential of the database was left untapped. However, the structure I established does allow for very powerful querying, and this particular database could be used for further analysis. The general format and codes I have produced (Cf. Appendices 8 and 9) could also serve as a replacement for the basic recording sheet in future tests of this type, particularly if the researcher is looking for answers to very specific questions.

2.1.2 Querying the database

In order to query the database, I had to first narrow my interests to a number of issues. The issues I chose are outlined in the introduction to this thesis. Once I had focussed on specific questions, I used the database query tool Impromptu 2.0⁷¹ to extract the answers to those questions from the database. To demonstrate how the answers were extracted, I describe below the steps required to conduct one particular database query.

2.1.2.1 Sample query

I was interested in determining what were the most common and most satisfactory strategies taken for the problems encountered in the testing. This was one of the more complicated questions I had to deal with and necessitated a number of steps.

⁷¹ Impromptu 2.0 is a database query tool developed by Cognos Inc. of Ottawa. I chose this tool over the simpler query facility incorporated into dBase IV because Impromptu allowed me to do much more powerful queries. For example, with the dBase IV query tool, I would not have been able to conduct the query described in section 2.1.2.1, as the dBase IV facility would not have accepted all the complex Boolean logic such a query required (e.g. *x contains a and not b or c...*).

Step 1: Identifying the problem types

First I had to identify all the possible problem types that could have occurred in the testing. The major problems⁷² I identified are defined as follows:

comprehension problem: the need to understand a concept or term that one has either never encountered or never fully understood.

Comprehension problems can involve:

1) the need to understand an L2 concept (i.e. either the subjects do not understand the concept in general, or they are not familiar with the L2 term for a concept they do understand in their L1);
e.g. Most subjects had no understanding of the concept *notional amount/le notionnel*; many Anglophone subjects were unfamiliar with the term *exercice financier*, but they were familiar with the equivalent concept *fiscal year*.

2) the need to understand a proposed equivalent and verify its equivalence to the associated L1 concept;
e.g. Having found the equivalent *flux de revenu* for *income stream*, some Francophone subjects wanted to understand exactly what a *flux de revenu* is, and thereby ensure that it means the same thing as *income stream*.

3) cases where subjects do not declare a comprehension problem, but their behaviour clearly indicates that they do have one;

For example:

- They claim to understand concepts, but the incorrect equivalents they choose indicate that they do not understand them.
e.g. One translator who said she understood the term *fixed-rate payments*, subsequently translated it as *taux de paiements fixes*, thereby showing that she had in fact misunderstood the structure of the noun phrase and thought that *fixed* modifies *payments* rather than *rate*.
- They claim to understand concepts, but the fact that they reject correct equivalents seems to indicate they do not understand them.
e.g. One subject who said she understood the concept of *bon du Trésor* did not think *Treasury bill* was an appropriate equivalent.
- They say they know the meaning of a terminological unit, but then subsequently say they don't know the meaning of a fundamental part of that unit.

⁷² All other types of problems occurred so rarely in the testing that I did not consider them in this query.

e.g. Subjects who said they understood the term *titre de dette* looked for the meaning of *titre* in subsequent searches; one subject who said she understood *bon du Trésor* subsequently looked for the meaning of *bon*.

- They claim to understand a lexical unit that is actually not a lexical unit at all.
e.g. One subject claimed to understand *coût des emprunts* in the phrase *coût des emprunts à trois mois*, which should actually be broken up into the lexical units *coût* and *emprunts à trois mois*.

4) the need to establish synonymy, or the lack thereof, between 2 or more L2 items or L1 equivalents;
e.g. The *Sylvain* gave both *par value* and *face value* as equivalents for *valeur nominale*, causing subjects unfamiliar with the two items to do further research in order to determine whether the two items were synonymous and could therefore be used interchangeably.

5) the need to discriminate between the meanings of various proposed equivalents.
e.g. When given the equivalents *titre d'emprunt* and *titre de créance* for the item *debt security*, many subjects needed to determine the exact meaning of these two items in order to discriminate between them.

the need to verify meaning: the need to verify whether a concept means what the subject thinks it means. This differs from a comprehension problem in that it is not really a matter of learning something new, but rather of confirming that one's knowledge is correct or recalling knowledge that one already has.

e.g. A few Francophone subjects felt they knew the meaning of *conversely*, but they just wanted to verify that they understood it correctly.

the need for an equivalent: the subject claims to understand an L2 concept, but does not know the proper L1 equivalent for it.

e.g. Many subjects claimed to understand the phrases *emprunt à trois mois*/three-month borrowing, but were unsure of the proper idiomatic equivalents for them.

I then decided I should qualify these problems more precisely, with respect to the type of lexical item that causes them. I distinguished three types of lexical items: general-language, specialized, and general/specialized ("borderline") items. The first two categories are well recognized,⁷³ but the third requires some explanation.

I use the term *borderline* to refer to items that are frequently used both in the general lexicon

⁷³ Cf. Béjoint 1988 for an explanation of some of the defining characteristics of specialized, as opposed to general-language, items.

and in specialized discourse.⁷⁴ Such items are becoming increasingly common with the growing influence of specialized fields on everyday life.⁷⁵ Economics is one field that frequently influences modern everyday life, and economics terms such as *dette*, *entité*, and *opération* are therefore often used in different degrees of specialization.

The primary reason for making a distinction in my analysis between different types of lexical items is that borderline terms can be found in both specialized and general-language dictionaries.⁷⁶ Consequently, they present the translator with the additional challenge of knowing where to look them up. I feel that problems involving borderline items should be distinguished from problems that do not involve such a challenge.

Having accounted for the lexical items at the source of the difficulty, I compiled the following list of more specific problems that could occur in my testing:

Problem 1: Problem word: general
Problem type: comprehension

Problem 2: Problem word: general
Problem type: need for an equivalent

Problem 3: Problem word: general
Problem type: verify meaning

Problem 4: Problem word: specialized
Problem type: comprehension

⁷⁴ Because this issue was not a major focus of my test and therefore one to which I could not devote much time, I simply relied on my own intuition to determine which items were borderline, rather than using frequency lists, corpus searches, or some other more scientific method.

⁷⁵ Varantola (1993: 251) gives politics, the European community, consumer affairs, ecology and the environment, electronics, military technology, etc. as examples of specialized fields that are now of "general interest".

⁷⁶ Landau (1989: 21) claims that more than 40 per cent of the entries in the *Webster's Third New International Dictionary* are scientific or technical.

- Problem 5: Problem word: specialized
Problem type: need for an equivalent
- Problem 6: Problem word: specialized
Problem type: verify meaning
- Problem 7: Problem word: general/specialized
Problem type: comprehension
- Problem 8: Problem word: general/specialized
Problem type: need for an equivalent
- Problem 9: Problem word: general/specialized
Problem type: verify meaning
- Problem 10: Problem word: general
Problem type: comprehension and need for an equivalent
- Problem 11: Problem word: general
Problem type: verify meaning and need for an equivalent
- Problem 12: Problem word: specialized
Problem type: comprehension and need for an equivalent
- Problem 13: Problem word: specialized
Problem type: verify meaning and need for an equivalent
- Problem 14: Problem word: general/specialized
Problem type: comprehension and need for an equivalent
- Problem 15: Problem word: general/specialized
Problem type: verify meaning and need for an equivalent

Step 2: Identifying the strategies

Once I had identified the problems that could occur in my testing, I then had to identify the strategies that could be applied to resolve them. I qualified strategies by the type of dictionary used as well as the part of the entry used.⁷⁷ The following are the strategy types I identified:

⁷⁷ I only considered the dictionaries and the parts of the entries that were used most frequently in my testing. Some dictionary types (e.g. combinatory dictionaries) and entry elements (e.g. examples in monolingual dictionaries, observations and contexts in TERMIUM, etc.) were used so rarely that it was not worthwhile to consider them.

- Strategy a: Dictionary used: general bilingual
Part of entry used: equivalents
- Strategy b: Dictionary used: general bilingual
Part of entry used: none (i.e. entry not found)
- Strategy c: Dictionary used: General L1 monolingual
Part of entry used: definition
- Strategy d: Dictionary used: General L1 monolingual
Part of entry used: none
- Strategy e: Dictionary used: General L2 monolingual
Part of entry used: definition
- Strategy f: Dictionary used: General L2 monolingual
Part of entry used: none
- Strategy g: Dictionary used: specialized L1 monolingual
Part of entry used: definition
- Strategy h: Dictionary used: specialized L1 monolingual
Part of entry used: none
- Strategy i: Dictionary used: specialized L2 monolingual
Part of entry used: definition
- Strategy j: Dictionary used: specialized L2 monolingual
Part of entry used: none
- Strategy k: Dictionary used: specialized hybrid
Part of entry used: definition (not equivalents)
- Strategy l: Dictionary used: specialized hybrid
Part of entry used: equivalents (not definitions)
- Strategy m: Dictionary used: specialized hybrid
Part of entry used: definition and equivalents
- Strategy n: Dictionary used: specialized hybrid
Part of entry used: none

Step 3: Querying the database

Having identified all the major problems that could occur in my testing and the strategies that could be used to resolve them, the next step was to use Impromptu to query the actual database and discover which strategies were most frequently applied to the different types of problems, and which strategies were the most satisfactory.

For example, to establish how many look-ups⁷⁸ involved the use of strategy k to tackle problem four, I had to determine how many look-ups satisfied all the conditions for problem four (i.e. comprehension problem with a specialized word) and all the conditions for strategy k (i.e. use of the definition, but not the equivalents, in a specialized hybrid dictionary). The following is a screen shot of the Impromptu retrieval condition statement such a query necessitated:⁷⁹

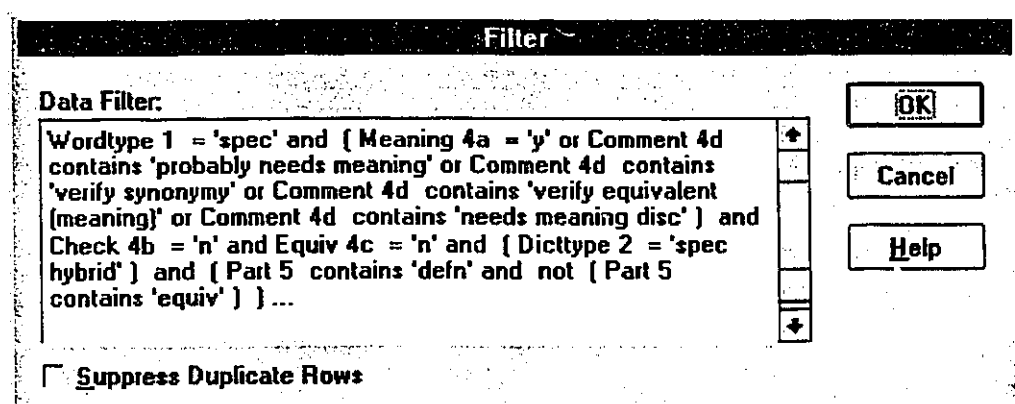


Figure 4. An Impromptu retrieval condition statement used in analysis of test 1.

⁷⁸ A look-up consists of a single dictionary consultation, and corresponds to one recording sheet (or database record).

⁷⁹ It should be noted that in this query many different types of problems were considered comprehension problems (as described in Step 1 above), thereby necessitating this rather complex condition statement. As discussed earlier, much of the detail of my database, such as this detailed breakdown of problem types, eventually had to be synthesized and left untapped to remain within the scope of a Master's thesis. I did actually use *some* of the detail of this breakdown in other queries (e.g. To determine how thorough subjects were in their dictionary use, I checked to see how many times they verified equivalents.) The database could nevertheless be queried in greater depth to produce more specific data, such as the frequency of other very specific problem types (e.g. the frequency of verifying synonymy or looking for meaning discrimination between equivalents).

To explain this condition statement in layman's language, it is asking Impromptu to search the database for all cases where: 1) the problem word was a specialized word, 2) the problem type did not involve a need to verify a hunch about the meaning of an L2 item or a need for an equivalent, but did involve a need to understand an L2 item (a need that is either explicitly stated by the subject, or inferred by the researcher), a need to establish synonymy between various L2 items or L1 equivalents, a need to verify the meaning of a proposed equivalent, or a need to discriminate between the meanings of various proposed equivalents, 3) the dictionary used was a specialized hybrid dictionary, and 4) the part of the entry used was the definition (not the equivalents).

The following is a screen shot of the output produced by such a query:

	Wordtype 1	Dicttype 2	Part 5	Meaning 4a	Check 4b	Equiv 4c	Other 4d	Comment 4d
1	spec	spec hybrid	defn	n	n	n	y	verify equivalent (meaning)-does defn for portefeuille match defn for portfolio
2	spec	spec hybrid	defn	y	n	n	n	
3	spec	spec hybrid	defn	y	n	n	n	
4	spec	spec hybrid	defn	y	n	n	n	
5	spec	spec hybrid	defn	n	n	n	y	verify equivalent (meaning)
6	spec	spec hybrid	defn	n	n	n	y	needs meaning discrimination between equivalents
7	spec	spec hybrid	defn	y	n	n	y	wants to find terminology for concept

Figure 5. Impromptu output from a query done in analysis of test 1.

In this output, the column titles (e.g. Wordtype 1, Dicttype 2, Part 5, etc.) correspond to field names and numbers in the database.⁸⁰ Only the fields relevant to this query were searched and therefore

⁸⁰ A full explanation of all of the field names can be found in Appendix 9.

only the information for those fields appears in this output. This output shows us all the cases where:

- A subject had a comprehension problem, that is, either the subject did not understand an L2 item or the concept it denotes (Meaning 4a = y), or the subject wanted to verify the meaning of an equivalent (Comment 4d contains verify equivalent (meaning)), or the subject wanted to discriminate between the meanings of two or more equivalents (Comment 4d contains needs meaning discrimination between equivalents).
- The subject did *not* have the need to verify meaning (Check 4b = n) or the need for an equivalent (Equiv 4c = n).
- The problem item was a specialized item (Wordtype 1 = spec).
- The subject used a definition (Part 5 = defn) in a specialized hybrid dictionary (Dicttype 2 = spec hybrid) to resolve the problem.

As seven cases (the row numbers on the left-hand side increment with each case) were identified by this query, we know that strategy k was applied seven times to problem four.

I thought it necessary to consider not only how frequently a strategy was applied to a particular problem, but also how frequently it was the *first* strategy, for a strategy that is consistently the first one applied is much more important than a last-resort strategy. I therefore extended my query to account for the number of look-ups in which all of the conditions outlined above were true *and* the look-up was the first look-up for the problem in question. To do so, I simply had Impromptu also display a column which identified the look-up number, and I counted the number of times where the look-up was a first look-up.⁸¹

Finally, to establish which strategies were most satisfactory, I had Impromptu also display the column indicating whether or not the subject had found what they were looking for. I then counted the number of cases where they did find what they were looking for, the number of times where they found

⁸¹ With a larger database, you would have to conduct a separate query in which you would add the additional condition that the look-up must be the first one done for that particular problem. The query tool would then give you a count of only those cases. However, because my database was not really large, it was simpler to have Impromptu display the additional column in the results from the first query and manually count the number of times where the strategy was the first one applied.

what they were looking for, but were not entirely satisfied, and the number of times where they did not find what they were looking for. The output with the two additional columns (i.e. look-up number column and column measuring satisfaction) appeared as follows:

	Wordtype 1	Dicttype 2	Part 5	Meaning 4a	Check 4b	Equiv 4c	Other 4d	Comment 4d	Lookup No	Found 7
1	spec	spec hybrid	defn	n	n	n	y	verify equivalent (meaning)-does defn for portefeuille match defn for portfolio	5	y
2	spec	spec hybrid	defn	y	n	n	n		1	yb
3	spec	spec hybrid	defn	y	n	n	n		1	yb
4	spec	spec hybrid	defn	y	n	n	n		1	yb
5	spec	spec hybrid	defn	n	n	n	y	verify equivalent (meaning)	6	y
6	spec	spec hybrid	defn	n	n	n	y	needs meaning discrimination between equivalents	4	yb
7	spec	spec hybrid	defn	y	n	n	y	wants to find terminology for concept	5	y

Figure 6. Impromptu output from a query done in analysis of test 1.

This output show that strategy k was the first strategy (Lookup No = 1) applied to problem four in three cases. It also shows that it was a satisfactory strategy (Found 7 = y) three times, a partially satisfactory strategy (Found 7 = yb (yes, but)) four times, and it was never an unsatisfactory strategy (Found 7 = n).

Step 4: Determining the satisfaction rating

In order to have satisfaction ratings that could be easily graphed, I established the following system: I gave a strategy zero points if it yielded unsatisfactory results (the subject did not find a solution to the problem), one point if it yielded partially satisfactory results (the subject may have found

part of an answer to the problem or an answer that he or she did not agree with entirely, etc.), and two points if it yielded satisfactory results (the subject found what was needed to resolve the problem). The strategy in question here received 10 out of a possible 14 points, and therefore has a satisfaction rating of 71%.

It should be noted that I did not attempt to determine how *successful* look-ups were in terms of generating a correct translation, just how *satisfactory* they were to the student (i.e. the students indicated how satisfied they felt). Although it would undoubtedly be very useful to know whether dictionaries really helped my subjects to produce a successful translation, to do so would have required that I evaluate the written translations produced by the subjects. I did not do such an evaluation for three reasons.

First of all, I do not feel I personally am in a position to evaluate translations of fellow students. I could have taken the translations to outside sources for evaluation, but this would have perhaps required more work than was justifiable and there would nevertheless still be an element of subjectivity involved.

Secondly, I think that much more comes into play in the production of a translation than just dictionary use, and if I judged the dictionaries on the basis of the translation, I may be crediting them or discrediting them for things that actually had little or nothing to do with the dictionaries. I feel that to accurately evaluate the effectiveness of dictionaries in translation (without bringing all sorts of other factors into play, such as the question of insufficient background information, etc.), I would have had to control the test much more (as was done in Atkins *et al.* 1987, where very specific tests were given to see how the student used the dictionary in a particular case). Such a test would have been much less "natural" and would not have allowed me to look at the dictionary-use process as a whole.

Finally, and most importantly, my focus is not really on *how effective* dictionaries are in translation, but rather on *how they are used* in translation. In other words, I am concentrating on the *process*, not the *product*, of dictionary use in translation. Furthermore, as Müllich (1990: 178-179) points out, a successful product (i.e. a correct solution) is not always a reliable sign of good dictionary use.

Queries such as the one described above had to be conducted for every problem type, combined with all the strategies that could be applied to them. In total, 210 such queries were conducted for this particular question (i.e. the question concerning what strategies were most frequently and most satisfactorily applied to different problems). The following seven questions were also answered by querying the database for Test 1:

- 1) What were the most common types of problems?
- 2) What dictionaries were most commonly used?
- 3) What elements of dictionary entries were most frequently consulted?
- 4) What were the most frequent causes of dissatisfaction?
- 5) How much information was consulted?
- 6) How was information accessed?
- 7) What type of definitional metalanguage was most commonly used?

2.2 Method for test 2

2.2.1 Constructing the database

With the data gathered in test 2, I built another database using dBase IV. This database consisted of 848 records, each one representing one question on the sheets distributed to the test subjects. An example of those records can be found in Appendix 10.

In building the database, I had to determine whether the subjects had come up with a correct

answer or not, but not all cases were perfectly clear cut. I therefore had to devise a system to decide the more questionable cases. One such case occurred when subjects gave an answer that was slightly more specific than the one that I was looking for. For example, a few subjects gave *tarentule* as an equivalent for the definiens for *araignée*. In cases such as this, where the definiens could have possibly been that of the more specific item, I counted it as a correct answer, for it did not seem to be a matter of the subject not understanding the definition. I did not, however, accept equivalents that were too generic or too specific for the definiens in question if such an equivalent indicated that the subject had not understood part of the definition. For example, I did not accept *wind instrument* as an appropriate equivalent for "instrument de musique à soufflet et à anches métalliques," for it appeared that the subject failed to understand part of the definition (the fact that the subject underlined the item *anches* actually made it quite clear that in fact the metalanguage prevented her from understanding the whole definition).

In other cases, where subjects did not give an equivalent, but rather an explanation that was essentially a translation of the definiens in question, I counted it as a correct answer if all elements of the definiens were correctly translated. Once again, my reason for doing so was that it was not a comprehension problem that prevented them from identifying the exact name of the item defined, but rather a production problem (i.e. inability to think of the equivalent), or perhaps a lack of knowledge of that item. If, however, their explanation was missing important elements or contained elements that had been incorrectly translated, then I didn't consider it a successful answer.

2.2.2 Querying the database

The database constructed for test 2 was also queried with Impromptu. To look at the simplest of those queries, I will show in the following the steps taken to determine how successful the

Anglophones were in guessing the equivalent when given an English definition, compared to when they were given a French definition.

2.2.2.1 Sample query

Step 1: Determine how many English and French definitions the Anglophones were given in total

There were 41 Anglophone subjects, and they were each given four English and four French definitions, so the Anglophones were given 164 English and 164 French definitions in total.⁸²

Step 2: Determine how many times the Anglophones guessed the equivalent with English and with French definitions

The following screen shots show the retrieval condition statements used in Impromptu for this step and the output for each statement:

Retrieval condition statement:

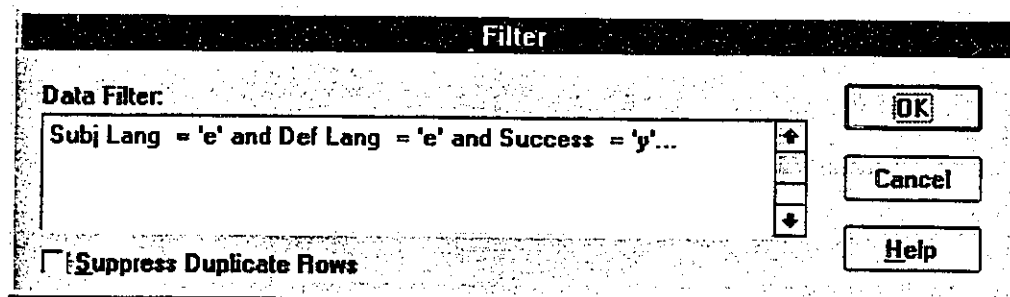


Figure 7. An Impromptu retrieval condition statement used in analysis of test 2.

This statement asks Impromptu to look for all cases where a subject whose native language is English was successful in guessing the equivalent when given an English definition.

⁸²This information could have also been obtained by doing an Impromptu query, but it was simplest to just work it out mathematically.

Output:

	Count
1	97

Figure 8. Impromptu output from a query done in analysis of test 2.

This output shows that the Anglophones successfully guessed the equivalent 97 times when given English definitions.

Retrieval condition statement:

Filter

Data Filter:

Subj Lang = 'e' and Def Lang = 'f' and Success = 'y'...

☐ Suppress Duplicate Rows

OK Cancel Help

Figure 9. An Impromptu retrieval condition statement used in analysis of test 2.

This statement looks for all cases where Anglophones successfully guessed the equivalent when given a French definition.

Output:

	Count
1	53

Figure 10. Impromptu output from a query done in analysis of test 2.

This output shows the Anglophones were successful 53 times when given French definitions.

Step 3: Determine what percentage of the time the Anglophones were successful with each of the two types of definitions

This was a purely mathematical process in which the results of step 2 were divided by the results of step 1 (i.e. $97 \div 164 = 59\%$ and $53 \div 164 = 32\%$).

Various other more complex queries were also conducted on the database built for test 2, to come up with answers to specific questions regarding the effects of definitional metalanguage.

Although the construction and querying of a database demands considerable effort, I feel the results produced by doing so could be very valuable to lexicographers and people who teach dictionary use. Atkins and Varantola (forthcoming) hold the same opinion, and they feel that, by highlighting various types of information which might be improved or added to dictionaries, the analysis of databases from dictionary-use tests could serve as "a first step towards transforming the print dictionary into an electronic one." I therefore decided to go beyond the simple presentation of my test results to an analysis of those results, for such an analysis could lead to proposals for alternative dictionary models to be explored in future testing, as well as suggestions for the teaching of dictionary use. The results of my tests, and my analysis of them, are presented in the following chapter.

In this chapter, I present the results of test 1 and test 2. The results of test 1 focus on the following areas (as outlined in the introduction to this thesis):

- 1) Integration of dictionary use into the *version* task;
- 2) Most common types of problems;
- 3) Dictionaries most commonly used;
- 4) Elements of dictionary entries most frequently consulted;
- 5) Most common and most satisfactory dictionary-use strategies;
- 6) Most frequent causes of dissatisfaction;
- 7) Amount of information consulted;
- 8) How information is accessed;
- 9) Choice of definitional metalanguage.

The results of test 2 also focus on the area of definitional metalanguage, but specifically on the *effects* of different types of definitional metalanguage on dictionary users.

1 Results of test 1

1.1 Integration of dictionary use into the *version* task

Question:

I was interested in knowing how the subjects integrated dictionary use into the *version* task as a whole. In other words, I wanted to know if they tended to look up all unknown items *before* they translated, if they looked up items *as* they translated, or if they followed some other method.⁸³

⁸³ The type of dictionary use that I examined was primarily dictionary use in the creation of a draft translation. Most subjects did not reach the stage of refining their translation. Many of them did say, however, that in the refinement stage they tend to turn more to parallel documentation or experts than to dictionaries.

Results:

Number of subjects who looked up all unknown items before beginning to translate:⁸⁴ 4 out of 15 subjects → 26.66%

Number of subjects who looked up some of the unknown items before beginning to translate and looked up the rest while translating (usually because they got tired of looking things up and wanted to start translating): 2 out of 15 subjects → 13.33%

Number of subjects who began to translate immediately, looking up items as they translated: 9 out of 15 subjects → 60%

Analysis:

The most popular strategy for integrating dictionary use into the *version* task was to look up items while translating. However, before beginning to translate, the subjects who took this approach often did at least identify the items they thought would be problem items. They said they would not have used dictionaries prior to translating this text even in normal circumstances, but some of them did say they would have done background research in parallel texts ahead of time.

The strategy of looking up all unknown items before translating was less popular overall, but it was actually the most popular strategy among the few translators with the most work experience. Some of these translators did specify, however, that with a longer text, they would not necessarily look up *all* items prior to translating. The translators with the most work experience also differed from most of the other subjects in that none of them said they would have consulted parallel texts ahead of time. Some said they would have done so only later if they had been unable to find answers in the dictionaries. It may be that these translators are more accustomed to working under time constraints, and dictionary look-ups have become their primary way of doing background research.

⁸⁴ Although these translators tried to look up all unknown items before translating, in the process of translating, some of them actually found other items which they did not understand and had to look up.

1.2 Most common types of problems

Question:

I wanted to find out the types of problems that occurred most commonly in my testing. I was only concerned with problems that caused dictionary use, and I focussed only on problems with a very high frequency (as outlined in Chapter 2, section 2.1.2.1).⁸⁵ It should be noted that I looked at frequency in terms of the number of *look-ups* caused by such a problem, rather than the number of *searches* (i.e. all the look-ups done by one subject for a given item). I did not look at searches as a whole, even though the structure of my database would have allowed me to do so, because I found that problems seemed to change frequently within a given search (e.g. subjects who thought they only needed an equivalent suddenly realized they had a comprehension problem; subjects who began a search with a comprehension problem and a need for an equivalent subsequently needed only an equivalent once they resolved their comprehension problem, etc.).⁸⁶

Results:

Problem Type	Number of Look-Ups (out of 496 total look-ups)	Percentage
comprehension problem only	87	17.5%
need for an equivalent only	160	32.3%
need to verify meaning only	6	1.2%
both a comprehension problem and a need for an equivalent	172	34.7%
both a need to verify meaning and a need for an equivalent	36	7.3 %

Figure 11. Most common types of problems.

⁸⁵ There were approximately 35 occurrences of various other types of problems (i.e. spelling problems, syntactic problems, etc.) which I have not included in these results because they each occurred so infrequently.

⁸⁶ In a study similar to mine, Atkins and Varantola (forthcoming) *did* look at searches as a whole. However, they did not account for changes in problem types within a search as their database did not allow them to do so.

Analysis:

From these results it is clear that comprehension problems combined with the need for equivalents were the primary cause of dictionary use in the testing, followed closely by the need for equivalents alone. Comprehension problems alone were also quite frequent. Comprehension problems were probably even more frequent than indicated by these results, as subjects seemed somewhat hesitant to say they did not understand something, and, in order to minimize the amount of speculation in the testing, I only very rarely identified problems as comprehension problems when they were not claimed as such.

These results contrast dramatically with the results of some other dictionary-use studies (e.g. Barnhart 1962, Quirk 1973, Tomaszczyk 1979, Galisson 1983, and Greenbaum/Meyer/Taylor 1984), in which spelling was found to be one of the most predominant uses for dictionaries. In my testing the subjects used the dictionary for spelling in only 6 out of 496 look-ups (1.2%). Dramatically contrasting results such as these emphasize the need to conduct dictionary-use studies on various specific user types. The problems encountered in my test may be typical for student translators doing specialized *version*, but they may not be so for other types of dictionary users or other contexts of dictionary use.

Question:

I wanted to establish the frequency of more specific problem types, so I broke the major problems of comprehension, the need to verify meaning, and the need for an equivalent (as well as combinations of these problems) down further into cases where they occurred with general-language items, specialized items, and general/specialized (borderline) items⁸⁷. This breakdown resulted in 15

⁸⁷ Cf. Chapter 2, section 2.1.2.1 for an explanation of "borderline" items.

problem types, and I determined the frequency of each type (i.e. the number of look-ups they caused).

Results:

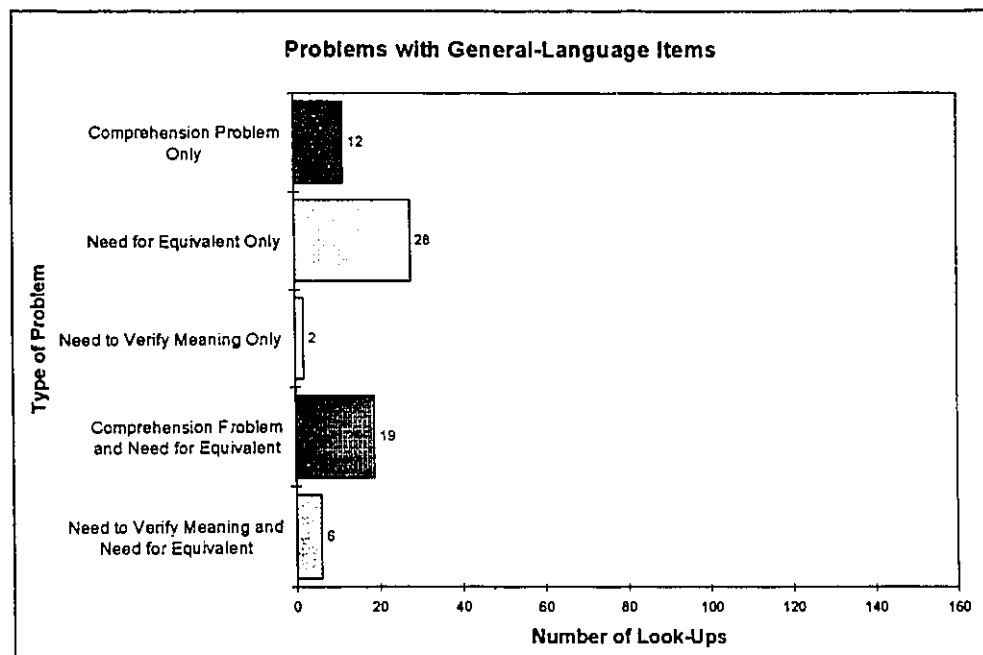


Figure 12. Most common types of problems with general-language items.

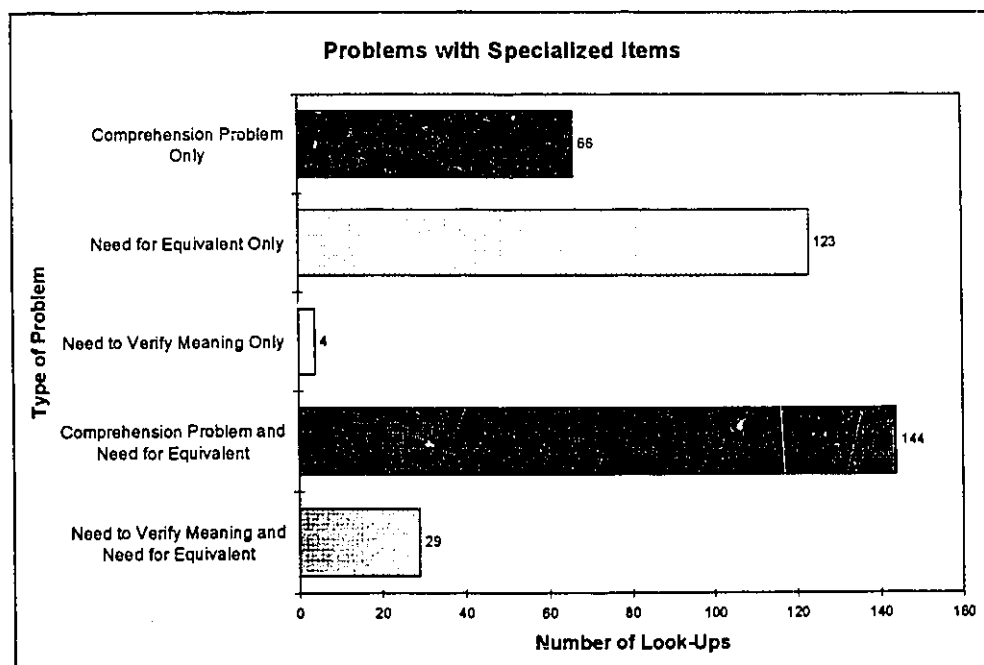


Figure 13. Most common types of problems with specialized items.

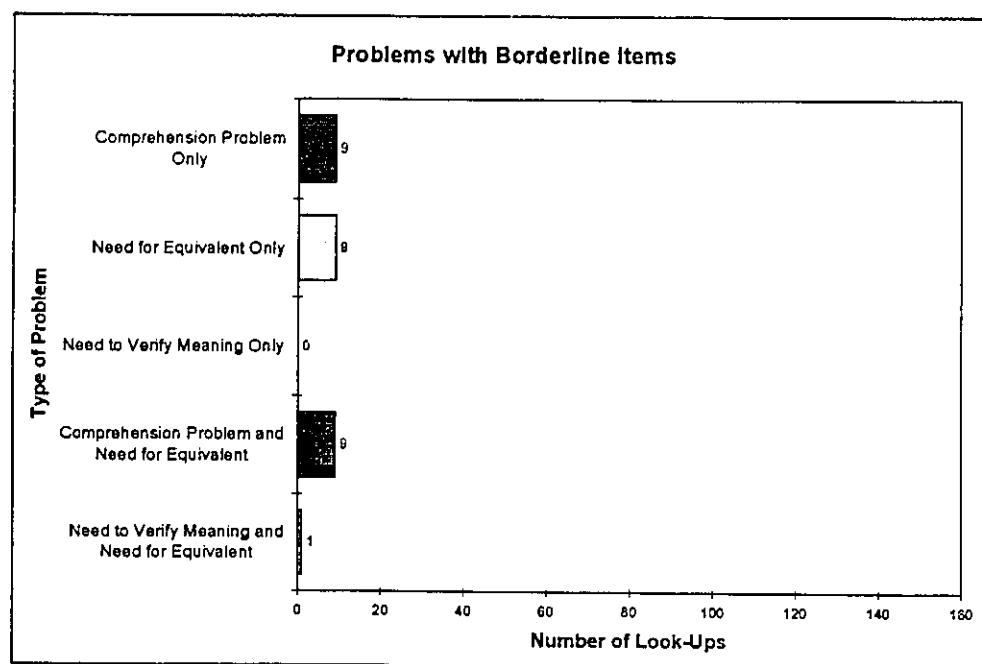


Figure 14. Most common types of problems with borderline items.

Analysis:

The results for the previous question indicated that the combination of a comprehension problem and the need for an equivalent was the most frequently occurring problem in the testing. The results for this question show that this problem was particularly common with specialized items. In fact, specialized items were by far the most frequent cause of all other problem types as well. This is not particularly surprising considering that the text dealt with specialized subject matter, and the subjects were not specialists in the domain.

1.3 Dictionaries most commonly used

Question:

I wanted to know which types of dictionaries, and which specific dictionaries, were most commonly used. It should be noted that I did not actually provide a specialized bilingual dictionary (I

consider the *Sylvain* and TERMIUM to be hybrid dictionaries as they contain both definitions and equivalents). The results would have perhaps been more balanced and more conclusive if I had provided such a dictionary, and if I had been able to provide a dictionary that was like the *Sylvain*, but which gave definitions in English rather than in French.

Results:

Dictionary Type	Number of Look-Ups (out of 496 total look-ups)	Percentage
general bilingual	75	15.1%
general English combinatory	4	0.8%
general English monolingual	10	2.0%
general French monolingual	28	5.7%
specialized English monolingual	64	12.9%
specialized French monolingual	28	5.7%
specialized hybrid	287	57.9%

Figure 15. Dictionary types most commonly used.

Specific Dictionary	Number of Look-Ups (out of 496 total look-ups)	Percentage
<i>Robert-Collins</i>	75	15.1%
<i>BBJ</i>	4	0.8%
<i>Gage</i>	3	0.6%
<i>Webster's</i>	7	1.4%
<i>Petit Robert</i>	28	5.7%
<i>Crane</i>	47	9.5%
<i>Thomsett</i>	17	3.4%
<i>Bernard et Colli</i>	28	5.7%
<i>Sylvain</i>	139	28.1%
TERMIUM	148	29.8%

Figure 16. Specific dictionaries most commonly used.

Analysis:

These results indicate an overwhelming preference for the specialized hybrid dictionary. *TERMIUM* was particularly popular, and the *Sylvain* was not far behind. This preference would have likely been less marked had I provided a specialized bilingual dictionary. Indeed, the hybrid dictionaries, particularly the *Sylvain*, were frequently used like bilingual dictionaries, as the definitions were not always consulted. Yet with such overwhelming results, it is nevertheless hard to deny that the subjects found the hybrid dictionary format very appealing. It is interesting to note that the hybrid dictionaries were especially popular among the subjects with the most work experience.

As has also been found in other dictionary-use studies (e.g. Tomaszczyk 1979, Baxter 1980, Hartmann 1983, Bensoussan *et al.* 1984, Atkins and Knowles 1990, Atkins and Varantola 1995), there was fairly heavy use of bilingual dictionaries in this test. It is perhaps surprising that a general bilingual dictionary such as the *Robert-Collins* would be used so frequently to translate the specialized text used in the test, particularly considering that many of the look-ups for which it was used were for specialized items. However, bilingual dictionaries often contain a surprising number of specialized items, and the subjects seemed to like the fact that bilingual dictionaries can provide a quick and easy solution, or at least the beginnings of a solution.

The results of my testing show something *not* found in many other dictionary-use studies (e.g. Baxter 1980, Hartmann 1983, Bensoussan *et al.* 1984, Atkins and Knowles 1990): frequent use of monolingual dictionaries. The two specialized English monolingual dictionaries were used almost as frequently as the general bilingual dictionary. However, the specialized French monolingual was used far less often. This discrepancy could have various explanations. First of all, because the *Bernard et Colli* contains long entries with complicated definitional metalanguage, many subjects found it difficult to use. Secondly, the *Sylvain* was often used in place of the *Bernard et Colli*, for the *Sylvain* contains

concise, easy-to-read definitions. Finally, the Anglophones seemed to avoid French definitions whenever possible (Cf. section 1.9 below). While the Francophones often used specialized English monolingual dictionaries, the Anglophones did not do the same with specialized French monolingual dictionaries. Instead, they would often try to look up the meaning of an equivalent in a specialized English monolingual, rather than seeking the meaning of the SL word in a specialized French monolingual (Cf. section 1.9 below), thereby increasing the frequency of use of specialized English monolinguals and decreasing that of specialized French monolinguals.

The French *general* monolingual dictionary was, however, used far more frequently than the English general monolinguals. This could be explained by two factors. First, the Francophones seemed to have a slightly greater need to look up general words in their own language for production purposes.⁸⁸ Secondly, in their attempt to avoid the complex definitional metalanguage of the specialized French monolinguals, the Anglophones would often consult a general French monolingual instead. Such a practice did not occur among the Francophones; they did not seem to be intimidated by the definitional metalanguage in specialized English monolinguals.

Once again, these findings must be seen in light of the subjects tested and the type of text chosen for the test. Although such results may be relatively typical for student translators doing specialized *version*, they may not be typical for other types of users, and they also may not be representative of dictionary use in the translation of more general, or more technical, texts.

⁸⁸ For example, 4 of the 6 look-ups for spelling were done by Francophones for general words, some Francophones had to look up general words to see if they were anglicisms, and some look-ups were done by Francophones to discriminate between the meanings of general words such as *parti/partie* and *épargne/économie*. Only one Anglophone looked up the spelling of a general word, and Anglophones rarely had to check the acceptability or the meaning of general English words.

1.4 Elements of dictionary entries most frequently consulted

Question:

I was interested in seeing which specific parts of dictionary entries were consulted most frequently. During the testing it had become clear that definitions and equivalents were consulted far more frequently than other parts of dictionary entries, such as examples, syntactic information, headwords (for spelling), illustrations, observations (in *TERMIUM*), etc. Consequently, these results deal with only equivalents and definitions.

Accurate interpretation of these results requires a precise understanding of how I classified equivalents and examples. Following lexicographical tradition, I have classified as examples all phrases and sentences used in monolingual dictionaries to illustrate the use of an entry word in context. However, with the exception of purely free combinations, I have classified translated phrases and other expressions in bilingual dictionaries as equivalents rather than as examples. Although the latter classification may differ somewhat from more traditional classifications, I have used it for two reasons.

First of all, whenever the test subjects consulted the dictionary for fixed phrases such as *par le biais de*, *être assorti de*, or *afférent à*, or for expressions such as *mettre en place*, their primary purpose was to find a translation for that phrase or expression. In other words, the subjects were more interested to see how to translate a phrase such as *par le biais de* than to see how *biais* can be used in context. The translations for these phrases and expressions were used in essentially the same way as equivalents of a headword are used, and should therefore be seen as a type of equivalent. This was not necessarily the case with free combinations, however. When the subjects used purely free combinations—a rare occurrence, as most of the problem items were specialized, and dictionaries do not generally illustrate the use of specialized items in free combinations—their need to see a word used in context was more prevalent. In this way, the free combination was used somewhat like an example

in a monolingual dictionary would be used, and should therefore be seen as a type of example.

The second reason for using such a classification system is that it is the one that is most relevant to electronic dictionaries. In electronic dictionaries, phrases and other relatively fixed expressions often have full entry status, and can therefore not be classified as examples. The fixed expression itself is a headword and its translation must be considered an equivalent. Free combinations, on the other hand, are usually not given full entry status. They are generally only used within an entry to illustrate the use of a headword, and are seen as examples. As my testing involved an electronic dictionary, and as this study looks at design options for electronic dictionaries in particular, it seemed logical to follow the classification system that is most relevant to electronic dictionaries.

In interpreting these results, therefore, it must be understood that an example refers to either a phrasal or sentential illustration of the use of an entry word in a monolingual dictionary, or to a translated free combination involving an entry word in a bilingual dictionary. An equivalent, on the other hand, refers to the translations of entry words and relatively fixed expressions such as phrases or idioms involving entry words, in bilingual dictionaries.

Results:

Element of Dictionary Entry	Number of Look-Ups (out of 362 look-ups where an entry was found)	Percentage
either a definition or an equivalent or both	348	96.1%
definitions only	110	30.4 %
equivalents only	171	47.2 %
both definitions and equivalents together in a single look-up	67	18.5 %

Figure 17. Elements of dictionary entries most frequently consulted.

Analysis:

These results confirm my impression that definitions and equivalents were by far the most commonly used part of dictionary entries, with equivalents being used more frequently than definitions. The number of look-ups in which definitions and equivalents were used together is also quite high considering that the only cases where such a strategy was possible involved the use of a hybrid dictionary (i.e. restricted to the *Sylvain* and TERMIUM). Had I looked at searches (i.e. all the dictionary look-ups done for a given item) rather than just individual look-ups, the results would undoubtedly have indicated even more frequent use of both a definition and an equivalent for one problem item.

1.5 Most common and most satisfactory dictionary-use strategies

Question:

I wanted to see which types of strategies were most frequently applied to various types of problems, and which of those strategies proved the most satisfactory to the subjects.⁸⁹ As the test involved a specialized text and specialized dictionaries, the answers to these questions are undoubtedly most relevant to specialized *version*. However, by examining the strategies in light of the lexical item to which they were applied, I hoped to also gain insight for other types of *version*. For example, in some cases the findings concerning general-language items could perhaps be extended to general-language *version*.

In looking at the most common strategies, I did not consider just their overall frequency; I also took note of which strategies were most commonly the *first* ones applied. I feel that a strategy that was

⁸⁹ Cf. chapter 2, section 2.1.2.1 for a listing of all the possible problem types and strategy types, and an explanation of how the satisfaction rating for each strategy was calculated.

frequently applied, but was often a last-resort strategy, is not as important as one which may have been less common, but was often the first one applied.

Once again, I present only strategies involving the use of definitions or equivalents, as these were by far the most common strategies. However, the strategies presented in this section do not necessarily exclude the use of other strategies at the same time. For example, when a result indicates that equivalents were used to resolve the need for an equivalent, it does not necessarily mean that *only* equivalents were used. Other elements of a dictionary entry (e.g. an observation (as in *TERMIUM*), a grammatical note, etc.) may have been used at the same time. In cases where an equivalent and a definition were used together, however, I have provided separate results.

Results:

All the results are presented first in charts on the following pages,⁹⁰ followed by an analysis of the results. It should be noted that in many cases, an entry was not found, and in those cases, I could not always be sure what exact strategy the subject would have applied (i.e. I could not always know for sure what part of the entry would have been used). I therefore have not incorporated these statistics directly into the charts, but they are mentioned in sidebars on each relevant frequency chart.

⁹⁰ There is no chart for the problem of a need to verify meaning only for a borderline item because this problem never occurred.

**General-Language Item, Comprehension Problem Only
(12 Look-Ups)**

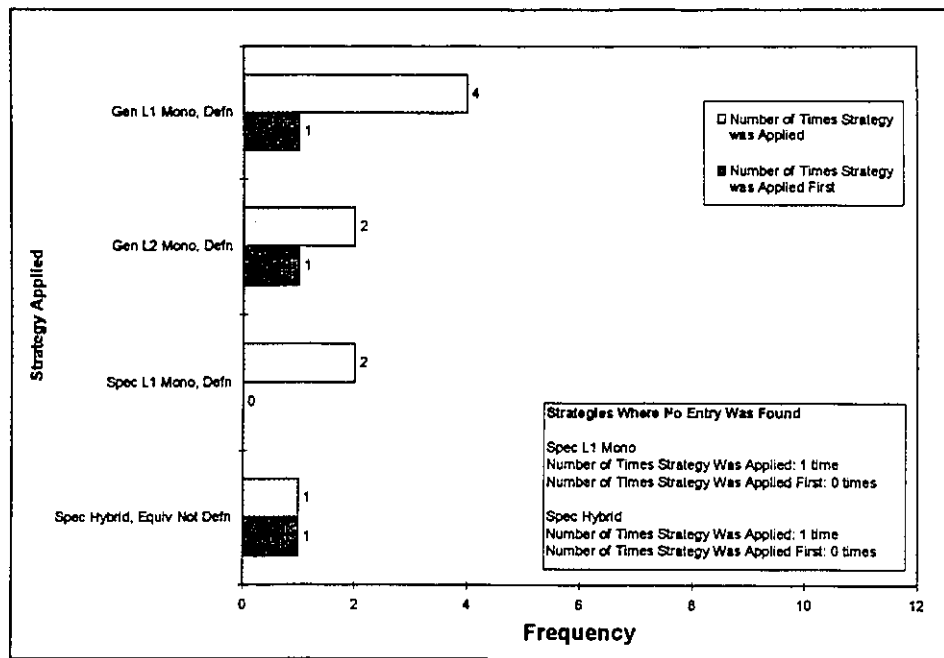


Figure 18. Most common strategies for comprehension problems with general-language items.

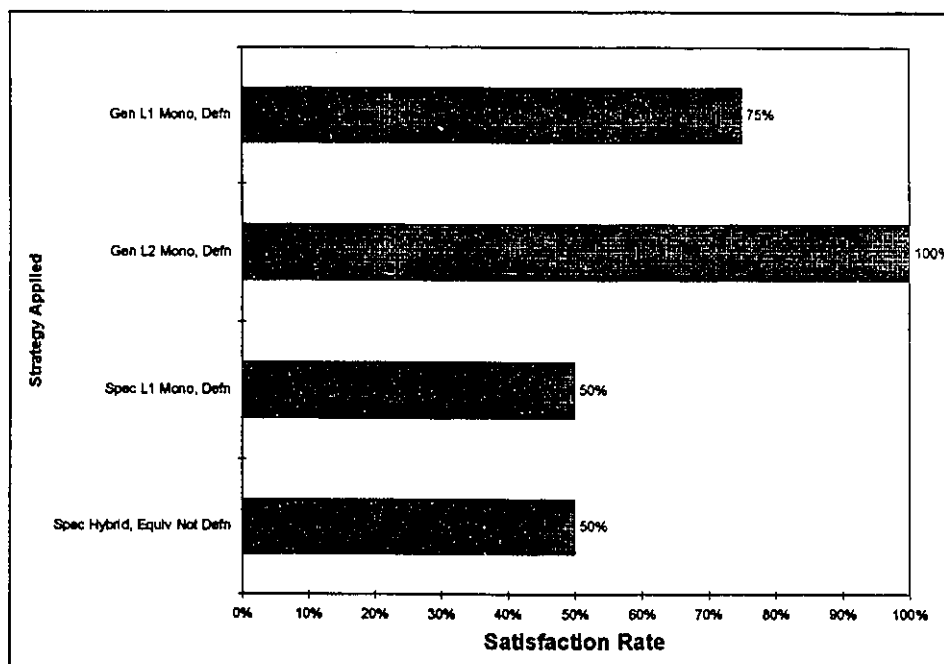


Figure 19. Most satisfactory strategies for comprehension problems with general-language items.

General-Language Item, Need For Equivalent Only (28 Look-Ups)

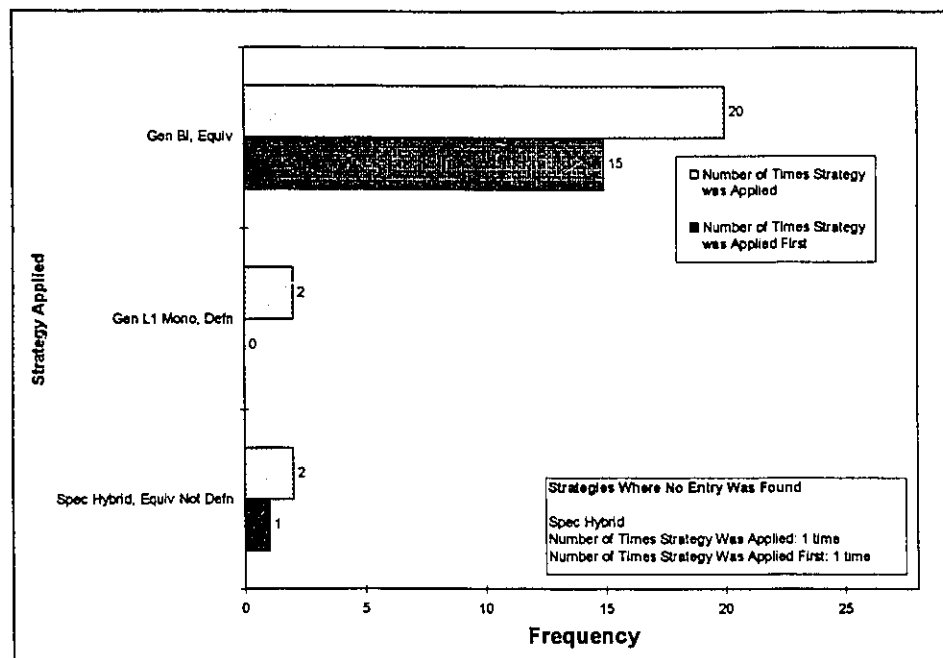


Figure 20. Most common strategies for the need for equivalents for general-language items.

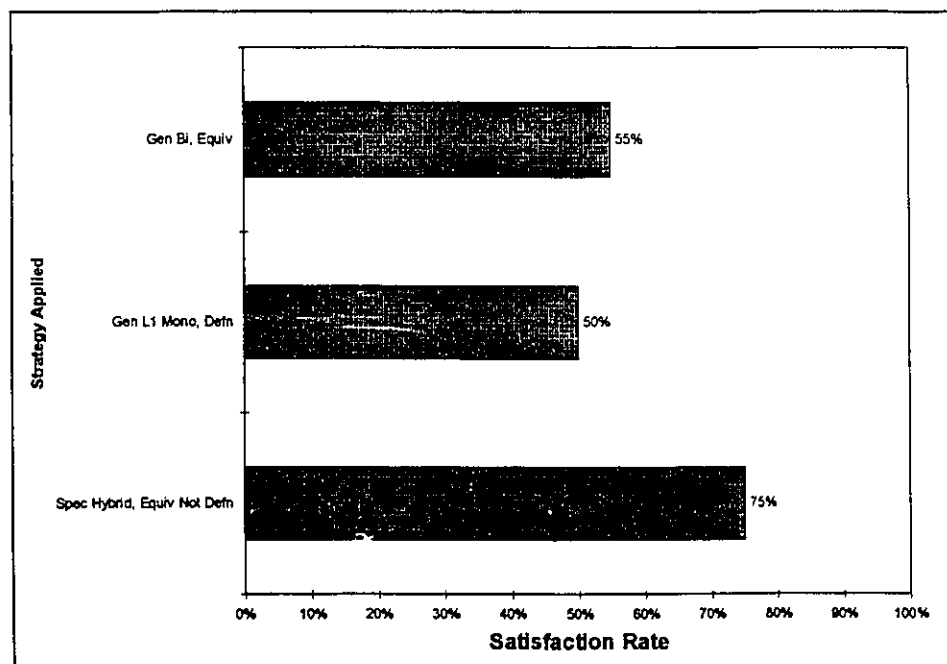


Figure 21. Most satisfactory strategies for the need for equivalents for general-language items.

**General-Language Item, Need to Verify Meaning Only
(2 Look-Ups)**

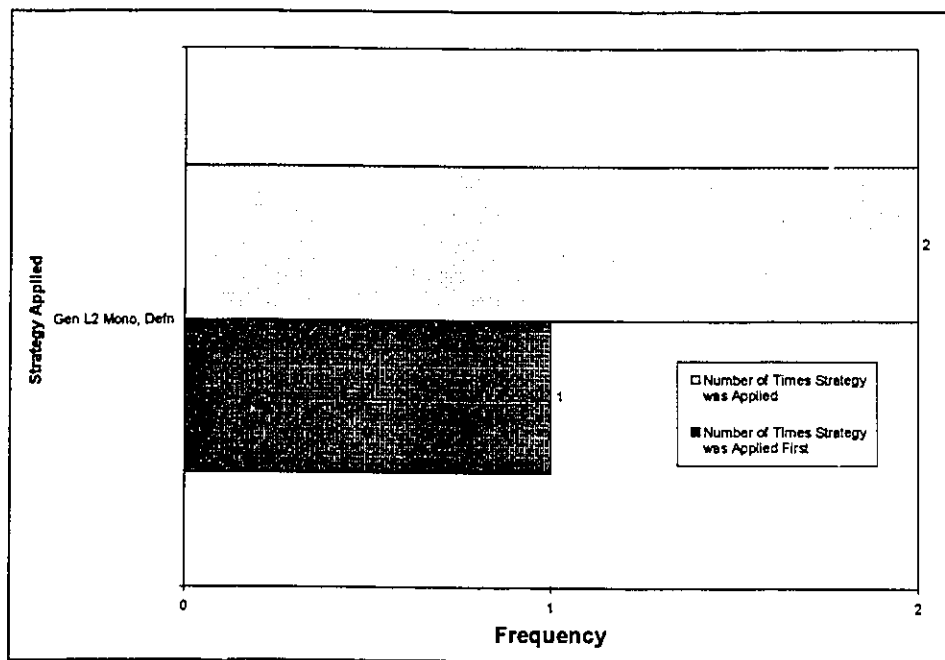


Figure 22. Most common strategies for the need to verify meaning of general-language items.

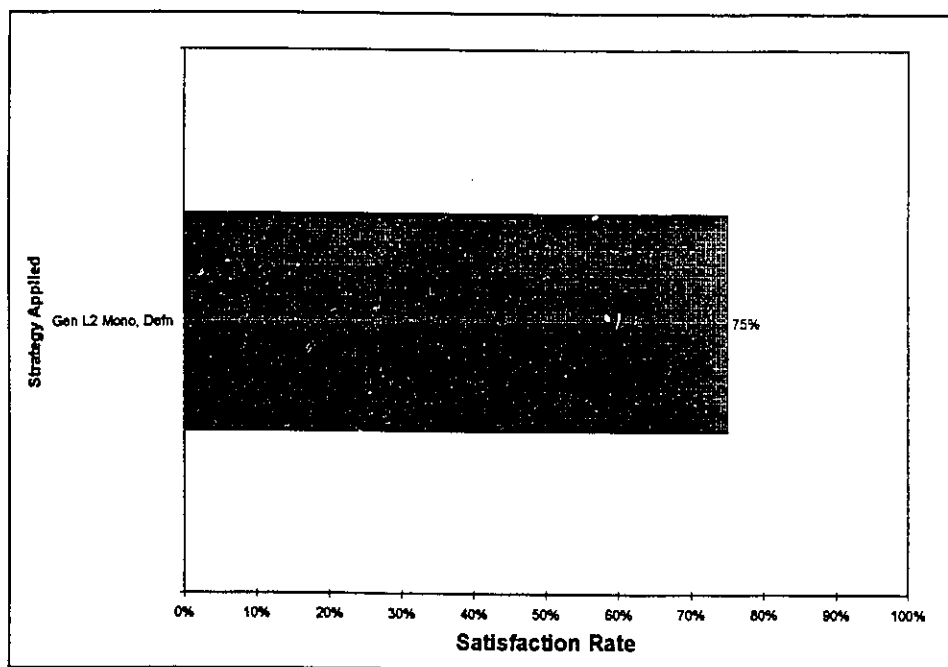


Figure 23. Most satisfactory strategies for the need to verify meaning of general-language items.

General-Language Item, Both Comprehension Problem and Need For Equivalent (19 Look-Ups)

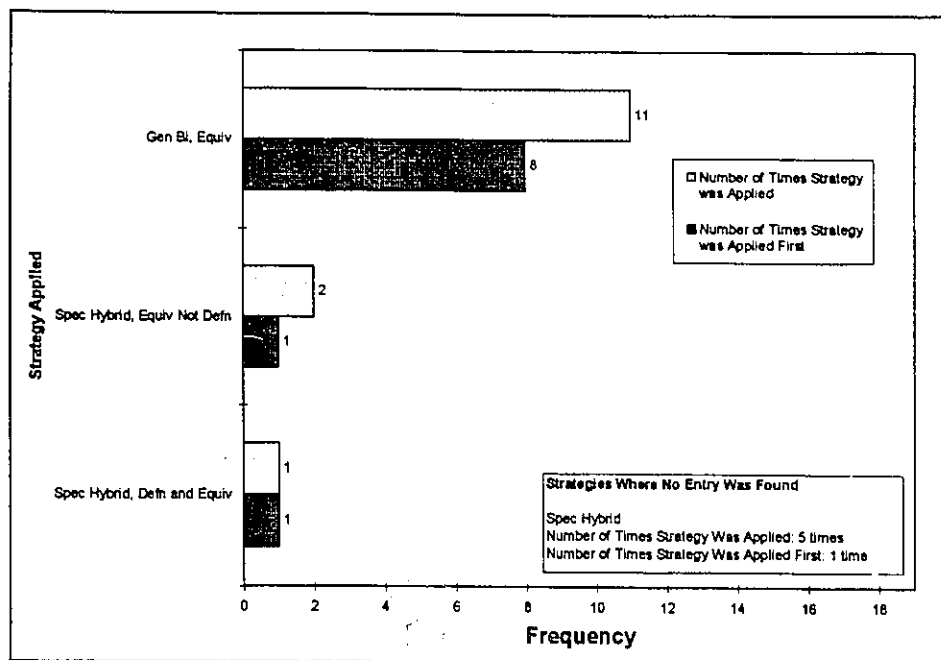


Figure 24. Most common strategies for comprehension problems and the need for equivalents for general-language items.

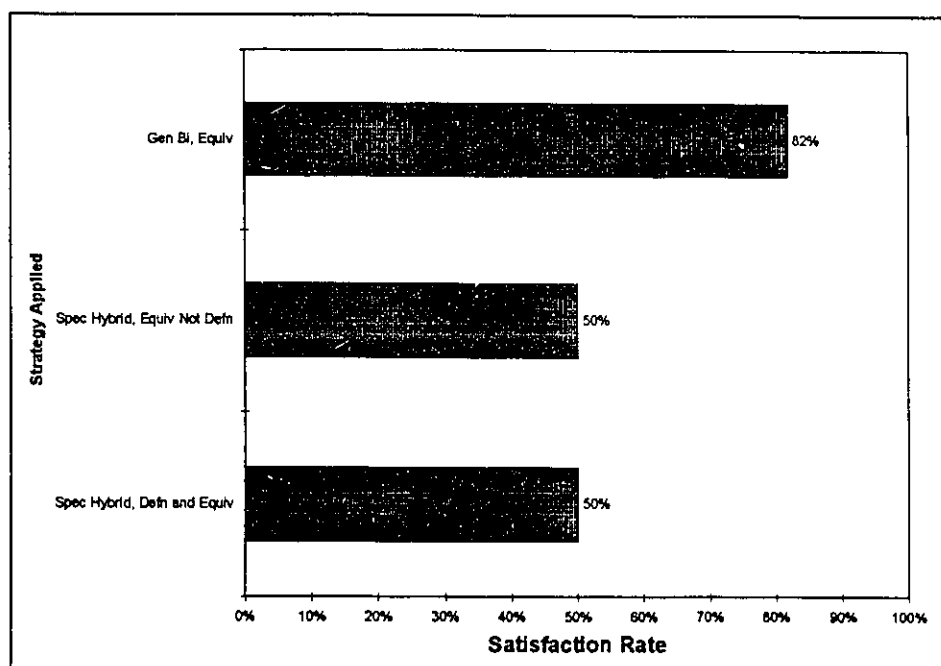


Figure 25. Most satisfactory strategies for comprehension problems and the need for equivalents for general-language items.

**General-Language Item, Both Need to Verify Meaning and Need For Equivalent
(6 Look-Ups)**

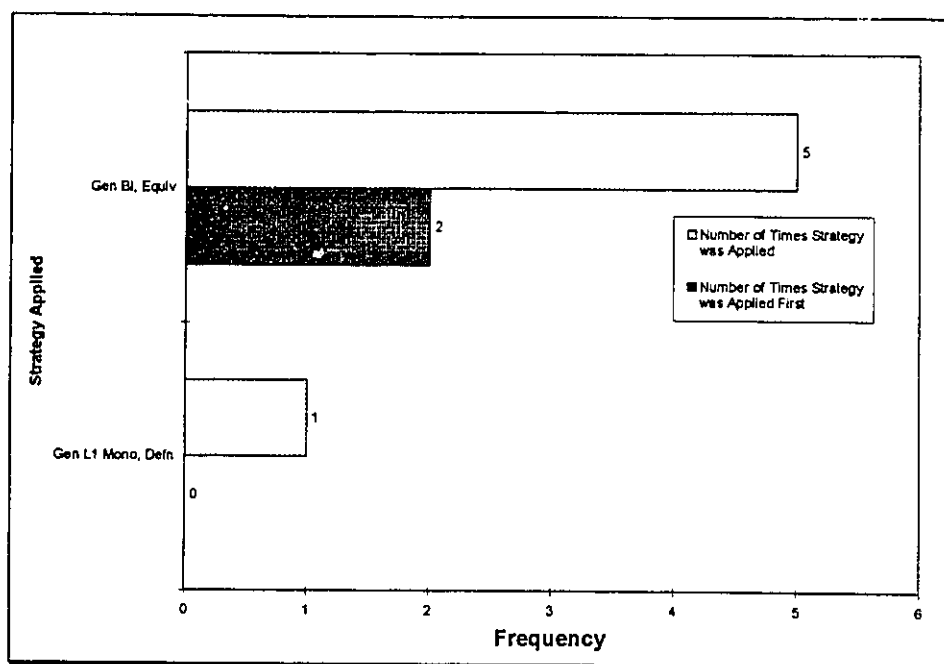


Figure 26. Most common strategies for the need to verify meaning and the need for equivalents for general-language items.

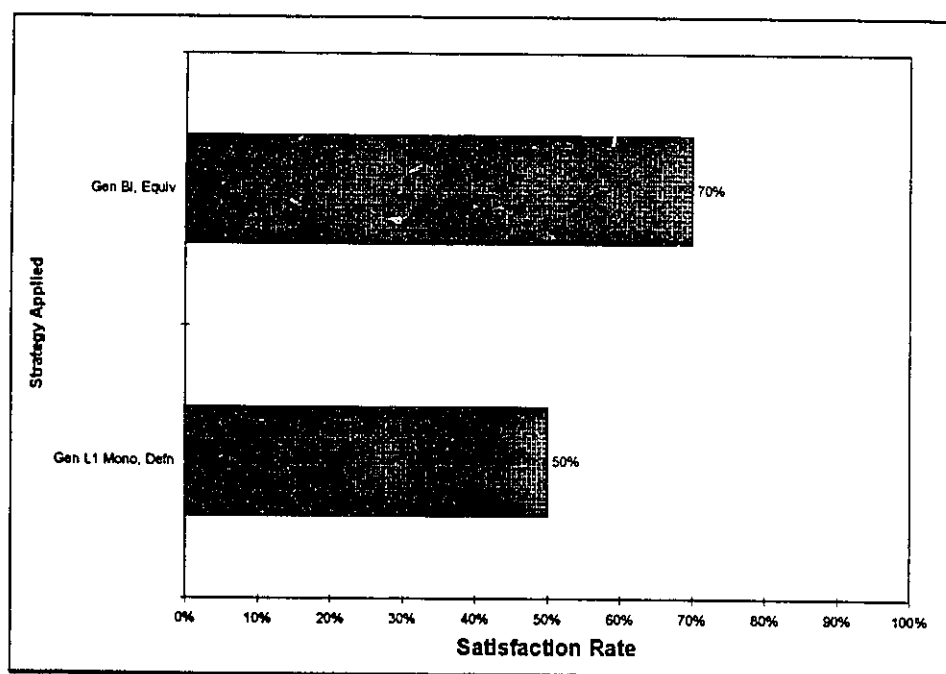


Figure 27. Most satisfactory strategies for the need to verify meaning and the need for equivalents for general-language items.

Specialized Item, Comprehension Problem Only (66 Look-Ups)

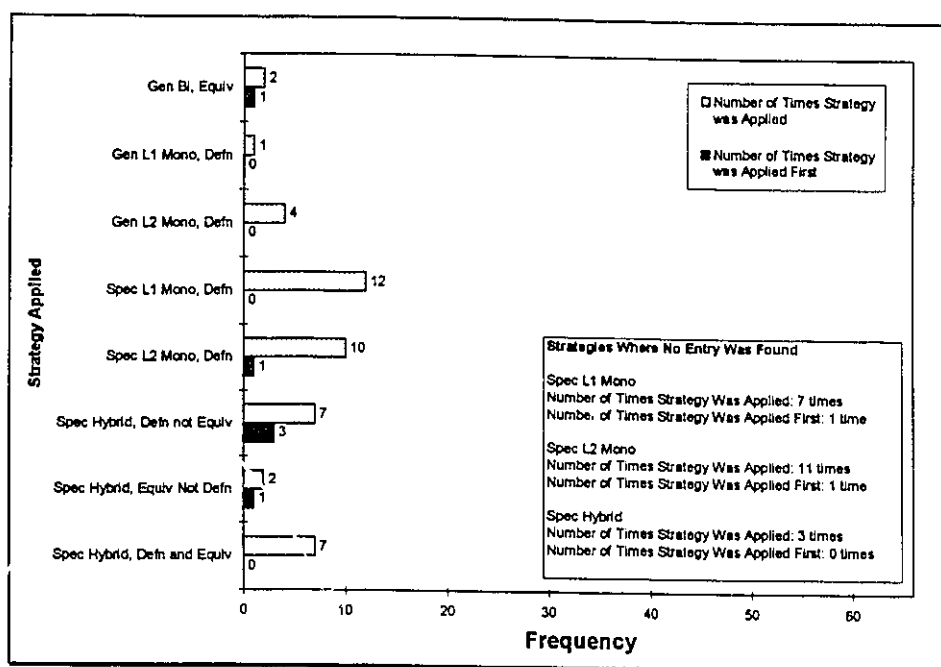


Figure 28. Most common strategies for comprehension problems with specialized items.

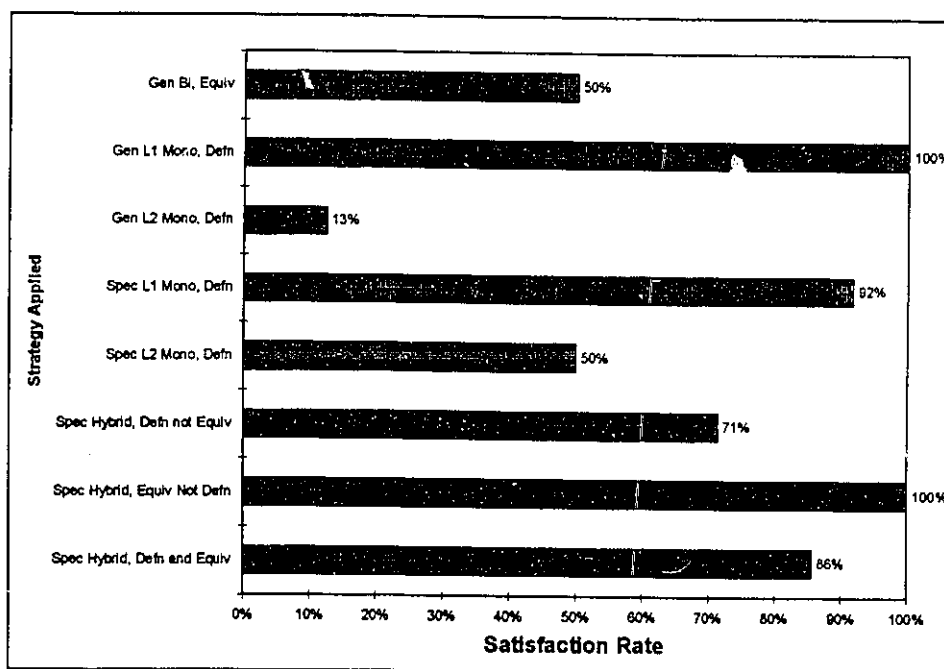


Figure 29. Most satisfactory strategies for comprehension problems with specialized items.

Specialized Item, Need for Equivalent Only (123 Look-Ups)

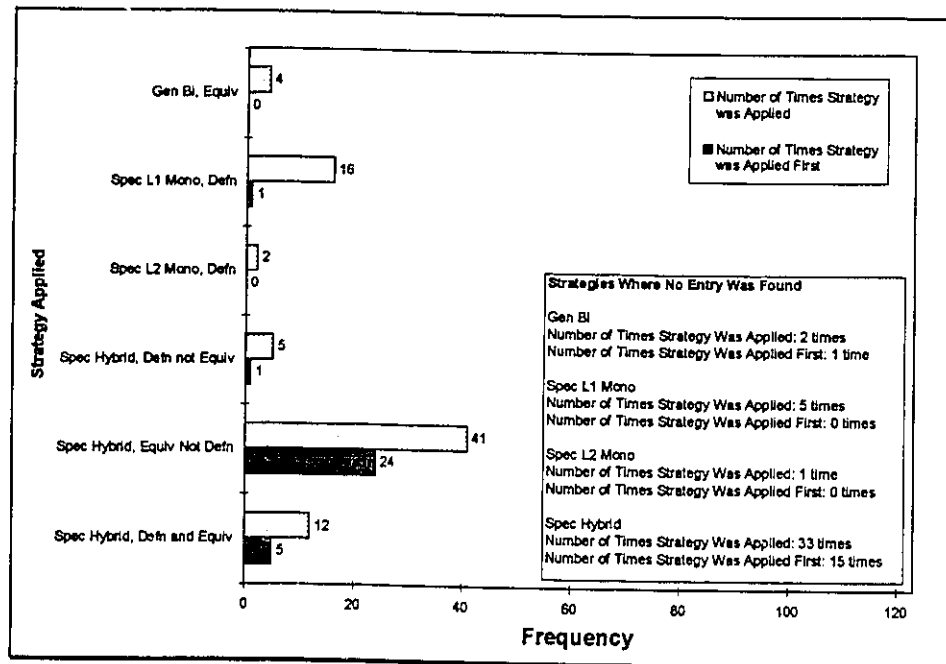


Figure 30. Most common strategies for the need for equivalents for specialized items.

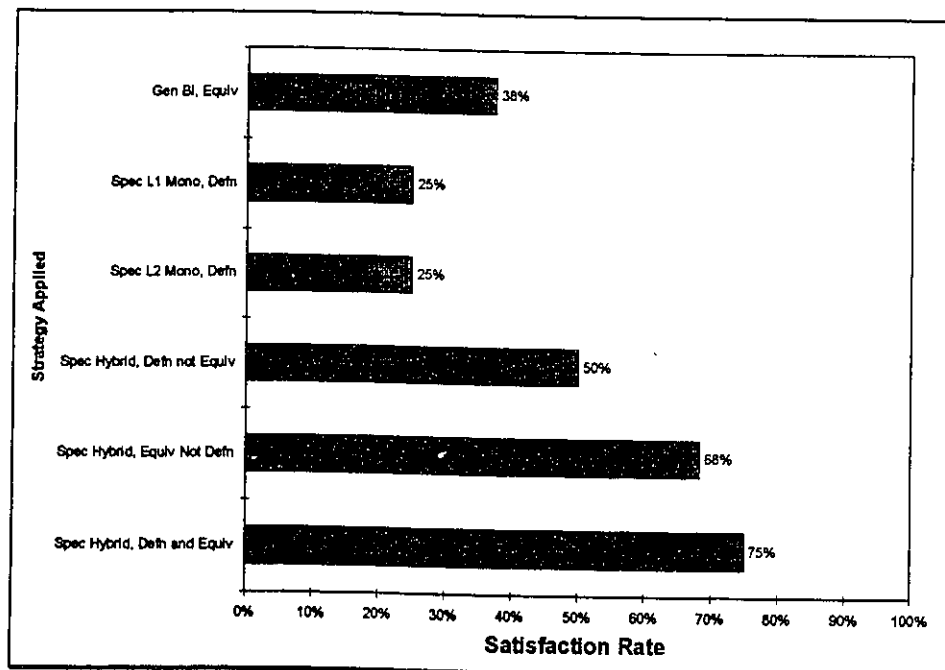


Figure 31. Most satisfactory strategies for the need for equivalents for specialized items.

Specialized Item, Need to Verify Meaning Only (4 Look-Ups)

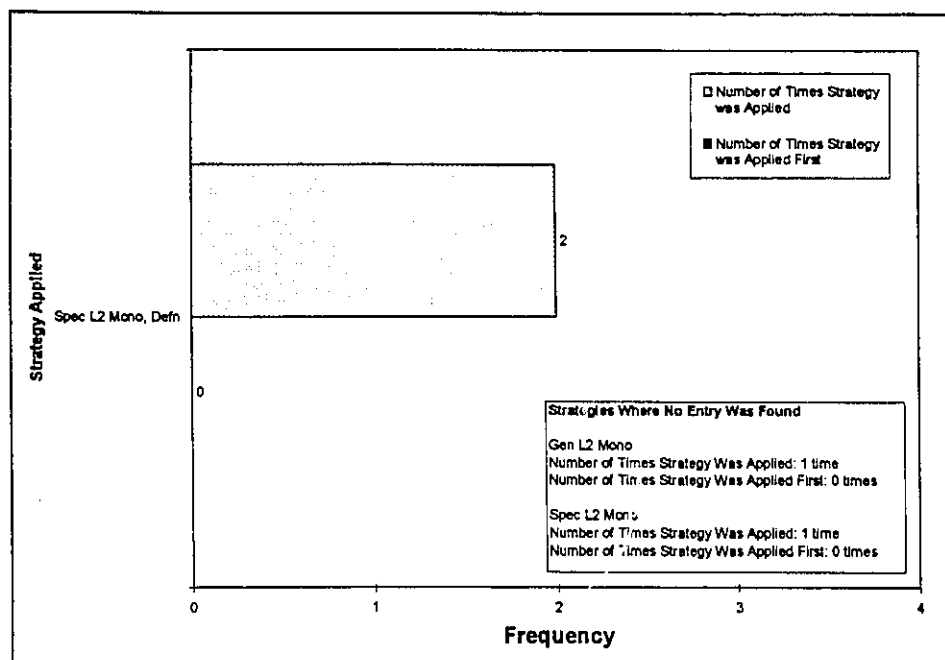


Figure 32. Most common strategies for the need to verify meaning of specialized items.

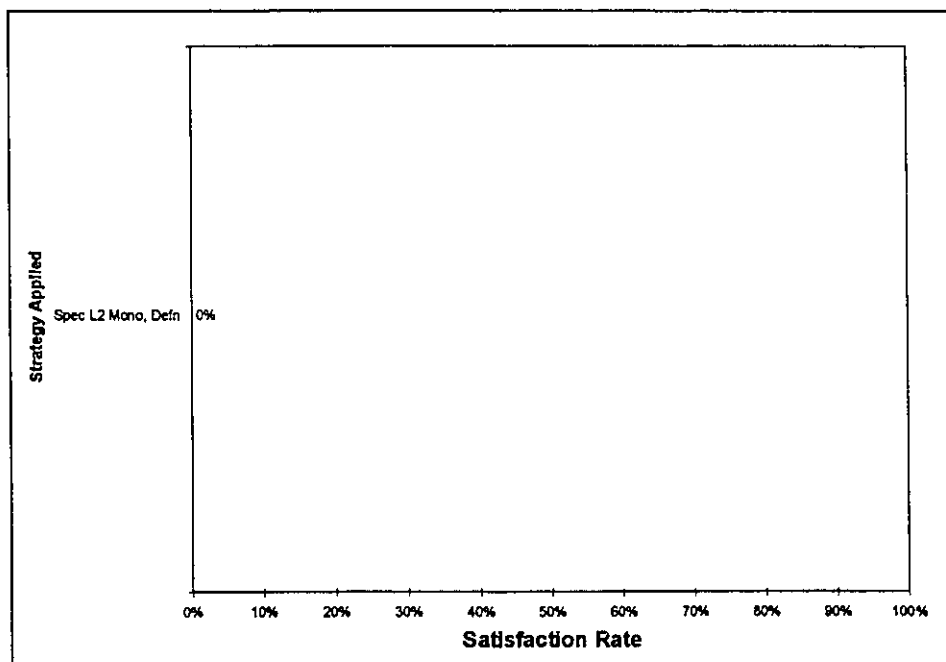


Figure 33. Most satisfactory strategies for the need to verify meaning of specialized items.

Specialized Item, Both Comprehension Problem and Need For Equivalent (144 Look-Ups)

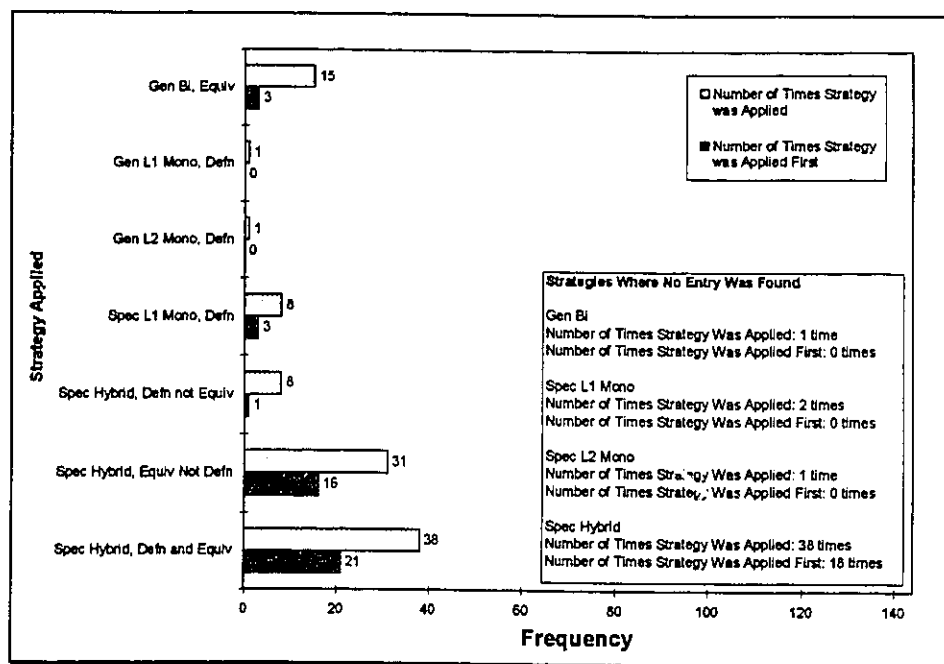


Figure 34. Most common strategies for comprehension problems and the need for equivalents for specialized items.

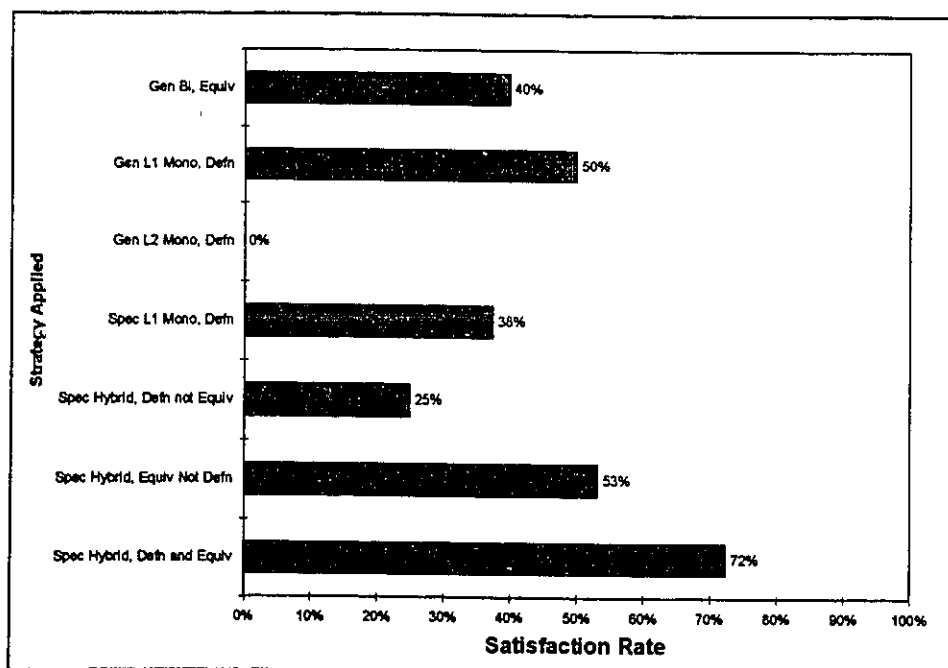


Figure 35. Most satisfactory strategies for comprehension problems and the need for equivalents for specialized items.

**Specialized Item, Both Need to Verify Meaning and Need For Equivalent
(29 Look-Ups)**

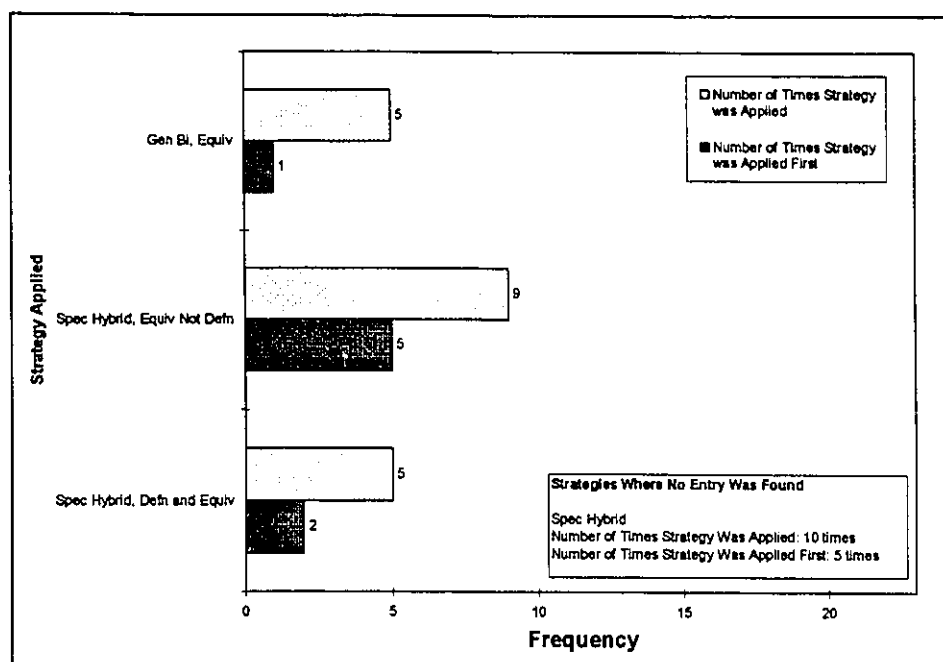


Figure 36. Most common strategies for the need to verify meaning and the need for equivalents for specialized items.

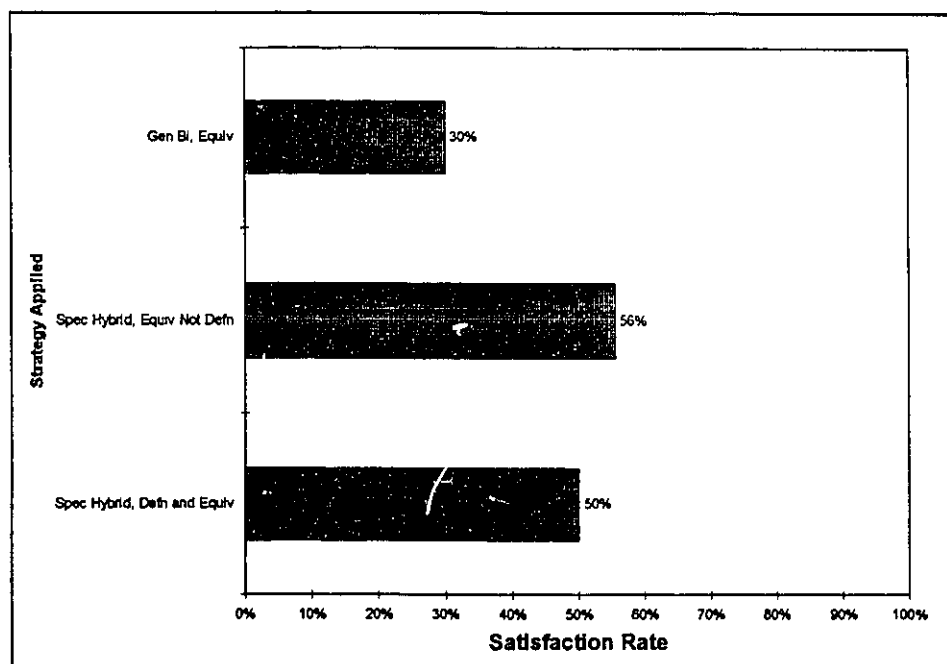


Figure 37. Most satisfactory strategies for the need to verify meaning and the need for equivalents for specialized items.

**Borderline Item, Comprehension Problem Only
(9 Look-Ups)**

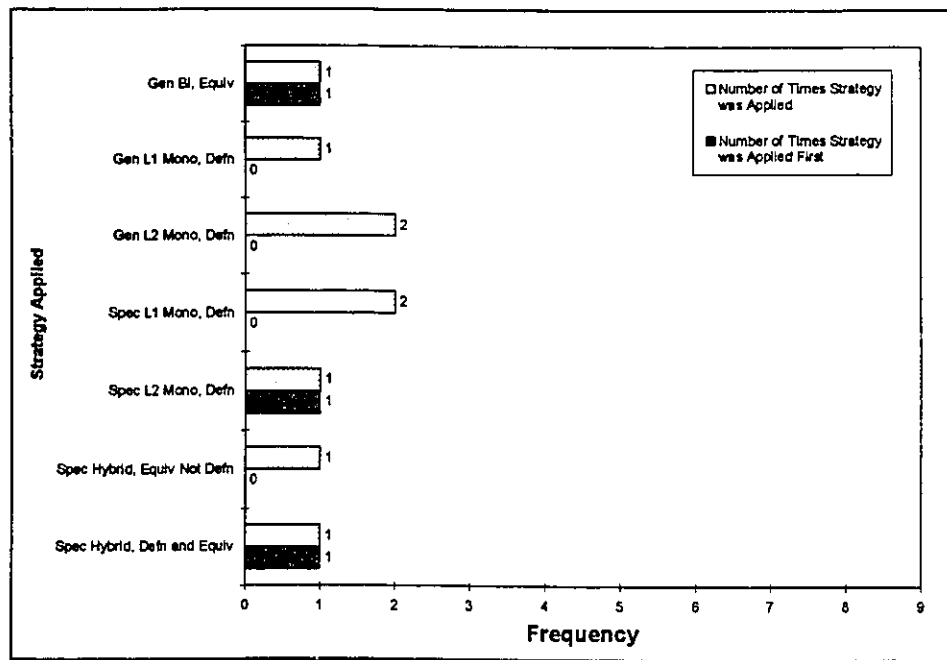


Figure 38. Most common strategies for comprehension problems with borderline items.

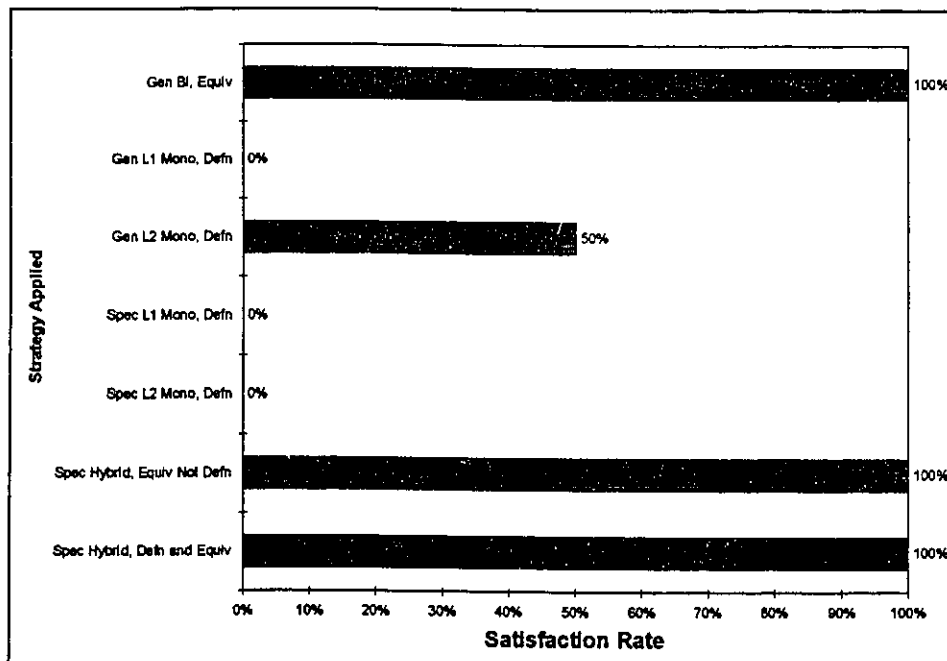


Figure 39. Most satisfactory strategies for comprehension problems with borderline items.

Borderline Item, Need for Equivalent Only (9 Look-Ups)

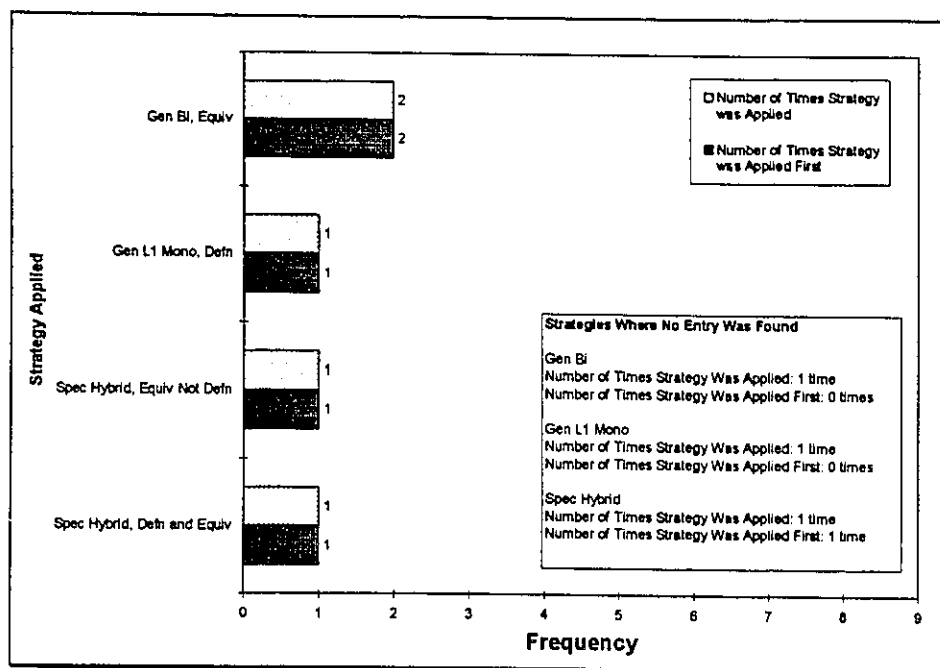


Figure 40. Most common strategies for the need for equivalents for borderline items.

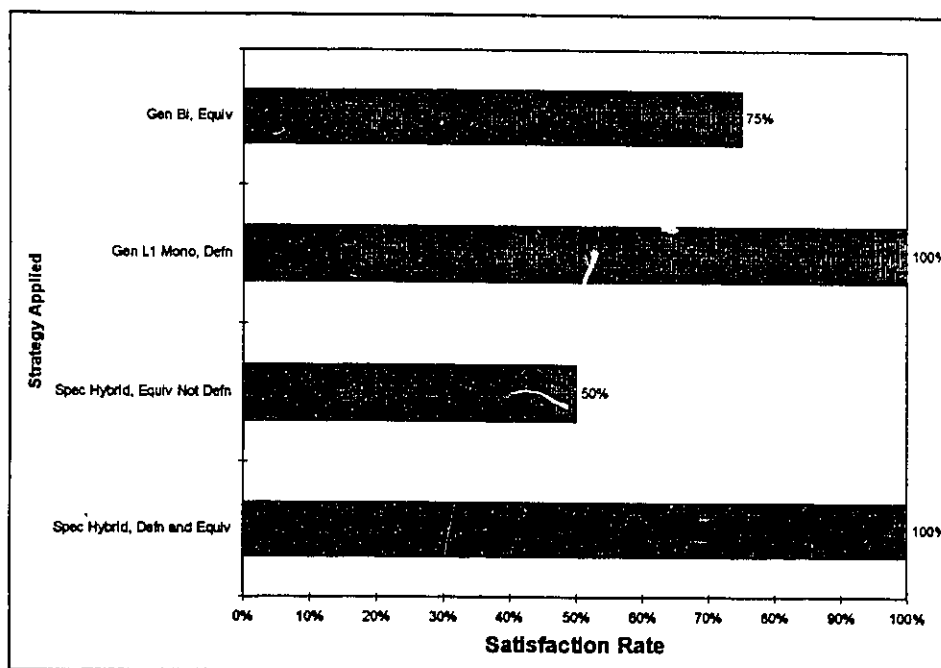


Figure 41. Most satisfactory strategies for the need for equivalents for borderline items.

Borderline Item, Both Comprehension Problem and Need for Equivalent (9 Look-Ups)

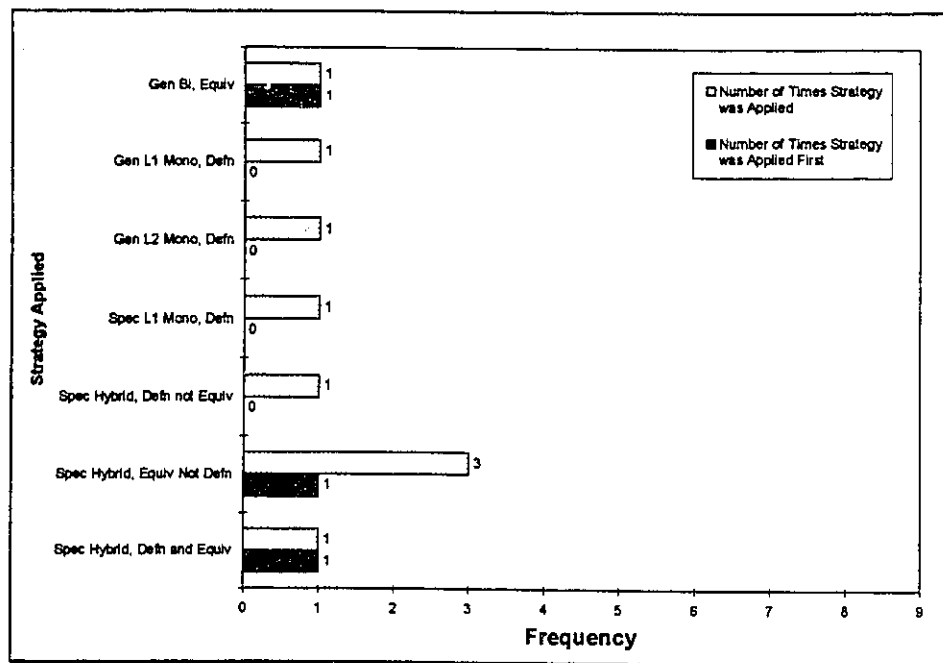


Figure 42. Most common strategies for comprehension problems and the need for equivalents for borderline items.

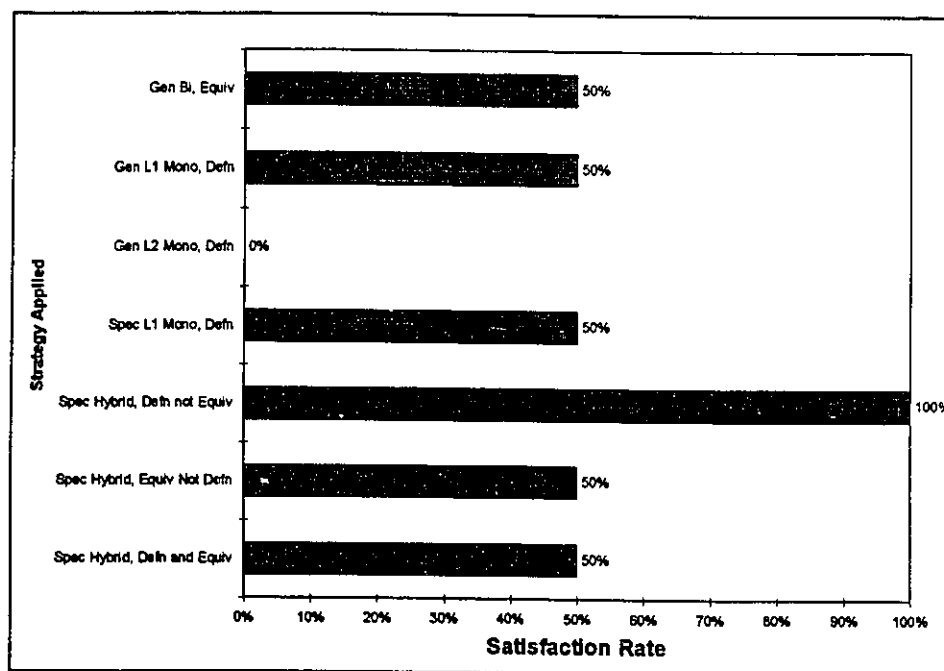


Figure 43. Most satisfactory strategies for comprehension problems and the need for equivalents for borderline items.

**Borderline Item, Both Need to Verify Meaning and Need for Equivalent
(1 Look-Up)**

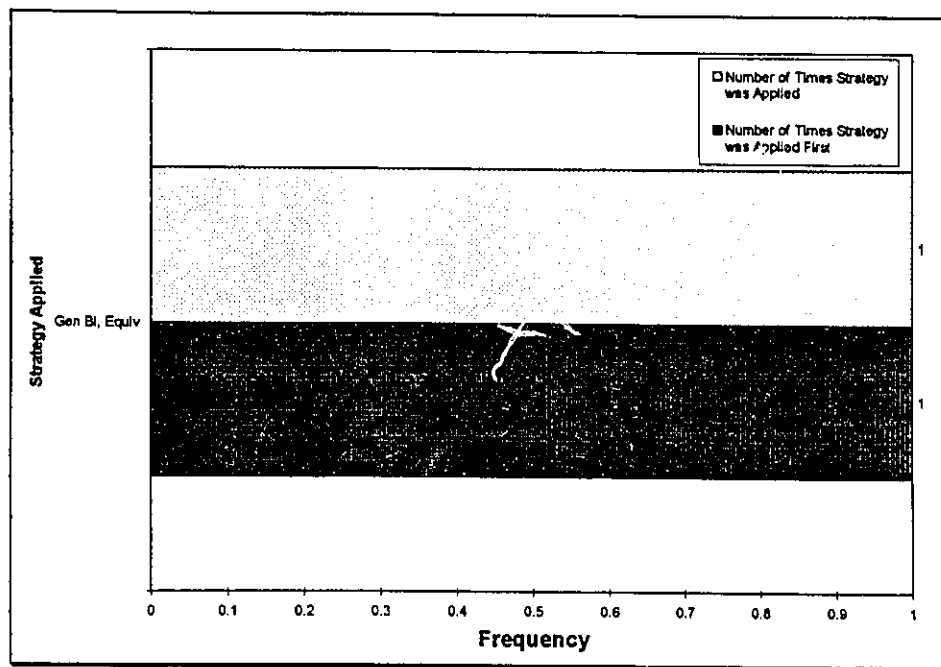


Figure 44. Most common strategies for the need to verify meaning and the need for equivalents for borderline items.

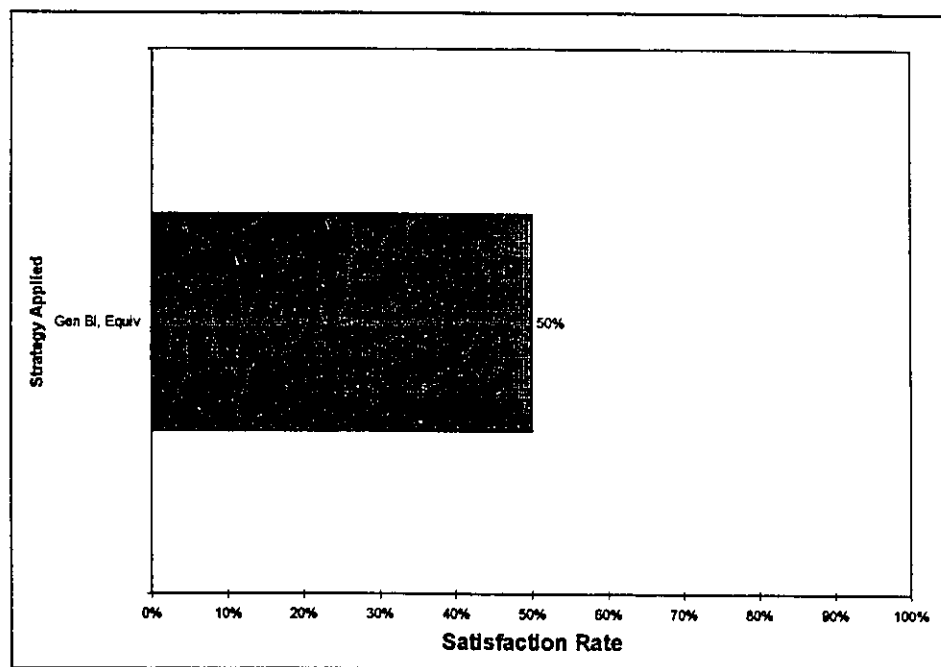


Figure 45. Most satisfactory strategies for the need to verify meaning and the need for equivalents for borderline items.

Analysis:

These results can be read in numerous ways, but I have focussed primarily on the types of strategies (i.e. what kind of dictionary and what part of the entry was used) that were most commonly applied to specific problems, and how satisfactory those strategies were.

Most commonly applied strategies:

Dictionary types used:

The subjects did not spend much time consulting dictionaries that were not very likely to contain the items they sought. They generally seemed capable of distinguishing whether an item belongs to general or specialized language, and they usually turned to what would normally be the most appropriate dictionary for the item in question. When dealing with general-language items, the subjects turned primarily to general-language dictionaries, but it was not uncommon that they also consulted specialized dictionaries (Cf. Figures 18, 20, 22, 24 and 26). For all types of problems with specialized items, the subjects most commonly used specialized dictionaries (Cf. Figures 28, 30, 32, 34 and 36). However, a surprisingly frequent strategy to resolve problems of both comprehension and the need for equivalents for specialized items was the use of equivalents in general bilingual dictionaries (Cf. Figure 34). With borderline items, both general and specialized dictionaries were used almost equally for all types of problems (Cf. Figures 38, 40, 42 and 44).

Overall, the subjects turned more frequently to L1 dictionaries than L2 dictionaries, especially the Anglophones, and particularly when the problem involved a specialized item.

Part of entry used:

When the subjects had only a comprehension problem, they generally turned to definitions. With general-language items, this was almost always the case (Cf. Figure 18). With borderline and

specialized items, they sometimes used a combination of definitions and equivalents, or even equivalents alone, to resolve a comprehension problem (Cf. Figures 28 and 38).

When the subjects had only a need for an equivalent, by far the most frequent strategy they applied was the use of equivalents (Cf. Figures 20, 30, and 40). However, in resolving the need for equivalents for specialized items, the subjects also often turned to just definitions or a combination of definitions and equivalents (Cf. Figure 30). Overall, there seemed to be slightly more use of definitions when dealing with specialized items than with general-language items. This behaviour could be explained by the fact that equivalents were not always given for specialized items (i.e. the entry was often not found in a dictionary containing equivalents), and the subjects therefore had to resort to less direct strategies, such as the use of definitions. Or perhaps the subjects were more hesitant to simply accept an equivalent at face value if they were unfamiliar with the meaning of the equivalent itself (a situation that occurs far more frequently with specialized items than with general-language ones).

When the subjects wanted only to verify the meaning of an item, they tended to use definitions for all types of items (Cf. Figures 22 and 32). However, meaning verification did not occur frequently enough to be able to identify any strategy as a particularly common one.

When the subjects had both comprehension problems and a need for an equivalent, they turned frequently to equivalents (Cf. Figures 24, 34 and 42). This can perhaps be explained by the fact that translators know they must provide an equivalent eventually, and this need therefore seems the most urgent. With an equivalent, they may succeed in translating accurately without truly understanding the item, but without an equivalent, they simply cannot translate.

On the other hand, this strategy may be common because it can be the most efficient for this type of problem, particularly when dealing with general-language items. As an L1 equivalent for an L2 general-language item is likely to be a lexical item the subjects will be familiar with, it may give the

subjects a good idea of the meaning of the L2 item. The use of equivalents alone can therefore be a very efficient (although perhaps a bit dangerous⁹¹) solution to both of their problems. Furthermore, because the option of definitions and equivalents together in a single dictionary was not available for general-language items (i.e. there was no general-language hybrid dictionary in the testing), the subjects had to at least begin with either an equivalent or a definition. As an equivalent has greater potential than a definition to resolve both problems (i.e. the comprehension task of determining the meaning from a familiar equivalent is easier than the production task of coming up with an equivalent on the basis of a definition), the equivalent may have simply been the more appealing of the two options.

However, the efficiency of using equivalents to resolve both a comprehension problem and a need for an equivalent may be lost with specialized and borderline items. The equivalents for such items would often be unfamiliar and would therefore provide no clues to the meaning of the L2 item. It could be for this reason that, for specialized items, a combination of equivalents and definitions was used slightly more frequently than equivalents alone (Cf. Figure 34).

When the subjects had both a need to verify meaning and the need for an equivalent, they used equivalents most commonly (Cf. Figures 26, 36 and 44). However, this strategy was less predominant with specialized items, where a combination of definitions and equivalents was often consulted (Cf. Figure 36). This can perhaps be explained once again by the greater potential of equivalents to resolve the two-sided problem of meaning (whether it be a true comprehension problem or a meaning verification problem) combined with a need for equivalents, for general-language items, as compared with their lesser potential to solve these problems with specialized items. The fact that a specialized hybrid dictionary was available in the testing may also explain the frequent use of both equivalents and

⁹¹ Cf. chapter 1, section 2.2.2.2 for a discussion of why the use of an equivalent alone can be a dangerous strategy for such a problem.

definitions for specialized items.

Most satisfactory strategies:

The most commonly applied strategies generally also seemed to be the most satisfactory ones. With comprehension problems, the use of definitions was the most common, and usually the most satisfactory, strategy (Cf. Figures 19, 29 and 39). However, in trying to comprehend specialized items, the subjects also derived a high level of satisfaction from a combination of equivalents and definitions in specialized hybrid dictionaries, and, perhaps more surprisingly, from using the equivalents alone in these dictionaries (Cf. Figure 29), although the latter strategy was rarely applied (Cf. Figure 28). The few times that equivalents were used for comprehension problems with borderline items, either alone or in conjunction with definitions, they actually proved more satisfactory than definitions alone (Cf. Figure 39).

As mentioned above, the need for equivalents most frequently caused the subjects to turn to equivalents alone. This strategy was the most satisfactory with general-language items (Cf. Figure 21), but in the case of specialized items and borderline items, a combination of definitions and equivalents proved slightly more satisfactory (Cf. Figures 31 and 41). The use of definitions alone to resolve such a problem was generally far less effective, particularly with specialized items (Cf. Figures 21 and 31).

The need to just verify meaning did not occur frequently enough to say which strategy is the most satisfactory.

When the subjects had both a comprehension problem and the need for an equivalent for a borderline item, no strategy was particularly common or satisfactory (Cf. Figure 43). With general-language items, the use of equivalents was the most common and most satisfactory strategy for this type of problem (Cf. Figure 25), but with specialized items, the combination of definitions and

equivalents was a more common and more satisfactory strategy (Cf. Figure 35). Such results support the argument that a general-language L1 equivalent, which is usually familiar to the user, frequently is sufficient to at least give clues to the meaning of an L2 item, but for a specialized item an equivalent is often not enough to solve both the need for an equivalent and a comprehension problem, because the equivalent (and frequently the concept associated with it) is often unfamiliar.

For all types of items, the need to verify meaning and to produce an equivalent was most frequently and most satisfactorily resolved by the use of an equivalent (Cf. Figures 27, 37 and 45). It is interesting to note here that although a combination of definitions and equivalents was frequently consulted for this type of problem with specialized items, this strategy generally did not prove more satisfactory than an equivalent alone (Cf. Figure 37).

1.6 Most frequent causes of dissatisfaction

Question:

I wanted to identify the major causes of dissatisfaction in dictionary use among my subjects. I wanted to know not only what prevented them from finding the information they wanted, but also what caused them to be only partially satisfied with the information they did find.

Results:

Of the 203 look-ups in which the subjects could not find the information they wanted, the following were the major reasons:

the entry was missing: 179 look-ups → 88.2%

the definition was insufficient (i.e. there was no definition for the sense they sought): 4 look-ups → 1.9%

they could not understand the system of the dictionary: 2 look-ups → .9%

they could not understand the definitional metalanguage: 2 look-ups → .9%

Of the 148 look-ups in which the subjects were only partially satisfied with the information they found, the following were the major reasons:

there was no entry that matched the desired term exactly (i.e. the information they found was for a similar and/or related term): 43 look-ups → 29.1%

they wanted to verify in other sources the equivalent they had found: 22 look-ups → 14.9%

they needed meaning discrimination between various proposed equivalents: 19 look-ups → 12.8%

they didn't like the equivalents proposed in the dictionary: 19 look-ups → 12.8%

the solution they had come up with themselves did not turn out to be correct: 9 look-ups → 6.1%

they weren't sure whether the information found was relevant to their needs: 8 look-ups → 5.4%

they needed stylistic discrimination between various proposed equivalents: 5 look-ups → 3.4%

they weren't sure whether the information found (and the dictionary in which it was found) could be trusted: 4 look-ups → 2.7%

the entry contained an overwhelming amount of information, and they did not want to sift through all of it: 4 look-ups → 2.7%

they wanted an example in addition to what they had found: 3 look-ups → 2%

they wanted a definition in addition to what they had found: 3 look-ups → 2%

Analysis:

These results indicate that the major cause of dissatisfaction was incompleteness in the dictionary macrostructures. The subjects would have liked dictionaries with many more entries. One subject explicitly stated that even though he knows TERMIUM has many flaws, he far prefers it to other dictionaries simply because it is so large.

One of the main complaints about the macrostructure was the lack of phraseological information. For example, many of the subjects were frustrated by the fact that they could not find

information on possible equivalents for *3-month borrowing/emprunts à trois mois*.

Incomplete dictionary macrostructure is undoubtedly a common problem in *version*, particularly in specialized *version*, as was done in this testing. However, it must be noted that, with just a few exceptions, every term in the text to be translated could actually be found somewhere in the dictionaries provided (although not always as an entry term or not always in the exact form used in the text⁹²). Therefore, it can be deduced that a large part of the problem was *finding* the terms in the dictionaries. This could be attributed to a lack of dictionary-use skills on the part of the translators, as well as ineffective presentation of information in the dictionaries.

There is also obviously a problem with incompleteness in the dictionaries on the microstructural level. Even when there was an entry for the desired term, definitions were not always given for the desired sense.⁹³ There was often a lack of meaning discrimination and stylistic discrimination for equivalents proposed in the bilingual dictionaries, and the equivalents suggested were often not sufficient. Frequently the subjects would have liked more than an equivalent (i.e. a definition or an example). Such problems were usually attributable to the dictionary rather than to the user.

Finally, a major cause of incomplete satisfaction that occurred far more commonly among my subjects than has been found to occur among other dictionary users (see section 1.7 below) was a persistent desire to use more than one source. I suspect translators in general are more exhaustive in their dictionary use than some other types of users, but the subjects in my study were *very* thorough, and constantly wanted to verify information in several sources. This can be attributed at least in part to the nature of the testing and to the fact that they were students rather than professional translators.

⁹² For example, *notional amount* could only be found in TERMIUM within the definition for *basis swap*, or under the variant form *notional principal*, and the concept of *titre de dette* could only be found under the headword *titre d'emprunt*.

⁹³ For example, the *Bernard et Colli* gave an entry for *swap*, but only in the sense of a *currency swap* (i.e. *swap* in the sense of *interest-rate swap* was not covered).

1.7 Amount of information consulted

Question:

It became very clear to me in doing my testing that the subjects differed dramatically in one respect from the subjects of some other dictionary-use tests: they used dictionaries exhaustively. While the results of some other tests (e.g. Tono 1984, Miller and Gildea 1985) show that dictionary users often settle for the first answer they find, which may be no more than the first equivalent of a long list of equivalents or the first sense given for a polysemous item, my subjects continually tried to find more satisfactory solutions and to verify answers they had already found. I wanted to determine just how much information they would consult for a given item and how often they would double-check equivalents or other types of information they had found.

Results:

The average number of look-ups done for individual items was 2.46 look-ups per item.

The greatest number of look-ups done for an individual item by one subject was 9 look-ups for the items *income stream*, *coût de la dette*, *emprunt à trois mois*, *emprunt à taux fixe*.

The average number of look-ups done by individual subjects in one testing session (1 hour 15 minutes) was 33.1 look-ups (or, if you eliminate the highest and the lowest number of look-ups, 31.77 look-ups).

The greatest number of look-ups done by a single subject in one testing session was 62 look-ups.

The least number of look-ups done by a single subject in one testing session was 21 look-ups.

The subjects verified equivalents (i.e. they checked to make sure they understood the equivalent and that it meant the same thing as the L1 item, or that the proposed equivalent was indeed a term used in this type of text) 46 times.

There were only 4 look-ups in which the subjects obviously did not want to sift through all the information presented in an entry (i.e. they made some statement to this effect).

Analysis:

These results clearly confirm my impression that the subjects used dictionaries exhaustively. Unlike other dictionary users who stop at the first piece of information they find, my subjects continued searching until they found the most satisfactory answer they could. In many cases, they seemed to want to continue searching even further until they found a more satisfactory solution, but had to stop because they were limited to using the dictionaries provided for the test.

In general, the subjects seemed to want much more information than the average dictionary user would probably want. They very rarely found entries to be excessively long. However, as mentioned above, their behaviour can be attributed somewhat to the fact that they were student translators with only an artificial time limit. Professional translators might be less thorough. They might also be more focussed, unlike some of my subjects who went too far in their research, reading entries for completely unrelated fields, looking up very general items in specialized dictionaries or vice versa, and even looking up the same entry in the same dictionary several times.

1.8 How information is accessed

Question:

I was interested in knowing how often the subjects took advantage of the ability to scan a list of lexical items ordered alphabetically. With paper-based dictionaries and with some electronic dictionaries or term banks, users can scan lists of items that are similar in form to the item sought. For example, a look-up done in *TERMIUM* for *fixed-rate market*, either by looking up the actual term or just searching on *fixed-rate*, renders a list of items beginning with *fixed-rate* (such as *fixed-rate loan*). The entries for such similar items could help with the phrasing for *fixed-rate market*, which does not have an entry of its own.

Results:

The subjects scanned through the alphabetical list to find terms similar to the desired term 85 times.

Analysis:

This result indicates that the subjects did frequently take advantage of the ability to scan alphabetical lists and look at items similar to the one being sought. Often such search techniques were the key to finding satisfactory solutions to their problems. For example, there was no entry for *notional amount* in TERMIUM, but by scanning the index, a few subjects found an entry for *notional principal*, which is actually just a variant label for the desired concept, and which therefore provided them with a solution. The subjects who did not scan simply did not find a relevant entry.

Question:

I wanted to know how often other alternative methods of accessing information were used by the subjects. For example, I wanted to know how frequently they took advantage of the global searching facility built into TERMIUM, which allows them to search for an item *anywhere* in an entry (i.e. not just when it is the entry term). I also wanted to know how often those global searches were Boolean searches, whereby they could locate various elements of a multi-word item whenever they *both* occur anywhere in the same entry. Finally, I was interested in seeing how frequently the subjects used the definitions, contexts, etc. in dictionaries as a sort of "mini parallel text" providing terminology and phraseology.

Results:

The subjects conducted global searches (i.e. they searched for an item anywhere in a document) 17 times. Of those 17 times, 14 times involved Boolean searching.

The satisfaction rate for global Boolean searches was 42.9%

The definitions, contexts, etc. were used as mini parallel texts 8 times.

Analysis:

These results show that alternative methods of accessing information were not extremely common, but when they were used, they were quite successful. A satisfaction rate of 42.9% for global Boolean searching is actually quite good when one considers that in many of the cases where this type of search was conducted, the desired term was not an entry term, and traditional dictionary searches (i.e. in which information can only be accessed by entry term), would have therefore left the translators completely dissatisfied.

The technique of using definitions, contexts, etc. as mini parallel texts, although rarely used, was also very effective. For example, one translator who used the definition for *interest-rate swap* in TERMIUM consequently spared herself the effort of looking up various terms that appeared in other parts of the text (e.g. *fixed rate*, *floating rate*--terms that she understood, but for which she did not know the proper equivalent). It is interesting to note that the translators who used this technique were the ones with the most work experience. They seem to realize the value of using definitions and contexts as parallel texts because they know that time constraints in professional translation work often prevent the translator from searching for actual parallel texts.

It would be interesting to calculate what percentage of the items not found in the testing would have been found if the subjects had used alternative search techniques such as scanning or global Boolean searches. Such research goes beyond the focus of my thesis, but could be an interesting question to pursue in future studies.

1.9 Choice of definitional metalanguage

Question:

One of the things I was looking for in my testing was whether the subjects used definitions in their first language or in their second language (or both) when given the choice (i.e. where definitions were equally available in both languages, as in TERMIUM). As I had requested that the subjects point to the part of the entry they were reading, I was able to come up with some answers to this question. Unfortunately, the sample size is limited not only because the desired situation only occurred when they used TERMIUM and specifically, when TERMIUM provided definitions for both languages, but also because much of the time the subjects forgot to point to the part of the entry they were using.

Results:

Anglophones: Of the 21 times where I knew which language they were using, they used only English definitions 21 times.

Francophones: Of the 30 times where I knew which language they were using, they used only French definitions 18 times, they used both French and English definitions 10 times, and they used only English definitions 2 times.

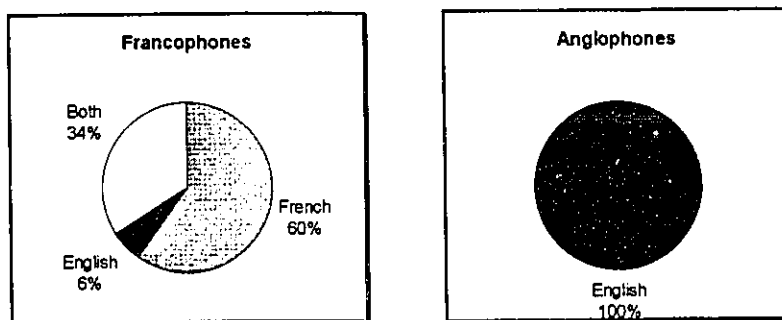


Figure 46. Use of French and English definitions by the two language groups.

Analysis:

Although the sample size is very limited, these results point to a clear preference for L1 definitions, particularly among the Anglophones. Despite the fact that the subjects were usually looking up the meaning of L2 items, they still turned most frequently to a definition in their native language. This could probably be explained by a desire to avoid any further comprehension problems that an L2 definition could cause.

Question:

I also wanted to see whether my subjects used L2 definitions when no other choice was available (i.e. when using a dictionary which only contains definitions in their L2). To do so, I determined how frequently the Anglophone translators consulted the French definitions in the *Sylvain* for various reasons, as compared with how frequently the Francophones consulted them.

Results:**Anglophones:**

Of the 74 times they used the *Sylvain* for any purpose, they used the definitions 15 times → 20.3% of the time

Of the 42 times they used the *Sylvain* for meaning, they used the definitions 13 times → 30.9% of the time

Of the 10 times they used the *Sylvain* for meaning verification, they used the definitions 0 times → 0% of the time

Francophones:

Of the 65 times they used the *Sylvain* for any purpose, they used the definitions 23 times → 35.4% of the time

Of the 34 times they used the *Sylvain* for meaning, they used the definitions 17 times → 50% of the time

Of the 2 times they used the *Sylvain* for meaning verification, they used the definitions 1 time → 50% of the time

Analysis:

These results clearly indicate that the Anglophones used the definitions in the *Sylvain* far less frequently than the Francophones. When given no other choice, the Anglophones still tended to avoid L2 definitions, even when looking up the meaning of an L2 item.

Question:

In doing my testing, I found that it was quite common to look up the meaning of L2 items using L1 entries. I know that I personally sometimes apply the following strategy when doing *version*:

- a) I look up the French word in a bilingual dictionary.
- b) If I understand its equivalent, I try to apply it to the context to see if it is appropriate.
- c) If I do not understand its equivalent, I look up its meaning in an English monolingual dictionary.
- d) Only then do I go to the French monolingual dictionary to see if the French word may have a meaning not indicated by the equivalents given in the bilingual dictionary.

This may seem like a rather indirect way of finding the meaning of an L2 item, but I find that sometimes it proves more efficient and more satisfactory than trying to cope with the complex and unfamiliar definitional metalanguage of a French-language definition.

The subjects of my testing often applied other indirect strategies. To get at the meaning of an L2 item, for instance, they would sometimes simply guess at possible L1 equivalents for that item and look up the meaning of the "guessed-at" L1 equivalents to see if they could fit the context. Similarly, when they wanted an L1 equivalent for an L2 item, they would sometimes guess at what the equivalent might be and then look that item up in a monolingual L1, or even a bilingual, dictionary to see if it would be appropriate as an equivalent.

I was curious to see just how frequently translators try to get at the meaning of a word or find its equivalent by applying indirect strategies such as the ones described above.

Results:

When the subjects did not understand an L2 item:

Anglophones:

Of the 130 times when they didn't understand the L2 item, they used an L1 *entry* (i.e. any part of the entry) 16 times → 12.3 % of the time

Of the 130 times when they didn't understand the L2 item, they used an L1 *definition* 9 times → 6.9 % of the time

Francophones:

Of the 73 times when they didn't understand the L2 item, they used an L1 *entry* 4 times → 5.48 % of the time

Of the 73 times when they didn't understand the L2 item, they used an L1 *definition* 4 times → 5.48 % of the time

When the subjects needed an equivalent for an L2 item:

Anglophones:

Of the 226 times where they needed an equivalent for an L2 item, they used an L1 *entry* (i.e. any part of the entry) 56 times → 24.77 % of the time

Of the 226 times where they needed an equivalent for an L2 item, they used an L1 *definition* 26 times → 11.5 % of the time

Francophones:

Of the 144 times where they needed an equivalent for an L2 item, they used an L1 *entry* 14 times → 9.7 % of the time

Of the 144 times where they needed an equivalent for an L2 item, they used an L1 *definition* 9 times → 6.25 % of the time

Analysis:

These results show that indirect strategies as described above were used fairly commonly by the subjects, particularly by the Anglophones, who seemed most hesitant to deal with L2 definitions. Such techniques of getting at the meaning or an equivalent of an L2 item may seem unusual, and so indirect as to be inefficient. They could even be dangerous. For example, a "guessed-at" equivalent that seems to have the appropriate meaning may not actually be correct for stylistic reasons or other reasons that do not become apparent when a comparison is not drawn between languages. Or an equivalent that is perhaps not an absolute equivalent, but is nevertheless appropriate, may be rejected because the translator hesitates to rely on an imperfect match in meaning where no authority says the equivalent is appropriate. Yet despite the inefficiency or danger of such techniques, they seemed to appeal to subjects who wanted to avoid L2 definitions at all costs.

Question:

In my testing, I also noted the comments made about definitional metalanguage. I wanted to know what the subjects' explicit reactions were to L2 definitions, particularly when the L2 definitional metalanguage was quite complex (as in the *Bernard et Colli*, and to a lesser extent, in the *Thomsett*, both of which I chose largely for their complex metalanguage).

Results:

Comments made about the *Sylvain* (which only offers French definitional metalanguage):

Anglophones:

"I really like the *Sylvain*, but it's a shame that the definitions aren't in English."

"Oh, the definition is in French. I'm not even going to bother reading that."

"I know that that dictionary has a very good reputation, but wouldn't it be nice if the definitions were in English." (This subject thought it was rather unusual and somewhat irritating that they were not: "A lot of good that is." Consequently she did not use the definitions in the *Sylvain* once.)

Francophones:

"Oh, I see you've got the *Sylvain*. Good."

"I had never used it before, but I really enjoyed using it."

"I have a crush on this dictionary."

"You've got the *Sylvain*. That's very good."

Other comments about the ease of using L1 (and difficulty of using L2):

"I should have come to this dictionary sooner." (Comment made when first using an L1 monolingual dictionary after having used bilinguals and L2 monolinguals.)

"I know it's supposed to be one of the best dictionaries, but I hate it." (Comment made by an Anglophone about the *Petit Robert*)

"I'm reading the French, but I guess I probably should be reading the English." (Comment made by a Francophone when asked which part of the *TERMIUM* entry she was reading)

"If I was allowed to have only one dictionary, I'd choose a general bilingual such as the *Robert-Collins*. No matter how many monolinguals you offered me, I'd still take the bilingual. I don't know if I would translate without it."

"That's as clear as mud." (Comment made by an Anglophone after using the *Bernard et Colli* for meaning. NOTE: this is probably not just a result of the definition being in L2, but also of the complexity of the language used in the definition, or perhaps simply of the complexity of the concept.)

Comments about the complexity of the L2 language used:

"Specialized terms are defined by other specialized terms, so you get nowhere." (Comment made by an Anglophone about the *Bernard et Colli*.)

Analysis:

The subjects' explicit reactions (i.e. their comments) to L2 definitional metalanguage and complex definitional metalanguage in general coincided exactly with their behaviour in this matter. Not only did they avoid definitions using L2 and complex definitional metalanguage, they openly expressed dislike for them.

Summary

Test 1 produced many findings on a number of different issues. My personal impression is that the following are the most significant:

- most dictionary look-ups were done *while* translating;
- the subjects often had *both* comprehension problems and a need for equivalents, and they often used *both* equivalents and definitions to resolve their problems, particularly with specialized items;
- the most commonly used dictionaries in the testing were specialized hybrid dictionaries (i.e. those which provide both definitions and equivalents for specialized items);
- incomplete macrostructure and microstructure were the most common causes of dissatisfaction;
- the subjects used dictionaries very thoroughly (in some cases, too much so);
- the subjects (particularly the Anglophones) avoided L2 definitions whenever possible.

2 Results of test 2

As the results from test 1 indicated that many subjects, particularly the Anglophones, avoided L2 definitions, I devised test 2 to investigate the reasons why they would do so. I wanted to know if they avoided L2 definitions because they really were significantly less capable of coping with L2 definitional metalanguage than with L1 definitional metalanguage. Or rather, were they almost equally capable of dealing with definitions in either language and was their avoidance of L2 definitions

therefore unfounded? I did various analyses of the results of test 2 in an attempt to answer these and related questions regarding the effects of definitional metalanguage. The analyses are described below.

2.1 Effects of definitional metalanguage

Question:

I wanted to see if differing (i.e. L1 vs. L2) definitional metalanguage affected the subjects' overall comprehension of definitions. I evaluated their comprehension by their ability to produce the appropriate L1 equivalent for the definiendum, or a sufficient explanation thereof (as discussed in chapter 2, section 1.2.1.2).

Results:

Anglophones⁹⁴:

Of the 164 times where they were given an English definition, they produced the equivalent or an appropriate explanation 97 times → 59.1 % of the time.

Of the 164 times where they were given a French definition, they produced the equivalent or an appropriate explanation 53 times → 32.3 % of the time.

Francophones⁹⁵:

Of the 260 times where they were given a French definition, they produced the equivalent or an appropriate explanation 136 times → 52.3 % of the time.

Of the 260 times where they were given an English definition, they produced the equivalent or an appropriate explanation 125 times → 48.1 % of the time.

⁹⁴ There were 41 Anglophone subjects, and they were each given 4 English and 4 French definitions. Therefore, in total, 164 English and 164 French definitions were given to Anglophones.

⁹⁵ There were 65 Francophone subjects, and they were each given 4 French and 4 English definitions. Therefore, in total, 260 French and 260 English definitions were given to Francophones.

Analysis:

These results clearly point to a marked difference among the Anglophone subjects in their ability to cope with L1 and L2 definitions. They were almost twice as successful in producing an equivalent or explanation when given an English definition than when they were given a French one. Although I did not perform tests to measure the subjects' L1 and L2 competence, such a blatant disparity in their level of comprehension can most likely be explained by differing levels of competence in the two languages. The results suggest that the Anglophone subjects had good reason to avoid French definitions, and turn to English definitions whenever possible.

On the other hand, the results indicate that there is *not* a marked difference in the Francophone subjects' ability to cope with L1, as opposed to L2, definitions. They were only slightly more successful in producing an equivalent or explanation when given a French definition than when given an English one. It is interesting to note that although they were much more capable of coping with L2 definitions than the Anglophones, their ability to cope with L1 definitions was *slightly* weaker. Such results suggest that their avoidance of L2 definitions, albeit much less marked than that of the Anglophone subjects, is unjustified.

Question:

Although it seemed clear that L2 definitions caused comprehension problems among the subjects, particularly the Anglophones, I wondered how extensive those comprehension problems really were. In some cases the subjects were not able to come up with the correct equivalent, but the equivalent they did provide indicated that they had *some* understanding of the definition, and it was just one or two elements that were causing them problems. For example, the Anglophone subject who gave *toothbrush* as the equivalent definiendum for "ustensile composé d'un long manche auquel est fixé un

faisceau de brindilles, de crins ou une brosse à long poils" obviously didn't understand the item *brindilles* (as he so indicated). Nevertheless, his answer showed that he was able to derive some meaning from the definition. Instances where no attempt was made at all to provide an equivalent or explanation (i.e. where the answer was blank) may indicate a more serious comprehension problem. I therefore decided to see how many such instances occurred.

Results:

Anglophones:

Of the 164 times where they were given an English definition, their answer was blank 22 times
→ 13.4% of the time.

Of the 164 times where they were given a French definition, their answer was blank 43 times
→ 26.2% of the time.

Francophones:

Of the 260 times where they were given a French definition, their answer was blank 31 times
→ 11.9% of the time.

Of the 260 times where they given an English definition, their answer was blank 60 times
→ 23.1% of the time.

Analysis:

These results indicate that all subjects, both Anglophone and Francophone, when given L2 definitions, were unable to provide any equivalent or explanation at all approximately twice as often as when they were given L1 definitions. It is possible that the subjects were simply more intimidated by L2 definitions, and their intimidation prevented them from even guessing at the equivalent. However, the subjects' greater hesitation to provide an equivalent for L2 definitions could also be an indication of deep comprehension problems. In either case, it cannot be disputed that they were simply more successful overall when given L1 definitions.

Question:

I realized that the inability to produce an equivalent does not always reflect a lack of comprehension. Sometimes it is purely a production problem, whereby the subjects simply cannot think of the desired equivalent, even if they are very familiar with the concept. I also realized that the variability of numerous factors involved in test 2 (e.g. varying competence among subjects, varying complexity in the definitions, varying degrees of familiarity with the defined concepts, etc.) could affect the results. The unqualified data of the preceding questions is therefore definitely not reliable on its own. To further determine whether L2 definitional metalanguage inhibited the subjects' comprehension of definitions, I wanted to see exactly how many lexical items⁹⁶ the subjects did not understand (i.e. how many items they underlined) in the L2 definitions, as opposed to the L1 definitions.

Results:**Anglophones:**

In the 164 English definitions given to them, the Anglophones underlined 90 items → .55 items per definition.

In the 164 French definitions given to them, the Anglophones underlined 281 items → 1.71 items per definition.

Francophones:

In the 260 French definitions given to them, the Francophones underlined 194 items → .75 items per definition.

In the 260 English definitions given to them, the Francophones underlined 245 items → .94 items per definition.

⁹⁶ A lexical item could be a single-word item such as *ovidé*, or a multi-word item such as *muzzle velocity*.

Analysis:

In interpreting these results I had to bear in mind that many subjects did not underline items that were obviously unknown to them. For example, some subjects did not underline a single item, yet they produced few, if any, equivalents, thereby indicating that at least some difficulty with the definitional metalanguage was likely. A certain unwillingness to cooperate or to admit one's lack of knowledge is to be expected in such testing. Nevertheless such instances seemed to occur among both language groups with both types of definitional metalanguage, and the results should balance out accordingly. Similarly, there was often an inability, rather than an unwillingness, to recognize a lack of knowledge. For example, there were several cases of both Anglophones and Francophones who interpreted the definition of *accordéon* to be that of other wind instruments such as flutes, bagpipes or oboes, probably because they mistakenly thought that *soufflet* (bellows), which was part of the definition, must indicate that it is an instrument you blow into (i.e. because of its resemblance to *souffler*). Furthermore, I would hope that the Francophone subject who guessed that "un ustensile composé d'un long manche auquel est fixé un faisceau de brindilles, de crins ou une brosse à longs poils" was the definition for "une brosse à long manche, utilisée pour se laver le dos" simply didn't recognize his misunderstanding of the item *brindilles*. Otherwise, I think he is in for some very painful back scrubbing! Such an inability to recognize one's lack of knowledge no doubt affected the results of this test, but I believe that it too occurred among both language groups and with both types of definitional metalanguage, and therefore balanced out any effects it had.

Despite any minor warping caused by the problems described above, one cannot argue that these results clearly indicate that the Anglophones have good reason to avoid French definitions. The English-speaking subjects underlined more than three times as many unknown words in the French definitions than in the English ones. Although one may argue that other factors (varying information

content in the definitions, varying degrees of familiarity with the defined concepts, etc.) could affect the subjects' ability to understand a definition, I think that these results clearly indicate the Anglophones' frequent inability to understand L2 definitions was at least in part caused by the L2 definitional metalanguage. There comes a point where the number of unknown words in a definition is so great that the user will simply be unable to grasp the underlying meaning of the definition.

The disparity between the number of L2 items and the number of L1 items underlined by the Francophones was not nearly so great as among the Anglophones. Nevertheless, the difference was more marked than one might expect from the results of the preceding questions. It would seem that the Francophones did have some difficulty in understanding English definitional metalanguage, yet their difficulty was not so extreme that they were unable to understand the definitions in general (and thereby produce an equivalent). These results, like those of the preceding questions, also indicate that the Francophones have more difficulties with their L1 than do the Anglophones (i.e. the Francophones underlined .75 items per L1 definition, while the Anglophones only underlined .55 items).

It is interesting to note that both the Francophones and the Anglophones seemed to find the definitional metalanguage of *all* the definitions used in this test to be very challenging. When given the instruction to underline the items they did not know, one test group broke out into roars of laughter and mimicked underlining entire definitions!

Question:

As one final test to see whether the definitional metalanguage actually was a major cause of the subjects' comprehension problems, I decided to look more closely at the items the subjects most frequently identified as unknown (i.e. which items were most commonly underlined). By determining whether or not these items were found in definitions which also most frequently caused problems for

the subjects, I could say more accurately whether the unknown words truly affected the subjects' ability to understand certain definitions.

Results:

Anglophones:

Items which they underlined at least 50% of the times they encountered them:
(Note: I have reduced all items to their canonical form)

100% of the time: chaux

88.89% : akène, parenchymateux

87.5% : chanvre, chouette, lépidoptère

77.78% : catarrh

75% : anche, chélicère, filiforme, galène, lanière, strigiforme, aluminate

64% : charnu

62.5% : amorphous, cycad, griffe, monocotylédone, ordnance, pédicule

55.56% : conjunctivitis, pavillon, pinnipède

52.94% : aigrette

50% : crin, angstrom, antimoine, aranéide, borate, bourgeon, bract, ductile, faisceau, fibroïne, filière, inoculateur, musculo-adipeux, ovidé, turion, écaille

Francophones:

Items which they underlined at least 50% of the times they encountered them:

91.67% of the time: cycad

84.6% : ordnance, chélicère

83.33% : bract

76.92% : pinnipède

69.23% : akène, ductile, parenchymateux

64.29% : catarrh

61.5% : adventif, antimoine, borate, furrow, impinge, lépidoptère

53.85% : bellows, boron, monocotylédone, muzzle, pyrite, silicate

The following items (from above lists) were found in definitions that caused problems more than 50% of the time:

NOTE: In parentheses after each item is the definiendum of the definition in question, as well as the failure rate of the subjects in producing an equivalent or explanation for that definiendum.

For example:

chaux, aluminate (ciment--100% failure rate)

means that the items *chaux* and *alumine* were used in the definition for *ciment* and the subjects failed to produce an equivalent or explanation 100% of the times they were given the definition for *ciment*.

Anglophones:

chaux, aluminate (ciment--100% failure rate), parenchymateux, charnu (pulpe--55.5% failure rate), lépidoptère, filiforme, fibroïne (soie--50% failure rate), anche (accordéon--100% failure rate), galène, antimoine (argent--87.5% failure rate), amorphous, borate (glass--75% failure rate), griffe, monocotylédone, charnu, turion (asperge--100% failure rate), ordnance (gun--87.5% failure rate), pavillon, pinnipède (phoque--77.7% failure rate), crin (brosse--75% failure rate), angstrom (x-ray--87.5% failure rate), bourgeon, écaille (bulbe--62.5% failure rate), ductile (aluminum--62.5% failure rate), faisceau, crin (balai--75% failure rate), musculo-adipeux, charnu (fesse--62.5% failure rate)

Francophones:

cycad, bract (cone--50% failure rate), ordnance, muzzle (gun--100% failure rate), pinnipède (phoque--69.23% failure rate), ductile (aluminum--61.54% failure rate), parenchymateux (pulpe--52.85% failure rate), catarrh (hay fever--64.29% failure rate), adventif (bulbe--76.9% failure rate), antimoine, pyrite (argent--61.54% failure rate), borate, boron, silicate (glass--100% failure rate), furrow (wrinkle--76.9% failure rate), impinge (x-ray--84.6% failure rate), monocotylédone (asperge--84.6% failure rate)

Analysis:

Based on these results, it appears that definitional metalanguage was probably a fairly major cause of the subjects' inability to understand certain definitions. Approximately 60% of the items frequently underlined (i.e. underlined more than 50% of the time) by the Anglophones, and 80% of those frequently underlined by the Francophones, were found in definitions which caused a failure rate of 50% or higher. Some of the words which were underlined most frequently (e.g. *chaux*, *ordnance*) were found in definitions with a 100% failure rate.

The definitions in which *numerous* items were frequently underlined also often tended to cause

a very high failure rate. For example, the definition for *asperge* had 4 items which were often underlined by the Anglophones and caused a failure rate of 100% among these subjects, while the definition for *glass* had 3 items which were frequently underlined by the Francophones and also caused a failure rate of 100%. There comes a point where too many unknown items in the definitional metalanguage totally inhibits the user's ability to understand a definition. This was not always the case, however. Despite the fact that the Anglophones frequently underlined 5 items (*chéllicère*, *pédicule*, *inoculateur*, *aranéide* and *filière*) in the definition for *araignée*, this definition caused a failure rate of only 25% among these subjects. A high failure rate was often not caused by *how many* items were underlined, but rather *how essential* the underlined items were to the meaning.

When complex definitional metalanguage was used for very essential parts of a definition, such as the genus, the subjects' comprehension was often greatly reduced. For example, not understanding the genus terms *ordnance* in the definition for *gun*, *pinnipède* in the definition for *phoque*, and *furrow* in the definition for *wrinkle*, often prevented the subjects from understanding the definition at all. To be specific, 100% of the Anglophones and Francophones who didn't understand the item *ordnance* were unable to produce an equivalent; 80% of the Anglophones and 70% of the Francophones unfamiliar with the term *pinnipède* failed to provide an equivalent, and 75% of the Francophones who did not know the meaning of *furrow* could not come up with an equivalent.

Core features are very essential parts of a definition as well, and the use of complex metalanguage for core features also caused problems for the subjects. Although the genus term, *instrument de musique*, in the definition for *accordéon*, was easily understood, those subjects who didn't know the meaning of *soufflet* and *anches* derived little else from this definition, and 100% of them failed to produce an equivalent. Those subjects who didn't understand the items *ovidé* (in the definition for *laine*) and *lépidoptère* (in the definition for *soie*) were not able to comprehend what is

probably the most definitive characteristic of these materials (i.e. the source of the material). In the case of *laine*, 66.66% of the Francophones and 75% of the Anglophones who could not derive this core feature from the definition were unable to produce the desired equivalent. Among the Anglophones not knowing the term *lépidoptère*, the failure rate for the definition of *soie* was 42.86%, while it was 50% among their Francophone counterparts.

Although all the above results indicate that definitional metalanguage had an effect on the subjects' comprehension of certain definitions, the subjects' failure to find equivalents can certainly not *always* be explained by the metalanguage. Sometimes it was a matter, among other things, of not being completely familiar with the full meaning of the item being defined. For example, the fact that the subjects did not know the meaning of the item *chaux* may not fully account for the unusually high failure rate caused by the definition for *ciment*. Rather, some of the failures can probably be attributed to the fact that the subjects simply did not know what *ciment* is composed of. So even if they did know what *chaux* meant, they may not have come up with an equivalent for the definition (although they could have perhaps provided a sufficient explanation thereof). I do not intend to say that complex metalanguage is the *only* thing that makes definitions hard to understand. Many definitions are also complex because of the specialized information they contain, or because of various other factors. However, if complex definitional metalanguage played even a small part in preventing the subjects from understanding the definitions used in this test, it would seem that the use of complex metalanguage in definitions of much more unfamiliar concepts could be extremely problematic.

2.2 Most problematic types of definitional metalanguage

Question:

Although it seems clear that complex definitional metalanguage can affect the comprehension of definitions and should therefore be avoided, such conclusions are not very useful to lexicographers unless suggestions can be made as to what types of metalinguistic items should be avoided. By taking one more look at the items most frequently underlined, I hoped to identify some traits common to these items and therefore give some clues as to which types of metalinguistic items were the most problematic for my subjects.

Results:

As already given in the previous question, the most frequently underlined items were as follows:

Anglophones:

100% of the time: chaux

88.89% : akène, parenchymateux

87.5% : chanvre, chouette, lépidoptère

77.78% : catarrh

75% : anche, chélicère, filiforme, galène, lanière, strigiforme, aluminate

64% : charnu

62.5% : amorphous, cycad, griffe, monocotylédone, ordnance, pédicule

55.56% : conjunctivitis, pavillon, pinnipède

52.94% : aigrette

50% : crin, angstrom, antimoine, aranéide, borate, bourgeon, bract, ductile, faisceau, fibroïne, filière, inoculateur, musculo-adipeux, ovidé, turion, écaille

Francophones:

91.67% of the time: cycad

84.6% : ordnance, chélicère

83.33% : bract

76.92% : pinnipède

69.23% : akène, ductile, parenchymateux

64.29% : catarrh

61.5% : adventif, antimoine, borate, furrow, impinge, lépidoptère

53.85% : bellows, boron, monocotylédone, muzzle, pyrite, silicate

Analysis:

From the above results, a few general conclusions regarding problematic metalinguistic items can be drawn. First of all, as the results from the other questions have suggested, it is evident that L2 items interfere with comprehension more frequently than L1 items among the Anglophones, while this is less true for the Francophones. Nearly 80% of the items most frequently underlined by the Anglophones were French items, while approximately 57% of the items most frequently underlined by the Francophones were English items. For the Anglophones especially, items that are considered problematic (i.e. because of their complexity) differ dramatically according to whether they are L1 or L2.

It is certainly not enough to just say that Anglophones had more problems with complex L2 items than complex L1 items, and Francophones fared roughly the same with both. Lexicographers must have some idea as to *what* might be considered complex in L1 and in L2. The results of this query gives us some general ideas for this particular group at least. Most of the L1 items underlined by both language groups are fairly specialized terms. For example, the Anglophones had difficulty with medical terms such as *catarrh* and *conjunctivitis*, and botanical terms such as *cycad* and *bract*, while the Francophones underlined zoological terms such as *chélicère*, *lépidoptère* and *pinnipède*, and botanical terms such as *akène* and *monocotylédone*. When dealing with specialized L1 terms, native speakers

often feel as if they are dealing with a foreign language. Specialized L2 items are even more problematic.

However, the above results show that it is not just specialized L2 items that cause difficulty. Both language groups frequently underlined L2 items which are less specialized, although not necessarily common. For example, the Anglophones, and not the Francophones, had frequent problems with the items *charnu*, *bourgeon*, *écaille*, *faisceau*, *lanière* and *crin*. Similarly, the more general-language words *furrow*, *impinge*, *bellows* and *muzzle* caused far more problems for the Francophones than for the Anglophones. It seems that rarer general-language items are considered complex in L2, while this is not necessarily the case in L1.

It would perhaps be of value to lexicographers if these problem words were analyzed further. They could, for instance, be classified according to certain criteria (i.e. frequency, level of domain specificity, etc.). Such research goes beyond the scope of my work, but could be an interesting avenue to pursue in future studies.

Summary

To summarize the results of test 2, it would seem that, in general, complex definitional metalanguage had a negative effect on the subjects' ability to understand definitions, and that the subjects, particularly the Anglophones, found L2 definitional metalanguage more complex than L1. When there were too many unknown items in a definition, particularly when those items were used to convey essential information, the subjects simply could not understand the definition. And the number of unknown items was inevitably higher in L2. In L1, the unknown items were usually limited to certain specialized items, while in L2, most specialized items, and even some less common general-language items, were unfamiliar to the subjects.

Although the analysis I have done in this chapter is based on a very small and quite specific study, the findings could be further analyzed in light of the implications they might have for dictionary design and the teaching of dictionary use. Some possible implications are presented in the following chapter as suggestions for future research.

The findings presented in the previous chapter clearly imply that dictionaries could be better tailored to *version* translators, and *version* translators could be better tailored to their dictionaries. Obviously the findings cannot necessarily be generalized to all instances of *version*, as they are based on a very small study with a fairly restricted focus. Yet in future research it may be worth exploring some of the specific implications of these test results. In this chapter, I therefore present the implications I feel these results could have for dictionary design and the teaching of dictionary use, in the hope that other researchers will see them as interesting ideas to pursue in their own studies.

Following the discussion of the implications of the test results, I identify other areas which I did not have time to explore in my study, but which should be pursued in future research on dictionary use in *version*. I also identify the user types and contexts of dictionary use that should be studied, and explain an alternative methodology that could be used in such research. Finally, I explain the potential of electronic dictionaries for implementing some of the ideas I suggest for dictionary design.

1 Implications of the results for the teaching of dictionary use

1.1 Integration of dictionary use into the *version* task

I began the previous chapter with a look at how the subjects integrated dictionary use into the *version* task as a whole. The results indicated that the most popular strategy overall was to look up items while translating. It is somewhat surprising that this strategy was found to be most popular, because it is not what is generally advised in translation teaching. Most educators (e.g. Delisle, Roberts, Gouadec, Guitard and Guitard) suggest that, for comprehension purposes at least, dictionary

use should occur *before* translating.⁹⁷ Furthermore, although I made no attempt to thoroughly evaluate the translations produced in the testing, my impression was that, *in general*, the subjects who looked up most problem items before translating produced more effective translations. They seemed to have a good understanding of the text before starting to translate. Having already tackled most of their lexical problems, in the translation stage they could concentrate more on problems at the sentential or textual level than could those who were still dealing with lexical problems. Their translations seemed to flow more smoothly because they did not constantly have to interrupt their train of thought to look words up. It is probably not a coincidence that the few subjects who chose this strategy were those with the most work experience. It would perhaps be of interest for translation teachers to further investigate whether dictionary use prior to translation does indeed produce more effective translations.

1.2 Most satisfactory dictionary-use strategies

My investigation into the most satisfactory dictionary-use strategies revealed a few general trends that could perhaps be considered for the teaching of dictionary use in *version*, particularly for courses in specialized *version*. Many of these strategies are probably already taught to translation students, but further empirical evidence of the value of such strategies would reinforce the theoretical opinions upon which such teaching is usually based.

It was found that, overall, comprehension problems were satisfactorily resolved by the use of definitions, while the use of an equivalent usually satisfied the need for an equivalent. With specialized and borderline items, however, the use of definitions and equivalents together proved more satisfactory for both these types of problems. When comprehension problems and the need for equivalents occurred together, the use of equivalents alone was satisfactory for general-language items, but with

⁹⁷ Cf. Chapter 1, section 2.3.4 for a discussion of this issue.

specialized items, once again a combination of definitions and equivalents proved more satisfactory. In general, the use of a definition and an equivalent together was found to be a highly satisfactory strategy for all types of problems with specialized items.

These findings were all based on the satisfaction of the subjects rather than on an evaluation of whether the strategies really were successful in producing correct translations. It would be interesting to conduct further studies to see if the strategies in question are indeed successful as well as satisfactory, and if they should therefore be recommended by translation teachers as heuristics for dictionary use in *version*.

1.3 Realistic expectations of dictionaries

The test results revealed that incomplete dictionary macrostructure and microstructure were a major cause of dissatisfaction. In particular, the subjects would have liked greater coverage of phrasemes. Although much of this problem is attributable to the dictionaries, some of it can be attributed to the users. Translators' expectations for phraseological information in dictionaries have to be realistic. For example, the subject who was hoping to find information for as large and as specific a unit as *se procurer indirectement du financement* may have been expecting too much. Although an understanding of what types of phraseological and terminological units are likely to be covered in dictionaries is undoubtedly a very difficult skill to teach, it may be worthwhile to investigate how better training could improve such a skill.

1.4 Alternative search techniques

While the test results showed that incomplete dictionary macrostructure was a major cause of dissatisfaction among the subjects, many of the items the subjects did not find actually were in the

dictionaries somewhere, although not always as an entry term. Much of the problem could be attributed to the subjects' failure to locate items through alternative search techniques, such as scanning indexes, and global and Boolean searches in TERMIUM. These results may therefore imply that students need more instruction in the use of such techniques. It is possible that many of the subjects did not conduct alternative types of searches simply because they did not know how to do so.⁹⁸ Further study could be done to see whether students in general are aware of such alternative searching techniques, and whether these techniques do actually increase their success rate in locating entries. If such techniques are found to be successful, they should be stressed in the teaching of dictionary use.

Obviously it should be emphasized in teaching these techniques that they are to be viewed as *alternative* methods. Usually global or Boolean searches are not the first strategy that a translator should apply, for an entry in which the desired item is the entry term will likely be much more useful. However, in cases where the item being sought does not exist as an entry term, alternative search techniques such as these could offer the translator other possible solutions with little searching effort required.

1.5 Balancing thoroughness and time constraints

One particularly striking finding of my study was that some of the subjects were *very* exhaustive in their dictionary use, to the point that they were not satisfied unless they could verify information in several sources. Further research should perhaps be done to see if such behaviour is typical of student translators in general, and to see how thoroughly professional translators use dictionaries. It would seem advisable to teach a certain amount of persistence to student translators,

⁹⁸ I must admit that prior to conducting these tests, I was not aware of how to do a global search or a Boolean search in TERMIUM, despite the fact that I have received some formal instruction in the use of TERMIUM.

but if further study shows students to be overly thorough, it should perhaps be emphasized more in their training that professional translation often does not allow for such exhaustiveness. They may need to be taught to balance thoroughness with time constraints more effectively.

Such a skill may become increasingly necessary in this age of information, with its proliferation of on-line sources. It is very possible that electronic dictionaries will contain a great deal more information than paper-based ones, and translators will have to be trained to be more selective if they are to cope with greater amounts of information.

1.6 Choice of definitional metalanguage

The results of test 1 clearly indicate that the Anglophone subjects avoided definitions written in French, not only when they had a choice between definitions in the two languages but even when French was the only choice. They openly expressed dislike of L2 definitional metalanguage, and often resorted to indirect and inefficient dictionary-use strategies in order to avoid it. The Francophones were also found to generally choose L1 definitions when given the choice, but not to go to such extreme efforts to avoid L2 definitions.

Test 2 showed that the Anglophones had good reason to avoid French definitions, as they were not nearly as capable of coping with them as with English ones. The results of this test showed that the Francophones' avoidance of English definitions was, however, unfounded.

It is common belief that Anglophones in Canada are generally less fluent in their L2 than Francophones, but further study should perhaps be done to confirm whether lower L2 competence really does affect their dictionary use. If further study confirms my findings, such a confirmation could have implications for translation teaching. The most obvious solution would seem to be for translation teachers to work on improving the L2 competence of Anglophones, but this may prove a daunting task

in a predominantly English society such as Canada. Furthermore, as Delisle (1984: 38) points out, the most bilingual people do not always make the best translators. If the ability of Anglophone translation students to cope with definitions in their L2 cannot be significantly improved, it does not seem wise to try to force them to use only L2 definitions. The best strategy may be to encourage them to at least consult French definitions *as a supplement to* English definitions. By using definitions in both languages, they may avoid some of the dangers of relying on an L1 definition alone, where a comparison is not drawn between languages, and equivalence is therefore not established on a reliable basis.

It would seem that Francophone students, on the other hand, should be encouraged to use English definitions more often, as they appear to be fully capable of dealing with them. It would undoubtedly be beneficial to stress that they too should use definitions in both languages whenever possible to ensure equivalence between concepts in the two languages.

Further research as I have suggested above will probably not lead to major innovations in translation teaching, but by confirming that students are weak in some aspects of dictionary use, empirical studies could incite teachers to improve instruction in those areas. Improved instruction should lead to improved use of dictionaries. However, as Atkins and Varantola (forthcoming) have pointed out, there are actually two routes to improving dictionary use: improving the users *and* improving the dictionaries. In the following section, I emphasize the latter route, by looking at the possible implications of my test results for the improvement of dictionaries.

2 Implications of the results for dictionary design

2.1 Accessible in-depth information

Although many of the subjects of test 1 claimed that, in normal circumstances, they would have gone to parallel documentation before translating a text such as the one used in the test, the subjects with the most work experience said that, in a work context, dictionaries would have served as their primary source of background information for such a text. It may be that they rely on dictionaries for background information because they realize that the time constraints of professional translation often do not permit translators to look for other resources. If such behaviour is found to be typical of professional translators in general, then it may be worth exploring whether dictionaries for *version* could be more tailored to this need to obtain background information quickly.

One way in which dictionaries could address in-depth research needs, while still accommodating the time constraints of professional translation, would be to provide more extensive information than is available in traditional dictionaries, in a format that allows for quick access. Entries with increasing levels of detail could be nested in electronic dictionaries in a multi-layered format. Detailed background information would therefore be available when it is needed and could be ignored when it is not. An easily accessed format such as this may encourage professional translators to consult more background information than they would if they limited themselves to traditional dictionaries, for they would be able to do so while still respecting time constraints.

A nested presentation would be quite feasible in electronic dictionaries, but it is also possible to some extent in paper-based dictionaries.⁹⁹ In either case, studies should be conducted to determine the most appropriate presentation format for such a dictionary.

⁹⁹ Some paper-based dictionaries already use such a format to some extent. For example, the *Bernard et Colli* used in test 1 provides a very brief definition for every concept, followed by a much longer, more detailed definition. The two types of definitions are distinguished from one another by the use of different typefaces.

2.2 Hybrid dictionary format

My findings revealed that both comprehension problems and the need for equivalents (whether these problems occur simultaneously for the same item, or separately for different items) were the most frequently occurring types of problem in test 1. It was also found that in general the most common and most satisfactory strategy for resolving comprehension problems was the use of definitions, while the need for equivalents was most commonly and most satisfactorily met by the use of equivalents. The use of both definitions and equivalents together proved to be a common and very powerful strategy for all types of problems.

It would therefore seem worthwhile to explore the possibilities of a dictionary for *version* that contains both definitions and equivalents. A hybrid dictionary containing both these types of items could eliminate one step of the two- (or more) step process that is now frequent in *version*, whereby the translator must look up the meaning in a monolingual dictionary and the equivalent in a bilingual dictionary. Perhaps even more important, by providing both definitions and equivalents together in the same document, such a dictionary could reduce the danger that translators who are not always willing to consult two dictionaries will rely on just a definition or just an equivalent to resolve both a comprehension problem and the need for an equivalent. Even in cases where translators have *only* a comprehension problem or *just* the need for an equivalent, the presence of both a definition and an equivalent in the same entry may encourage them to use both elements. And by using a supplementary element (i.e. using an equivalent as a supplement to a definition to resolve comprehension problems or using a definition as a supplement to an equivalent when choosing an equivalent), the translators may be more enlightened than they would be if they used just one of the two elements on its own.¹⁰⁰

¹⁰⁰ Cf. chapter 1, section 2.2.2.4 for an explanation of why each of these two types of information can be a useful supplement to the other.

The testing revealed that the combination of a definition and an equivalent proved particularly powerful for all types of problems with specialized items. It would therefore seem that the type of hybrid dictionary that offers the greatest potential for the kind of *version* done in this testing would be a specialized hybrid dictionary. Although general-language hybrid dictionaries may be worth investigating, they seem less necessary than specialized ones. A translator may have both a comprehension problem and a need for an equivalent for a general-language item, but often the comprehension problem stems purely from the translator's lack of familiarity with the L2 *lexical item* and not the *concept* itself. Once they have an L1 equivalent, the meaning often becomes clear. I do not mean to say that such translation practices are always safe and totally acceptable, but simply that they do frequently occur for this reason. Such practices could perhaps be curbed with general-language hybrid dictionaries, for they would provide both a definition and an equivalent in one easy look-up. For this reason alone, it may be worth investigating their potential. Yet as the test results indicated that the use of both a definition and an equivalent was the most common, as well as the most satisfactory, strategy for resolving problems with specialized items in particular, I would suggest that further investigation into the potential of specialized hybrid dictionaries may be more urgent. Such a suggestion is reinforced by the fact that the two specialized hybrid dictionaries provided in the testing (i.e. the *Sylvain* and TERMIUM) were used nearly four times as often as any other type of dictionary.

2.3 Exhaustive coverage

The findings of test 1 clearly revealed that the subjects were not satisfied with the coverage in the dictionaries on either the macrostructural or the microstructural level. Other studies have also revealed this type of dissatisfaction (e.g. Tomaszczyk 1979, Béjoint 1981, Atkins and Varantola (forthcoming)). Yet in the past, little could be done to address these findings because the space

constraints of paper-based dictionaries simply do not allow lexicographers to include as many entries and as much information for each entry as some users seem to want. With the advent of electronic dictionaries and the massive amounts of storage space they offer, it may now be time to start thinking about how to better satisfy users' demands for more exhaustive coverage.

First, on the macrostructural level, greater completeness would seem highly desirable. Obviously no dictionary will ever be large enough to meet all the needs of all *version* translators, but electronic dictionaries could certainly contain more entries than paper-based ones. The testing revealed a desire for more phraseological information in particular. Electronic *version* dictionaries should probably contain as much phraseological or combinatory information as possible, particularly for specialized language.

On the microstructural level, greater completeness also would seem highly desirable. The subjects seemed to always want more information than was provided in traditional dictionaries. To meet the needs of the subjects, an electronic dictionary would have to provide at least more detailed definitions with good discrimination between meanings, and, wherever possible, equivalents and examples to support each definition. It would also have to cover more obscure senses than found in traditional dictionaries. If the subjects had been able to find most of what they needed in one source, they may not have spent so much time consulting multiple sources.

On the other hand, consultation of one huge dictionary packed with detailed information could take even more time than it does to consult several smaller sources if such a dictionary does not use a format that allows for quick consultation when necessary. The test results imply that the most appropriate format for an electronic *version* dictionary would be one that accommodates exhaustiveness as well as time constraints. Thoroughness and time constraints both play a part in *version* translation to varying degrees; in some cases, thoroughness is more important, while in others,

time is of the essence. As mentioned above (in section 2.1), an electronic dictionary could address these divergent needs by providing information in a nested type of presentation, whereby users could proceed through various levels to more and more detailed information according to their needs. Zgusta (1991: 3162) effectively describes the possible flexibility of such an arrangement: "Optimally, one can easily assume that all [...] types of information should be retrievable in different degrees of detail and density, from the barest skeleton of the indispensable indications over more detailed blocks of information to a more or less exhaustive treatment."

2.5 Alternative searching facilities

Although the test results revealed that, other than scanning indexes, subjects did not often take advantage of alternative search techniques (such as global or Boolean searching), it was found that when such search techniques were used, they proved very effective. They allowed the subjects to locate information that could not be found through traditional methods of searching.

It would therefore seem worthwhile to further investigate the value of electronic dictionary facilities such as alphabetical indexes, and sophisticated search engines which allow the user to locate items other than headwords or to search for co-occurrences of individual elements of multi-word items. If other studies show such facilities to be commonly used and highly effective in *version*, then they probably should be included in any electronic dictionary designed for *version*.

It also may be worthwhile to investigate the potential of dictionary definitions, contexts, etc. for use as mini parallel texts. Although this strategy was infrequent in the testing, it was found to be quite successful when it was used, which implies that it may be useful to see how dictionaries could best cater to such a technique. Perhaps if the definitions were closer to an actual parallel text than those found in current dictionaries, translators would be more inclined to use them in place of other parallel

texts. In other words, longer definitions written in a prose-like style would be more useful, for they would likely contain more terminology and phraseology than traditional entries, which are usually quite short and are often written in a telegraphic style. Furthermore, if the definitions were nested by increasing degrees of length and detail, as I have suggested above, then the longer definitions would be available for terminology gathering when desired, but could be avoided when they are not needed.

The success of this technique could also be seen as an argument for the emerging idea of an electronic reference that combines dictionaries with corpora,¹⁰¹ that is, a format which involves hypertext links between dictionary entries and relevant corpus concordances. I feel such a concept is well worth pursuing, but as corpus searching can be very time consuming, I wonder whether *version* translators operating under time constraints may be better served by a "pruned" selection of information, or some sort of highly structured interface, to eliminate much of the corpus searching.

2.6 Choice of definitional metalanguage

2.6.1 Choice between L1 and L2 definitional metalanguage

As mentioned above (in section 1.6), the results of test 1 revealed that the Anglophone subjects avoided French definitions, even when given no other choice. In avoiding French definitions, they resorted to indirect, inefficient, and sometimes even dangerous, strategies. The results of test 2 confirmed, however, that there is good reason for their avoidance, as Anglophones really were significantly less capable of dealing with French definitions than with English ones.

These results identify a need for investigation into the value of using English definitions in

¹⁰¹ Cf. Varantola (1994) and Atkins and Varantola (forthcoming) for further discussion of this idea.

dictionaries for Anglophone *version* translators. The findings imply that Anglophones might be better off with English definitions, or at least with French definitions using less complex metalanguage. I tend to think English definitions might be the more effective of these two options, for it is often difficult to define specialized or technical concepts in simple language, and much of *version* translation, at least that which is done in Canada, involves specialized or technical texts. Even if French definitional metalanguage is simplified, Anglophones may still avoid it. The *Sylvain*, for instance, uses definitional metalanguage that, albeit not simple, is not unduly complex either, considering the specialized nature of the subject matter. Yet the Anglophones rarely consulted these definitions because they were in their L2. The advantages of the hybrid dictionary were consequently lost. As the Anglophones really only used the index of equivalents, the *Sylvain* was reduced to little more than a bilingual dictionary.

Even if the definitions in the *Sylvain* were given in English, the format of this dictionary would perhaps still not be the most effective one possible for Anglophones, because the use of L1 definitions alone can also lead to problems. As equivalence between terms and concepts of different languages is not always absolute, it would seem that the most effective solution of all might be to provide *both* L1 *and* L2 definitions. Parallel access to definitions in both languages would allow translators to compare the two definitions, and therefore, ensure equivalence between the concepts. In other words, with such a format, as is used in *TERMIUM*, translators would not be forced to grapple with *only* L2 definitional metalanguage, but they would nevertheless have access to an L2 definition that could be compared to the L1 definition for the purpose of ascertaining equivalence.

Although the results of test 1 showed that the Francophone subjects also avoided L2 definitions to some extent, the results of test 2 indicated that Francophones are not significantly less capable of coping with English definitions than with definitions written in French. Investigation into the need for French definitions in *version* dictionaries for Canadian Francophones therefore does not seem

urgent. Nevertheless, it may be worthwhile to see whether Francophones would also be better served by definitions in both English and French. As with the Anglophones, parallel access to definitions in both languages could help Francophone translators ascertain equivalence. Furthermore, the benefits of such a format seem to be reinforced by the fact that test 2 showed Francophones to be slightly weaker than Anglophones in coping with L1 definitions. In cases where the Francophones' competence in French is lacking, they could turn to English definitions, for their almost equally strong ability to interpret English definitions could compensate for such a lack.

2.6.2 Avoidance of problematic metalinguistic items

The results of test 2 revealed that meaning acquisition was inhibited not only by L2 definitional metalanguage, but by complex definitional metalanguage in general. The subjects did not understand definitions that contained too many unfamiliar items, whether the definitions were written in their L1 or their L2. Problems also occurred when only a few items in the definition were complex, but those items were used for essential information. Yet the results also revealed that what is considered complex in L1 differs from what is considered complex in L2. While in L1 some specialized items were problematic, a higher proportion of specialized items, as well as some less common general-language items, caused problems in L2.

Findings such as these, if they are confirmed by other studies, could have various implications for the choice of definitional metalanguage in dictionaries for *version* (and perhaps for many other types of task). Although lexicographers are probably already somewhat careful with definitional metalanguage, these results suggest that they should be more careful. They should try not to use words that very few users are likely to know. This means that in the case of definitions written in the users' L1, lexicographers should try to minimize the number of specialized items, while with definitions in the

users' L2, they should try to use even fewer specialized items, and also avoid less common general-language items. Too many such items in a definition could diminish, and possibly altogether block, the users' comprehension of the definition.

Such results also imply that lexicographers should try not to use complex items for the genus or for core features, because these are exactly the characteristics that users need to understand most. I can imagine that many more subjects might have understood more definitions in test 2 if simpler items were used for essential information. For example, they may have understood the definitions for *gun* and *soie* if *piece of ordnance* were replaced by *weapon*, and *lépidoptères* were replaced (as it is in the *Robert méthodique*) by *chenilles de papillon*. If complex items must be used for scientific precision, they could be given some explanation within the definition. This was the case in the definition for *yogurt*, where the items *Lactobacillus bulgaricus* and *Streptococcus thermophilus* caused little confusion, because they were preceded by the explanatory phrase *two bacteria*. It is possible that far fewer subjects would have had difficulty with the definition of *laine* if the complex item *ovidés* had been followed by a simple example of types of *ovidés* (i.e. *moutons*, etc.).

It is true that much of the time it may be hard to avoid complex metalanguage in *version* dictionaries, for *version* translators often need highly specialized explanations. But, in the initial stages of trying to grasp a concept, highly specialized information given in very specialized language tends only to confuse them. The nested format that I have suggested above, to address divergent needs in terms of the information provided, could also address divergent needs in terms of metalinguistic complexity. The first definition in the nested format could contain very basic information written in simplistic language, while at the deeper levels, more specialized information could be given in the appropriate specialized language. Nested definitions would allow *version* translators to gradually ease into the specialized information and language that they often need. In the words of Sager (1990: 48),

"Future lexical data banks may [...] be provided with several layers of specialisation of definitions to meet different user needs." Sager (1990: 196) further suggests that rather than users having to determine themselves what levels of specialization are appropriate to their needs, the output of electronic dictionaries could be *automatically* tailored to different levels of user ability according to user profiles (i.e. non-specialists could indicate at the beginning of a session that they are non-specialists and therefore only want to see simple definitions, and the dictionary would automatically provide only those definitions).

In short, the results of the two tests suggest that the following ideas may offer potential for tailoring *version* translators to their dictionaries and for tailoring dictionaries to *version* translators:

More emphasis could be put on teaching *version* translators to:

- consult dictionaries *before* translating;
- use *both* definitions and equivalents where appropriate;
- apply alternative search techniques;
- balance thorough dictionary use with time constraints;
- use *both* L1 and L2 definitions when they are available.

Dictionaries designed for *version* could:

- contain *both* definitions and equivalents, particularly when they treat specialized domains;
- have very thorough macrostructures and microstructures, with a nesting facility, whereby information can be obtained in increasing degrees of detail and complexity as the user needs it;
- incorporate facilities for alternative types of searching;
- contain definitions in the user's L1, or preferably in the user's L1 *and* L2.

3 Other issues for future research

If *version* translators are ever going to be fully tailored to their dictionaries, and if their dictionaries are ever going to be fully tailored to them, many other issues will also have to be explored in future studies. Within the scope of this thesis, I only had time to touch upon a few areas of particular interest and produce just a few suggestions for dictionary design and the teaching of dictionary use. There are, however, many other areas that would be worth exploring, some of which I encountered in my own study, but did not have time to pursue. A few of those areas are outlined below.

3.1 Indicating material

By *indicating material*, I mean information given in dictionaries, other than definitions and examples, to clarify the meaning or the use of a particular item. This can embrace temporal labels, regional labels, stylistic labels, and field labels, guide phrases to identify the range of application of an item, partial definitions in bilingual dictionaries, typical subjects, objects and complements, etc. Quality labels in term banks could be added to this list. In my testing, I took note of when subjects used indicating material, but I did not examine this issue in the analysis. Future studies must, however, look at this issue in depth if we are to know how much indicating material should be included in *version* dictionaries, and how extensively it should be used by *version* translators.

3.2 Contextual examples

I considered the translation of relatively fixed phrases and idiomatic expressions in bilingual dictionaries to be a type of equivalent rather than a type of contextual example,¹⁰² and in my testing, I

¹⁰² Cf. chapter 3, section 1.4 for the reasoning behind this decision.

found that contextual examples involving free combinations in bilingual dictionaries, and contextual examples in monolingual dictionaries, were rarely used. However, other studies may produce different results. It is important that further studies be conducted on other groups of *version* translators to evaluate the frequency of use and effectiveness of contextual examples. Findings in this area would help determine how many, and which types, of contextual examples should be included in dictionaries for *version*, and whether or not the use of examples should be emphasized in translation teaching.

3.3 Grammatical information

Although the subjects of my test did reach the encoding stage of their task, most of them did not get to the point where they were dealing with fine points of grammar. Consequently, they did not often use grammatical information in the dictionaries. However, studies concentrating more on the refinement stage of translation may reveal different behaviour. Further studies should be conducted to determine the amount and the type of grammatical information that *version* translators need.

3.4 Illustrations

Dictionary illustrations could become a very important issue with the advent of electronic dictionaries. The electronic medium will allow lexicographers to provide their users with very detailed and highly realistic illustrations, which could even be enhanced by video motion and sound. Such multimedia illustrations could be extremely useful for acquiring the meaning of unfamiliar concepts, such as technical or culture-bound concepts. Although this was not an issue that I was able to explore in my testing (most of the dictionaries used did not even contain illustrations), I feel that future studies should definitely investigate the potential of multimedia illustrations in electronic *version* dictionaries.

3.5 Organization of the macrostructure

Version is predominantly a semasiological task¹⁰³, and it would therefore seem that *version* dictionaries should probably be organized semasiologically. However, as *version* translators often need conceptual information, it may be worth investigating whether some sort of conceptually-organized component might be of use for certain parts of the *version* task. A conceptual approach in which entries are linked according to their domain would be of value for gathering background information, for example. Assessment of the value of such an approach will be particularly necessary if electronic *version* dictionaries do, as I have suggested they could, incorporate more conceptual information for the purpose of background research.

3.6 Choice of entries

I have suggested above (in section 2.3) that the macrostructure of electronic *version* dictionaries be as complete as possible. However, it is obvious no dictionary could ever be completely exhaustive. Therefore, to ensure that the most important items are covered, research may have to be done to determine which types of items *version* translators look up most often. Using the database I built for test 1, I was able to identify the items that were looked up most frequently in this test. My findings are listed in Appendix 11. If enough data of this sort were gathered through similar research, it is possible that a typology of the most problematic items could be established to guide lexicographers in their choice of entries.

¹⁰³ A semasiological task is one in which you move from lexical item to concept i.e. the translator starts with a lexical item in a source text and must find its meaning in order to translate it.

3.7 Locating borderline items

In this age of information, the problem of borderline items is becoming an increasingly difficult one for translators. As more and more specialized terms creep into the general lexicon, it is becoming more difficult to know which dictionary to use for such items. In my analysis, I briefly examined the strategies applied for borderline items, and found that both specialized and general-language dictionaries were consulted almost equally. My sample for this question was extremely small, however, and a great deal more research of this nature needs to be done. Information on where users tend to look for borderline items would provide guidelines for lexicographers and terminologists as to where to locate such items.¹⁰⁴ These guidelines could, in turn, be explained to users to help them in searching for borderline items.

3.8 Identifying terminological units

I found that nearly all the subjects of test 1 had problems identifying terminological units and breaking down lengthy noun phrases (e.g. *marché des titres de dette à long terme*) into smaller units. They often expected to find dictionary entries for very long noun phrases. Even if they did manage to break them down and find entries for their component parts, they had difficulties stringing them together. I did not have time to pursue my findings in this area, but I feel it would be valuable for the teaching of dictionary use in *version* to evaluate whether these problems are common among *version* translators, and to identify ways of improving their skills in this area.

¹⁰⁴ If, however, in the future, general-language and specialized dictionaries are merged into one massive electronic dictionary, research on this issue will not be necessary.

4 Samples and contexts for future research

In future studies on dictionary use in *version*, it is essential that a variety of specific user types be tested. As Hartmann (1987: 27-28) points out, "The range of user types is greater than we care to admit, and this diversity demands detailed attention. It is not sufficient to list dichotomies like young/old, lay/professional, student/family, beginner/advanced, native/foreign etc., for these oppositions are in fact scales, with many intermediate and overlapping characteristics." Although *version* translators may seem like a fairly specific group, they actually also can be seen on a continuum. There is undoubtedly a scale of ability and needs spanning from the beginner student to the highly-experienced professional. The only way to generalize effectively, is test various groups on that scale.¹⁰⁵ Testing similar to what I have done could be conducted on other students at different levels, and on professional translators with varying degrees of experience.

Just as *version* translators can be seen on a continuum, so too can *version*. My study concentrated primarily on specialized *version*; further testing must be done on other contexts of *version*, such as those involving more general or more technical texts.

5 An alternative method for future research

The demand for research on dictionary use in *version* that I have outlined above may seem overwhelming, particularly if such research is to involve methods that are as time-consuming as the one I used. With electronic dictionaries, however, there is the possibility of a less time-consuming, but nevertheless reliable, method. Computerized dictionaries could incorporate a monitoring facility, whereby a log could be kept of the commands made by users when consulting these dictionaries. By

¹⁰⁵ Even then it may be found that the needs and abilities of different types of translators are so diverse that it is not possible to generalize.

studying the logs, researchers could gain insight into matters such as what items are most commonly looked up, which parts of entries are most commonly used, etc. Of course certain questions cannot be answered without some sort of interaction with the user. For example, we can only determine what types of problems cause users to consult dictionaries by asking the users directly. Nevertheless, command logs would certainly provide valuable data with little effort required.

6 The potential of electronic dictionaries

It may seem futile to conduct extensive studies on dictionary use in *version* if the suggested changes they imply are too expensive to implement. Some of the suggestions I have made here may indeed be very costly, but, as Kromann *et al.* (1991: 2725) point out, "theory formation must not be determined by economic considerations." Furthermore, user-oriented improvements may be worth great cost. In the words of Sager (1990: 153-154), "Only greater attention to user needs will justify the expenditure associated with improved quality and therefore related higher costs." The flexibility of the electronic medium may make some of the changes I suggest much more feasible. In the following, I explain how electronic dictionaries, in various configurations, could make such changes not only possible, but also affordable.

6.1 Linked reference works

6.1.1 Links between entire reference works

Undoubtedly the least expensive option for implementing some of the changes I have suggested would be simply to allow users simultaneous access to various reference works, much in the same way various computer programs can be run at the same time in what is known as a multi-tasking

environment. This type of solution has been implemented to some extent in translators' workstations.¹⁰⁶ In such an environment, translators can switch from one reference work to another as they traditionally have done, but the switches are much quicker (i.e. moving around in an electronic environment is much quicker than physically switching books and locating new entries). Faster switches between dictionaries could lead to increased use of both definitions and equivalents, and quicker jumps to encyclopedias and other similar reference works should allow for easier access to in-depth background information.

Other than speed, however, such a solution does not necessarily offer many advantages over the use of traditional dictionaries. Translators would, for instance, still be responsible for matching up senses in monolingual dictionaries to their corresponding equivalents in bilingual dictionaries; they would still have to sift through long encyclopedia entries to locate the information they desire, etc. Sager (1990: 187) feels that, "For the user the advantage of the computer-based data collection over the conventional dictionary lies in the fact that a single database can now hold information which was conventionally held in fixed and different formats in a number of separate reference tools." Such an advantage is lost if you simply link entire reference works to one another. You need not necessarily have one massive database to get the advantage Sager speaks of, however. You could simply create the illusion of working with one database by establishing more sophisticated links between reference works.

6.1.2 Links to specific parts of other reference works

A more sophisticated and probably more satisfactory, although undoubtedly more expensive, way of linking reference works to one another would be to establish hypertext links between parts of

¹⁰⁶ For more information on this issue, Cf. Macklovitch (1989).

documents already existing. This could involve something as simple as jumping from the entry for *swap* in a monolingual dictionary to the entry for the same item in a bilingual or combinatory dictionary, but it could also involve much more sophisticated links.

Iannucci (1957: 279) once made a very interesting proposal for meaning discrimination in paper-based bilingual dictionaries. He suggested having the various equivalents in bilingual dictionaries identified by numbers, which would correspond to the numbers given to individual senses in an existing monolingual dictionary entry. Such cross-references would indirectly produce a hybrid type format whereby the user would be provided with an equivalent of the L2 item and a corresponding L2 definition. Iannucci gave the following entries as examples of his idea (the first entry being taken from an existing monolingual dictionary, and the second entry being the bilingual dictionary entry he proposed):

country...n....1, a tract of land; a district; a region; 2, rural parts, as opposed to cities or towns: usually with *the*; 3, one's native land; the land of one's citizenship; 4, the territory of a nation that has a distinct existence as to name, language, customs, government, and the like; also the people of such a nation; 5, the people of a region of nation as a whole; the public; as, the *country* is opposed to war...

English-French:

country *n* 1 région, contrée 2 campagne 3 patrie 4, 5 pays, nation

Iannucci's proposal may have seemed somewhat impractical for paper-based dictionaries, but it would be very feasible in electronic dictionaries using hypertext links. Furthermore, as Iannucci (1957: 280) pointed out, such a system could be very economical, for one monolingual dictionary could serve as the basis of meaning discrimination for bilingual dictionaries of numerous language combinations (i.e. the English monolingual could be the basis for English-French, English-German, etc.). The approach could also be extended to match L2 items and their definitions to the L1 definitions which best correspond to them, thereby providing the user with the benefit of definitions in both languages.

Hypertext links could be provided between various other types of information as well. An entry for *transluminal angioplasty* could be linked, for example, to the relevant section of an encyclopedia entry for *cardiology*, or to an illustration from a medical textbook showing how such an operation is performed.

The idea of hypertext links could be extended further to include links to relevant corpus concordances. Atkins and Varantola (forthcoming) have suggested that links to corpora may be useful for production tasks. Some recent dictionaries (e.g. the *Cobuild* on CD-ROM) have made efforts in this direction. I have also suggested (in section 2.5 above) that links to corpus concordances could be useful for comprehension purposes. For example, background information on *transluminal angioplasty* could be obtained by using corpus concordances from a selection of machine-readable medical journals. Such concordances would have to be carefully selected, however, for searching raw corpus concordances for conceptual information can be very time-consuming.

Establishing hypertext links between relevant information in already existing texts might be a very time consuming and expensive task,¹⁰⁷ but it would undoubtedly be quicker and less expensive than developing a whole new dictionary from scratch.

6.2 Merging parts of reference works

One last method that would be more time-consuming and costly than those described above, but would nevertheless be more efficient than compiling a whole new dictionary from scratch, involves merging relevant parts of reference works into one massive tailor-made dictionary. In other words, if it were possible to get agreement from publishers, relevant sections of existing reference works could be "pasted" together into a single *version* dictionary.

¹⁰⁷ There is, however, the possibility that some hypertext linking could eventually be done semi-automatically.

Steiner (1989: 254) mentions a paper-based bilingual dictionary using a simple form of this "amalgamation" method: Connelly and Higgins' Spanish-English English-Spanish dictionary (Connelly, T. and Higgins, T. 1797-98. *Diccionario nuevo de las dos lenguas española é inglesa*, 4 vol. Madrid: Pedro Julian Pereyra.). This dictionary contains definitions from the Dictionary of the Spanish Academy and from Samuel Johnson's Dictionary, along with their bilingual equivalents. The following example entries are taken from either side of the dictionary:

HAND, s. That member of the body which reaches from the wrist to the finger's end. *Mano, parte del cuerpo humano, que comienza en la muñeca, y fenece donde se acaban los dedos.*
 MANO, s.f. Parte del cuerpo humano, que está en la extremidad de los brazos. *Hand, that member of the body, which reaches from the wrist to the finger's end.*

Steiner (1989: 255-256) explains in detail the possibilities of such a method for electronic dictionaries:

Perhaps the translation dictionary of the future will do what Connelly and Higgins did and more. What must be supplied along with the translation equivalents are related portions of the dictionary of meanings [i.e. the monolingual dictionary], related data from encyclopedias, a look into a thesaurus, appropriate diagrams, pictures and illustrations as well as charts and tables, and, of course, a detailed grammar. Let there be no misunderstanding that this recommendation concerns *sections* of a book; on the contrary, the additional material must be *integrated within the entry*. The objection to this recommendation is that users would be unable to use such an immense, unwieldy monstrosity, and no publisher would spend the money to print it. The recommendation might be feasible in the form of an electronically published dictionary that is carefully programed. The user would be able to pull out from the computer data bank desired sections of monolingual dictionaries, thesauri, encyclopedias, grammars, illustrations, maps, charts, diagrams, and moving pictures. Not only will the user read the genus and the species - the bird will be in motion. There will be time-lapse pictures of a growing flower and a Venus's-flytrap catching its prey. And finally, much of this material will be translated into the language of the user and will be much more accessible to many on that account. All of this information would be next to useless without an orderly and convenient system of random access. The segments of this computerized data bank would be computer coded for prompt retrieval of any part of its full text. The first images on the display unit might look very much like the traditional bilingual entry now printed in books. The on-line search will begin when the user is presented with a menu, and the coded material will provide access to that information which the user needs. As the user's needs develop in the task of a particular translation, more and more complicated, detailed, and comprehensive material will be retrieved and displayed.

Steiner's proposal is certainly an ambitious one. Some may consider his ideas far beyond the realm of the dictionary. Indeed the electronic medium could bring about so many changes to the traditional dictionary format, that perhaps it should no longer be called a dictionary.

7 Conclusion

No matter what form it assumes, and regardless of the name it is given, the "dictionary" of the future has the potential to be a much more user-friendly document than the dictionary of the past. Lexicography has come a long way since the 1960 conference at Indiana University where serious interest in the user perspective was first expressed. Hopes and expectations at that time were very high. For instance, Haas (1962: 48) stated in a list of desiderata for the ideal dictionary that "A good dictionary is one in which you can find the information you are looking for -- preferably in the very first place you look." In 1962, this desideratum might have seemed like a ridiculous pipe dream. It may even seem far-fetched today. But in the future, if interest in dictionary use continues to grow, and the electronic dictionary is exploited to its full potential, Haas' desideratum for a "good" dictionary may not be so unattainable. "Good" user-friendly dictionaries, containing most of the information needed by specific user groups such as *version* translators, in a format that allows for quick and easy access, *will* be possible. And such user-friendly dictionaries *should* be compiled, for as I said at the beginning of this thesis, in these times of user-friendliness in everything, dictionaries should be no exception.

APPENDICES

APPENDIX 1

Instructions for the test:

The following are the notes I used to guide myself in giving instructions to every subject at the beginning of each test. Although I gave all instructions orally, I felt it necessary to record these notes in writing so that each subject would receive exactly the same instructions.

NOTE: In addition to the instructions given to them during the test, the subjects were also given a brief written explanation several weeks in advance, outlining the purpose, the methodology and the relevance of the test, and assuring them that all results would be kept strictly anonymous.

- 1) Ask them if they know how to use TERMIUM. Give them a brief explanation of how to use it if they are unfamiliar with it. Emphasize that they do not have to use it if they do not feel comfortable with it, or do not normally use it.
- 2) Emphasize that they should translate at a pace which is normal for them, as if they were doing an assignment for school or were translating in a work environment. Emphasize that they should not approach the test as a timed test and therefore do not have to complete the entire text. Emphasize that they are not being judged in any way.
- 3) Situate the text for them (i.e. explain that it is from a report put out by the Bank of Canada for readers that are not experts in the subject matter, but nevertheless have a better-than-average understanding of economics).
- 4) Explain that they should think aloud throughout the entire dictionary look-up process, and if they are quite comfortable with thinking aloud, throughout the entire test. Ask them to point to the part of the dictionary entry or TERMIUM entry that they are using. Explain that any thought that passes through their mind and any problems they encounter will probably be valuable for this experiment, so it is essential that they verbalize as much as possible. Explain that they can pause whenever necessary, but if there is a long pause, I may ask them what they're thinking about. Emphasize that they may verbalize in either English or French and may code-switch as much as they wish.
- 5) Ask them how they would normally approach the text (what would their overall strategy be--Would they go right into translating? Would they look up all of the unknown lexical items first? Would they turn first to parallel texts?, etc.) Record their explanation in the General Comments section of the Cover Sheet. Emphasize that they should approach the text in the way that is normal for them (with the exception of being able to turn to extensive parallel documentation).

APPENDIX 2**Cover Sheet**

The following is the cover sheet for Test 1, on which I recorded general background information about each subject:

- 1) Dictionary user's dominant language (English or French)
- 2) Text being translated (French source text or English source text)

General comments:

APPENDIX 3

Recording Sheet: The following is the recording sheet (adapted from the Fidelis project form) for test 1, on which I recorded information about the subjects' dictionary use:

1) What item made the dictionary user go to the dictionary?

.....

2) What dictionary are they using?

.....

3) What entry are they looking up?

(i.e. what headword)

.....

4) Why do they need that entry?

a) to find the meaning of the L2 expression

b) to check that the L2 expression means what they think it means

c) to find an equivalent

d) other (specify)

.....

.....

5) What part of the entry are they using?

(i.e. definition, equivalents, examples, usage notes, etc.)

.....

6) What language are they using if information is bilingual?

(i.e. as in TERMIUM)

.....

7) Have they found what they were looking for?

yes no

yes, but.....

8) If yes, where did they find it?

(i.e. in definitions, equivalents, example, idiom, compound, phrasal verb or the translation of any of these, style indicator, usage note, etc.).....

9) If no, what seems to be causing the problem?

(i.e. entry is missing, can't understand system of dictionary, insufficient definition, metalanguage problems, unclear examples, insufficient discrimination, etc.)

.....

10) What are they doing next?

- a) moving to another entry in the same dictionary
- b) moving on to another dictionary
- c) choosing a translation and ending this search
- d) ending this search without a solution

11) If they are moving to another dictionary, why?

- a) reason(s) indicated in section 9.
-

b) they need more information (about what?)

.....

c) they don't trust this dictionary

d) other

12) If they are ending this search, how do they feel?

- a) satisfied they got the right information
- b) doubtful about whether they got the right information
- c) sure they didn't get the right information

13) If they chose a translation, what translation did they choose?

.....

14) Any other comments?

.....

NOTE: For my purposes, Question 12 could have been eliminated from this form as it elicited essentially the same data as question 7. Question 12 was originally devised by other members of the FIDELIS project (Sue Atkins and Krista Varantola), who wanted to look at searches (i.e. all of the look-ups for a given item) separately from individual look-ups. However, as I did not consider searches in my analysis, I could have left this question out.

APPENDIX 4**Texts to be translated**

On the following pages are the texts I chose to be translated in test 1. The two texts were published in parallel in the Autumn 1993 edition of the *Bank of Canada Review/Revue de la Banque du Canada*. The French is the original text. It was written by François Thibault and translated by David Miller, a translator at the Bank of Canada who specializes in the translation of documents on economics, a former student of the STI, and a part-time professor at the STI for several years.

Note: The footnotes were included for information only. The subjects were not asked to translate them.

Le rôle des swaps de taux d'intérêt dans la gestion de la dette du gouvernement canadien

- *Les swaps de taux d'intérêt du gouvernement canadien ont pour but de réduire le coût des emprunts à trois mois du gouvernement par le biais d'un échange des paiements d'intérêts afférents à des emprunts à taux fixe contre des paiements à taux flottant.*

En février 1988, le gouvernement du Canada mettait en place un programme de swaps de taux d'intérêt¹. Ce programme a pour objectif de réduire le coût de la dette en permettant au gouvernement de se procurer indirectement du financement à trois mois à un taux plus avantageux que celui des bons du Trésor à trois mois. Cette économie est possible grâce à l'avantage comparatif dont jouit le gouvernement sur le marché des titres de dette à long terme assortis d'un taux fixe (c'est-à-dire que la différence entre le coût des emprunts à long terme et à taux fixe du gouvernement et celui d'autres entités est plus grande que la différence existant sur le marché du financement à court terme). C'est la Banque du Canada qui, dans son rôle d'agent financier du gouvernement fédéral, effectue les opérations de swap. Depuis sa mise en œuvre, le programme a été renouvelé à chaque exercice financier. À la clôture de l'exercice 1992-1993, le portefeuille de swaps s'établissait, en valeur nominale, à 7 775 millions de dollars.

Quelques notions de base sur les swaps de taux d'intérêt

D'origine assez récente, le swap de taux d'intérêt est une opération entre deux parties (deux investisseurs ou deux emprunteurs) qui conviennent d'échanger entre eux des paiements d'intérêts calculés à partir de taux spécifiques qu'ils appliquent à un montant donné, le notionnel. On entend par notionnel le montant du capital théorique en fonction duquel sont calculés les paiements d'intérêts échangés, mais qui lui-même n'est pas échangé². Le swap est souvent utilisé dans le but de modifier certaines caractéristiques d'un engagement contracté séparément.

¹ Il convient de distinguer les swaps de taux d'intérêt des swaps du Fonds des changes qui sont effectués dans le cadre de la gestion de trésorerie du gouvernement canadien. Pour plus de renseignements sur les swaps du Fonds des changes, consulter la note technique : "Les swaps du Fonds des changes dans la gestion de trésorerie", publiée par George Nossian dans l'édition de mai 1992 de la *Revue de la Banque du Canada*.

² Les swaps de devises quant à eux donnent généralement lieu à un échange de principal, puisque les parties désirent en plus changer la devise dans laquelle l'instrument concerné est libellé.

The role of interest rate swaps in managing Canada's debt

- *The Canadian government employs interest rate swaps in order to lower the cost of its 3-month borrowing; it obtains longer-term financing and then swaps the fixed-rate payments on this debt for floating-rate payments.*

In February 1988, the Government of Canada established an interest rate swap program.¹ The program is designed to reduce the cost of debt by allowing the government to obtain 3-month financing indirectly at more attractive rates than possible with 3-month treasury bills. The savings derive from the fact that the government enjoys a comparative advantage on the market for longer term, fixed-rate debt securities. In other words, the difference between the cost to the government and the cost to other organizations of borrowing on longer term, fixed-rate markets is larger than it is on short-term markets. The Bank of Canada performs swap transactions as the fiscal agent for the federal government. The program has been renewed each fiscal year since it was implemented. At the end of the 1992/93 fiscal year, the swap portfolio stood at \$7,775 million.

What are interest rate swaps?

A fairly recent innovation, interest rate swaps enable two borrowers to exchange, or "swap," the payments each needs to make against some debt or liability; or, conversely, it enables two investors to exchange the income stream from each other's investment. The actual liability or investment is not exchanged.² Instead, the payments, at specified interest rates for each party, are based on a set hypothetical amount called the "notional amount." Swaps are often used to alter the characteristics of previously negotiated liabilities.

¹The interest rate swaps discussed in this note should be distinguished from Exchange Fund Account swaps, which are carried out to manage the cash reserves of the Canadian government. For more information on Exchange Fund Account swaps, see George Nowlan, "Exchange Fund Account cash management swaps: A technical note" in the May 1992 issue of the *Bank of Canada Review*.

²Currency swaps, in contrast, generally involve an exchange of principal, since the parties also want to exchange the foreign currency in which the associated instrument is denominated.

APPENDIX 5

Background Information Sheet

The following background information sheet was distributed to each subject in the week prior to the test, to ensure they had sufficient understanding of the concept of *swaps*, as this concept was the focus of the text to be translated in the test and was unfamiliar to most subjects:

Background information for the test on dictionary use:

The text that you will be translating in the test is about **interest rate swaps**. The following is a brief explanation of this concept:

In an interest rate swap, two parties which both have loans trade the *terms* of their loans. They trade only the terms, however; the amount of the loan remains the same for each borrower.

To give a simple example:

Say I borrowed \$24,000 and was required to pay it back in monthly payments over 4 years at a fixed interest rate of 10%, and you borrowed \$24,000 and were required to pay it back in monthly payments over a period of 2 years at a rate that would be adjusted at regular intervals.

My Loan	Your Loan
Amount: \$24,000	Amount: \$24,000
Interest Rate: fixed at 10%	Interest Rate: adjusted at regular intervals
Payment period: 4 years	Payment period: 2 years
Payments: (\$500 + 10% per month)	Payments: depending on the interest rates at the time, they would be, say, \$1,000 + 10% for months 1, 2 and 3 \$1,000 + 8% for months 4, 5 and 6...

If it were beneficial to both of us to switch payment plans, then we could simply "swap" them. That is, I could pay you \$1,000 + 10% for months 1, 2 and 3, \$1,000 + 8% for months 4, 5 and 6 and so on for two years. You would pay me \$500 + 10% per month for four years. We would not actually be assuming each other's loan, we would simply be trading the terms of each other's loan. Our financial institution would not necessarily even know about it and we would be required to adhere to our regular payment plan as negotiated with the financial institution. Because we may not have exactly complementary needs, the transaction would usually be conducted through a financial intermediary which would co-ordinate varying needs (e.g. if I borrowed \$24,000 and you only borrowed \$12,000, then the intermediary may arrange for another party to swap with me for the remainder of the loan.)

APPENDIX 6

Dictionary survey and results

The following is the dictionary survey I conducted on 30 students of the STI (19 fourth-year students and 11 Master's students) to establish which dictionaries translation students prefer, and therefore which dictionaries I should provide in the testing. The results of the survey (represented graphically) are also provided.

Dictionary Use Survey

This survey is being conducted to obtain information on dictionary use in translation for the purpose of an M.A. thesis on lexicography. Your participation is, of course, entirely voluntary, but it would be greatly appreciated. Please provide as specific a title as possible for the dictionaries (i.e. *Webster's Ninth New Collegiate* rather than just *Webster's*), but do not leave a question blank for lack of detail. Thank you for your cooperation!

What is your dominant language? ☐ English ☐ French

Part I) When translating from French to English...

what is your preferred monolingual Eng'ish dictionary?

what is your preferred monolingual French dictionary?

what is your preferred bilingual French/English dictionary?

do you ever use a learner's dictionary? If so, which one?
(e.g. Collins Cobuild, Oxford Advanced Learners Dictionary, Longman Dictionary of Contemporary English, Le Robert méthodique, Le Dictionnaire du français contemporain, Le Dictionnaire Larousse du français langue étrangère)

do you ever use a combinatory dictionary? If so, which one ?
(e.g. BBI, English Prepositional Idioms, etc.)

do you use TERMIUM for your specialized (not technical) translation courses?.....
(e.g. T1a 3112, Tra 4110, Tra 4111)

Part II) When translating from English to French...

(Answers only required if they differ from those in Part I)

what is your preferred monolingual English dictionary?

what is your preferred monolingual French dictionary?

what is your preferred bilingual French/English dictionary?

do you ever use a learner's dictionary? If so, which one?

(e.g. Collins Cobuild, Oxford Advanced Learners Dictionary, Longman Dictionary of Contemporary English, Le Robert méthodique, Le Dictionnaire du français contemporain, Le Dictionnaire Larousse du français langue étrangère)

do you ever use a combinatory dictionary? If so, which one?

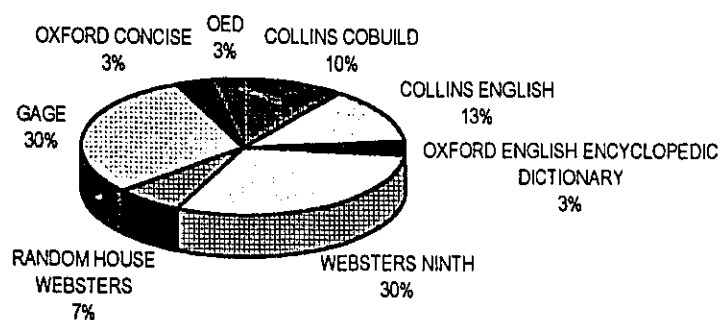
(e.g. BBI, Est-ce à ou de?).

do you use TERMIUM for your specialized (not technical) translation courses?

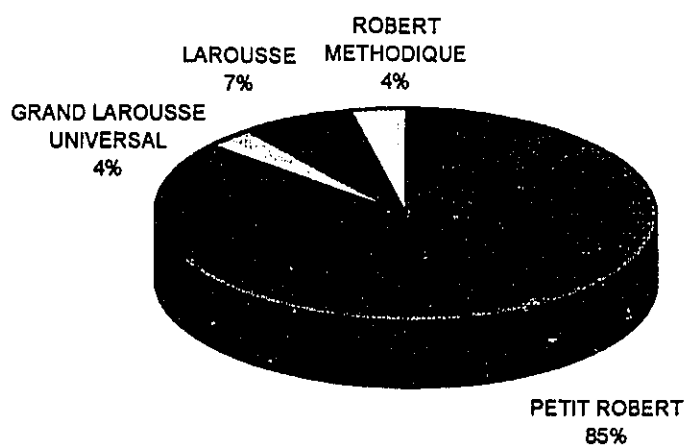
(e.g. Tra 3534, Tra 4534, Tra 4734)

Survey Results

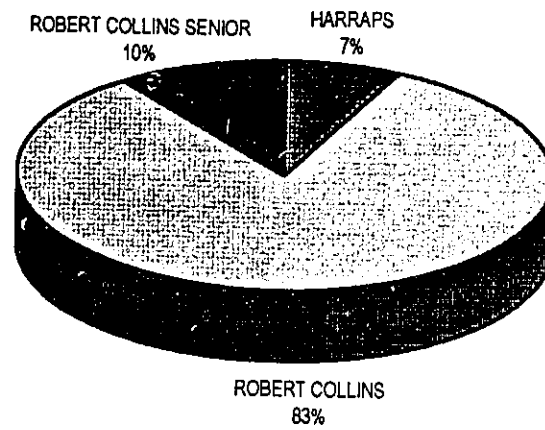
Preferred Monolingual English Dictionary



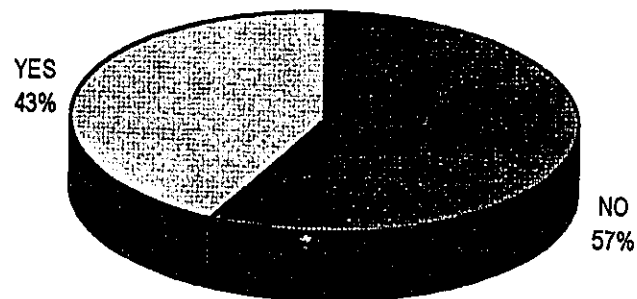
Preferred Monolingual French Dictionary



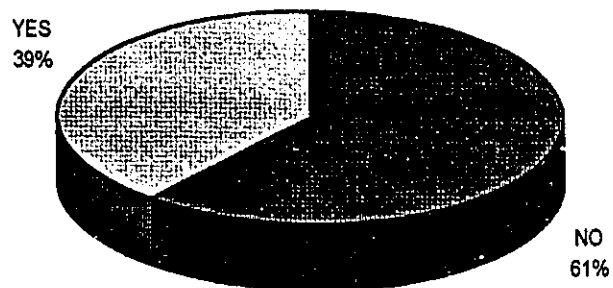
Preferred Bilingual Dictionary



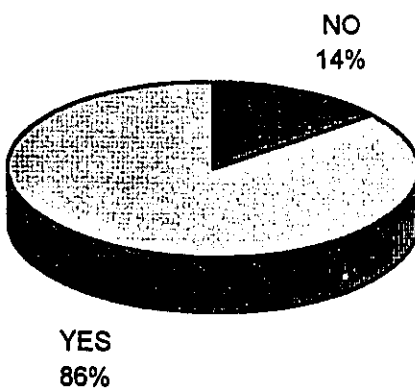
Do you use a Learner's Dictionary?



Do you use a Combinatory Dictionary?



Do you use Termium?



APPENDIX 7

Test sheets

The following are the test sheets used in test 2.

Anglophones—Test 1

The following is a test to measure your comprehension of definitions for various concepts. The concepts are ones that should be familiar to you (things like *dog*, *house* etc.), but in the following contexts, their standard *signifier* has been replaced by a made-up word, which does not resemble the standard signifier in any way. Each context is followed by a definition, in English or French, for the made-up word.

Your Job:

- Read the context and the definition for the made-up word.
- Provide an English equivalent for the made-up word based on the definition. Please try to be as specific as possible.
- If you are unable to think of the English equivalent, but think that you have understood the concept, then provide an explanation in English of the concept. Please try to be as specific as possible.

EXAMPLES

Context: Il a pris *une robation*.

robation: L'Espèce eucharistique du pain, consistant de nos jours en une petite rondelle de pain de froment, généralement azyme (dans les Églises latine, arménienne, maronite).

English equivalent or explanation: little round pieces of bread that they give you during communion at church

Context: Il a de bons *bichets*.

bichet: one of the usu. paired compound saccular thoracic organs that constitute the basic respiratory organ of air-breathing vertebrates

English equivalent or explanation: lung

1) Context: Le *botre* est très populaire dans certains pays.

botre: Instrument de musique à soufflet et à anches métalliques.

English equivalent or explanation:

2) Context: Il n'aime pas *le douffon*.

douffon: a sour liquid obtained by acetic fermentation of dilute alcoholic liquids and used as a condiment or preservative

English equivalent or explanation:

3) Context: Il a touché *le pignot*.

pignot: Matière solide, à base de silicate et d'aluminate de chaux, obtenue par cuisson et qui, mélangée avec un liquide, forme une pâte durcissant à l'air ou dans l'eau.

English equivalent or explanation:

4) Context: Cet enfant n'aime pas *le papin*.

papin: a cleansing and emulsifying agent made usu. by action of alkali on fats or fatty acids and consisting essentially of sodium or potassium salts of such acids

English equivalent or explanation:

5) Context: As-tu utilisé *mon lépi*?

lépi: Ustensile composé d'un long manche auquel est fixé un faisceau de brindilles, de crins ou une brosse à longs poils.

English equivalent or explanation:

6) Context: Elle a vu plusieurs *savés* par terre.

savé: a mass of ovule-bearing or pollen-bearing scales or bracts in trees of the pine family or in cycads that are arranged usu. on a somewhat elongated axis

English equivalent or explanation:

7) Context: *La palisse* devient chère.

palisse: Matière souple provenant du poil de l'épiderme des ovidés (et de quelques autres mammifères) constituée par des fibres pouvant être utilisées comme textile.

English equivalent or explanation:

8) Context: Où sont tes *battines*?

battine: the laterally projecting region of each side of the lower or posterior part of the mammalian trunk formed by the lateral parts of the pelvis and upper part of the femur together with the fleshy parts covering them

English equivalent or explanation:

Francophones—Test 1

Ce test vise à évaluer votre compréhension des définitions de diverses notions. Ce sont des notions bien connues (comme *chien*, *maison* etc.), mais dans les contextes ci-dessous, le *signifiant* normal de chaque notion a été remplacé par un mot inventé, qui n'a aucune ressemblance avec le signifiant normal. Chaque contexte est suivi d'une définition, en français ou en anglais, pour le mot inventé.

La tâche à accomplir:

- Lisez le contexte et la définition fournie pour le mot inventé.
- En vous basant sur la définition, donnez un équivalent français pour le mot inventé. Veuillez donner l'équivalent le plus précis possible.
- Si l'équivalent vous échappe, mais vous croyez avoir compris la définition, donnez une explication en français de la notion. Soyez le plus précis possible.

EXEMPLES

Contexte: There are many different kinds of *bewster*.

bewster: a widely cultivated ornamental climbing or prostrate or sometimes shrubby Eurasian vine (*Hedera helix*) of the ginseng family with evergreen leaves, small yellowish flowers, and black berries.

Équivalent français ou explication en français: espèce de vigne grimpant, à feuilles vertes, à petites fleurs jaunes et à baies noires

Contexte: He has good *kalters*.

kalter: Chacun des deux viscères logés symétriquement dans la cage thoraxique, organes de la respiration où se font les échanges gazeux.

Équivalent français ou explication en français: poumon

1) Contexte: He doesn't like *glattle*.

glattle: a sour liquid obtained by acetic fermentation of dilute alcoholic liquids and used as a condiment or preservative

Équivalent français ou explication en français:

2) Contexte: *Brigates* are very popular in some countries.

brigade: Instrument de musique à soufflet et à anches métalliques.

Équivalent français ou explication en français:

3) Contexte: This child doesn't like *luden*.

luden: a cleansing and emulsifying agent made usu. by action of alkali on fats or fatty acids and consisting essentially of sodium or potassium salts of such acids

Équivalent français ou explication en français:

4) Contexte: He touched the *mantora*.

mantora: Matière solide, à base de silicate et d'aluminate de chaux, obtenue par cuisson et qui, mélangée avec un liquide, forme une pâte durcissant à l'air ou dans l'eau.

Équivalent français ou explication en français:

5) Contexte: Did you use my *lardle*?

lardle: Ustensile composé d'un long manche auquel est fixé un faisceau de brindilles, de crins ou une brosse à longs poils.

Équivalent français ou explication en français:

6) Contexte: She saw several *charps* on the ground.

charp: a mass of ovule-bearing or pollen-bearing scales or bracts in trees of the pine family or in cycads that are arranged usu. on a somewhat elongated axis

Équivalent français ou explication en français:

7) Contexte: *Karshen* is getting expensive.

karshen: Matière souple provenant du poil de l'épiderme des ovidés (et de quelques autres mammifères) constituée par des fibres pouvant être utilisées comme textile.

Équivalent français ou explication en français:

8) Contexte: Where are your *drays*?

dray: the laterally projecting region of each side of the lower or posterior part of the mammalian trunk formed by the lateral parts of the pelvis and upper part of the femur together with the fleshy parts covering them

Équivalent français ou explication en français:

Anglophones--Test 2

The following is a test to measure your comprehension of definitions for various concepts. The concepts are ones that should be familiar to you (things like *dog*, *house* etc.), but in the following contexts, their standard *signifier* has been replaced by a made-up word, which does not resemble the standard signifier in any way. Each context is followed by a definition, in English or French, for the made-up word.

Your Job:

- Read the context and the definition for the made-up word.
- Provide an English equivalent for the made-up word based on the definition. Please try to be as specific as possible.
- If you are unable to think of the English equivalent, but think that you have understood the concept, then provide an explanation in English of the concept. Please try to be as specific as possible.

EXAMPLES

Context: Il a pris *une robation*.

robation: L'Espèce eucharistique du pain, consistant de nos jours en une petite rondelle de pain de froment, généralement azyme (dans les Églises latine, arménienne, maronite).

English equivalent or explanation: little round pieces of bread that they give you during communion at church

Context: Il a de bons *bichets*.

bichet: one of the usu. paired compound saccular thoracic organs that constitute the basic respiratory organ of air-breathing vertebrates

English equivalent or explanation: lung

1) Context: As-tu jamais vu *un balin*?

balin: Oiseau rapace nocturne (strigiformes) portant des aigrettes, ce qui le distingue des chouettes.

English equivalent or explanation:

2) Context: Il adore *le pateau*.

pateau: a solid emulsion of fat globules, air, and water made by churning milk or cream and used as food

English equivalent or explanation:

3) Context: *Le colivert* est très utile.

colivert: Métal blanc, très ductile et malléable, que l'on trouve en filons à l'état natif, dans les minerais, galènes et pyrites à l'état de sulfure, parfois uni à l'antimoine, au chlore.

English equivalent or explanation:

4) Context: Il n'aime pas *la manache*.

manache: a wind instrument consisting of a reed melody pipe and from one to five drones with air supplied continuously either by a bag with valve-stopped mouth tube or by bellows

English equivalent or explanation:

5) Context: Il préfère *le boteau*.

boteau: Tissu parenchymateux riche en sucs, qui constitue la plus grande partie des fruits charnus.

English equivalent or explanation:

6) Context: Ces *mamillons* sont très petits.

mamillon: a small lateral or terminal protuberance on the stem of a plant that may develop into a flower, leaf or shoot

English equivalent or explanation:

7) Context: Aimes-tu *les crachons*?

crachon: Plante monocotylédone (Liliacées), herbacée, vivace, à tige souterraine ou griffe d'où naissent chaque année des bourgeons qui s'allongent en tiges charnues (turions) aux extrémités comestibles; la tige comestible.

English equivalent or explanation:

8) Context: Il a touché *le porite*.

porite: an amorphous inorganic usu. transparent or translucent substance consisting of a mixture of silicates or sometimes borates or phosphates formed by fusion of silica or of oxides of boron or phosphorus with a flux and a stabilizer into a mass that cools to a rigid condition without crystallization

English equivalent or explanation:

Francophones—Test 2

Ce test vise à évaluer votre compréhension des définitions de diverses notions. Ce sont des notions bien connues (comme *chien*, *maison* etc.), mais dans les contextes ci-dessous, le *signifiant* normal de chaque notion a été remplacé par un mot inventé, qui n'a aucune ressemblance avec le signifiant normal. Chaque contexte est suivi d'une définition, en français ou en anglais, pour le mot inventé.

La tâche à accomplir:

- Lisez le contexte et la définition fournie pour le mot inventé.
- En vous basant sur la définition, donnez un équivalent français pour le mot inventé. Veuillez donner l'équivalent le plus précis possible.
- Si l'équivalent vous échappe, mais vous croyez avoir compris la définition, donnez une explication en français de la notion. Soyez le plus précis possible.

EXEMPLES

Contexte: There are many different kinds of *bewster*.

bewster: a widely cultivated ornamental climbing or prostrate or sometimes shrubby Eurasian vine (*Hedera helix*) of the ginseng family with evergreen leaves, small yellowish flowers, and black berries.

Équivalent français ou explication en français: espèce de vigne grimpant, à feuilles vertes, à petites fleurs jaunes et à baies noires

Contexte: He has good *kalters*.

kalter: Chacun des deux viscères logés symétriquement dans la cage thoraxique, organes de la respiration où se font les échanges gazeux.

Équivalent français ou explication en français: poumon

1) Contexte: He adores *pixen*.

pixen: a solid emulsion of fat globules, air, and water made by churning milk or cream and used as food

Équivalent français ou explication en français:

2) Contexte: Have you ever seen a *cratchel*?

cratchel: Oiseau rapace nocturne (strigiformes) portant des aigrettes, ce qui le distingue des chouettes.

Équivalent français ou explication en français:

3) Contexte: He doesn't like *pleatens*.

pleaten: a wind instrument consisting of a reed melody pipe and from one to five drones with air supplied continuously either by a bag with valve-stopped mouth tube or by bellows

Équivalent français ou explication en français:

4) Contexte: *Vermil* is very useful.

vermil: Métal blanc, très ductile et malléable, que l'on trouve en filons à l'état natif, dans les minerais, galènes et pyrites à l'état de sulfure, parfois uni à l'antimoine, au chlore.

Équivalent français ou explication en français:

5) Contexte: These *nomals* are very small.

nomal: a small lateral or terminal protuberance on the stem of a plant that may develop into a flower, leaf or shoot

Équivalent français ou explication en français:

6) Contexte: He prefers the *quant*.

quant: Tissu parenchymateux riche en sucs, qui constitue la plus grande partie des fruits charnus.

Équivalent français ou explication en français:

7) Contexte: He touched the *datchel*.

datchel: an amorphous inorganic usu. transparent or translucent substance consisting of a mixture of silicates or sometimes borates or phosphates formed by fusion of silica or of oxides of boron or phosphorus with a flux and a stabilizer into a mass that cools to a rigid condition without crystallization

Équivalent français ou explication en français:

8) Contexte: Do you like *bonnage*?

bonnage: Plante monocotylédone (Liliacées), herbacée, vivace, à tige souterraine ou griffe d'où naissent chaque année des bourgeons qui s'allongent en tiges charnues (turions) aux extrémités comestibles; la tige comestible.

Équivalent français ou explication en français:

Anglophones—Test 3

The following is a test to measure your comprehension of definitions for various concepts. The concepts are ones that should be familiar to you (things like *dog*, *house* etc.), but in the following contexts, their standard *signifier* has been replaced by a made-up word, which does not resemble the standard signifier in any way. Each context is followed by a definition, in English or French, for the made-up word.

Your Job:

- Read the context and the definition for the made-up word.
- Provide an English equivalent for the made-up word based on the definition. Please try to be as specific as possible.
- If you are unable to think of the English equivalent, but think that you have understood the concept, then provide an explanation in English of the concept. Please try to be as specific as possible.

EXAMPLES

Context: Il a pris *une robation*.

robation: L'Espèce eucharistique du pain, consistant de nos jours en une petite rondelle de pain de froment, généralement azyme (dans les Églises latine, arménienne, maronite).

English equivalent or explanation: little round pieces of bread that they give you during communion at church

Context: Il a de bons *bichets*.

bichet: one of the usu. paired compound saccular thoracic organs that constitute the basic respiratory organ of air-breathing vertebrates

English equivalent or explanation: lung

1) Context: As-tu utilisé *ma ricine*?

ricine: Ustensile de nettoyage, formé d'un assemblage de filaments souples (poils, crins, fibres synthétiques) ajustés sur une monture.

English equivalent or explanation:

2) Context: Cela présente beaucoup de *pentres*.

pentre: a relatively abrupt convexity or protuberance on a surface

English equivalent or explanation:

3) Context: Trouves-tu que *l'anomastie* est intéressante?

anomastie: Partie de la linguistique, science des unités de signification (monèmes) et de leurs combinaisons en unités fonctionnelles (mots, lexies), souvent étudiées dans leurs rapports avec la société dont elles sont l'expression.

English equivalent or explanation:

4) Context: Il trouve que *le bivron* sent bon.

bivron: a yellowish surface froth or sediment that occurs esp. in saccharine liquids (as fruit juices) in which it promotes alcoholic fermentation, consists largely of cells of a fungus (family Saccharomycetaceae), and is used esp. in the making of alcoholic liquors and as a leaven in baking.

English equivalent or explanation:

5) Context: Ses *migues* sont pâles.

migue: Chacune des deux parties charnues (musculo-adipeuses) de la région du bassin, dans l'espèce humaine et chez certains mammifères.

English equivalent or explanation:

6) Context: *Le malier* est bon.

malier: a fermented slightly acid often flavored semisolid food made of whole or skimmed cow's milk and milk solids to which cultures of two bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) have been added

English equivalent or explanation:

7) Context: C'est un passionné de *biludins*.

biludin: Type d'appareil dont la sustentation et la propulsion sont assurées par de grandes hélices horizontales placées au-dessus de l'appareil.

English equivalent or explanation:

8) Context: As-tu *le rachon*?

rachon: an acute allergic nasal catarrh and conjunctivitis; esp. POLLINOSIS

English equivalent or explanation:

Francophones--Test 3

Ce test vise à évaluer votre compréhension des définitions de diverses notions. Ce sont des notions bien connues (comme *chien*, *maison* etc.), mais dans les contextes ci-dessous, le *signifiant* normal de chaque notion a été remplacé par un mot inventé, qui n'a aucune ressemblance avec le signifiant normal. Chaque contexte est suivi d'une définition, en français ou en anglais, pour le mot inventé.

La tâche à accomplir:

- Lisez le contexte et la définition fournie pour le mot inventé.
- En vous basant sur la définition, donnez un équivalent français pour le mot inventé. Veuillez donner l'équivalent le plus précis possible.
- Si l'équivalent vous échappe, mais vous croyez avoir compris la définition, donnez une explication en français de la notion. Soyez le plus précis possible.

EXEMPLES

Contexte: There are many different kinds of *bewster*.

bewster: a widely cultivated ornamental climbing or prostrate or sometimes shrubby Eurasian vine (*Hedera helix*) of the ginseng family with evergreen leaves, small yellowish flowers, and black berries.

Équivalent français ou explication en français: espèce de vigne grimpant, à feuilles vertes, à petites fleurs jaunes et à baies noires

Contexte: He has good *kalters*.

kalter: Chacun des deux viscères logés symétriquement dans la cage thoraxique, organes de la respiration où se font les échanges gazeux.

Équivalent français ou explication en français: poumon

1) Contexte: There a lot of *kupples* on it.

kupple: a relatively abrupt convexity or protuberance on a surface

Équivalent français ou explication en français:

2) Contexte: Did you use my *olid*?

olid: Ustensile de nettoyage, formé d'un assemblage de filaments souples (poils, crins, fibres synthétiques) ajustés sur une monture.

Équivalent français ou explication en français:

3) Contexte: He thinks *muckle* smells good.

muckle: a yellowish surface froth or sediment that occurs esp. in saccharine liquids (as fruit juices) in which it promotes alcoholic fermentation, consists largely of cells of a fungus (family Saccharomycetaceae), and is used esp. in the making of alcoholic liquors and as a leaven in baking.

Équivalent français ou explication en français:

4) Contexte: Do you find *tritonics* interesting?

tritonics: Partie de la linguistique, science des unités de signification (monèmes) et de leurs combinaisons en unités fonctionnelles (mots, lexies), souvent étudiées dans leurs rapports avec la société dont elles sont l'expression.

Équivalent français ou explication en français:

5) Contexte: His *plattles* are pale.

plattle: Chacune des deux parties charnues (musculo-adipeuses) de la région du bassin, dans l'espèce humaine et chez certains mammifères.

Équivalent français ou explication en français:

6) Contexte: The *lifa* is good.

lifa: a fermented slightly acid often flavored semisolid food made of whole or skimmed cow's milk and milk solids to which cultures of two bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) have been added

Équivalent français ou explication en français:

7) Contexte: He's crazy about *dorlins*.

dorlin: Type d'appareil dont la sustentation et la propulsion sont assurées par de grandes hélices horizontales placées au-dessus de l'appareil.

Équivalent français ou explication en français:

8) Contexte: Do you have *crattle*?

crattle: an acute allergic nasal catarrh and conjunctivitis; esp. POLLINOSIS

Équivalent français ou explication en français:

Anglophones—Test 4

The following is a test to measure your comprehension of definitions for various concepts. The concepts are ones that should be familiar to you (things like *dog*, *house* etc.), but in the following contexts, their standard *signifier* has been replaced by a made-up word, which does not resemble the standard signifier in any way. Each context is followed by a definition, in English or French, for the made-up word.

Your Job:

- Read the context and the definition for the made-up word.
- Provide an English equivalent for the made-up word based on the definition. Please try to be as specific as possible.
- If you are unable to think of the English equivalent, but think that you have understood the concept, then provide an explanation in English of the concept. Please try to be as specific as possible.

EXAMPLES

Context: Il a pris *une robation*.

robation: L'Espèce eucharistique du pain, consistant de nos jours en une petite rondelle de pain de froment, généralement azyme (dans les Églises latine, arménienne, maronite).

English equivalent or explanation: little round pieces of bread that they give you during communion at church

Context: Il a de bons *bichets*.

bichet: one of the usu. paired compound saccular thoracic organs that constitute the basic respiratory organ of air-breathing vertebrates

English equivalent or explanation: lung

1) Context: Combien de *pictions* vois-tu?

piction: Ramification latérale de la tige ligneuse de l'arbre.

English equivalent or explanation:

2) Context: On a acheté *un nouveau pôme*.

pôme: a small child's bedstead with high enclosing usu. slatted sides

English equivalent or explanation:

3) Context: Les *puissons* se trouvent tous dans le même endroit.

puisson: Organe souterrain renflé, constitué par un bourgeon au centre d'écailles fixées sur un plateau, porteur de racines adventives, rempli de réserves nutritives grâce auxquelles la plante reconstitue chaque année ses parties aériennes.

English equivalent or explanation:

4) Context: *Le gibis* est abondant ici.

gibis: a bluish silver-white malleable ductile light trivalent metallic element with good electrical and thermal conductivity, high reflectivity, and resistance to oxidation that is the most abundant metal in the earth's crust occurring always in combination

English equivalent or explanation:

5) Context: On trouve *des boudrons* en Amérique du Nord.

boudron: Mammifère pinnipède, amphibie, aux membres antérieurs courts et palmés, au cou très court, aux oreilles dépourvues de pavillon, et au pelage ras.

English equivalent or explanation:

6) Context: Il voit *un viacre* devant sa maison.

viacre: any of a genus (*Taraxacum*) of yellow-flowered composite plants; *esp*: an herb (*T. officinale*) sometimes grown as a potherb and nearly cosmopolitan as a weed

English equivalent or explanation:

7) Context: Il a un excès de *calache*.

calache: Substance onctueuse, de fusion facile, répartie en diverses parties du corps de l'homme (et des mammifères), surtout dans le tissu conjonctif sous-cutané.

English equivalent or explanation:

8) Context: Elle a touché *la molisse*.

molisse: the soft wavy or curly hypertrophied undercoat of various hairy mammals and esp. the sheep made up of fibers of keratin molecules within a matrix and covered with minute scales

English equivalent or explanation:

Francophones—Test 4

Ce test vise à évaluer votre compréhension des définitions de diverses notions. Ce sont des notions bien connues (comme *chien*, *maison* etc.), mais dans les contextes ci-dessous, le *signifiant* normal de chaque notion a été remplacé par un mot inventé, qui n'a aucune ressemblance avec le signifiant normal. Chaque contexte est suivi d'une définition, en français ou en anglais, pour le mot inventé.

La tâche à accomplir:

- Lisez le contexte et la définition fournie pour le mot inventé.
- En vous basant sur la définition, donnez un équivalent français pour le mot inventé. Veuillez donner l'équivalent le plus précis possible.
- Si l'équivalent vous échappe, mais vous croyez avoir compris la définition, donnez une explication en français de la notion. Soyez le plus précis possible.

EXEMPLES

Contexte: There are many different kinds of *bewster*.

bewster: a widely cultivated ornamental climbing or prostrate or sometimes shrubby Eurasian vine (*Hedera helix*) of the ginseng family with evergreen leaves, small yellowish flowers, and black berries.

Équivalent français ou explication en français: espèce de vigne grimpant, à feuilles vertes, à petites fleurs jaunes et à baies noires

Contexte: He has good *kalters*.

kalter: Chacun des deux viscères logés symétriquement dans la cage thoraxique, organes de la respiration où se font les échanges gazeux.

Équivalent français ou explication en français: poumon

1) Contexte: How many *grapplins* do you see?

grapplin: Ramification latérale de la tige ligneuse de l'arbre.

Équivalent français ou explication en français:

2) Contexte: We bought a new *cauliper*.

cauliper: a small child's bedstead with high enclosing usu. slatted sides

Équivalent français ou explication en français:

3) Contexte: The *doofs* are all in the same spot.

doof: Organe souterrain renflé, constitué par un bourgeon au centre d'écaïlles fixées sur un plateau, porteur de racines adventives, rempli de réserves nutritives grâce auxquelles la plante reconstitue chaque année ses parties aériennes.

Équivalent français ou explication en français:

4) Contexte: There is a lot of *cholly* here.

cholly: a bluish silver-white malleable ductile light trivalent metallic element with good electrical and thermal conductivity, high reflectivity, and resistance to oxidation that is the most abundant metal in the earth's crust occurring always in combination

Équivalent français ou explication en français:

5) Contexte: There are *tappets* in North America.

tappet: Mammifère pinnipède, amphibie, aux membres antérieurs courts et palmés, au cou très court, aux oreilles dépourvues de pavillon, et au pelage ras.

Équivalent français ou explication en français:

6) Contexte: He saw a *slatch* in front of his house.

slatch: any of a genus (*Taraxacum*) of yellow-flowered composite plants; *esp*: an herb (*T. officinale*) sometimes grown as a potherb and nearly cosmopolitan as a weed

Équivalent français ou explication en français:

7) Contexte: He has too much *vartnis*.

vartnis: Substance onctueuse, de fusion facile, répartie en diverses parties du corps de l'homme (et des mammifères), surtout dans le tissu conjonctif sous-cutané.

Équivalent français ou explication en français:

8) Contexte: She touched the *lisher*.

lisher: the soft wavy or curly hypertrophied undercoat of various hairy mammals and esp. the sheep made up of fibers of keratin molecules within a matrix and covered with minute scales

Équivalent français ou explication en français:

Anglophones--Test 5

The following is a test to measure your comprehension of definitions for various concepts. The concepts are ones that should be familiar to you (things like *dog*, *house* etc.), but in the following contexts, their standard *signifier* has been replaced by a made-up word, which does not resemble the standard signifier in any way. Each context is followed by a definition, in English or French, for the made-up word.

Your Job:

- Read the context and the definition for the made-up word.
- Provide an English equivalent for the made-up word based on the definition. Please try to be as specific as possible.
- If you are unable to think of the English equivalent, but think that you have understood the concept, then provide an explanation in English of the concept. Please try to be as specific as possible.

EXAMPLES

Context: Il a pris *une robation*.

robation: L'Espèce eucharistique du pain, consistant de nos jours en une petite rondelle de pain de froment, généralement azyme (dans les Églises latine, arménienne, maronite).

English equivalent or explanation: little round pieces of bread that they give you during communion at church

Context: Il a de bons *bichets*.

bichet: one of the usu. paired compound saccular thoracic organs that constitute the basic respiratory organ of air-breathing vertebrates

English equivalent or explanation: lung

1) Context: Il a acheté *un payon*.

payon: Instrument formé d'une corde de chanvre, d'une lanière au bout d'un manche.

English equivalent or explanation:

2) Context: Il y a plusieurs sortes de *véridateurs*.

véridateur: a piece of ordnance usu. with high muzzle velocity and comparatively flat trajectory

English equivalent or explanation:

3) Context: As-tu jamais acheté de *la flume*?

flume: Substance filiforme sécrétée par quelques lépidoptères, essentiellement constituée par deux protéines (séricine et fibroïne), utilisée comme matière textile.

English equivalent or explanation:

4) Context: Sais-tu ce que c'est, *un sauvin*?

sauvin: any of the electromagnetic radiations of length less than 100 angstroms that is produced by bombarding a metallic target with fast electrons in vacuum or by transition of atoms to lower energy states and that has the properties of ionizing a gas upon passage through it, of penetrating various thicknesses of all solids, of producing secondary radiations by impinging on material bodies, of acting on photographic films and plates as light does, and of causing fluorescent screens to emit light

English equivalent or explanation:

5) Context: Il y a deux *terres* par terre.

terre: Animal arthropode (*Arachnides*) appartenant à l'ordre des *aranéides* (caractérisé par un pédicule qui relie la tête et l'abdomen, des chélicères inoculateurs de venin, des filières ventrales).

English equivalent or explanation:

6) Context: Il y a de petites *cinations* là-dessus.

cination: a small ridge or furrow esp. when formed on a surface by the shrinking or contraction of a smooth substance

English equivalent or explanation:

7) Context: Il a vu *un soril* devant sa maison.

soril: Plante herbacée, vivace (Composacées), à feuilles longues et dentées, à fleurs jaunes, à akènes pourvus d'une aigrette.

English equivalent or explanation:

8) Context: Ses *vitailles* sont petites.

vitaille: the terminal part of the vertebrate forelimb when modified (as in humans) as a grasping organ

English equivalent or explanation:

Francophones—Test 5

Ce test vise à évaluer votre compréhension des définitions de diverses notions. Ce sont des notions bien connues (comme *chien*, *maison* etc.), mais dans les contextes ci-dessous, le *signifiant* normal de chaque notion a été remplacé par un mot inventé, qui n'a aucune ressemblance avec le signifiant normal. Chaque contexte est suivi d'une définition, en français ou en anglais, pour le mot inventé.

La tâche à accomplir:

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- En vous basant sur la définition, donnez un équivalent français pour le mot inventé. Veuillez donner l'équivalent le plus précis possible.
- Si l'équivalent vous échappe, mais vous croyez avoir compris la définition, donnez une explication en français de la notion. Soyez le plus précis possible.

EXEMPLES

Contexte: There are many different kinds of *bewster*.

bewster: a widely cultivated ornamental climbing or prostrate or sometimes shrubby Eurasian vine (Hedera helix) of the ginseng family with evergreen leaves, small yellowish flowers, and black berries.

Équivalent français ou explication en français: espèce de vigne grimpant, à feuilles vertes, à petites fleurs jaunes et à baies noires

Contexte: He has good *kalters*.

kalter: Chacun des deux viscères logés symétriquement dans la cage thoraxique, organes de la respiration où se font les échanges gazeux.

Équivalent français ou explication en français: poumon

1) Contexte: There are many kinds of *ballows*.

ballow: a piece of ordnance usu. with high muzzle velocity and comparatively flat trajectory

Équivalent français ou explication en français:

2) Contexte: He bought a *trittle*.

tritt: Instrument formé d'une corde de chanvre, d'une lanière au bout d'un manche.

Équivalent français ou explication en français:

3) Contexte: Have you ever bought *calvarite*?

calvarite: Substance filiforme sécrétée par quelques lépidoptères, essentiellement constituée par deux protéines (séricine et fibroïne), utilisée comme matière textile.

Équivalent français ou explication en français:

4) Contexte: Do you know what a *chapson* is?

chapson: any of the electromagnetic radiations of length less than 100 angstroms that is produced by bombarding a metallic target with fast electrons in vacuum or by transition of atoms to lower energy states and that has the properties of ionizing a gas upon passage through it, of penetrating various thicknesses of all solids, of producing secondary radiations by impinging on material bodies, of acting on photographic films and plates as light does, and of causing fluorescent screens to emit light

Équivalent français ou explication en français:

5) Contexte: There are two *olipers* on the ground.

oliper: Animal arthropode (*Arachnides*) appartenant à l'ordre des *aranéides* (caractérisé par un pédicule qui relie la tête et l'abdomen, des chélicères inoculateurs de venin, des filières ventrales).

Équivalent français ou explication en français:

6) Contexte: There are little *murtens* on it.

murtens: a small ridge or furrow esp. when formed on a surface by the shrinking or contraction of a smooth substance

Équivalent français ou explication en français:

7) He saw a *louch* in front of his house.

louch: Plante herbacée, vivace (Composacées), à feuilles longues et dentées, à fleurs jaunes, à akènes pourvus d'une aigrette.

Équivalent français ou explication en français:

8) Her *reavens* are small.

reaven: the terminal part of the vertebrate forelimb when modified (as in humans) as a grasping organ

Équivalent français ou explication en français:

APPENDIX 8

Sample Database Records

The following is a sample record from the database storing the information recorded on the cover sheets:

SUBJ_NO	1
NAME	Jane Doe
LANG	E

NOTE: SUBJ NO refers to the number assigned to each subject tested; NAME refers to the subject's name; LANG refers to the native language of the subject.

The following is a sample record from the database storing the information recorded on the recording sheets:

NOTE: The numbers incorporated into some of the field names correspond to the question numbers on the recording sheet. For example, WORD 1 corresponds to the first question on the recording sheet (i.e. What item made the dictionary user go to the dictionary?) and the answer in this case was *income stream*; DICT 2 corresponds to the second question (i.e. What dictionary are they using?) and the answer in this case was *TERMIUM*; LOOKUP 3 corresponds to the third question (i.e. What entry are they looking up?), the answer to which was *income stream*, and so on. All the codes used in this database for the field names and for the data in the fields are fully explained in Appendix 9.

SUBJ_NO	6
SHEET_NO	13
LOOKUP_NO	1
WORD_1	income stream
WORDTYPE_1	spec
COMMENT_1	
DICT_2	term
DICTTYPE_2	spec hybrid
COMMENT_2	
LOOKUP_3	income stream
COMMENT_3	scanned. also looked at entry for income streaming

MEANING_4A COMMENT_4A	y
CHECK_4B COMMENT_4B	n
EQUIV_4C COMMENT_4C	y
OTHER_4D COMMENT_4D	n
PART_5 COMMENT_5	equiv used field label-eliminated one record because it was in wrong field
LANG_6 COMMENT_6	
FOUND_7 COMMENT_7	yb verify equivalent
WHERE_8 COMMENT_8	equiv
WHYNOT_9 COMMENT_9	
NEXT_10 COMMENT_10	b
REASON_11 COMMENT_11	d verify equivalent-wanted to see what sylvain had to say about income stream
RESULT_12 COMMENT_12	
TRANSLT_13 COMMENT_13	
GENERAL_14	

APPENDIX 9

Database Codes

The following are the codes I used in the larger database constructed for test 1. First the field name is given (e.g. WORDTYPE), followed by a list of all the standardized codes that could be used in that particular field (e.g. gen, spec, gen/spec). An explanation (written in italics) is given in parentheses for each field name and code that is not self-explanatory:

NOTE: any other information input into the database fields was written in free-flow unstandardized format.

BASIC FIELD CODES:

SUBJ NO (*number assigned to subject; used to link two databases*): 1, 2, 3...

SHEET NO (*number of the recording sheet*): 1, 2, 3...

LOOKUP NO (*look-up number for that particular item i.e. for the first look-up done for a given item, lookup no = i*): 1, 2, 3...

WORD (*item which caused the subject to use the dictionary*): income stream, notionnel, etc.

WORDTYPE (*type of word which caused the dictionary use*):

gen (*general-language item*), spec (*specialized item*), gen/spec (*borderline item*)

DICT (*specific dictionary used*):

pr (*Petit Robert*), websters (*Webster's Ninth New Collegiate Dictionary*), gage (*Gage Canadian Dictionary*), rc (*Robert-Collins*), term (*Termium*), sylvain (*Dictionnaire de la comptabilité*), crane (*A Dictionary of Canadian Economics*), thomsett (*Investment and Securities Dictionary*), bernardcolli (*Dictionnaire économique et financier*), bbi (*BBI Combinatory Dictionary of English*)

DICTTYPE (*type of dictionary used*):

gen fre mono (*general French monolingual*), gen eng mono (*general English monolingual*), gen bi (*general bilingual*), spec hybrid (*specialized hybrid*), spec eng mono (*specialized English monolingual*), spec fre mon (*specialized French monolingual*), gen eng combinatory (*general English combinatory*)

LOOKUP (*headword looked up in dictionary*): income, notionnel, etc.

MEANING (*subject does not understand L2 item*): y or n

CHECK (*subject wants to verify meaning of L2 item*): y or n

EQUIV (*subject needs an equivalent*): y or n

OTHER (*subject is using dictionary for some reason other than the 3 reasons indicated above*): y or n

PART (*part of entry used*):

defn (*definition*), equiv (*equivalent*), example, observ (*observation*), context, headword

LANG (*language of information used if both are available i.e. English or French definition*):
eng, fre, both

FOUND (*subject found what they were looking for*): y, n or yb (*yes, but*)

WHERE (*where they found what they were looking for*):

defn, equiv, equiv (compound) (*equivalent given for a compound*), equiv (colloc) (*equivalent given for a collocation*), example, headword

WHYNOT (*why they didn't find what they were looking for*):

entry is missing, can't understand system of dictionary, insufficient defn, metalanguage problems

NEXT (*what the subject is doing next*): a, b, c, or d (*see Recording sheet for explanation of a, b, c, and d in question 10*)

REASON (*reason for moving to another dictionary if they are doing so*): a, b, c, or d (*see Recording sheet for explanation of a, b, c, and d in question 11*)

TRANSLT (*the translation they chose*):

word1 revised to word2 (*subject had originally chosen word1 as translation, but later changed it to word2*)

GENERAL (*general comments*):

would check parallel documentation (*subject wouldn't look any further in documents provided, but rather, would go to parallel documentation*)

COMMENT FIELD CODES:

COMMENT 1:

COMMENT 2:

COMMENT 3: any entry with search term (*subject looked for any entry containing the search term indicated under LOOKUP i.e. usually as part of a larger syntagma*)

scanned (*subject scanned through several entries found close together (as in Termium or in index of Sylvain)*)

global (*subject did a search through whole file, not just on entry term*)

global boolean (*subject did a boolean search through whole file*)

COMMENT 4A: specialized meaning (*subject wants to know if the word has a specialized meaning they are unaware of*)

via L1 entry (*subject makes guess at equivalent and looks for meaning via an L1 entry rather than an L2 entry*)

via L1 entry (defn) (*subject makes guess at equivalent and looks for meaning via an L1 definition rather than an L2 definition—differs from above code in that the subject used the definition specifically*)

COMMENT 4B:

COMMENT 4C: needs better equivalent (*subject has an equivalent in mind, but wants a better one*)

needs collocate (*subject needs to know the appropriate collocation in his L1*)

needs phraseology (*subject needs equivalent for phraseology*)

via L1 entry (*subject makes guess at what equivalent might be and looks for equivalent via entry for that term*)

via L1 entry (defn) (*subject makes a guess at equivalent and looks for equivalent via L1 definition rather than an L2 definition*)

COMMENT 4D: verify equivalent (term) (*subject wants to verify that the equivalent proposed is a proper term*)

verify equivalent (meaning) (*subject wants to verify meaning of proposed equivalent to confirm its equivalence to the L1 item*)

terminological unit? (*subject wants to see if the term exists as a terminological unit (i.e. is it a term?)*)

probably needs meaning (*subject said they didn't need meaning, but their behaviour indicates otherwise*)

verify synonymy (*subject wants to see if word1 and word2 are synonymous*)

needs info on verbal use (*needs information on whether entry can be used as a verb*)

needs meaning discrimination between equivalents (*subject has found several equivalents and needs information to discriminate between their meanings*)

needs stylistic discrimination between equivalents (*subject has found several equivalents and needs information to discriminate stylistically between them*)

verify spelling (*subject needs to verify spelling of item(s) in question*)

COMMENT 5: used quality codes (*subject used quality codes in term bank record or usage notes in dictionary*)

used indicating material (*subject used indicating material other than field labels and quality codes*)

used field label (*subject took note of field label*)

used cross-reference (*subject took note of cross-reference*)

used defn for terminology (*subject used the context of a definition, observation, context, etc. to gather terminology for other parts of text*)

COMMENT 6:

COMMENT 7: no exact match (*subject found some information, but can't find an entry for the exact term—information helped a little, but he needs information for the exact term*)

doesn't like equivalents (*subject found information, but doesn't like the equivalents proposed*)

trustworthy? (*subject found information, but is not sure whether it should be trusted*)

relevant info? (*the subject found information, but is not sure whether it is relevant to his purposes*)

needs meaning discrimination between equivalents (*subject doesn't feel capable of discriminating between meanings of various proposed equivalents*)

needs stylistic discrimination between equivalents (*subject doesn't feel capable of discriminating between various proposed equivalents on a stylistic level*)

proposed soln not satisfied (*the subject had come up with a possible solution, but it did not pan out*)

verify equivalent (*subject wants to double-check the proposed equivalent in other sources*)

wants a definition (*subject needs a definition in addition to what he has already found*)

too much info (*subject doesn't want to have to sift through all the information provided*)

COMMENT 8: field label (*field label helped subject to come up with solution*)

indicating material (*indicating material (other than field labels and quality codes) helped subject to come up with solution*)

quality codes (*quality codes helped subject to come up with solution*)

cross-reference (*cross-reference helped subject to come up with solution*)

COMMENT 9:

COMMENT 10:

COMMENT 11A:

COMMENT 11B: wants exact match (*subject would like to see an entry for the exact term*)

wants a definition (*subject would like a definition*)

wants an example (*subject would like an example containing the desired term*)

wants an equivalent (*subject still has not found an equivalent*)

wants a better equivalent (*subject has an equivalent, but would like a better one*)

wants relevant info (*subject wants information that is more relevant to the item(s) in question*)

wants meaning discrimination between equivalents (*subject has found various equivalents, but can't decide which one is appropriate in terms of meaning*)

wants stylistic discrimination between equivalents (*subject has found various equivalents, but can't decide which one is appropriate on a stylistic level*)

COMMENT 11C:

COMMENT 11D: verify equivalent (*subject wants to verify that the equivalent proposed is a proper term and is appropriate for the translation*)

COMMENT 12:

COMMENT 13: translators equivalent (*subject came up with his own equivalent (either because he didn't find one in the dictionaries, or he didn't like what he found)—he may have found some information which helped him, but not an exact equivalent*)

will choose later (*subject couldn't decide which equivalent he wanted, so he left all of them and would choose later*)

APPENDIX 10

The following is a sample record from the database constructed for test 2:

ACADLEVEL	grad
SHEETNUM	4
QUESTNUM	3
SUBJ_LANG	e
DEF_LANG	f
WORD	argent
SUCCESS	n
RESPONSE	b
PROBLEMS	filons, galènes, pyrites, antimoine

NOTE: the codes used in this database were as follows (explanations (written in *italics*) are given in parentheses for the codes that are not self-evident)

ACADLEVEL (*the academic level of the subject*): grad (*Master's level*), ug2 (*2nd-year undergrad*), ug4 (*4th-year undergrad*)

SHEETNUM (*the number of the test sheet*): 1, 2, 3...

QUESTNUM (*the number of the question on the test sheet*): 1, 2...8

SUBJ_LANG (*the dominant language of the subject*): e (*english*) or f (*french*)

DEF_LANG (*language in which the definition was written*): e (*english*) or f (*french*)

WORD (*word which the nonsense word replaced i.e. definiendum for the definiens provided*): argent, crib, etc.

SUCCESS (*was the subject successful in guessing the equivalent or coming up with an appropriate explanation thereof?*): y or n

RESPONSE (*form of the response given*): w (*word i.e. equivalent*), e (*explanation*), b (*blank*)

PROBLEMS (*words in the definition that are unknown to the subject*): antimoine, boron, etc.

APPENDIX 11

Items most commonly looked up in Test 1

The following is the output of a query (done on the database for test 1 using the database query tool Impromptu) to establish which lexical items were most commonly looked up in test 1. Each item is followed by the number of look-ups it elicited.

Word	Count
notionnel	24
emprunts à trois mois	18
notional amount	17
afférent	16
taux flottant	16
fixed-rate markets	15
valeur nominale	15
bons du Trésor	14
coût de la dette	14
emprunts à taux fixe	13
floating-rate payments	13
income stream	13
interest rate swaps	12
swap portfolio	12
titres de dette	12
marché des titres de dette à long terme	11
mettait en place	11
3-month borrowing	10
entités	10
avantage comparatif	9
debt securities	9
exercice financier	9
fiscal agent	8
portefeuille	8
treasury bills	8
3-month financing	7
marché des titres	7
savings	7
titres de dette à long terme	7
se procurer indirectement du financement	6
taux fixe	6
coût des emprunts	5
financement à trois mois	5
financing	5

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