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Tapping and Mapping the Processes of Translation and Interpreting

Edited by
Sonja Tirkkonen-Condit
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Tapping and Mapping the Processes of Translation and Interpreting
Outlooks on empirical research

TAPPING AND MAPPING THE PROCESSES OF TRANSLATION AND INTERPRETING

OUTLOOKS ON EMPIRICAL RESEARCH

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Contents

Part III: Featuring the Processes

Postscript

Foreword

Challenges and Priorities in Process Research

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Most of the articles in this volume are based on papers presented at the Symposium on Translation Processes at AILA96. The theme of the AILA96 Congress, Applied Linguistics across Disciplines, is reflected in the contributions to the present volume. The volume brings together cognitive psychologists as well as interpreting scholars and translation researchers who look at process phenomena from various linguistic vantage points.

The articles in Part I deal with simultaneous interpreting (SI) and are focussed on issues of access to its processes. In Part II the focus is on methodology in general and, in particular, on how to glean information from data, while Part III is devoted to particular features of the processes of translating. The multidisciplinary nature of Translation Studies becomes manifest throughout these texts, and this, then, is the topic of Kirsten Malmkjaer's postscript to the collective volume.

One of the major issues in the empirical research of simultaneous interpreting (as in translation research) is ecological validity: there is the danger that psychological experimentation on the hypothesised sub-skills of SI in isolation yields results which do not correspond to the "sub-skill" when it is exercised in the normal context of an SI task. Thus it is important that research on interpreting is pursued not only by cognitive psychologists but also by translation scholars or, preferably, in close interaction between the two groups, as has been the case in Miriam Shlesinger's research projects. It is not only ecological validity which may be in danger; if the worst comes to the worst, the entire object of study may be lost sight of, as Malmkjaer points out in her postscript.

Access to subjects may turn out as another problem, since interpreters and translators may not always welcome a researcher into their professional territory. One way to solve this problem is to combine the roles of interpreter or translator and researcher. This is what Gun-Viol Vik-Tuovinen did, when she decided to tape-record simultaneous interpreters' interpreting performance

as well as their discussions during the short intervals when there was no need for interpreting. She was one of the two interpreters in the town-council sessions from which the data was gathered. The idea of using interpreters' mutual consultations as a potential source of information on SI processes means an enhancement to the battery of methods in SI research.

Adelina Ivanova's method of accessing SI processes is delayed retrospection, and her aim is to subject this method to critical evaluation while using it to elicit data on expert vs. novice comparisons. Annette de Groot in her article attacks a pivotal issue in Translation Studies, namely the extent to which the processes of translation and interpreting can be assumed to be alike. De Groot suspects that the sub-skills may manifest considerable differences in the instance of, say, fluency, automaticity and speed. The concern for ecological validity is always justified in research where sub-skills are investigated in isolation. Even though research on the sub-skills involved in each task may not necessarily yield ecologically valid results, however, such research will justify itself by making us more careful in our hypotheses. If the processes are different in terms of their sub-skills, there is a good reason to hypothesise that the processes are not alike. The methodologies borrowed from cognitive psychology should then be geared according to the specific profile of each task.

Critical evaluation of research methodology is in focus also in Riitta Jääskeläinen's article, in which she voices a concern for the pitfalls of empirical research to translation scholars, most of whom have not been systematically trained to do such research or to interpret its results.

Since translation and interpreting are basically linguistic operations, it should not come as a surprise that one article in this collection evaluates the power of (cognitive) linguistics in describing and explaining some elements in our interpretation of literary texts. Elżbieta Tabakowska argues that particular choices in the translation of a poem can be prioritised by virtue of their compatibility with, e.g., the "deictic grounding" that prevails in the original poem. Thus we can expect that linguistic sophistication may guide translation processes towards solutions which we intuitively prioritise.

Irena Kovačič is concerned with the very issue of whether the obvious systematicity of subtitlers' linguistic choices surfaces in their process data in any observable way. She carried out think-aloud experiments as well as retrospective interviews with subtitlers and found that although their TAPs manifested no explicit metalinguistic analysis, the subtitlers in the interviews occasionally revealed linguistic justifications for their choices. The methodological point here is that a combination of methods is more likely to yield tangible results than a single-method approach.

Expertise in translation is a key issue in translation pedagogy, and its identification is thus one of the main challenges in process research. So far most process research has focussed on the cognitive dimensions of expertise, but there is some evidence that the affective dimension also merits the attention of research scholars and education scholars alike. Janet Fraser, among others, believes in building up the translator's confidence rather than undermining it in education. Juliane House and Candace Séguinot present interesting arguments for translating in pairs: the dialogue which enfolds when a translation is being produced as a joint effort helps novices to become aware of the confines of their knowledge and professional development (House). The protocols of professional translators' dialogues in turn reveal such "managerial" issues of task performance which seldom surface in solitary think-aloud material let alone leave a trace in the finalised product (Séguinot). Another "managerial" issue is taken up by Sonja Tirkkonen-Condit, who compares the strategies with which translators manage the uncertainty which looms large throughout the translating task. If translation is seen also as a managerial operation, translation curricula should be geared towards such projects – whether simulated or real – in which co-operation, risk-taking and uncertainty management can be safely tried out and practised.

On the basis of the articles in this collection, three major challenges emerge from process research as it stands today: maintenance of a clear vision of the object of study, methodological sobriety, and transference of the emerging knowledge of expertise to translation pedagogy. Expertise probably deserves the focus of our research efforts also in the future.

Part I

Interpreting:
How to get access to SI processes?

Interpreting as a Cognitive Process: How can we know what really happens?

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Introduction

From the time simultaneous interpreting stopped being viewed as sheer alchemy and turned into something worth studying and dissecting, we have been trying to devise ways of finding out what actually happens in the interpreter's mind as s/he goes about performing this unusual task. While the interest in observing cognitive processes and peeking inside the "black box" is as keen in the case of interpreting as it is in the case of translation, the methods cannot always be the same. Think-aloud protocols are a case in point. Simultaneous interpreters can hardly be expected to verbalize an account of their mental processes while also producing an oral target-language output. Thus, for all intents and purposes, TAPs, in the ordinary sense, are not a viable tool for us. The closest technique we have along these lines is that of immediate retrospective accounts, analogous to the "time freezing" technique used in human factors research; the interpreter is briefly interrupted – which means that the technique can only be used in an experimental setting – and is asked questions about her/his reasoning just before the freeze. There is good reason to suspect, however, that the very act of interrupting the process will alter it.

More prevalent in ongoing research have been studies which make recourse to Information Processing flow models, extrapolated from cognitive psychology, in an effort to observe the workings of task-specific capacity-sharing; and to computational modelling, in an effort to design, implement and evaluate systems which instantiate theoretical approaches to human cognition, and track the depletion of the cognitive resources. This approach is particularly useful in addressing the very aspects of processing that SI research has largely passed over: low-level, rehearsed, automatic behaviors that interact in complex

ways in the process of simultaneous interpreting. As Lonsdale (1997: 103) points out:

> [...] if modeling of the process is possible at some level of description, the computational system will be able to provide data about resource consumption, search and deliberation methods, task and control decisions and other performance-related items that would otherwise be inaccessible on a first-hand basis.

In a sense, we might say that the computational modelling and cognitive approaches are everything that the early introspective methods were not. The latter were largely based on observations and insights which the researcher (almost invariably also a practicing interpreter) had arrived at in a global, holistic and largely intuitive way – a very auspicious beginning, but one that was bound to grind to a halt unless combined with more scientific methods. The current trend is towards using preliminary intuitions and abstractions as a point of departure for the formulation and empirical testing of hypotheses, in the hope of fine-tuning our understanding of both the universal and the unique features of the task. It is a trend that has developed over the past thirty years or so, though its beginnings were rather halting and sporadic. By now, it seems safe to say that the SI research community at large has indeed graduated to more rigorous methodologies and to greater interdisciplinarity. (The very fact that one can finally speak of a "research community" in SI is testimony to tangible progress). The challenge now lies in finding the optimal balance between the intuitive and the scientific, the controllable and the ecologically valid, the definitive and the viable, the task-specific and the psychologically universal. In what follows, I will try to describe some of the methodological bugbears which empirical studies of SI must take into account in the quest to find out more about *how* the interpreting process really works.

Is the Process Decomposable?

In a recent issue of *Interpreting*, Frauenfelder and Schriefers (1997: 75) argue for a decomposition of the interpreting task:

> [...] it makes sense to us to start by investigating the clearly isolatable and testable aspects of SI. When some basic findings are firmly established in isolation, we can proceed to more complex situations in which the same aspects of behavior are embedded in more realistic contexts [...] Although this approach can be criticized as not being very

> ecologically valid, we would like to maintain that as such it might prove to be extremely fruitful.

In other words: the authors maintain that before adopting a more holistic view, it would seem best, at least for the time being, to investigate the components – the sub-subprocesses – one by one, and only then to test the interactions among them. All of which implies that SI is indeed decomposable into recognizable subskills, and that studying these in isolation will lead to an ever-fuller understanding of the process as a whole. But will it? To study the cognitive processes of simultaneous interpreting in isolation would appear to be, in a sense, a contradiction in terms. Say we want to gain a better understanding of the time-course of activating semantic information in order to observe the subtleties of anticipation. Psychologists have shown us (e.g. Moss et al. 1997), through cross-modal priming experiments, that mental representations of meanings begin to be activated before the point at which a single word can be uniquely identified on the basis of the sensory input alone. Thus, the alternative meanings that are available before recognition can be evaluated against the constraints and predictions of the prior context, allowing words with congruent meanings to be recognized more rapidly than those with incongruent ones. There is clear evidence of contextual facilitation – i.e. of top-down interaction – before actual recognition of the word.

But there's the rub. Studying contextual facilitation in isolation does not necessarily tell us how it works when combined with the many other components of the process. De Groot, a cognitive psychologist, who decided to analyze the task – a rare event in itself, since cognitive psychologists have been very reluctant to do so – starts with word-translation studies, in which subjects are presented (visually) with a word and are asked to come up with a translation of that word as quickly as possible, but without sacrificing accuracy. In a study involving thirteen independent variables and three main dependent ones, she observes the role of each of these, including, for example, the prevalence of the concreteness effect – i.e. that concrete nouns are processed more rapidly than abstract ones. Yet, she concedes that "context can modify the effect of concreteness on word translation. The roles of other word characteristics in word translation may also respond to the manipulation of context [...]" (1997: 42-43).

Actually, questions relating to the ecological validity of decomposing the interpreting task are not unlike those raised in connection with studies of natural language in general, on the one hand, and of the broader psychological framework, on the other. In the former, it is considered exceedingly difficult to conduct scientific work in situations that permit the free use of natural language codes. In the latter, one finds concern over "decoupling" one

particular system (e.g. memory) from the larger system of cognitive processes and problem-solving strategies. In interpreting research too the decoupling of experimental procedures from authentic conference settings and the dissection of the task into mini-components have been cited as undermining ecological validity (for a review of this issue, see Gile 1998). SI clearly involves meaningful, contextualized materials, and any attempt to "tamper" with these is regarded by some as defeating the very purpose of research. In fact, strictly speaking, the processing of discourse in SI is apt to be affected not only by the immediately preceding units of text but by the text-in-situation, the setting, the circumstances, and the interpreter's knowledge of the situation as a whole, which s/he applies as an integrated ensemble of strategic bottom-up/top-down processes. Thus, decomposition of the task is problematic, notwithstanding the importance of conducting a controlled examination of each of the large number of variables involved.

Distinguishing Cognitive Processes per se from Norm-Driven Strategies

Early attempts to examine ways in which the concept of norms might be relevant to the study and practice of interpreting (Shlesinger 1989; Harris 1990) were based on the assumption that oral translation, like its written counterpart, will manifest certain task-specific regularities of behavior that could reasonably be seen as norm-governed. It was also assumed that the norms which come to bear on interpreting are internalized, to varying degrees, both by practitioners and by those who use their services, to the point where any serious deviation will entail sanctions of some sort.

When it comes to conference interpreting, the prevailing norm emphasizes fluency, and the primacy of meaning over form. Its best known explicit formulation is Seleskovitch's (1968) notion of *deverbalization* – presented both as the most effective strategy and, in effect, as a normative requirement. Either way, it tallies well with the limitations of processing capacity; as MacWhinney (1997) points out, the likeliest form of storage in simultaneous interpreting is conceptual representation established through a process of structure building, if only because nonconceptual processing would place heavy demands on raw verbal memory. Thus, it is only natural that interpreters will be deverbalizing most of the time (though it is conceded that *transcodage* (direct structural correspondence) may prevail when the cognitive load is exceptionally high, especially among novices.)

Fluency and smoothness of delivery are stressed in the literature for instructors and trainers of interpreters as well, along with the message that not all elements of the source text need necessarily be reproduced as such. Whether it is seen as mere rationalization or as a blessing in disguise, the merits of compression are a recurrent theme in the simultaneous interpreting literature. Also implicit in the deverbalization theory is the assumption that interpreters engage in macroprocessing; i.e. that they have acquired the ability to sift through surface forms in a way that will allow for the construction of conceptual frames and propositions, and attending selectively to semantic content. I.e. it is assumed that they have evolved and internalized a strategy driven by a set of norms, and that neither they nor an outside observer can tell which task-specific processes are a function of practice and skill, per se, and which are a function of what they perceive as "good" performance. Such strategies need not necessarily be conscious – at least not all the time. They are probably, as Lörscher (1991: 78) puts it (from the psycholinguistic perspective of second-language learning): "a potentially conscious procedure for the solution of a problem which an individual is faced with when translating a text segment from one language into another" (cf. Kalina 1992). Or perhaps, as Ericsson and Simon (1984) point out, again in the case of learning strategies, they may well have become proceduralized to the point of operating automatically through connections in long-term memory, such that they are not accessible to introspection. The notion of a norm-based choice of strategies has been discussed in the Translation Studies literature (e.g., Chesterman 1993, 1998), along with the observation that a strategy which is used regularly by competent professionals tends to acquire normative force.

It is the pervasiveness of these automatized strategies that encumbers our efforts at isolating and studying the purely cognitive components of the process. Yet, despite its pervasiveness, the problem was hardly mentioned in the relevant literature until it was raised by Schjoldager (1995), and it has yet to be referred to by more than a handful of interpreting scholars. Thus, for example, Frauenfelder and Schriefers (1997: 75) express their concern that failure to distinguish between basic cognitive processes and acquired strategies "would put the researcher in a bad position, since any claims about the cognitive processes underlying SI-performance would only be valid for a given set of interpreting strategies depending upon the training received or perhaps even upon the individual subject", and speak of the need to isolate the "basic configuration of the linguistic/cognitive system for SI".

How then can we ever study the purely psychological, cognitive workings of our performance? How can we tell where the limits of human processing capacity end, and the conscious or unconscious application of a

norm-driven strategy begins. Alas, it appears that we cannot have it both ways: if we want to study the processes without the "contamination" of acquired, task-specific strategies, we must study the uninitiated, the novice. But if we want to study the processes that characterize simultaneous interpreting as a unique cognitive skill, we must study the experts, those who have internalized the workings of the task.

To illustrate the methodological quandary, consider this sentence:

> The promotion of ecological and agronomic research has become one of the most promising areas of cooperation between countries in the troubled Middle East.

The text in which the sentence appeared was interpreted from English into Hebrew by each of 16 subjects, all of them professional interpreters. No fewer than thirteen omitted the word *troubled.* Statistically this is striking, but what does it tell us? Here are some of the possibilities:

a. Given that the target language does not have a readily accessible one-to-one equivalent for this particular lexeme, the search for a rough equivalent or a paraphrastic way out was somehow perceived as too "costly", or was beyond the subjects' reach.

b. The subjects had just completed the rendering of a rather dense clause, and were manifesting a "spillover" effect; i.e. a depletion of cognitive resources as a result of effort exerted upstream, in a preceding segment.

c. The subjects were manifesting a pattern which typifies the beginnings of texts, the point at which one has not yet formed a schema or a frame. As Shreve et al. (1993) have shown, reading time is higher at the beginning of a text. Shlesinger (1995) showed a markedly higher proportion of omissions and breakdowns in cohesion at the beginning of a text being interpreted by advanced students.

d. The collocation *troubled + Middle East* is something of a cliche. The informational load of the modifier is so low that one tends not to process it fully. Predictable segments, particularly sentence endings, have been shown to be leveraged in this way (Gile 1992; Shlesinger 1995).

e. The collocation *troubled* + *Middle East* is something of a cliche. The subjects, applying their knowledge of the world and their judgment of the imaginary audience expectations (though in fact there was no audience since the study was conducted in a language lab), judged this modifier to be redundant, and chose to omit it. (Gile (1995: 202) suggests that "It is up to the interpreter to take the responsibility of deciding whether the information is already known [to the listeners] or whether it may in fact be redundant").

f. The subjects were manifesting the tendency to omit modifiers and other "minor" words (Kopczynski 1980; Barik 1972) as a way of anticipating and coping with their probable inability to process the message in full.

g. The subjects were manifesting the tendency to omit modifiers and other "minor" words in keeping with the macroprocessing discussed above.

h. Each of the above reasons accounted for *some* of the subjects' outputs; notwithstanding the similarities among the outputs, no single factor accounted for all thirteen instances.

The first three possible explanations are more closely related to the handling of cognitive load, while the others have more to do with features of the discourse itself, on the one hand, and with norm-driven strategies, on the other. To gain a clearer picture of the process, one would have to refine the test: construct a text in which similar sentences appear, but with modifiers that carry a marked or unusual semantic load, such that their omission would entail a more blatant change of meaning; or construct a text consisting of similar sentences, but use several modifiers rather than only one, such that even the retention of one would indicate that this was not beyond the subjects' capacity; or observe the processing of similar sentences in a setting where the prevailing norm tends more closely towards form-based equivalence (e.g. a courtroom setting).

Either way, what we confront is the seeming impossibility of unravelling raw cognitive resources from acquired, automatized strategies. This said, it may be more effective, and wiser, to focus on refining a paradigm which studies simultaneous interpreting as a junction, par excellence, of the two. We may have little choice but to accept the methodological inconvenience which follows from the fact that this task is, ipso facto, the combined result of universal cognitive processes and task-specific strategies.

Imponderables of the Experimental Design

The difficulty of providing input materials for repeated measures

Much more has been written in recent years about the problem of finding a sufficiently large and homogeneous pool of subjects than about the choice of materials. In studying the effect of an independent variable (e.g. rate of input) on a dependent one (e.g. completeness of output) one will often use a repeated measures design: subjects perform the task several times, with no difference in the test conditions other than the predetermined, controlled change(s) introduced by the experimenter in the independent variable. Otherwise, one is liable to introduce unintended variation, since even seemingly similar or "matching" materials may differ in ways that are not readily discernible. Take the use of propositional density as an independent variable. It is a factor which has been shown to have a significant effect on performance, particularly on error rate. Yet even this quantifiable parameter cannot be studied without also taking into account its potential interaction with other factors – including semantic as well as extra-textual ones. In an example provided by Kohn and Kalina (1996), we find two multiply-embedded sentences.

(1) The dog that the cat that the girl fought scolded approached the colt.

(2) The vase that the maid that the agency hired dropped broke on the floor.

The syntax is identical, and so too is the level of lexical frequency, and yet, the second sentence is found to be more easily processed than the first, since its underlying meaning is supported by common experience. World knowledge thus makes it possible to bypass a grammatical difficulty by an appropriate top-down projection. Such subtle differences between what appear to be "identically difficult" sentences underline two methodological hurdles: (1) the trickiness of constructing or finding test materials which are truly "matched", as so many studies claim to do; (2) the difficulty of reliably teasing apart the effects of explicit and implicit parameters of the task.

Repeated use of the selfsame (textual) materials is not without problems either; it is liable to introduce a familiarity factor which could confound the results; i.e. the processing of a given text becomes easier (to a point) with each exposure to it. Thus, strictly speaking, even if repetitions are spaced so far

apart that recall of the text is assumed to be minimal, one cannot speak of repeating the *same* task.

A second problem posed by the need for ecologically valid materials arises whenever the design requires the manipulation of specific linguistic parameters; e.g. a set number of words per phrase, a given syntactic construction, a particular level of word frequency etc. Though one would like to use natural materials – e.g. authentic conference presentations – in which the required items appear a sufficient number of times, this would raise another methodological difficulty. The more unusual the textual element, the less one is likely to find it in abundance in any given natural setting. Take, for example, a study aimed at observing the processing of long head-final strings (series of modifiers followed by a noun). A search for natural materials, using the vast (approx. 100,000,000 words) British National Corpus, yielded a total of 2,400 strings. While the quantity of such strings in the corpus as a whole was more than sufficient, there were only a handful in any given text, and these proved both too heterogeneous and too widely dispersed for experimental purposes – as shown by the following typical example of all the items in a single text which adhere to the required pattern:

> Large, broken-stripe yellow and off-white lap
> a lethal-looking old American corn-drying rack
> a 10-inch shallow fluted tart tin
> the western Mediterranean and nearby Atlantic coasts

Clearly, then, whenever a large corpus of structurally or semantically similar items is needed, natural discourse may not yield the necessary materials in sufficient quantity, and there seems to be little choice but to extract and combine segments from different texts, or to create them from scratch – both practices which may evoke reservations with respect to their ecological validity.

The unpredictability and variability of interpreted discourse

In a study aimed at observing the effect of one subtle change in the input materials (Shlesinger, in progress), 16 subjects interpreted discourse which included, among other things, two sets of head-final strings: singular and plural. Thus, for example, interspersed in the text were thirty such pairs as:

> (1a) psychological, technical, commercial and economic advantage
> (1b) psychological, technical, commercial and economic advantages

(2a) fast, efficient, modern, high-tech airliner
(2b) fast, efficient, modern, high-tech airliners

(3a) separate, comfortable, roomy, soundproof booth
(3b) separate, comfortable, roomy, soundproof booths

The hypothesis being tested in this particular experiment related specifically to pairs in which the singular and plural strings were identical (but for the number) in the output – just as they were in the input. While it is well known that the output for any given string will not necessarily be the same when the text is processed more than once, it was nevertheless surprising to discover that the number of "identical" repetitions – with the singular and plural strings being rendered identically, but for the pluralization – was negligible: out of a total of 480 pairs (30 pairs x 16 subjects), fewer than 30 followed the predicted pattern. Thus, the working hypothesis could not be put to the test, since the design had failed to take into account the extent to which interpreters' output is both unpredictable and variable.

The incompatibility of existing paradigms: Random generation as a case in point

One of the frequently expressed desiderata among "practisearchers" of interpreting is to find suitable and effective ways of using the existing body of knowledge generated by neighboring disciplines. Ideally, one would like to demonstrate that simultaneous interpreting is yet another type of cognitive activity which can usefully build on what already exists. Methodologically, however, attempts to do so confront us with the anomalies and complexities of the task. To illustrate this, let us take the random generation paradigm: Baddeley (1966) found that the requirement to generate series of items (e.g. letters of the alphabet) in random order entails a cognitive load which is significantly greater than that incurred by generating items in their regular, ordered sequence.

In an experiment extending this paradigm to simultaneous interpreting (Shlesinger, in progress), it was assumed that the processing of false cognates would yield similar results: detachment from the expected pattern (i.e. from the form-based similarity of the false cognate) and the search for a semantically equivalent target-language item was expected to be analogous to the random generation of numbers. Unfortunately, the hypothesis was not borne out; i.e. successful dissociation from the false cognate did not significantly detract from

the subjects' performance or from their recall of preceding items (as manifested in their interpretation of the discourse into which the cognates had been incorporated).

The question arises: can one then conclude that the added cognitive load of random generation does not hold in the case of simultaneous interpreting; or is there an intrinsic flaw in the methodology? The problem seems to lie in the complexity of devising tests which are relevant to simultaneous interpreting but also draw upon the materials and tasks typically used in psychological experimentation.

Conclusion

To conclude, questions about how we can know what really happens are an inevitable part of a discipline's formative years. To fully appreciate the merits and drawbacks of the available approaches, we apparently require more research into research; i.e., efforts to validate the relevance of our methodologies and to avoid counterproductive or misleading ones. This is bound to be a pesky preoccupation of SI scholars for some time to come, as we continue to contend with the dearth of subjects, the possible ecological drawbacks of the discourse and settings, and the problematics of engaging in a dialogue with neighboring fields of research. We look forward to the day when we can spend more time discussing ***what*** we found, and less time agonizing over ***how*** we found it or whether we went about it in the right way. Meanwhile, replications, subtle variations in technique and refined hypothesis testing will help us hone our technique, and find the tools best suited for studying our elusive object.

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The Interpreters' Comments in Interpreting Situations

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Introduction

The aim of this study is to provide a contribution to process-oriented research on interpreting. When investigating the process of translation it is possible to acquire information about the translation processes by having test subjects think aloud while translating. In connection with interpreting it is not possible to have subjects express their thoughts during the actual process of interpreting. My study is, however, based on a situation when two simultaneous interpreters every now and then have the possibility to switch off their microphones for a few seconds. I have analysed what the two interpreters say to each other when the microphones are switched off. The discussions between the interpreters can give information about the interpreting process and the interpreters' attitudes towards their assignment and their own performance. The discussions may also reflect some reasons why the interpreters apply certain strategies in their work.

Data and Subjects

The situation I have studied involves interpretations during two sessions of the town council in Vaasa in the autumn of 1997. Because Vaasa is officially bilingual, both Finnish and Swedish are used in the meetings of the town council. The chairman conducts the meeting in both Finnish and Swedish, and the mayor and the two deputy mayors also make their statements in both Finnish and Swedish. The town councillors on the other hand speak either Finnish or Swedish and their speech is interpreted simultaneously into the other language. This means that the interpreters can switch off their microphones when the chairman or one of the mayors is speaking. During

these breaks the interpreters can freely discuss with each other. Their discussions have been recorded on tape and analysed.

The analysed data consists of 56 dialogues or monologues. Some of them are very short but some are dialogues with several utterances. Sometimes the dialogues are interrupted as the session and the interpretation go on.

The interpreters in this study have both been working as interpreters for the town council for several years. This means that the interpreting situation is very familiar to the interpreters.

I myself am one of the interpreters. Therefore I consider this to be just a case study which tries to find out whether this kind of study can provide any interesting information about the process of interpreting. I am aware of the risk that I consciously or unconsciously controlled the dialogues, because I had decided to tape-record them. On the other hand I did not have any clear expectations in advance concerning the kind of information the dialogues would provide. The analysis of the dialogues shows that at the beginning of the recording I am careful of what I say in order not to influence my colleague's comments in any way. I take a passive role, letting my colleague introduce the topics of our discussions. Later on I obviously more or less ignore the recording and act more naturally. My colleague did not know that I was going to analyse our discussions. She knew that I was recording our interpretation for the purpose of research but she was told that the tape recorder was not switched off in the breaks due to technical difficulties. Afterwards she gave me her permission to analyse the discussions.

Method

This study was inspired by the think-aloud method applied in translation research (e.g. Krings 1986, Jääskeläinen 1990 and 1999, Lörscher 1991, Tirkkonen-Condit 1996). The think-aloud method elicits concurrent verbal reports. The interpreters in my study do not, however, give their comments concurrently but during the breaks which occur in the meetings. In this respect the comments are *retrospective* comments. As the time lag between the task and the comment is short, the comments can be defined as immediate retrospective comments (Zimmerman and Schneider 1987: 178). On the other hand some of the comments deal with things that the interpreters expect to come up later and could therefore be called *prospective*.

In this study *topic* is defined as the aspects of the interpretation on which the subjects focus their attention. I will categorise the topics covered in the comments and examine how the interpreters' attention is distributed between

the different categories of topics. The total number of dialogues and monologues is 56. In the analysis the dialogues are divided into several subdialogues when the interpreters introduce a new topic. Thus the number of topics analysed is 90.

The topics of the dialogues and monologues can be divided into two main categories, *linguistic topics* and *extralinguistic topics*. The linguistic topics stem from the source text or the interpretation. The extralinguistic topics concern the speaker/s, the procedure of the meeting or the act of interpreting. The material also includes discussions, which are more general and not connected with the actual interpreting situation.

Analysis

Comments on linguistic topics

The comments on linguistic topics are usually retrospective. They can also be general concerning a linguistic topic, which for some reason came into the interpreter's mind. The interpreters comment on a linguistic unit in the source text or in their own interpretation. These units can be terms, expressions or concepts.

Previous linguistic topic

Most of the comments on linguistic topics in this study are caused by something in the previous interpretation or the previous source text. In the examples the interpreters are called A and B. The dialogues are in Swedish and they often include some expressions in Finnish. In the examples the original utterances in Swedish are followed by a translation into English. The Finnish expressions are not translated but they are explained (in square brackets) if an explanation is considered to be necessary to facilitate the understanding of the example. Example 1 illustrates a previous linguistic unit at the focus of the interpreter's attention.

(1) **B**: Vad heter det här J H O T T?
What is this J H O T T called?
A: Vad?
What?
B: Det heter ...
It's called ...
A: Jåå.
Yes.

B: Det finns här nånstans.
I have it here somewhere.
A: Alltså de där som sköter om det, revisionen. Jåå.
You mean the ones taking care of it, of the audit. Yes.
B: O R – vad heter det? Offentliga sam...
O R – what is it called? Public associ...

In example 1 interpreter B has had problems with an acronym in the previous interpretation. This is a common problem for interpreters. B's comment *I have it here somewhere* reflects the fact that B is looking for the word in the agenda of the meeting in order to find the right expression. The example shows that this linguistic problem is not considered to be settled although the interpreter has managed to find a way to solve the problem in her interpretation. The interpreters go on looking for a more exact translation of the expression.

Example 2 illustrates another common problem for interpreters. The interpreter has had to translate an expression that she had never heard before, the expression *kaksysiryhmä*, (group twenty-nine, or group two-nine) which was used about a certain section of politicians in the town council. This expression is a linguistic innovation. The interpreter translated it into *tjugoniegruppen* (group twenty-nine) but is not sure herself.

(2) **A**: Kaksysiryhmä. Är det är det tjugonie?
Kaksysiryhmä. Is it is it twenty-nine?
B: Eller två mot nie.
Or two against nine.
A: Hmm. Jag vet inte. ... Men varför skulle det vara en grupp?
Hmm. I don't know. ... But why would that be a group?

Example 2 shows how the interpreters are trying to understand what has been said. They are not satisfied with just coming up with a probably satisfactory translation, but also aim at understanding the real meaning of the message they have just translated.

General linguistic topic
The topics categorised as general linguistic topics stem from the situation, but the comments do not concern any unit actually occurring in the interpretation.

Example 3 illustrates how the interpreters are discussing the name of a street. The name occurs on the agenda of the meeting but has not been mentioned during the meeting. Interpreter A, however, observes the name of the street *Pohjolankatu* on the agenda.

(3) **A**: Vad heter Pohjolankatu?
What is the name of Pohjolankatu?
B: Förlåt, vad då?
Sorry, what?
A: Här i följande råkade jag bara se. Pohjolankatu ... liittyvä pyörätie ... Pohjolagatan.
Here in the following I just happened to notice it Pohjolankatu ... (the name of the street in Finnish) liittyvä pyörätie [connecting to a cycling path]... Pohjolagatan (the name of the street in Swedish).
B: Öhm ... Jag hörde tatu, du sa katu, jag tänkte att vad då tatu.
Uhm... I heard tatu [Tatu is the name of a boy], you said katu, I thougth what tatu.
A: Ja, vem är det ((laugh)) Pohjolan Tatu.
Yes, who is that ((laugh)) Tatu Pohjola
B: Pohjolagatan. Och sen har de också en såndär, Otsogatan, heter den, bakom Hartmans, som kanske kommer upp.
Pohjolagatan. And then there is another, Otsogatan, is the name of it, behind Hartman's, that might come up.
A: Ja just.
Oh yes.

The first part of the discussion in example 3 could be characterized as a general discussion about what the name of the new street would be in Swedish. In the latter part of the dialogue, when talking about the other street, *Otsogatan*, B says *that might come up.* This is interesting, because it shows that the purpose is to prepare for a future situation in which the other name might be mentioned. Actually, the first part of the discussion about Pohjolankatu, probably aims at the same goal as well. Other examples of preparing for a future situation can also be observed in the material.

Comments on extralinguistic topics

The extralinguistic topics focus on the speaker, the procedure of the meeting or the interpretation. Some of the comments also reflect the attitudes of the interpreters towards the speakers, the procedure of the meeting etc.

The speaker
Many of the comments on the previous speaker naturally concern whether it was easy or difficult to interpret him/her. Most of the speakers attending the meeting are well known by the interpreters. The interpreters know the profession and hobbies of many of the speakers, their political position and their way of speaking (cf. Namy 1978: 33). This can be illustrated by example 4, when interpreter A gives a short comment on the next speaker. Both the interpreters know the speaker, which provides the background for B understanding A's comment.

(4) **A**: Jaha, nu kommer några väl valda ord igen.
Well, now we will hear some carefully chosen words again.

This comment shows that the interpreters have an idea about how the speaker usually expresses himself. The comment also reveals a certain attitude towards the speaker. The codes of professional conduct prescribe that interpreters must not let personal attitudes affect their interpretation (e.g. *Tulkin ammattisäännöstö* 1994, *God tolksed* 1989). This does not, however, mean that interpreters do not have attitudes towards the speakers, the assignment etc.

Example 5 illustrates how the interpreters are trying to figure out the profession of a speaker they do not know.

(5) **A**: Vem är vad har är vad jobbar han med?
Who is what has is what is his profession?
B: Han är säkert lärare. Samhälls och historia.
He must be a teacher. Civics and history.
A: Jå, det låter som nåt sånt.
Yes, it sounds like that.
B: Jå.
Yes.
A: Han låter som nåt sånt.
He sounds like something like that.
B: Han låter som en lärare, jag tyckte det förr också när han talade.
He sounds like a teacher, I thought that earlier, too, when he spoke.

Example 5 shows how the interpreters try to guess the profession of the speaker by the way he speaks. Especially in political meetings, such as the

meetings of the town council, it is important for the interpreters to know the background of the speakers, as the town councillors often refer to their own experiences in their speeches.

The procedure of the meeting
The two interpreters are quite familiar with interpretation in meetings and their comments are often just statements on what is going on or what is supposed to happen next. These comments can, however, also be seen as reflections on how the interpreters prepare themselves *in* the situation. The interpreters draw attention to what is going on and that helps them to understand the situation and give an appropriate interpretation.

The act of interpreting
The act of interpreting itself also gets attention in the comments. Usually the comments on the interpretation are about whose turn it is to interpret. But they can also be about the performance of the interpreter or the quality of the interpretation, as shown by example 6.

(6) **A**: Oj, vad jag är styv i tungan i dag, det far jag säger bara fel och fel och fel hela tiden.
Oh, my tongue is so stiff today, it goes I'm just saying wrong and wrong and wrong all the time.
B: Hon hade hon hade också tänkt det så noggrant, så det var svårt.
She had she had thought it over so carefully that it was difficult.
A: Men ((inaudible)) var det, jag hör inte mej själv, jag har säkert för mycket volym.
But it was ((inaudible)), I don't hear myself, I must be using too much volume.
B: Jå, jag hade också just ...
Yes, I just was, too ...
A: Jag har dålig kontroll. Sånadär felsägningar, idiotiskt sånt.
I have bad control. Those kind of slips of the tongue, idiotic things.
B: Jå, har du lyft bort andra örat då?
Yes, have you taken off the other ear then?
A: Borde göra det.
Should do that.

Here we see that A is not satisfied with her own interpretation. B is trying to analyse why, and says that the speaker *had thought it over so carefully*. B also asks if A has *taken off the other ear*. By this she means whether A has taken the earphone off her other ear. Interpreters often do that in order to be able to control their own performance.

The comments about the interpretations have parallels in another study in which I interviewed interpreters after their interpreting assignments asking them to comment on the interpretation they had just performed. The interviews show that the interpreters themselves tend to analyse why something was easy or difficult to interpret (Vik-Tuovinen, forthcoming a). When the interpreters are asked to comment on the quality of their own performance they often refer to how the source text was performed (Vik-Tuovinen, forthcoming b). The same tendencies can be observed above in example 6 and other dialogues in the material.

Other comments

The material also includes more general comments about something that has come into the interpreters' minds. In example 7 we see a discussion about technical education initiated by the matter under discussion by the members of the town council.

(7) **B:** Jag har inte vetat att det är liksom sånhär brist på ... högre utbildad arbetskraft.
I didn't know that there is such a shortage of ... highly skilled people.
A: Jå, inom tekniska området.
Yes, within the technical field.

This dialogue may look quite general, but still it may give us some information about the process of interpreting. The interpreters figure out the reason why the problem under discussion in the session-room is a problem. It is important for the interpreter to understand *why* the speakers are saying what they are saying in order to be able to produce a correct interpretation.

Discussion

The interpreters' dialogues and monologues reflect what is going on in the session-room, and the time available for private discussions is limited. Still the

interpreters themselves decide *which topics* to comment on when they discuss with each other. Therefore a quantitative analysis of the topics can give interesting information about the interpreting process. Table 1 shows the number of comments on different topics in my material.

Table 1. *Number of comments on different topics.*

Linguistic topics	
previous linguistic topic	25
general linguistic topic	4
Extralinguistic topics	
previous speaker	15
next speaker	14
procedure of the meeting	11
act of interpretation	10
Other comments	11
Total	90

The interpreters' comments illustrate some aspects of the process of interpreting by revealing how the interpreters try to solve problems, prepare for future problems and clarify for themselves what is going on in the interpreting situation. About one third of the comments deal with linguistic topics. About one third concern the speakers. These two topics seem to be the most important for the interpreters. It is interesting that extralinguistic topics receive more attention than linguistic topics. It is surprising that in the discussions there are no comments on the audience of the interpreters, as interpreters normally do discuss their audience. The reason why this material does not include comments on the audience is probably that the audience is very familiar to the interpreters, too familiar to be commented on.

The method used in this study gives us a chance to "look through the keyhole" and observe authentic spontaneous comments by the interpreters while the interpreting process is going on. The application of the method on a larger material would probably give us valuable information about the process of simultaneous interpreting.

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The Use of Retrospection in Research on Simultaneous Interpreting

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This paper represents a subset of results from a study which explores the use of retrospective protocols for investigating the cognitive processes mediating performance during simultaneous interpreting (hereafter SI). The retrospective study was conducted within the framework of a general research project exploring aspects of SI discourse processing with emphasis on skill variation. It provided complementary data, which have been interpreted with reference to other measures of interpreting performance (accuracy of interpreting and recall). These findings are described in detail elsewhere (Ivanova 1999), so this paper will focus on methodological issues related to the application of the retrospective method to SI. Its specific purposes can be formulated as follows:

1. Outline a design of retrospection taking account of SI task specificity;
2. Exemplify the kinds of questions and issues which may be addressed through the use of retrospective data in SI studies and thus assess the relevance of introspective methodology for SI;
3. Interpret the observational data in the light of existing models of processing.

Theoretical Basis and Methodological Criteria of Protocol-based Introspection

The introspective method has a long albeit controversial history in psychology. From being totally discredited by the behaviourists, it is currently regarded by some cognitive psychologists as "suspect" of providing unreliable data and lacking validity. Ericsson and Simon (1996) offer an overview of critiques of the method, which the authors discuss in detail in an attempt to provide the basic methodology for collecting reports and analysing verbal data. In their own opinion, this methodology is consistent with the current experimental

methods, employed elsewhere in cognitive research. Ericsson and Simon repeatedly emphasise that researchers need to be well aware of the principal limitations of the method, but that

> verbal reports elicited with care and interpreted with full understanding of the circumstances under which they were obtained, are a valuable and thoroughly reliable source of information about cognitive processes (1980: 247).

While advocating the reliability of the method, they caution that it can be used for forming hypotheses about the mental processes involved but not for testing them. Following the publication of their book "*Protocol Analysis*", verbal reports have been elicited and used as a major source of information on cognitive processing in diverse domains of human thinking research (e.g. the classical experiments of Newell and Simon 1972), especially in expertise research (cf. Olson and Biolsi 1991).

A basic constraint on the data elicited by the method is that it provides only evidence for conscious, controlled processing. Ericsson and Simon (1996) argue that the reliability of the verbal data depends on the procedures employed to elicit them. Thus, among the various experimental designs, which are referred to as introspection, the TAPs are inherently the most reliable source of information since the subject (especially after being exposed to pre-training) vocalises information s/he is currently attending to. In retrospective studies the vocalisations are based on information about thought processes that is stored in LTM, whose accuracy can consequently be reduced due to forgetting. Furthermore, the subject might attempt to infer information about them rather than retrieve it from LTM. Naturally this jeopardises the representational validity of the data obtained by retrospection. In addition, instructions, which ask the subjects to provide a rationale for their behaviour, can create bias by inducing them to speculate about the possible causes for their actions. Grotjahn (1987) identifies one further validity problem with the application of the introspective method – how faithfully the researcher reconstructs the intended meaning of the subject.[1] To minimise the threat to the interpretative validity of introspection he proposes the criterion of openness, i.e. the reports should be approached and explored with an open mind which allows the researcher to discover structures inherent in the protocols. Similarly, Ericsson and Simon pose as a necessary requirement that encoding and analysis of verbal reports should be approached with very weak and uncontroversial theoretical assumptions.

Furthermore, they discuss different procedures for protocol analysis. As a first, and a rather important step, they recommend initial analysis of the task,

which provides *a priori* predictions about sequences of cognitive processes. If the predictions match the actually verbalised information, this can ensure the validity of the analysis. The authors describe in great detail general techniques of protocol analysis, which, however, are exclusively based on introspective data (TAPs) gathered in the context of well-structured tasks with well-defined final goal states (e.g. the Tower of London task, Anzai and Simon 1979). However, verbal protocols can be encoded at a more global level – in terms of the strategies employed during the task (Ericsson and Simon 1996). This has been the approach taken up in a number of experimental investigations of translation processing, which like SI, is an "open-ended" task, i.e. without a concrete goal. Krings (1987) argues that the fundamental categories for the description of translation processing are the concepts of translation problem and translation strategy, which are inherent in the protocols collected for this particular task.

Background to Present Research

Phenomenal experience has for a long period of time constituted the sole evidence on which the majority of SI writing were grounded (Gile 1988; Moser-Mercer 1994). Introspective observations of practising and teaching interpreters captured their individual intuitions on how they approach and accomplish the task. Recently, however, concerns have been raised about the interpretation of these introspective experiences and more seriously, about the normative overtones of much of the writings based on them. Thus, Massaro and Shlesinger (1997: 43) comment on the fact that many of these introspections are formulated as "dicta" (do as I do and you shall succeed) rather than as tentative observations to be corroborated and refuted.

Most notably, there have been no attempts until recently to elicit and analyse systematically the introspection of a number of professionals in the field. At the time when this retrospective study was designed and the verbal reports collected, this was the only reported attempt to apply the method of delayed retrospection to SI. Kalina (1997) refers to a retrospective study conducted by her, without, however, discussing details about the methodology of the study or the outcome of the analysis. That is why one of the foci of the present paper is exploratory and methodological – it purports to outline a design of a retrospective study and investigate the potential of the method to provide information about the cognitive processes of SI.

Introspection has been widely used to investigate the cognitive processes involved in written translation. The rapidly growing body of introspective

studies has yielded evidence for the relevance of TAPs in investigating the following aspects of the translation process: e.g. translation strategies (e.g. Krings 1986, 1987; Hönig 1988; Lörscher 1991, 1993); units of translation (Gerloff 1987); the nature of expertise in translation (Gerloff 1988); attentional processing in task performance (e.g. Jääskeläinen and Tirkkonen-Condit 1991).[2] In contrast, SI research was reticent to use protocol analysis primarily due to the following combination of factors:

1. The simultaneity of processes in SI precludes the use of introspection. As Shlesinger (1995: 17) points out, an interpreter can hardly be expected to "verbalise both text and metatext while keeping pace with the input" and concludes that "think-aloud/talking-aloud methodology as such is ill suited for interpreting".

2. The TL product in SI provides relatively more information about the underlying cognitive processes than the completed translation could. Temporal variables, such as ear-voice-span, have been interpreted as a measure of the amount of processing involved (cf. Barik 1973; Gerver 1971; Anderson 1994). TL recordings contain other evidence of the interpreter's decision-making processes in the form of false starts and repairs. Performance data has also been gathered by comparing the accuracy of TT against ST (Dillinger 1989), which has been complemented by recall and recognition data (Gerver 1974; Lambert 1985; Dillinger 1989).

However, interpreting performance data alone is far from straightforward. For instance, an omission of a SL segment might be a consequence of comprehension, translation or production problems or an outcome of strategic choices the interpreter has made in order to avoid processing overload. As Tijus (1997: 35) argues "anyone who systematically calls these "errors" is neglecting the dynamic aspect of the interpretation processes". Olson and Biolsi (1991) observe with respect to the general area of expertise research that performance data poses interpretation challenges to the researchers, in as much as it is difficult to determine how the experts' knowledge is represented and organised; the strategies and tactics employed in interpreting a situation; and the retrieval/generation and enactment of appropriate responses. These considerations have led me to explore the potential of the retrospective method in providing additional data on the cognitive processes in SI, which can complement performance analysis.

Designing the Retrospective Study: Research and Methodological Issues

Research issues

The present study was conducted with several questions in mind, which for the reasons explained above, could best be explored by introspective methods. These are the following:

1. Provide a general assessment of the interaction of the major cognitive activities in SI – comprehension, translation and production, in particular study the effect of translation on performance. There is at present little experimental research on the nature of translation processing in SI.

2. Investigate how the interpreters control the task at hand by looking at the way they allocate attention.

3. Study memory after SI. The recall methodology employed in a series of SI studies (Lambert 1985; Dillinger 1989; Ivanova 1999) taps the LTM representation of the ST content only. Retrospection, in addition, could elicit evidence about other representations, in particular verbalisable representations of problem-solving episodes (Newell and Simon 1972).

4. Use the analysis of the retrospective protocols to supply information on the nature of expertise in SI. According to Ericsson and Smith (1991) comparison of TAPs produced by experts and novices is the best method of assessing differences in the mediating processes as a function of the subject's levels of expertise.

These general issues were complemented by the following methodological considerations:

Methodological objectives

1. Outline a design of introspection taking account of the task specificity of SI.

2. Assess the appropriateness of delayed retrospection for the study of the cognitive processes involved in SI. Olson and Biolsi (1991) propose that interviews and other retrospective methods elicit general strategies and aspects of experts' general knowledge. These methods, according to the authors, have the advantage of providing rich information, but suffer from the limitation of the retrospection, mentioned above.

3. Exemplify the kinds of questions and issues which may be addressed through the use of introspective data in SI studies and thus assess the relevance of introspective methodology for SI.

Methodological considerations in designing the retrospective study

The retrospective study, being initially designed to supply complementary data, was conducted after the subjects had completed the entire interpreting task. In this way I avoided interrupting the task and thus altering of processes involved in it. There were, however, a number of other issues which remained to be addressed, most notably the effect of the delay in applying the method. They are discussed in the present section.

Lack of memory

A central issue for the methodology of retrospective studies is the "recency effect" – i.e. the effect of manipulating the time interval between the completion of the investigated task and the initiation of retrospection on the validity of the data (Cohen 1984). Naturally, this has been a major concern in designing the present study. In addition there was the more fundamental question of the feasibility of retrospection to study interpreting. Given the multiplicity of tasks in SI, was it realistic to expect that the targeted information would be stored in long-term memory and subsequently recalled? There was no previous research to substantiate predictions regarding the nature of the data, which the protocols could provide. However, piloting interviews with interpreters indicated that they retained such information, in particular information on processing problems in comprehension and translation.

Ericsson and Simon (1996) discuss two approaches to enhancing the recall of cognitive processes – interrupting the task or using retrieval cues, of which the latter was selected. Two types of cues have been considered initially to help enhance recall:

- the transcript of the SL text;
- the SL text transcript in conjunction with the recorded TL output of each subject.

An additional cue was also used to provide further support for retrospection. Notes of the subjects' behaviour (e.g. exited gesticulation, facial expression, hesitation) and inaccuracies in their TL performance were taken by the researcher and used as prompts during the retrospection. The researcher would direct the subjects' attention to the relevant part of the text and ask whether they could recall anything about it.

During a small-scale piloting study, it became clear that the more effective of the two cues was the presentation of the original stimuli in conjunction with use of the observational notes. The reasons for this were several. First, the retrospective data could be verified simply by comparing them with the TL transcripts. Second, this cue enhanced the representative validity of the study by ensuring that the subjects were not using their transcripts to infer what they may or must have thought during the production of a particular segment, rather than recall it from memory (cf. Ericsson and Simon 1987). In addition, it also precluded embarrassment or other negative emotions arising from the inevitable limitations and failures, experienced even by the most competent interpreters. Consequently, following the initial piloting studies, the first cue (i.e. the SL transcript only) was selected for the experiment.

Recall vs. reconstruction

The degree to which the subjects were actually able to recall as opposed to attempt to reconstruct the cognitive processes, based on previous experiences, is another important methodological issue in retrospection. The choice of retrieval cues was one approach to enhancing the validity of the data. Also, the criterion of "clear case" was applied when the verbalisations were analysed – i.e. heavily modalised comments were not coded since apparently, the subjects were unable to endorse them with any degree of certainty.

Design

Subjects

Two populations have been sampled separately for the experiment: a group of professional interpreters, or experts, (n=8), recruited with the help of a

prestigious interpreting agency and a group of trainee interpreters (n=8), or novices, at the end of their course in conference interpreting at Sofia University.[3] All subjects were fluent late bilinguals. Table 1 gives the profile of each of the two groups – the group of experts (hereafter Gr. E) and that of the novices (hereafter Gr. N). The subjects were offered a participation fee.

Table 1: *Relevant features of the experimental population*

	GROUP	
Features	Experts	Novices
No. Subjects	8	8
Female Ss	4	5
Mean age	38	24
Average Interpreting Experience	9 years	3 months training

Experimental material

Gilhooly, Wood, Kinnear and Green (1988) present a convincing argument for the necessity to select representative stimuli in studies employing the method of expert-novice comparison on the grounds that authentic materials/tasks allow experts to capitalise on their experiential advantage. Accordingly, an authentic conference text was used for the present study, which had been selected after reviewing recordings from actual conference proceedings. The selection was based on the following set of criteria: topic familiarity, low incidence of specialised terminology, high degree of orality (which, Shlesinger (1989) hypothesises, facilitates interpreting), acceptable delivery rate (cf. Gerver 1971) and high quality of the sound recording. The selected experimental text was produced by a native English speaker on a topic familiar to the subjects – both to the experts and the novices (who had covered this topic during class work). In addition the subjects were informed about the topic of the text when they were recruited.

Procedure

The experiment was conducted in the phonetic labs at Sofia University, where a special booth was equipped to resemble a conference booth. I worked individually with each participant. At the beginning of the individual session, I presented the subject with information about the real-life event in order to contextualize the task as far as possible in a laboratory set-up. Further on, the subject received a list of the names in the text and after some time to study it, s/he was presented with a warm-up text produced by the same speaker on a similar topic (app. 2 minutes), followed by the presentation of the audiotaped

experimental text (app. 600 words). The direction of interpreting was from English (the subject's L2) into the TL Bulgarian, the subject's mother tongue. After completing this stage of the experiment, the subject was presented with the transcript of the SL text and asked to read the text segment by segment and try to recall everything about the thoughts that occurred to him/her in the course of the interpreting task. This form of general instruction is recommended for retrospective studies (Ericsson and Simon 1987). The retrospection was initiated by the subject who freely commented on the cues while I interfered only when the observational data indicated possible processing problems which the subject did not recall unprompted or when the subject's reports were becoming extremely dissociated from the task. No time constraints were placed on the retrospection. The experiment ended with a debriefing interview. Both the retrospection and the interview were tape-recorded and later fully transcribed for analysis.

General approach to the analysis of the protocols

Ericsson and Simon (1984) consistently emphasise that the analysis of verbal protocols should be based on preliminary task analysis, i.e. on a preliminary exploration of the nature of the investigated task and the consequent implications for the data that will be elicited by the method. In this connection, the task of SI is best described as dynamic; i.e. its microworld changes continuously even without intervention from the interpreter (Tijus 1997). Secondly, it involves a number of small-scale problems, which vary for different interpreters and contexts; while a general and common problem, which defines the essence of the task, can hardly be identified. Finally, similarly to language understanding (van Dijk and Kintsch 1983) SI is an "open-ended" task, i.e. its goal is not a discrete end-state; and the goal cannot be well defined other than at a very global level. For instance, a possible global-level formulation of the task could be to create a coherent TL text, which renders faithfully the information from the ST. Consequently, introspective data could not be analysed and represented by using most of the techniques discussed by Ericsson and Simon (1996).

The preliminary study of a small sample of protocols confirmed that Krings' (1987) observation with respect to translation protocols is also valid for SI protocols, i.e. protocols elicited from both tasks contained problem-solution structures. Consequently, the protocols were coded for the following type of information:

- Problems, which represent "breakdowns in automatic processing" (Faerch and Kasper 1987), which become the focus of conscious awareness and consequently, are likely to be retained in long-term memory.

- Monitoring observations – i.e. heeded information which has not been explicitly identified as leading to any strategic behaviour;

- Strategies, employed when the interpreter resorts to controlled processing in response to a problem; or applies contextual constraints to the processing of the content of the task (macrostrategies).

For reasons of limited space, the present paper presents the results only from the investigation of processing problems. The findings concerning strategy use and the application of strategies for specific types of processing problems are available in Ivanova (1999).

Analysis of Processing Problems in SI Protocols – Classification and Frequency Data

The protocols were analysed for reported problems in the execution of any of the component processes of SI. The coding scheme for processing problems was based on a more general model of the cognitive activities involved in SI and their component processes (when these were known). In the process of analysis new categories of problems were identified and added.

Classification of processing problems

The final version of the coding scheme is given in Table 2.[4] It contains the code's abbreviations, a brief description of the nature of the problems; and illustrative examples from expert and novice protocols. The major categories of problems, corresponding to the cognitive activities involved in interpreting, are briefly discussed below. Specific cognitive processes involved in these activities (sub-categories) are hereafter specified after the code's abbreviation followed by a slash.

The verbalisations of the subjects showed evidence for problems in the execution of the following general cognitive processes.

I – Comprehension
Comprehension is hypothesised to include low-level processes of word-recognition and syntactic processing and higher-level processes of text comprehension, operating on the representations generated by the lower-level processes to produce a coherent representation of the entire text (Singer 1990; Just and Carpenter 1987). Normally, the low-level processes are executed automatically, but difficulties in their smooth execution could bring them in the focus of the subject's attention.

II – Translation (*Tr/*)
Unlike comprehension, little is known about the cognitive processes involved in translating. Gile (1995) discusses translation issues in the section devoted to the "Production Effort". Moser's processing model of SI (1978) is not explicit about this aspect of production, in fact Moser refers to the process as transcoding. The problems subsumed under this category refer to the process of generating a TL representation for a SL chunk, which might vary in complexity. Most of the comments focussed on the translation of single lexemes or short phrases. In general, the translation problems identified by the participants in the study concerned retrieving a TL word (i.e. a word in the interpreter's mother tongue) or selecting the most appropriate lexeme among a number of potential candidates.

III – Simultaneity of tasks (*Sim/*)
This special group of problems captures the specificity of SI as a multiple task, which involves elaborate control of a number of concurrently executed tasks. It subsumes problems created by the processing of two simultaneous messages – ST and TT, and the allocation of attentional resources.

Frequency data from the between- subject analysis of processing problems

It became clear in the course of the analysis of the protocols that the classification of problems could be supplemented by quantitative analysis, which suggests interesting general trends characterising the cognitive processes of the groups involved in the study. Thus, by comparing the data in terms of the frequency and distribution of types of problems reported by experts and

Table 2: *Coding scheme for analysis of problems and monitoring observations and examples from the protocols of expert and novice interpreters*

CODE		BRIEF DESCRIPTION
Comprehension	Perception (P)	Problems with the perception of the auditory signal, or "hearing"
	Lexical access in SL (L)	Failure to access the meaning of a SL chunk (word or phrase), which has been identified as familiar
	Syntactic processing (Syn)	Reported attachment failures at clause level and/or failures to recognise syntax patterns
	Text integration (TC/ integ/)	Reported difficulties in constructing a coherent representation for SL chunks (usu. involving integrating information across several clauses)
	Text comprehension (TC/bgkn)	Reported difficulties in comprehension due to the lack of background knowledge
Translation (Tr/)	TL retrieval (TLr)	Reported problems in accessing a (number of) TL rendition for a SL segment
	Equivalent (eqv)	Problems in selecting a contextually appropriate equivalent among a number of retrieved variants
Simultaneity of tasks (Sim/)	(SL. TL)	Problems created by high SL input relative to S's individual output rate
	TL delays (Tr.del)	Delays in TL product due to translation
Monitoring (M/)	Translation (tr)	Ascertaining accuracy of translation at the conceptual level against a ST representation
	Inner speech monitoring (insp)	Verification of the TL message against TL rules prior to articulation
	Time	Awareness of the ST timing relative to the TL production
	Internal commentary (int.com)	Affective commentary to ST/ST producer
	Mood	Emotive self-evaluation of performance
	Id	Non-analysed problems

EXAMPLES /Experts' Protocols/	EXAMPLES /Novices' Protocols/
I was not sure here – Kinkel or Kohl and decided that Kohl is making the speech (E7)	I did not hear this – the Greeks (N7); This bit about EU – I heard it UN, I don't know why (N3)
I had problems with contentious, but I felt the meaning became clear later (E8)	I forgot the meaning of "tangible" here - I heard it, but could not think of its meaning – later it came back (N3)
I was not sure whether he is glad that they have the documents or that the documents are in English (E2)	This part of the sentence – I understood too late that it is a parenthetical construction (N6)
I could not understand here who is handling the presidency to whom – the Greeks to the Germans or vice versa (E5)	All these things, I heard them, but could not tie them up, so I said only "problematic" (N2)
Here (about the hand-over) – I could not figure out what he is talking about – I am not fresh on the topic (E4)	Here about the presidency – I could not understand what he was talking about – I know that they rotate, but it did not click at the time (N2)
	"Communication" – I could not think of a word – it came to me too late – "*statija*", "*doklad*" (N1)
About "communications" – I was wondering whether it is "*komunike*", "*izjavlenie*", even I considered "*tzirkuljar*" (E1)	Central point – I had already said "*tochka*" and was looking for another synonym in Bulgarian, and came up with "problem" (N6)
Here it was too quick, it came too quick and I could not always get everything (E6)	Here I was far behind – could not do the presidency – so I omitted the following bit (N1)
	"How are things" – It does not mean anything to me, so I had to wait for the whole bit here and since I had no time to left, I omitted it (N7)
Here – I said "*njakoj*" and I thought it is well said (E2)	For "deepening" I said "*integrazjia*" – I thought they mean more or less the same thing (N2)
At times I was aware that I was giving very literal translation (E8)	Central point – I gave a literal translation to it, thought there isn't such an expression in Bulgarian (N4)
He was already here (pointing at the text) when I followed him with the translation - I was quite behind (E1	I translated this bit here but it took me so much time, that for the following bit I had to summarise (N4)
Here – inaugurate – I wondered – this person has strange usage – only native speakers can say something like that (E6)	
With some pride at the back of my mind I noted that I was able to catch him when he was saying "*the commission*" (E1)	Here I gave up … I became very angry because of all thing that I had omitted (N6)
There was something problematic here, but I cannot remember what exactly it was (E8)	I found this part difficult, but now I can't say … It took me some time (N2)

novices, it would be possible to find some differences in the cognitive processes underlying the performance of the two groups.

The results of the experts and the novices are presented in separate sections (A and B) and each section begins with an analysis for the major categories, followed by the specific sub-categories of problems.

A. Analysis of the problems reported by expert interpreters

The results of the analysis are presented in Tables 3 and 4.

Table 3: *Reports on the general categories of problems for experts, cross-classified by Ss (relative frequencies are given in italics)*

	E1	*E2*	*E3*	*E4*	*E5*	*E6*	*E7*	*E8*	***Total***	**%**
P	2	1					2	1	**6**	***12%***
L						1		1	**2**	***4%***
Syn	1	1							**2**	***4%***
TC	4	4	2	4		2	4		**20**	***38%***
Tr	4	2	2		2	4		2	**16**	***31%***
Sim						2			**2**	***4%***
Id	1				1			2	**4**	***8%***
Total Ss	12	8	4	4	3	9	6	6	**52**	**100%**

Table 4: *Reports on the sub-categories of problems for TC, Tr and Sim for experts, cross-classified by Ss (frequencies relative to the total for a category are given in italics)*

	E1	*E2*	*E3*	*E4*	*E5*	*E6*	*E7*	*E8*	***Total***	***%***
TC/									**20**	
Integ	4	4	2	4		1	4		**19**	***95%***
Bgkn						1			**1**	***5%***
Tr/									**16**	
L2r									**0**	***0%***
Eqv	4	2	2		2	4		2	**16**	***100%***
Sim/									**2**	
SL.TL						2			**2**	***100%***
tr.del									**0**	***0%***
I.voice									**0**	***0%***

As Table 3 shows, most of the information in the protocols (69%) refers to the processes of high-level text processing and translation. When interpreting this tendency with reference to Table 4, it appears that experts have remembered mostly problems with integration of information across text segments (38%). Also, special attention has been given to the selection of TL renditions for various chunks of the original message, which are contextually appropriate (31%). The perceptual problems which experts report concern primarily mishearing of personal names – most notably that of Kinkel which has been interpreted by some of the experts as Kohl. It is a well-known fact that personal names create processing problems, in particular names of foreign origin, which due to their low frequency are particularly difficult to recognise. However, this problem has been anticipated and in order to pre-empt it, the subjects had been presented with a list of the personal names prior to the start of interpreting. Why this cognitive hedging has proved inefficient with regard to this particular name is an interesting question, but one which lies outside the scope of the study. The reports of the experts in general indicate that L2 lexical access and syntactic processing (processes which are said to be automatic) are executed efficiently and smoothly. Similarly, simultaneously listening and speaking is also unlikely to lead to performance breakdowns at this level of expertise.

B. Analysis of the problems reported by novice interpreters

The analyses of the novices' retrospective reports are summarised in Tables 5 and 6 below.

Table 5: *Reports on the general categories of problems for novices, cross-classified by Ss (relative frequencies are given in italics)*

	N1	*N2*	*N3*	*N4*	*N5*	*N6*	*N7*	*N8*	***Total***	*%*
P	2	3	4	2	3	4	2	4	**24**	*17%*
L		3	1	2	1	3	2	1	**13**	*9%*
Syn			1			3	1	1	**6**	*4%*
TC	4	12	3	5	1	10	1	3	**39**	*28%*
Tr	1	1	3	4	4	4	2	2	**21**	*15%*
Sim	2	5	2	6	2	2	3	4	**26**	*19%*
Id	2	4	1	2	2				**11**	*8%*
Total Ss	9	28	15	21	13	26	11	15	**140**	*100%*

Table 6: *Reports on the sub-categories of problems for TC, Tr and Sim for novices, cross-classified by Ss (frequencies relative to the total for a category are given in italics)*

	N1	*N2*	*N3*	*N4*	*N5*	*N6*	*N7*	*N8*	***Total***	*%*
TC/									**39**	
Integ	3	11	2	5	1	10	1	3	36	***92%***
Bgkn	1	1	1						3	***8%***
Tr/									**21**	
L2r		1		4	3	2	4	2	16	***76%***
Eqv	1			1	1	2			5	***24%***
Sim/									**26**	
SL.TL				3					3	***12%***
tr.del	2	5	2	3	2	2	3	4	23	***88%***

In the course of the retrospection, the trainees identified more processing problems compared with the reports of the experts – a fact also reflected in the significantly lower accuracy of the novices' performance in contrast to the accuracy of the experts ($\bar{x}$=57% vs. $\bar{x}$=81% respectively, $p<0.001$). TAP studies of expertise in translation (see Jääskeläinen and Tirkkonen-Condit 1991) interpreted the brevity of the experts' protocols and the few verbalisations which they produced as indicative of the greater degree of automatisation of their processing. This is a plausible account for the present data as well. However, owing to the fact that the reports in the present study were elicited after the processes were completed, such a conclusion is but a very tentative one.

The trends that the data manifest also differ from the pattern found with the experts. Text comprehension, in particular integration of information, has been identified by the novices as the most problematic cognitive processes in SI. The trainees attributed the majority of problems in performing simultaneously to delays in translating (82% of all simultaneity problems). Also, they frequently reported that they were not able to hear (long) SL segments. This is an unexpected result, which calls for some explanation. Norman and Bobrow (1975) proposed that performance limitations in multiple tasks could be attributed either to the poor quality of the input or to the lack of processing resources. The possibility for data-driven limitations on performance was minimised in the design of the study by using a good quality recording, pre-testing the equipment, which was operated by technicians. Subjects responded during the debriefing interview that they were satisfied

with the quality of the recording. The alternative explanation for the hearing failures, then, can be resource deficiency. When comprehension has to share resources with production, it is likely that parts of the initial signal might be partially processed up to a point when no attentional resources are required, but abandoned for further semantic interpretation if at the same time the production task also requires semantic interpretation.[5] Thus, the partial processing of the signal could have been the cause of the subjective feeling that a SL chunk was not heard.

Novices' comments on translation processing were on average rare (only 15% of all reports refer to translation). When reference is made to translation, it is mentioned primarily in the context of word-retrieval problems – subjects commented that they experienced difficulties retrieving on-line a TL lexeme as a translation equivalent to a SL one. In response to the question whether they were familiar with the meaning of the original lexeme, they were able to provide a translation. Apart from these lexical problems, they also indicated on separate occasions that they were unable to retrieve the meaning of some SL lexemes, which they felt were known.

Monitoring

Monitoring is an interesting category, which needs to be discussed separately from the problems because the respective statements, while representing evidence for attended processing, do not refer to explicit problems. This part of the scheme was challenging since little investigation of this aspect of SI processing has been undertaken so far. Also, monolingual investigation of monitoring is characterised by a great amount of disagreement among researchers, in particular those who have discussed monitoring in language production (Blackmer and Mitton 1991). Gerver (1976) hypothesises two monitoring cycles in SI: a) pre-articulatory; b) post-articulatory test of the TL output. His model is supported by research on monitoring in spontaneous speech production (Levelt 1989). According to Levelt, self-monitoring involves monitoring at conceptual level (the most abstract, language-free representation of the message), inner speech (the level of lexical and syntactic representations) and production (post-articulatory monitoring).

The verbal reports of monitoring showed evidence for two types of pre-articulatory monitoring (of the adequacy of translation and correctness of the formulated TL message), but contained no information on hearing monitoring. Finally, two sub-categories were included, which reflect information about the

emotive involvement of the subject either in listening to the text content or in response to their performance.

The analysis of the retrospective protocols for information on monitoring purported to discover general aspects of processing to which the subjects have attended. To emphasise once again, while in the preceding analysis the subjects commented on aspects which created processing difficulties leading to concrete solutions, in the case of monitoring their observations have not been identified as a cause of action. They were, however, also analysed because they also indicated how interpreters allocate attention to the different task components and, more importantly, what type of information has been retained after task completion.

The outcome of the analysis is presented in Tables 7 and 8 below.

Table 7: *Monitoring observations from experts' protocols (cross-classified by Ss, relative frequency for each category is given in italics)*

M/	*E1*	*E2*	*E3*	*E4*	*E5*	*E6*	*E7*	*E8*	***Total***	***%***
Tr	6	4	2			3	2	1	**18**	***41%***
Time	4		1	2	1				**6**	***14%***
Insp	3					1		1	**5**	***11%***
int.com	3		1			2			**6**	***14%***
Mood	4	3	1			1			**9**	***20%***
Total	20	7	5		1	7	2	2	**44**	***100%***

Table 8: *Monitoring observations from novices' protocols (cross-classified by Ss, relative frequency for each category is given in italics)*

M/	*N1*	*N2*	*N3*	*N4*	*N5*	*N6*	*N7*	*N8*	***Total***	***%***
Tr						2			**2**	***13%***
Time		1			1				**2**	***13%***
Insp			1	1	1			1	**4**	***25%***
int.com				1					**1**	***6%***
Mood	1			1	1	1	2	1	**7**	***44%***
Total	1	1	1	3	3	3	2	2	**16**	***100%***

As the data shows, experts devote a lot of attention to ascertaining the adequacy of translation at the conceptual level (41%) – they commented on how successfully the translation of particular pairs was accomplished (Table 2). This tendency cannot be found in the protocols of the novices. Instead, and quite surprisingly, they focus on their emotive state, so that most of the non-

problem related comments (44%) referred to their personal experience of frustration when they were not up to the task, which was in many cases responsible for subsequent break-downs in performance.

Both groups recalled information on the timing of the TL production relative to the ST, apparently an aspect of processing which has been considered and stored together with the imprint of the text. Finally, the protocols showed evidence that the TL message was screened for appropriateness: subjects reported that they were able to detect deviations from the TL standards of grammatically and, more frequently, violations of the TL collocation restrictions.

In general, the preponderance of retrospective data on the subjects' emotional states (subcategories *internal commentary* and *mood* account for 34%) represents an unexpected and interesting finding. The majority of the comments reflect their personal estimate of the extent to which their performance measured up to expectations and their assessment of the ST and indicate on the whole a very high level of personal involvement with the task at hand. These statements highlight the importance of affective factors in SI. Fraser (1994) found a similarly high level of personal and emotional commitment to the task in TAPs of professional translators. She rightly argued that these factors, while not directly applicable to translator training, have relevance to understanding better the professional qualities of experts in the field. The same level of involvement was shown also by the novices in the present study.

General Discussion of the Problem and Monitoring Data

It transpired from the analysis of the protocols that the experts' representation of the problems which they encountered while performing the SI task tends to be more elaborate and localised than that of the novices. They were able to focus on concrete problems and recall more about the nature of the problem and about its solution (for a discussion of problem-related strategies, see Ivanova 1999). To illustrate this observation, consider the following excerpt from a protocol, discussing a translation problem:

> – this word – communications – was particularly unpleasant and at this time I was not at all convinced that "*saobstenija*" should be its equivalent. It sounded to me like a term, but I was not sure what is the exact translation. I played around with several versions "*poslanie*", "*komunike*", even "*tzirkuljar*" crossed my mind. (S1)

This describes the problem-space (in the sense of Newell and Simon 1972) created in response to the translation problem and the alternative paths considered in the processes of producing the solution, i.e. arriving at one acceptable TL version.

Figure 1 summarises the data on the major problem categories for both groups.

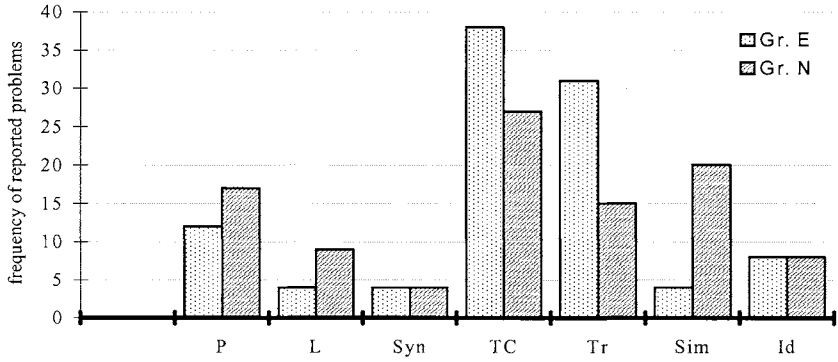

Fig. 1: *Frequency of problems reported by experts and novices in the course of the retrospective study*

Several major themes appeared from the discussion of the problems and monitoring of both groups. In the first place, the protocol data showed that the majority of problems encountered by both experts and novices in completing the tasks occur with higher-level processes of text integration (Fig. 1). This aspect of comprehension appears then to be affected most by the cognitive load imposed by the task. This is not surprising in view of the fact that integration requires attentional processing.

In the case of novices, the increased cognitive load has led to the disruption of on-line lexical assess in both L1 and L2 – the novices could identify a word form in SL, but fail to access the corresponding concept; alternatively a concept might be familiar, but the novices could not access its TL form (L1 retrieval). Such performance failures are most likely due to multitasking, as was already pointed out earlier. A more severe case of overload is evidenced by the fact that novices had no recollection at all about hearing some (extended!) segments of the text (category *P* in Fig. 1). Predictably, controlling both comprehension and production processes is a

major source of difficulty for the novices, with which the experts are able to cope.

As Figure 1 shows a major difference between experts and novices is the frequency of reports concerning translation processing. The experts appear to have paid more attention to the execution of translation, as the results from the analysis of problems and of the monitoring reports suggest. Furthermore, they encounter different types of problems in translation. This suggests that with skill acquisition, translation processes acquire greater significance and also benefit from the availability of resources and the improved efficiency of the comprehension processes. This in turn allows experts to retrieve and choose between more potential TL renditions. The translation process is also very well monitored by the experts. In contrast, the predominant type of translation problem in the novices' reports is the efficient retrieval of TL. Shreve and Diamond (1997) propose that experts will be aware of more potential translation problems because they form richer and more complex ST representations and perform more elaborate analysis of the input. In the absence of other experimental evidence at present, the retrospective reports of the participants in this study lend some support to this hypothesis.

Finally, for both experts and novices affective factors play a considerable role in performing the task. The subjects apparently paid particular attention to the way they were executing the task and to their subjective estimation of what constitutes a successful completion of any of the task components. This level of involvement could account for the fact that they were able to remember and retrieve processing episodes after the entire interpreting task was completed.

General Conclusions

One of the questions asked when the present study was designed concerned the feasibility of retrospection. Could interpreters remember how they processed the task content, given the high processing load associated with the task and the multiplicity and unpredictability of the problems which they are likely to encounter? The study showed such information was indeed remembered, although the subjects varied in the length and informativeness of their verbalisations. This finding alone indicates how well the subjects (both experts and novices) attended to the execution of the task.

The protocol analysis also provided evidence for the complex ways in which comprehension and production processes interact and how this interaction is reflected in TT. The most frequently reported problems by both experts and novices concern the processes of text integration, suggesting the

significance of comprehension when, as in the present case, interpreters work from their L2. The verbalisations of the experts indicated that translation processing demands a lot of attentional resources. Experts were aware of more translation problems than the novices and these problems were related to the selection of a contextually appropriate TL rendition. At their level of expertise novices were predominantly struggling to manage the control of the simultaneous processes. Processing overload has been identified in the above discussion as the most likely cause of the reported retrieval problems in both L2 and L1 and of the reports that they could not hear sometimes extended segments of ST.

Finally, several methodological observations have been made in the preceding discussion. They showed that applying the methodology of delayed retrospection to SI requires a careful design and manipulation of different types of memory support for retrospection. Generally, instructing the subjects to verbalise segment by segment and giving them the opportunity to initiate the retrospection can elicit interesting data. Regarding the individual variations in verbalisation, it is possible that the novelty of the task and the lack of pre-task training could have affected the processing information supplied by some of the subjects. In addition, the personality of each of the subjects could have influenced the outcome of the retrospection (Fraser 1996). Unfortunately, little research is available as yet to allow us to assess the importance of the personality factors in introspection. In assessing the applicability of the retrospective method as used in this study we can conclude that it has provided insightful information on the processes of SI and interesting evidence about differences in processing between experts and novices that, on the one hand, could not have been assessed by means of the other available methods and, on the other, can generate interesting hypotheses for further investigation.

Notes

1 The introspecting agent in this method is frequently referred to as "informer" (Grotjahn 1987), which highlights the fact that his/her subjective experiences are important in themselves. In the present paper the participants in the study are referred to as subjects, which is the general term used in cognitive studies.

2 Fraser (1996) offers a recent survey of introspective studies in translation processes.

3 I would like to thank the professional interpreters who were more than willing to devote some time from their otherwise busy schedule to this experiment and for the genuine interest that they showed in the results of the study.

4 The retrospective study was conducted in Bulgarian. Consequently, all the examples provided in the present paper are my translations from Bulgarian. Where included, original Bulgarian words are enclosed in italics in inverted commas.

5 The theory that there exists a processing bottleneck in multitasking due to the scarcity of attentional resources has been around since the early 1960s (cf. Eysenck and Keane 1995; Styles 1997 for a discussion of experimental research on multitasking and performance deficit). Gile's Effort Model of SI (1995) assumes resource limitations and shows how the increase of effort at any phase of the process can lead to performance deterioration.

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A Complex-skill Approach to Translation and Interpreting

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Both text-to-text translation and simultaneous interpreting are complex activities comprising many sub-skills that each has been a separate object of study in cognitive psychology: Perception, listening and speaking, reading and writing, reasoning and decision making, problem solving, memory, and attention, every single one of these central topics of study in cognitive psychology plays a prominent role in translation and interpreting. Both tasks easily qualify as complex, or 'high-performance', skills (for a definition, see Schneider 1985: 286), the study of which constitutes yet another focus of research efforts in cognitive psychology. Consequently, researchers of translation and/or interpreting who gear to cognitive psychology in an attempt to find out how that field of study may inform their own discipline, may find themselves overwhelmed by the large number of possible starting points. The same holds for cognitive psychologists who attempt to apply the achievements of their field to translation studies, or who turn to translation studies to see how the achievements of that field could inform cognitive psychology.

Out of the large number of points of view to take, I have chosen to concentrate on the complex-skill characteristic of translation and interpreting. When choosing this perspective, all of the extensive literature on the nature of complex skills, on how they are acquired and may best be trained, and on expertise becomes pertinent to the study of translation and interpreting. In this article a number of central themes in this vast research field will be highlighted and an attempt will be made to apply them to the study of translation and interpreting. I will only consider text-to-text translation and simultaneous interpretation, often simply referring to these specific forms of translation with the terms 'translation' and 'interpreting', respectively. The discussion will focus on a componential approach to training complex skills and on the relevance of acquiring fluency/automaticity in as many of the task components as possible.

Part-task Training versus Whole-task Training

Many programs for training complex skills are based on the fallacy (Schneider 1985) that a skill can best be trained in a form that is similar to the targeted skill (the 'whole', 'full', 'total', or 'criterion' task). Adherents of this view recommend a training program in which the trainees perform the total task most of the time. Schneider points at a number of problems associated with this approach to training, such as the fact that it will often lead to resource overload and consequent frustration and panic. Another problem concerns the implicit assumption of the whole-task approach that there is little transfer from training isolated components of the targeted task to actual performance on this task. A number of studies have provided data that indicate that this assumption is flawed. Not only has it been shown that component training *does* transfer to performance on the whole task, but also that under some sets of circumstances component training may even be more effective than whole-task training. For instance, there are indications that part-task training is more effective than whole-task training with difficult tasks and with low-aptitude or inexperienced students (Wightman and Lintern 1985). Given the fact that both translation and interpreting are extremely difficult tasks, it is likely that also the acquisition of these skills will be supported by component training.

The Importance of Automaticity: An Example

What then, if part-task training is opted for, are the task components to be included in the training program? Not all components that can be distinguished in a criterion task will need to be trained because a number of them may be mastered already at the onset of training. An example is visual word recognition, in translating written text. In fluent readers this process proceeds to a large extent automatically and effortlessly (although the recognition of low-frequency words may still require mental resources even in these readers; Herdman and LeFevre 1992). On the assumption that the typical trainee selected for participation in the translation training program will be a fluent reader, the inclusion of a visual-word-recognition component in such a program would thus be a waste of time and effort.

However, when the goal of a training program is to improve reading comprehension in poor readers, this same component, visual word recognition, is likely to be one of the most important skill parts to focus on during training. This is suggested by a number of influential current theories on reading

(Daneman and Carpenter 1980, 1983; Perfetti 1985; Stanovich 1980) that all attribute poor reading to deficient, non-automatic, word-recognition skills. Because too many of the limited resources must be directed towards recognizing the printed words, too few remain for higher-level text comprehension processes such as drawing inferences and cross-sentence integration of information, and for the temporary storage of information that is required for these higher-level processes. As a consequence, comprehension breaks down. The solution is to automatize word recognition as much as possible through training. When the stage of maximal automaticity of word recognition is reached, all resources can be directed to those components of the task that defy automatization. This characterization of the development of skilled reading holds a lesson for the acquisition of any skill, including translation and interpreting: Any part of the criterion skill that is amenable to automatization should become automatized as rapidly as possible in order to free resources for task components that will always remain effortful, whatever the level of expertise of the person performing the skill.

Word-recognition practice, but now with auditory input, may also be a significant component in training simultaneous interpreting. The reason to suggest a role for training word recognition in interpreting but not in translation is a difference both in quality and in permanence of speech and writing (see Nickerson 1981 for a detailed analysis of differences and similarities between oral and written language input). Due to the generally good quality of print, the words in printed text are usually easy to recognize. Spoken words, however, are often difficult to identify, either because the speech input is masked by noise from the environment or because the speech input itself is of poor quality (too fast, badly articulated, or too softly spoken). This characteristic of speech is detrimental to performance in interpreting, as shown by a number of early experimental studies on the role of quality of input. These studies (see Gerver 1976 for a review) demonstrate large decrements in performance when noise is added to the speech signal and when input rate increases beyond the optimal level of about 100 to 120 words per minute.

A second critical difference between printed and spoken language is that the former is permanent but the latter transient, dissipating with time. Even though the auditory input will be briefly stored in auditory short-term memory and available for backtracking in case of a word-recognition failure, the opportunities for recovery in speech perception and simultaneous interpreting are much less favorable than in the case of reading and written translation. In interpreting the opportunities for recovery are even worse than in ordinary (within-language) speech perception because, unlike in the latter, there is no

way to negotiate for meaning with the speaker in the former situation. Any attempt to work out what word might have been uttered diminishes the resources available for the remaining task components. An effect in simultaneous interpreting would be that later parts in the input stream would just vanish in the air unnoticed or, at least, unanalyzed, a situation which holds a serious risk of a breakdown. Training auditory word recognition under unfavorable circumstances may help the interpreter to develop appropriate strategies such as fast guessing to compensate for poor input.

To summarize, as exemplified here with word recognition as a component of reading, translation, and interpreting, candidate components for any training program are all the parts of the criterion skill that are not optimally automatized. What these parts are depends on a number of factors, such as the expertise of the learner or specific characteristics of the criterion task.

Training Components of Interpreting and Translation

The description above of how poor auditory input may impact on simultaneous interpreting illustrates the primordial importance of fluency in performing this task. The more of the sub-processes are maximally automatized, the more resources are available for the processes that will always require attention and for temporary storage of information (cf. the above description of skilled reading). In a number of influential theories of working memory (e.g., Baddeley and Hitch 1974; Daneman and Carpenter 1980, 1983), these two, attentional processing and storage, compete for the limited capacity of the system and there is a trade-off between the two: The more capacity is required for processing, the smaller the storage capacity and vice versa. Giving this dual function of working memory, processing and storage, it is easy to see the importance of maximizing automatic processing in simultaneous interpreting, and, to a lesser extent, written translation (where backtracking is always an option). In addition to the capacity required for comprehension of the input, which by itself involves both the temporary storage and processing of information, capacity is needed for memorizing elements of the target language until they can be uttered or put on paper, for the production component, and for coordinating the various activities (Gile 1997). The demands of both tasks are therefore much higher than those required for mere comprehension, of speech or written text, which by itself is already complex enough a skill to tax even the most fluent of language users at times. They are also undoubtedly much

higher than those involved in language production, even though in one respect the production component in translation and interpreting may be less demanding than usual language production, in speaking or in writing: The conceptualization component of common language production can to a large extent be skipped in translation and interpreting because the message to be expressed in the target language is already provided by the author/speaker. Padilla, Bajo, Cañas and Padilla (1995) provided data that suggest that, in order to cope with the high demands of the task, professional interpreters develop a working-memory capacity which exceeds the capacity of normal language users.

What then are the task components to be profitably included in translation and interpreting training programs? A number of recent studies have shown that even among university students large differences exist in the efficiency with which they perform rather basic language-processing tasks such as lexical decision, word naming, and semantic categorization of words (Herdman and LeFevre 1992; Lewellen, Goldinger, Pisoni and Greene 1993). In this text I will assume (mistakenly maybe) that translation and interpreting trainees with exceptional non-fluency in these basic language skills will be identified as such early on in the program and discouraged from continuing the program, and that, therefore, these very basic skills need not be trained in the program. In the next sections I will suggest a number of potentially relevant training exercises, some involving just one of the two languages of the translator/interpreter-to-be and others involving both languages. The general underlying theme in proposing these exercises is the importance of achieving fluency in as many of the sub-components of the criterion skills as possible. Because, for reasons given above, fluency of the sub-processes is considerably more important in interpreting than in translation, the remainder of this text will strongly emphasize interpreting.

Word retrieval: Concept naming

One training component to consider is word retrieval under speed instructions. Carroll (1978) already noted the importance of fast word retrieval for simultaneous interpreting in particular. If a concept to be expressed in the target language does not activate the corresponding word (or string of words) rapidly and automatically, a search of memory for the appropriate name or an attempt to paraphrase will consume precious time and resources, and the interpreter runs a serious risk of a breakdown. Simple tasks that could be used in the training of this skill are timed picture naming (e.g., Snodgrass 1993) and definition naming (e.g., Brown and McNeill 1966; La Heij, Starreveld and

Steehouwer 1993), particularly in the weaker language. The underlying assumption in proposing these tasks as instruments to strengthen the memory connections between *concepts* and words is that pictures and definitions activate the corresponding concepts. The latter, in turn, activate their names. Note that the word-naming task briefly mentioned in the previous paragraph is not a word-retrieval task in the sense intended here, where the appropriate name has to be retrieved for a given (albeit indirectly, via the picture or the definition) concept. In a word-naming task the opposite process is typically studied, with the word given (in its visual form) and the associated concept to be contacted in memory. Exercising word naming is therefore not an appropriate means to increase fluency in word retrieval.

It is as yet unclear whether word-retrieval training will have a general effect of speeding up that process, irrespective of the words involved in the training, or whether the effect is word specific, that is, it only speeds up the retrieval of the words actually included in the program. If the effect of training is not restricted to the trained words themselves but carries over to non-trained words, its beneficial effect for interpreting performance may be considerable. If instead the effect is word specific, the benefit for simultaneous interpreting will be more modest because the training set will necessarily only cover a limited number of the words to be encountered in future professional interpreting sessions. However, in the case of word-specificity of the effect, careful selection of the training words will optimize the chances that actual interpreting performance will benefit from the training. The training could, for instance, focus on the most frequent words of the source and target languages, that guarantee a large coverage in language use (see Nation 1993 for the relation between word frequency and text coverage), and thus increase the hit rate of trained words in professional interpreting settings considerably. Furthermore, the training could concentrate on words that are known to be particularly hard to retrieve in the target language (for instance due to non-straightforward mappings between the source and target languages; see also below). Finally, especially word retrieval in the weaker language should be trained, because that is where word-retrieval dysfluency will most often occur.

Whatever the scope of word-retrieval training, it should be clear that fluency of this skill is crucial for skilled interpreting performance. If for practical reasons it could not be trained adequately in the program (e.g., because achieving the criterion levels of performance would consume too many hours of practice), it will already have to be among the skills of the student entering the interpreting training program (and a quick test for assessing fluency in this skill could serve as an aid in selecting trainees). However, because fluent word-retrieval is less critical in translation, in

selecting trainees for a translation program the requirement of word-retrieval fluency could be relaxed considerably.

Word retrieval: Word-to-word translation

A training component intended to optimize word-retrieval efficiency may also include practice in timed word-to-word translation. The assumption underlying this proposal is that not only written translation but also simultaneous translation to some extent involves 'transcoding', that is, the replacement of source-language linguistic structures of various types (phrases, clauses, but also single words) by the corresponding target language structures. Some researchers of interpreting (Seleskovitch 1976) oppose this view and claim that skilled interpreting performance primarily involves what I have called 'vertical' processing (De Groot 1997), in two steps: The source-language text unit to be interpreted as a single chunk is first fully analyzed up until the stage of pragmatic analysis (Paradis 1994 refers to this stage as linguistic decoding); this comprehension stage is followed by a 'top-down' production stage that results in the target-language output ('linguistic encoding', Paradis 1994). Because of the transient nature of the input in interpreting, the forms of the source-language words are thought to be lost rapidly during comprehension, leaving only the utterance's meaning in memory. With the forms lost, no word-to-word (or higher-level) transcoding can take place. Because transcoding, especially at the level of words, is regarded by many, including Seleskovitch, as an inferior translation technique, associated with the lower proficiency levels of the skill, this process of deverbalization is in fact regarded as beneficial. In written translation transcoding is thought to play a larger role than in interpreting, due to the fact that the source-language input remains available permanently. The permanence of the source language evokes transcoding 'reflexes' (a term that Kussmaul 1995, uses in this context), that should, according to Seleskovitch and like-minded researchers, be suppressed vigorously.

Other researchers, however, assign a much larger role to transcoding ('horizontal' processing; De Groot 1997) in simultaneous interpreting (Gile 1991), or even regard it as the hallmark of professional interpreting (and translation; Paradis 1994). The view that considerable transcoding takes place in both translation and interpreting is consistent with the popular notion of a working memory that holds about one-and-a-half to two seconds of phonologically coded information in the so called 'phonological loop', a component of working memory (Baddeley 1990). Not only auditory input but also visual input is temporarily stored in this memory store. With this duration

of phonologically coded information residing in the phonological loop, by the time the content of a source-language word will have to be expressed in the target language, the critical source-language word will often still be available in phonological form. In interpreting this will be the case whenever the ear-voice-span is shorter than two seconds. But the phonological form may be available much longer than that whenever the interpreter, for whatever reason, consciously memorizes the word. In written translation the phonological (and visual) form may be re-activated over and over again, involuntarily or voluntarily, because the source-language input remains permanently available.

The fact that both in interpreting and in translation the input word forms will often still be available the moment the corresponding output is ventured, may sometimes be beneficial, for instance when the corresponding source- and target-language words are close cognates used in similar contexts in the two languages; but it may also often be detrimental, for instance when the source-language word form sets the interpreter on the wrong track (see for examples De Groot 1997: 40). Whether potentially beneficial or detrimental, the frequent (and unavoidable) availability of a source-language word the moment the corresponding target-language unit is about to be uttered, might as well be exploited in a training program. The goal of such a training component should be to strengthen the long-term-memory connections between the representations of translation-equivalent terms (thereby at the same time weakening the deleterious effects of translation pitfalls). Instruction should focus on (categories of) words that are notoriously difficult to translate. A number of studies using behavioral measures (e.g., De Groot, Dannenburg and Van Hell 1994) and at least one study using a psychofysiological measure (pupil dilation; Hyönä, Tommola and Alaja 1995, Experiment 2) have already revealed many of the variables that affect word-translation performance and thus point out what are the categories of words to be trained. Of course, if a word-translation component is included in the program, the trainees should also be made aware that the translation reflexes thus created may not always be quite appropriate, sometimes even totally inappropriate; that it would be wise always to save some of the mental resources to monitor and, if necessary (and possible), suppress a reflex.

Simultaneity of Comprehension and Production

The most unique feature of simultaneous interpreting as a language skill is that it involves simultaneity of (auditory) comprehension and (oral) production of

language. It is very likely that interweaving these two sides of language use is a skill that does not come naturally but is promoted by training. Current theories on working memory suggest that such training may not only result in the ability to comprehend and produce language at the same time, but that it may also bring about qualitative changes in at least one of the two processes involved, namely, language comprehension. Alternatively, the fact that simultaneous interpreting can become to be mastered by at least some language users may force a modification of current views on the role of working memory in language comprehension. As they stand, these views would in fact regard simultaneous interpreting as an impossible skill.

The ground for these claims is that current working-memory theory holds that comprehension (and many more aspects of language processing; see for a review Gathercole and Baddeley 1993) involves a component of the memory system called the 'phonological' or 'articulatory' loop. This slave system of the 'central executive' temporarily maintains verbally coded information when the central executive becomes overloaded. Studies employing the 'articulatory-suppression' technique, where the articulatory apparatus is kept busy by having the subjects repeatedly articulate irrelevant materials, have indicated that the phonological loop maintains information in some articulation-based form. Articulatory suppression has been found to interfere with the comprehension of syntactically complex sentences (see for references Gathercole and Baddeley 1993), suggesting that the articulatory loop is implicated in the analysis of such sentences. Not only current work on working memory, but also the much older 'motor theory of speech perception', assigns a role of speech in comprehension (Liberman, Cooper, Shankweiler and Studdert-Kennedy 1967; Liberman and Mattingly 1985). But how then, given the fact that the production component of the task occupies the articulatory apparatus most of the time, is (comprehension in) simultaneous interpreting at all possible?

One possible solution is to suggest that the view of phonological-loop involvement in comprehension is flawed. Reminiscent of this solution, Neisser (1967: 218) took the performance of simultaneous interpreters as evidence against the motor theory of speech perception. Another solution is to assume that the phonological loop is indeed normally implicated in comprehension, but that there are ways round it via the deployment of atypical language-processing strategies. This is the way Gathercole and Baddeley (1993) explained the language-comprehension performance of RE, a psychology undergraduate student tested by Butterworth, Campbell, and Howard (1986), who had normal language comprehension skills despite the fact that her phonological memory was clearly impaired. The interesting implication in the present context is that also simultaneous interpreters may develop unusual

language-comprehension skills to cope with the demand of processing language input and producing language output at the same time. Recent data by Padilla et al. (1995) indeed support this idea. They showed that articulatory suppression affects free recall in interpreting students and in a group of control subjects with an academic degree in areas other than translation and interpreting, but not in interpreters who had practiced their profession for a considerable number of years.

Plausibly, these unusual language-comprehension skills as well as the ability to comprehend and produce language simultaneously per se, are easier to acquire when the interpreting trainee practices on tasks that also involve the simultaneity of language comprehension and language production, but that we know are nevertheless easier tasks than simultaneous interpreting: shadowing and within-language paraphrasing. In shadowing, presented speech has to be repeated back on line exactly as it was heard. In within-language paraphrasing a spoken message has to be expressed orally in different words in the language of the input, again on line. As simultaneous interpreting, both these tasks – which can be practiced in both of the trainees' languages – require the simultaneous comprehension of input and production of output (see Marslen-Wilson 1973 for evidence that speech shadowing indeed involves semantic analysis of the input rather than merely echoing the input). The implication is that they would also enforce the unusual comprehension strategies that have just been proposed for simultaneous interpreting. But on the other hand, both these tasks are easier than simultaneous interpreting. This can be inferred from a study by Green, Schweda-Nicholson, Vaid, White and Steiner (1990), who had subjects perform a finger-tapping task concurrently with either simultaneous interpreting, shadowing, or paraphrasing. As compared to a control condition where only the finger-tapping task had to be executed, tapping rate decreased more in the dual-task condition involving simultaneous interpreting than in the dual-task conditions with either shadowing or within-language paraphrasing as second task. This finding suggests that simultaneous interpreting is the most demanding of these three tasks. The results of Green et al. (1990) also suggested that shadowing is easier than within-language paraphrasing (see for a discussion De Groot 1997).

For an interpreting training program that aims to approach the complexity of the criterion task gradually, the above findings imply that practice in shadowing should precede practice in paraphrasing. As proposed by Moser (1978), the difficulty of the shadowing task (and, for that matter, the paraphrasing task) could be increased gradually by successively increasing the speech input rate. This author suggests a further interesting modification of the shadowing task, which I will call 'delayed shadowing' here. In it the subjects

are presented with sets of sentences to shadow, but they are only allowed to start shadowing after the first sentence or the first two sentences, etc. has/have been input. This version of the shadowing task combines the demands of actual interpreting to comprehend input, memorize an earlier part of the input, and produce output, all at the same time. But it still is likely to be easier than interpreting in that no language conversion process is required.

Control of Attention

Gile (1995, 1997) decomposes various forms of translation and interpreting in their resource-sharing components. The components he distinguishes for simultaneous interpreting are a listening effort, a memory effort, a production effort, and a coordination effort, where the term 'effort' was chosen to stress the fact that none of these skill components proceeds automatically but that instead they all consume processing resources. Treating the coordination effort as a separate component of simultaneous interpreting concurs with relevant current work on the acquisition of complex skills (Gopher 1992; Gopher, Weil and Siegel 1989), where the coordination component is referred to as 'the control of attention' or 'attention management'.

Gopher et al.'s (1989) study was part of a much larger project, the 'learning strategies' project, in which a number of universities in four countries participated (see for reviews Donchin 1989 and Lintern 1989). The goal of the project was to determine whether the training of particular learning strategies might benefit subjects' performance on a complex task as compared to performance after an equal amount of unsupervised training in the full task. An important feature of the project was that all participating researchers worked with the same, extremely demanding task, a computer game called the 'Space Fortress Game', each choosing one or more training strategies as the object of their study. The project as a whole was to evaluate the then popular view that 'practice makes perfect': that trainees receiving unstructured, unsupervised practice on the full task benefit as much from that training as trainees receiving some sort of guidance during practice. In order to be able to evaluate this idea about unstructured training, eventual full-task performance of all experimental groups in the various laboratories (that is, the groups having received some form of structured training) was compared with performance of a control group that had not received any specific training but that had practiced the criterion task instead.

A number of participants in the project focused on component training as a form of structured training. Frederiksen and White (1989), for instance,

identified 16 components of the full task and trained the experimental subjects on all 16 of them before transferring them to the complete task. The ultimate performance on the criterion task of this experimental group was better than of a control group who had been trained on the complete task from the outset of the training, a finding that clearly belies the assumed superiority of full-task training from the onset.

Equally encouraging were the results of the 'emphasis-change' approach taken by Gopher et al. (1989). Unlike in a standard componential approach, they trained their experimental subjects on the complete task from the outset, but manipulated the amount of attention the subjects devoted to one or another of the task's components. Prior to starting the training, the investigators identified two particularly hard task components. One group of experimental subjects was subsequently encouraged to pay particular attention to one of these components; a second experimental group was stimulated to focus on the second; a third experimental group was encouraged to attend to both of them. But all three of the experimental groups, as the control subjects, were embedded in the complete-task environment all through the training period. Ultimate performance on the criterion task was better for all three experimental groups than for the control group, with the group having focused attention on both of the difficult task components outperforming the remaining two experimental groups. In agreement with Gile's idea (1995, 1997) that the 'coordination effort' is a separate component of simultaneous interpreting, Gopher et al.'s study suggests that attention control is a separate component of a complex skill. Their study furthermore indicates that this skill component can be trained and that such training has a beneficial effect on performing the full task by removing any decrements in performance that are not due to capacity overload, but to failures of attentional control (Gopher 1992).

Equally relevant as identifying attentional control as a separate component of a complex skill is the finding from subsequent work (Gopher 1992) that this component transfers to other tasks that contain the same basic elements, but that physically have little in common with the training task: There was a huge transfer from playing the Space Fortress Game to performance in flight training, with the effect that the chances of completing the flight-training program, with usually very high washout rates, increased by no less than 30 percent (Gopher 1992: 317).

Gopher's work suggests that training the control of attention may be an advantageous component of a training program in simultaneous interpreting. Analogous to Gopher's emphasis-change manipulation, such training might consist of having the trainees exercise the full task (with relatively easy discourse as input) while varying the instructions as to what component to

attend to in particular (comprehension, production, or memory). This way the trainees will get prepared for the fact that in practicing their profession simultaneous interpreters will continuously have to adjust the amount of attention devoted to each of the task's components (e.g., with poor-quality input relatively much attention will have to be directed to the comprehension component). Another application of Gopher's findings would be to train simultaneous interpreting in an environment that superficially has little in common with that skill, but that shares with it its basic components of comprehending some input, producing some output, and keeping some information in memory, and all this intertwined in the same stretch of time and under severe time limitations. Training on a task that satisfies those constraints may even benefit subsequent interpreting more than would prior training in text-to-text translation, a task that obviously has many components in common with interpreting. Such a finding would suggest that not the sheer number of components shared between a training task and the criterion task determines the amount of transfer, but whether or not the two tasks share one or more of the especially critical components (here: attention control over various simultaneous components and under severe time pressure).

Concluding Remarks

In this article simultaneous interpreting has received considerably more attention than written translation. This followed naturally from an emphasis on the importance of fluency, automaticity and speed of the sub-components in performing a complex task skillfully. Whereas fluency, automaticity, and speed are beneficial in translation, but not at all times indispensable, they are permanently of crucial importance in interpreting. This difference between the two tasks is likely to underlie other differences between them, for instance in the comprehension and production processes involved.

The claim that comprehension and production (and other processes) in interpreting differ from the analogous processes in translation is amply supported by the recent discussions of the two skills by Gile (1995) and Kussmaul (1995). Kussmaul provides a cognitive analysis of translation and proposes exercises for training a number of the component processes involved. Gile analyses the cognitive processes involved in both translation and interpreting (and discusses implications for teaching), but with a strong focus on the latter. The overwhelming impression that is left by reading these two books in close succession is that the two tasks involve very different processes and skills. The training exercises proposed by Kussmaul (e.g., pragmatic

analysis; the analysis of linguistic word meaning; the use of dictionaries) nearly all involve very time-consuming activities, that will go on taking up a lot of time when exercising the profession after training. A similar thorough analysis of the input is frustrated in simultaneous interpreting, due to the severe time constraints imposed by that task. Gile's discussion focuses on the heavy mental load in interpreting caused by these time constraints and on how to cope best with this load.

In view of this fact that processing-wise translation and interpreting substantially differ from one another, instead of posing the rather broad question how cognitive psychology could inform translation studies (where the term 'translation' covers both interpreting and written translation), one should more explicitly ask what areas of cognitive psychology are likely to inform the study of interpreting and what (other) areas might inform the study of translation. This more specific question would immediately trigger an awareness that relevant differences between the two tasks may exist and, thereby, guide the search for potentially relevant areas in cognitive psychology.

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Part II

Methodology:
How to glean information from data?

Focus on Methodology in Think-aloud Studies on Translating

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Introduction

Think-aloud protocol (TAP) studies into translating have borrowed their data elicitation method (i.e. thinking aloud) from cognitive psychology where it has been used to study various problem-solving and decision-making processes. The methodological groundwork for the application of thinking aloud as well as other verbal report procedures (introspection proper, retrospection) to study human thought processes in contemporary psychology was laid by Ericsson and Simon (1984). Their work deals mainly with well-defined problems (i.e. problems with predetermined correct answers and problem-solving procedures); more recently thinking aloud has been applied to ill-defined tasks, such as essay writing (Bereiter and Scardamalia (1987) diagnosing X-ray pictures (Lesgold, Rubinson, Feltovich, Glaser, Klopfer and Wang 1988) or magistrates' decision-making in courts (Lawrence 1988), which, presumably, bear a closer resemblance (in terms of ill-definedness) to translating than, for example, figuring out the right solution for a cryptarithemetic puzzle. However, the fact that thinking aloud has been applied successfully to elicit data on such tasks is not in itself a guarantee of similar applicability to research on translating. In what follows I will discuss a few examples of the kinds of methodological questions on which TAP research on translating should focus sooner rather than later.

The main concern of this article is that experimentation in translation studies (including my own research) seems to suffer from a lack of relevant methodological knowledge about experimental research (cf. Gile 1995; Toury 1991, 1995). The reason for this is understandable; as translation studies has traditionally dealth with texts, languages, and cultures, it has not needed to know

how to study the human mind at work. One unfortunate consequence of missing knowledge is that process-oriented research efforts may lack the explanatory power required to draw reliable generalisations which are necessary for building viable theories and creating testable hypotheses. There are no fast and easy remedies to the situation: in many cases we need to go (back) to the basics of experimental research to find the means to add rigour and reliability into our investigations (be it by reading relevant literature or contacting experts in experimental research). One important task is to identify potentially relevant variables in translator behaviour; the role and importance of such variables should then be tested in experiments specifically designed for that purpose. I will give examples of this later.

On the other hand, my understanding of the nature of translating is holistic; therefore I doubt whether the atomistic rigour typical of certain branches of psychological and psycholinguistic research would yield valid results about translator behaviour. The results might be scientifically impeccable, yet have little ecological validity. Bruner (1990: xiii) critises contemporary psychology of its preoccupation with reductionism, prediction, and causal explanation, and asks:

> Are not plausible interpretations preferable to causal explanations, particularly when the achievement of a causal explanation forces us to artificialize what we are studying to a point almost beyond recognition as representative of human life?

This, in my opinion, is a good question. Although I am arguing for more experimental rigour in TAP studies on translating, I am also advocating caution and moderation in doing that.

In what follows I will take up three issues related to methodology in research into translation processes via thinking aloud; first, I will discuss the importance of pre-experimental testing of subjects; second, I will focus on the controversy between thinking aloud vs. joint translating; and, finally, discuss the potential interference effects of thinking aloud on the task of translating.

Pre-experimental Testing

In psychological and psycholinguistic research it is customary to chart the background of experimental subjects much more thoroughly than has been done in TAP studies on translating. To my knowledge, the background checks, if any, in TAP studies on translating have mainly consisted of mapping out the subjects' training and work experience (e.g. length, specialisation). Even this type of information has yielded interesting insights into the factors which may play a role

in translator behaviour. For example, the four professional translators in my TAP experiment (Jääskeläinen 1990; 1999) represented two translational 'sub-cultures', which could be characterised as (greater) demand for quality vs. quantity. Three worked as free lance translators, while one worked as a 'business correspondent' at a large Finnish company. Apparently the demands placed on the translators by the two translational sub-cultures had resulted in different professional ethics which could be identified in their translation processes as well as products. The three free lance translators spent more time on the process and engaged in more processing activities than the business correspondent. Moreover, the quality of the translations produced by the free lancers was also considerably higher than that of the business correspondent.

My findings revealed that there were also differences in the subjects' use of knowledge and their attitude towards the task at hand (Jääskeläinen 1999), but, in the absence of more detailed background information about the subjects, the explanations remain at the level of speculation. First, the differences between the four professionals could also be related to differences in the subjects' personality traits, such as their tolerance of stressful situations. In motivation research, for example, subjects are pre-tested to determine (1) whether they score high or low in terms of fear of failure and (2) how they cope with situations where fear of failure is likely to emerge (e.g. Nurmi and Salmela-Aro 1992). Similar pre-testing could benefit TAP studies on translating, too, as it is possible that in some situations such personality traits may explain the findings. The translation task used in my experiment was not very difficult, so fear of failure may not have figured significantly in the subjects' behaviour there. In other studies the tasks have been more demanding (e.g. Matrat 1992; see below).

Second, the differences between the professional translators in my experiment may also be related to their language skills. Since they all had a diploma in translation and were earning their living by translating at the time of the experiment, their language skills can be assumed to be at a relatively high, but not necessarily at the same level. Furthermore, there are bound to be inter-individual differences resulting from, for example, different specialisations. While a questionnaire covering training, quantity and quality of work experience, etc. will give some idea of a subject's language skills, we would be better off if the subjects were specifically tested for them. This concerns particularly non-professionals and semi-professionals (i.e. translation students). As for professional translators, their professional pride might be offended by subjecting them to language tests. This, however, is a problem which, I hope, can be avoided by informing the subjects of the purposes of such testing.

In sum, it is very hard to draw reliable conclusions from TAP studies on translating, if we lack these types of information about the people who participate

in experimental translating situations. Although it is not likely that absolute certainty could ever be reached, we would be on a firmer ground with our probabilities, if potential variables had been charted more carefully. Here in particular psychological research with its long tradition of experimentation can offer a great deal of assistance.

Thinking Aloud vs. Joint Translating

Due to the inherent limitations involved in the use of thinking aloud (see below), it has been suggested that a better and more natural way to investigate translation processes would be asking subjects to translate in pairs or in small groups (both types of task will be referred to as joint translating which has been adopted from Matrat 1992) and analysing the resulting discussions (e.g. House 1988; Matrat 1992). Research on joint translation processes has provided some interesting results and it seems that joint translating has significant didactic implications (Jääskeläinen 1999). However, the conclusion that joint translating is a better source of information about translating seems to be premature, since the studies in which the two types of data have been compared contain other variables which may account for the differences between the two experimental conditions.

In House's experiment (1988), a group of German university students of English (not of translation) translated a text alone thinking aloud, while another group translated the same text in pairs. They were given 30 minutes for the task, after which the translating session was interrupted. Now, the students who took part in the think-aloud session were not trained to spontaneous thinking aloud with the help of a warm-up task which, however, is regarded as a necessary pre-experimental procedure (Ericsson and Simon 1984). In fact, previous research on translating has shown that thinking aloud can be awkward and difficult at the beginning of the think-aloud session. For example, in the experiment carried out for my MA thesis (Jääskeläinen 1987), the subjects were not asked to perform a warm-up task before the experiment proper. As a result, it took them 10-20 minutes to 'get going'. Using a warm-up task in the later sessions (reported in Jääskeläinen 1990 and 1999) helped the subjects overcome their awkwardness, and they were verbalising fluently right from the beginning of the experiment proper. Thus, the absence of a warm-up experiment in House (1988) makes it difficult to compare the two bodies of data in order to determine which would be a better means to elicit data on translating.

Matrat (1992) argues for joint translating as *the* methodology in translation research. She backs her argument by a systematic comparison of four groups of

subjects (representing three categories of translational expertise: novices, advanced students, and experts) who took part in a think-aloud experiment and a joint translating experiment. Matrat's approach is deeply embedded in Vygotsky's (1978) psychological theory which offers an interesting approach to the study of the mind (and translating). However, the Vygotskyan framework also raises some problems in terms of the methodological comparison. Indeed, it seems that the methodological aim of Matrat' study, 'to evaluate two research methodologies ... in order to determine which one is the most appropriate for uncovering the translation process' (1992: x) is subordinate to the main claim of her investigation which is 'that joined activity favors the emergence of metacognition' (1992: 81). The 'emergence of metacognition' refers to the development of consciousness, which, according to Vygotsky (1978 quoted in Matrat 1992: 58ff.), should be the fundamental object of psychological research. Consciousness, in turn, is understood as the highest level of organisation of mental functions comprising both intellect and affect. The best means to study consciousness is the 'genetic method' which comprises, for example, joint activity or the introduction of obstacles into the experimental task to disrupt 'the routine methods of problem-solving' thereby discovering 'the rudimentary beginnings of new skills' (Vygotsky 1978: 13 quoted in Matrat 1992: 69). It is not possible to discuss the Vygotskyan framework in more detail in this article. Instead I will point out the methodological problems in Matrat's study which make the interpretation and evaluation of her findings difficult. First, however, the general conditions of access to process by verbal report procedures will be brought up.

According to Ericsson and Simon (1984), subjects can produce verbalisations only on thoughts that are being actively processed in working memory, i.e. which are to some extent conscious. This precludes reporting on processing which has become automatised due to extensive practice. Another factor which will suppress verbalisations is high cognitive load, i.e. a very demanding (part of a) task tends to use up all the available processing resources and none are left for producing verbalisations. It is also important to realise that the think-aloud method aims at eliciting an unedited and spontaneous account of on-going thoughts, i.e. the subject is not expected to be able to analyse his or her thought processes. That is the researcher's task.

In Matrat's experiments, four groups of three subjects produced a written translation from English into Italian (their native language).[1] The same subjects took part in two experiments: (1) a think-aloud experiment which was conducted along the lines of Ericsson and Simon's (1984) instructions; and (2) a joint translating experiment, in which each group of three subjects translated a text together. The source texts were different in the two experiments, but to retain the same level of difficulty, the source texts were paragraphs from the same text. The

difficulty of the source texts 'was supposed to trigger the surfacing of metacognition' (Matrat 1992: 81) – a goal reflecting the Vygotskyan approach. The use of dictionaries was not allowed and the amount of time was limited; in the think-aloud experiment the subjects had 40 minutes for translating the text, and 60 minutes in the joint translating task. There appears to have been no articulated translation brief.

According to Matrat, thinking aloud as a data elicitation method seemed to 'work' only with advanced students (and barely with them), while joint translating elicited a good amount of data from novices and experts alike. Matrat compares the data acquired from the two experimental conditions in terms of (1) problem definition and structure and (2) strategic processing. The findings indicate, among other things, that in joint translating problems were more clearly defined than in the think-aloud condition. Joint translating also revealed that problems had a complex structure. Furthermore, evidence of strategic processing was more easily identifiable in the joint translating protocols. One of Matrat's most puzzling findings is that none of the protocols (think-aloud or joint translating) showed evidence of decision-making strategies or decision criteria, whereas other TAP studies contain plenty of verbalisations on decision-making (e.g. Tirkkonen-Condit 1989, 1992; Jääskeläinen 1990, 1999). In fact, Matrat reports that the experts had difficulty in making decisions; for instance, in the joint translating process the subjects discussed problems, but were not able to decide on a solution, then decided to move on, and never came back to the problem to make a final decision (Matrat 1992: 188ff., 199).

As one of Matrat's goals is to study the emergence of metacognition, it is not surprising that she is not happy with the vague and fragmentary think-aloud protocol data. The purpose with thinking aloud is, in fact, precisely the opposite: to provide a means to access the messy and incomplete human thought processes. Moreover, the experts' reluctance to make decisions raises a question about the translating situation with an incomplete text and a time limit: were the experts really aiming at a finalised product? The tendency to postpone decisions can also be seen as a professional strategy of uncertainty management (Tirkkonen-Condit, this volume). Matrat's task represents an incomplete translation process; hence the experts may not have reached the final decision-making stage.

In addition, the settings of Matrat's experiments indicate that, in addition to the two data elicitation methods, there were other variables involved which may have contributed to her findings. While using text excerpts rather than complete texts may be justified by the methodological aims of the study, the time constraint may have influenced the way the subjects behaved (see above). Another significant variable is the choice to use difficult texts. For example, the experts translated two paragraphs (one in each experiment) of Charles S. Peirce's *Logic*

as Semiotic: The Theory of Signs, which I would regard as a very demanding task. (In fact, the task of translating a paragraph from this type of academic text out of context may be a somewhat questionable exercise.) The fact that difficult texts were to be translated in a limited time without reference books suggests a high probability of excessive cognitive load which, in turn, could be a reason for meagre and vague verbalisations even among the experts. At any rate, the nature of the task was such that it seems unlikely that the experts' reticence in verbalising could have resulted from automatised processing. The difficulty of the task also makes one speculate about the role of such factors as fear of failure in the subjects' behaviour. Finally, the decision to use the same text as a source for both experimental tasks (first thinking aloud, then translating jointly) is a problem, too, since the one or the other session was bound to have the advantage that the subjects had got themselves familiar with the task in advance of the session. In Matrat's experiment, when the subjects started the joint translating session, they were already to some extent familiar with the source text, which might explain some of her findings, such as the subjects' tendency to identify and tackle problems right away in the joint translating condition (Matrat 1992: 180). In future experiments, the order of the think-aloud and joint translating tasks should be alternated.

The subjects' interpretation of the purpose of the experiment may also have played a role: in one of Matrat's examples of experts translating jointly, one of the subjects points out (Matrat's translation of the original comment in Italian): 'They are interested in what we say when we are doing translation, not how we translate' (Matrat 1992: 199). Since Matrat does not reveal what instructions she gave to her subjects, it is impossible to determine where this interpretation originated from; it may reflect Matrat's goal to observe the emergence of metacognition. In contrast, other TAP studies *are* interested in how experts translate, including the 'routine methods of problem-solving' (Vygotsky 1978; see above). In relation to the methodological comparison, the expert's comment seems significant: if the subjects felt that their ability to talk about translating (to be analytical about translating) was under investigation, they might have been intimidated by the demanding task when they were translating alone in the think-aloud condition. While the task remained equally demanding in the joint translating condition, it seems reasonable to assume that tackling the task together (and with some previous experience with the text) would be less face-threatening to all three populations of subjects and therefore likely to yield more verbal reporting.

To sum up, the studies discussed above highlight my point that more attention should be paid to identifying and isolating potential variables in different data elicitation conditions. However, at this stage of process-oriented translation research it is impossible to determine whether thinking aloud or joint translating

would be 'the' ideal method to investigate translating. The same applies to other methods as well, such as immediate retrospection, and, in fact, different data elicitation methods may be ideal for investigating different aspects of translating (Fraser 1996). This can only be determined by systematic methodological surveys. Matrat's study (1992) is a good first step into that direction. However, whatever the merits of joint translating, it does not provide access to the solitary translation process. That is, the object of research is different in the two experimental conditions. Whether this difference is crucial (i.e. whether or not it is possible on the basis of one condition to generalise about the other) ought to be determined by systematic methodological comparisons.

Finally, it could also be argued that asking two (or more) people to translate together is just as artificial a translating situation as a think-aloud experiment, since most translators (students and professionals alike) work alone. Therefore, Séguinot's (1996, this volume) study of the translation process of two professional translators who are in the habit of working together offers very interesting authentic data on joint translating.

Interference from Thinking Aloud

Toury (1991: 60-62; 1995: 234-238) suspects that thinking aloud may interfere with translating in ways which have an impact on the resulting translation product. This would of course undermine the validity of the conclusions drawn on the basis of think-aloud data. Ericsson and Simon (1984) maintain that no such interference takes place, except possibly a slight slowing down of the process. As was mentioned earlier, Ericsson and Simon base their conclusions on data from tasks which are very different from translating; consequently, we would be ill-advised to rely on their evidence only.

Toury's main concern is that the two modes of translation (oral and written, see below) involved in a think-aloud experiment might interfere with each other. According to Toury (1995: 235):

> what the experiment claims to involve is basically the gradual production of a *written* translation of a *written* text. However, the need to verbalize aloud forces the subjects to produce not just *mental*, but *spoken* translation before the required written one; and there is a real possibility that spoken and written translation do not involve the exact same strategies.

Although Toury's example of potential effects has problems of its own (see below), the main point of his criticism needs to be examined, as his concerns are supported by some psychological research. The information-processing theory

underlying the revived use of verbal report procedures in cognitive psychology includes the assumption of a General Problem Solver, i.e. a limited-capacity central processor in the human information-processing system (Ericsson and Simon 1984). However, there is research evidence pointing to a different organisation of the system, that is, specialised content-specific sub-systems (e.g. Allport 1980a; 1980b). More importantly, research evidence also indicates that simultaneous task performance may suffer if the two tasks involved are in the same task domain (e.g. Allport 1980b). On this basis, then, it is indeed possible that thinking aloud may interfere with written translating, both of which are verbal tasks, in ways which could be traceable in the final product.

Toury illustrates his point by comparing two German translations of a source text sentence in English. One of the translations was produced in a think-aloud experiment (Sandrock 1982), while the other one was a model translation from a teacher's manual. By looking at the rank and scope of translation units, Toury concludes that the TA translation clearly exhibits a greater tendency towards formal correspondence than the non-TA translation (Toury 1991: 61; 1995: 237).

As Toury's example consists of only two translations of one sentence, which were produced by two different persons, the results of Toury's comparison are hardly generalisable. Moreover, as Toury himself points out, the translators were a student and a teacher whose language competence and translation competence are probably not comparable; as a result, the differences identified in the translations may not reflect the difference in the situations in which the translations were produced, but the difference between novice vs. professional task performance, for example.

As a preliminary test of Toury's criticism, I have compared the eight translations produced in my think-aloud experiment with eight translations of the same text produced by people who were not asked to think aloud while translating (for more details see Jääskeläinen 1999). Six of the translations were produced by advanced students at Savonlinna, who translated the text as part of their course work. Previously I had also procured two translations from two teachers of translation with the purpose of comparative quality analysis. I have looked at these two translations from the interference point of view as well.

Since my experiment dealt with a complete text, I was able to carry out a more comprehensive analysis of the degree of formal correspondence than Toury with the one sentence. First, I compared the syntactic structure of the ST with its sixteen translations to see how closely the translations followed the ST structure in terms of sentence boundaries as well as within-sentence order of presenting information. Second, I analysed the translations in terms of formal correspondence at the lexical level; i.e. I counted instances which indicate clear deviations from

formal correspondence, such as omissions, additions, and (optional) class-shifts.

The pilot study of the effects of thinking aloud on the translation product supports Toury's concern at the lexical, but not at the syntactic level. For example, in both think-aloud (TA) and non-think-aloud (non-TA) conditions, it was professional translators who were willing to implement syntactic changes, such as changing sentence boundaries. In contrast, the subjects' lexical choices may have been influenced by interference. A case in point would be the following ST sentence: '*O. Sodimu, P. Joseph and K. Augusti at the University of Maidugari in Nigeria fed an exceptionally fatty diet to rats.*' Mentioning the names of the researchers in this type of text is not typical of Finnish (here it also means going into too much detail for the purpose for which the text was to be translated). Yet all the TA subjects, professionals and non-professionals alike, kept the names in their translations, while six out of eight non-TA translators (including the two teachers of translation) left them out. Obviously, with such a small sample, these findings must be regarded as inconclusive; however, the findings imply that the potential effects of thinking aloud merit systematic investigation.

In sum, although there is little evidence of systematic differences between the translations produced with or without the need to verbalise at the same time, it is too early to draw the conclusion that no interference exists. As with the think-aloud vs. joint translating issue, the conclusion is that we need a thorough methodological investigation specifically designed to determine the effects of verbalising on the translation product(s).

Remedial Action

This article has not dealt with the methods of analysing TAP data which are also numerous and varied. Most of the methods of analysis have been created specifically to describe a particular body of TAP data, and whenever (if at all) a method of analysis has been tested on a different body of data, modifications have been necessary. This, in turn, complicates comparing findings and drawing generalisations. At the early stages of empirical/experimental research, this is understandable. However, it seems to me that not enough attention has been paid to testing and refining methods of data analysis in TAP studies on translating either.

One way of improving this state of affairs is research cooperation. A joint research project is currently underway on the initiative of Sonja Tirkkonen-Condit at the Savonlinna School of Translation Studies and with the participation of several of the authors in the present volume. The purpose of the project is to

conduct several think-aloud experiments in which the same source text in English will be translated into various languages by at least three professional translators (professionality has been defined in terms of at least three years or 1000 hours of experience as a full-time translator). The experimental procedure (the warm-up task and the instructions) will be held constant, and the subjects will be working under 'normal' working conditions (i.e. they should have access to reference books and a word processor etc. if this is what they are accustomed to do on the job).

In this article I have illustrated some of the methodological problems involved in TAP studies on translating and suggested some ways to improve the situation. On the whole, it seems that a systematic methodological investigation, which would be designed specifically to determine the validity and reliability of different data elicitation methods in process-oriented translation studies, is long overdue.

Notes

1 The four groups of subjects represented three levels of translational expertise: 'novices' were three first-year students of translation, 'advanced students' were three third-year and three fourth-year students of translation, while the 'experts' were three professional translators with at least ten years of experience.

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Is (Cognitive) Linguistics of any Use for (Literary) Translation?

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The Theory

It might probably be expected that numerous scholars will be inclined to answer the question whether linguistics is of any use for translators in the negative. However, since my own objective is to propose a positive answer, I would like to begin by stating some preliminary assumptions on which the following discussion is based.

First, there exist certain procedures that precede and complement actual process-oriented research on translation, such as TAPs, interviews, recordings, transcriptions, etc. One of those procedures is the well known activity referred to in language teaching as "close reading", "text analysis", or "explication du texte". Naturally, no text analysis is possible without some consideration of the particular language of which that text is made.

Second, although interventions from "hard core" theoretical linguistics into the field of translation studies (TS) might not always be entirely welcome, translation still can (or perhaps even should) constitute a part of language learning curricula, just as much as grammar can (or perhaps even should) be a part of the vocational training of translators. I believe that the latter is true even when what is at stake is the teaching of a thing generally considered impossible to teach, such as literary translation. Translating literature is believed to be more an art than a craft. And yet what constitutes that art – both in relation to the original text and to the translation – is the actual choice of one from a large number of possible potential expressions that a given language puts at the disposal of its apt user. Or, in other words, it involves the same activity as that which is required from a student of language who is asked to go through a "fill in the slots" exercise.

Third, as seen in the literature of the subject, in TS most valuable contributions often come from those who are at the same time academics and practitioners. In that first capacity, TS scholars are often "professional"

linguists, and they naturally find a theoretical framework for their study in their own discipline. Creating the ST and the TT are two linguistic processes. Therefore, an appeal to a theory of language is a necessary prerequisite for all explanation of such processes. Indeed, the long sequence of subsequently emerging and fading linguistic theories has been finding its reflection in the changing approaches to concepts constitutive of a theory of translation (notably, the notorious notion of translation equivalence). Obviously, evaluation of various linguistic theories comes via their practical application, and among those developed recently I consider the model known as cognitive linguistics (CL) to be the most promising. In the teaching of translation the main value of CL consists in its possible use in the process of linguistic "sensitivization", that is, of making aspiring translators aware of how the overall meaning of a linguistic message is shaped and modified – both in the original text and in the translation – by the particular choices that the writer and the translator make, using the repertoire which is offered to them by conventions established in a given language. In the cognitivist model of grammar, these choices involve what Ronald W. Langacker (1987, 1991) defines as *dimensions of imagery*, or *alternate scene construals* – the notion that constitutes the cornerstone of the analysis presented in the second part of this article.

There is nothing entirely new in the idea itself. For instance, it has been known for a long time that although two sentences may say "the same", they are never exactly synonymous. Thus, for instance, such two sentences as *The Reds have just won the world cup* and *The world cup has just been won by the Reds* give account of the same fact, but this fact is viewed differently: while the former "is about" the team, the latter "is about" the cup. The actual semantic content and the particular construal of that content are two constituent parts of overall meaning. This, in fact, is the old and well established basic assumption underlying all stylistic studies. The merit of CL lies in acknowledging that "stylistic meaning" can be found on all levels of grammatical structure, from lexicon through morphology to syntax. On the other hand, unlike some other models, by accepting both the necessity and the freedom of choice, limited only by constraints of the linguistic convention, CL elevates stylistics to the status of a legitimate part of strictly linguistic study.

Although it is a theory of language rather than a theory of translation, CL still makes assumptions that exactly parallel those on which TS scholars base their own research. Most fundamentally, both CL and TS assume that meaning is not "housed in the text", but becomes gradually negotiated as the discourse develops. Thus when producing their TT translators let meanings evolve and

emerge as they go, as do all other language speakers in the dynamic process of language use. As the translator goes along, the number of doubts concerning his/her consecutive choices diminishes, in proportion to the number of potential scene construals that remain at the disposal of a speaker engaged in a discourse. Finally, although the intrinsic self-limiting linearity of language cannot be avoided, translation – like any other type of linguistic process – is inherently non-linear in nature, with the potential for selecting various meanings being constantly managed through general contextual constraints, or "suppression mechanisms". Seen from this point of view, describing the process of translating becomes equivalent to describing the more general process of producing linguistic messages of any kind. Moreover, both may be only judged by their respective products.

Essentially, a cognitivist description of elements of language on various levels of organization, carried out in terms of different choices of scene construals, shows how the overall meaning of a message may change following intralinguistic or interlinguistic paraphrase. Thus what has been traditionally referred to as "stylistics" and described – by linguists and literary scholars alike – in fairly impressive evaluative terms, becomes subject to a more rigorous linguistic description. In other words, the field of stylistics becomes a kind of middle ground where linguistic analysis meets literary interpretation.

Most naturally, it is to that middle ground that TS belong as well. To those who have been trying to bridge the gap between the linguistic and the literary study (which, since the time of Aristotle's *Poetics*, have gone apart, each following its own way of development), the study of translation offers most useful building blocks. If the linguist seeks cooperation not only from a literary critic but also from the practising translator or the critic of translation, he might get from the three of them some feedback relevant to his own interests: text structure, contrasts between grammars, definition and assessment of cross-language equivalence, etc. On the other hand, what the translator may get from the linguist is confirmation, systematisation and corroboration of his/her own insights. At this point it might be rightly claimed that he/she has those insights anyway, and – from what the practising translators say – they never make conscious use of their linguistic knowledge while actually performing the job. Then the question arises why bother with a linguistic analysis at all? Looking for possible answers, one could say that it comes useful when teaching and then practising the art of "close reading", by showing how possible interpretations of a text (may) arise. It shows how the meaning of any text, and a literary text in particular, resides in its grammar just as much as it does in the words themselves. It makes it possible to find out what linguistic parameters build up a textual image. Finally, in reference to poetry, it provides

evidence for the statement that every "poetical image" is ultimately a function of "a linguistic image".

The later part of this essay brings a sample case study. This is in fact what the authors of most practical work on translation have been doing all along: they have been offering to their readers individual case studies. Indeed, these are relatively easy to offer. Yet what has been bothering theorists of translation is the question how to generalize from individual case studies and arrive at what might truly deserve a name of a "theory"? With its basic assumption of the inherent subjectivity of linguistic expressions, CL could in fact beat its own purposes: mere adherence to the principle of theoretical and methodological consistency might elicit from an advocate of a cognitivist approach to language a pessimistic statement that no (linguistic) theory of translation is indeed possible. On the other hand, this is precisely the kind of theory that TS scholars are interested in. I will claim what attempts at resolving this paradox have finally led me to believe: that a linguistic theory of translation can be profitably based on the cognitivist theory of language. Both deal with equivalence and nonequivalence of images, and the cognitivist model incorporates precisely those aspects of language that have always frustrated language-oriented translation theorists: the inherent subjectivity of meaning, the omnipresence of the unpredictable "human factor", the non-dichotomy of meaning and form, the illusive and elusive charm of the Sapir-Whorf hypothesis, the ubiquity of metaphor, the mystery of "false friends", the vague status of synonymy and homonymy.

In what follows I will only present an analysis of a single short poem. The choice of the genre results, first of all, from my own preferences and interests. There are, however, other reasons. As it is my aim to demonstrate that a cognitivist description of elements of language on various levels of organization makes it possible to demonstrate how the overall meaning gradually emerges (or changes in the course of translation), a lyrical poem is a particularly suitable choice. It makes it possible to cover the ST and the TT in their entirety, thus removing the problem of dealing with a text that is too long to be either quoted or discussed from beginning to end.

Moreover, by definition, a poem brings a condensation of what critics call "poetical devices". In agreement with Jakobson's classical manifesto (1960), CL claims that such devices are also a common feature of everyday language, the difference between "the poetic" and "the non-poetic" being that of quantity rather than quality. The poetry of imagery is always built of the prose of grammar. At this point, I will only refer to two tiny fragments of English and Polish grammars: a single property of nouns and a single feature of

English and Polish tense and aspect systems. Finally, I will show in what way repetition and syntactic parallelism build up a poetic image. This is not much to convince an unsympathetic critic, but perhaps might suffice to help both translation critics and practising translators to pin down and define some of the problems which they face in their search for translation equivalents.

The Practice

I will discuss the poem called *Oban girl*, written by a contemporary Irish poet Edwin Morgan and translated into Polish by a Polish poet and translator Andrzej Szuba (both texts were published in 1998 by Correstudio for the British Council Poland). Any comparative analysis of a ST and a TT requires some knowledge of the two languages in question, both practical and theoretical, from the author and from his or her audience alike. I realize that the reader of the following discussion cannot be expected to know Polish, which is sometimes formally listed among "exotic languages". Although, as most translators realize, a knowledge *about* a language cannot make up for the knowledge *of* that language, it is hoped that the grammatical explanation provided will enable the reader to follow the argument presented further in this paper.

Morgan's poem is only five lines long, and seemingly quite easy to translate:

Oban girl

A girl in a window eating a melon
eating a melon and painting a picture
painting a picture and humming Hey Jude
humming Hey Jude as the light was fading

In the autumn she'll be married (Morgan 1998: 20)

For the following interpretation of the poem I am indebted to my seminar students as well as to my colleague, Ela Wójcik-Leese, whose inspiring comments have corroborated and enriched my own intuitions.

The title brings in an association with figurative painting (Flemish masters?), and this impression becomes strengthened by the first two lines of the poem. These lines "paint" a portrait of a girl, caught in the middle of some activity (eating a melon, painting a picture), which has a timeless quality of a

work of visual art – lasting and unchanging, just being there for any eye to see, at any time. It is the eye of the beholder that gives to a portrait the "present time" quality each time it is being looked at; in other words, the present time belongs to the viewer and not to the thing viewed. In the middle of line three there comes an unexpected twist: an auditory impression replaces the visual ones, and reference to a particular tune points out – although indirectly – to an actual viewer: the song Hey Jude might have only been identified at a certain time, and only by those who knew it then. At this point the viewer loses its universal, timeless quality, and the reader of the poem realizes that, seen from his/her own time perspective, the picture belongs to the past. Indeed, the realization is confirmed by the second part of line four, which brings the only direct indication of such an interpretation: a finite verb in the past tense. By now Morgan's reader knows that the picture, although it has the permanent existence in the poet's memory, and although it can be brought to life each time it is being seen anew, is just that: a memory from the past.

In confrontation with the picture the observant eye – and ear – takes in the components of the picture one by one: what is seen first is the spatial "frame" of the picture – the window – and the girl's eating of a melon; next comes the observation that she is also painting a picture, and finally the realization that she is also humming a song. The fading light provides a sort of temporal frame: like the Hey Jude tune, it brings in a particular time setting. By contrast, line five directly refers to the future, and the distance between the things to come and the things of the past becomes iconically underscored by the space that separates the first four lines of the poem from the fifth, as well as by the initial capital letter. The time contrast opens various possibilities of interpreting the overall meaning of the poem: perhaps the news of the girl's pending marriage has brought to the mind of the poet the memory of having seen her once – eating, painting and humming. He might feel happy or unhappy about the prospect of her being married soon. Those questions have to remain open; it is up to literary critics and sensitive poetry readers to suggest possible answers. It is only the first and the most basic question, the school-room query "what is the poem about?", that can find a fairly nonambiguous answer and realistically become a matter of consensus. But ultimately it is also the question that provides an opening for potential interpretations.

Since what is concerned is "the meaning of the poem", then it is up to a linguist to see how exactly this meaning comes about. In the remainder of this article I will try and provide linguistic evidence to substantiate two claims: that the meaning of *Oban girl* resides mainly in its grammar, and that the failure of

its Polish translation may well be due to the translator's underestimation of this fact.

The first thing that seems crucial at this juncture is what CL grammar refers to as *grounding* (cf. e.g. Langacker 1991, passim), or the pragmatic "anchoring" of things and relations in space – physical (e.g. *a girl in a window*), temporal (e.g. *the light was fading [then]*) or mental (e.g. *she'll be married*). Linguistic devices that are used to ground linguistic expressions fall within the general category of elements defined by the grammarians as deictics; in the context of the present discussion two types of deixis are immediately relevant: the opposition between definite and non-definite reference in nouns, and the time reference in verbs. In cognitive grammar the two basic grammatical categories – nouns and verbs – are defined notionally, and they correspond to the basic concepts of, respectively, "things" and "relations". Nouns designate "things", or regions in conceptual domains, which may be conceptualized either in the physical or in an abstract sense: *girl, window, melon*, or *picture* as opposed to *song, light* or *autumn*. Verbs typically designate "temporal relations", or "processes", and they are conceptualized as relations which hold between things: *a girl eating a melon, a girl painting a picture, a girl humming Hey Jude, the light fading, a girl being married.*

The two basic categories differ radically in that while nominal expressions stand for entities that are conceptualized as extending through space, verbs express relations which are conceived of as extending through time. CL claims that these two most fundamental domains that govern and organize human cognition are in fact conceived of in similar terms. Evidence is provided by numerous expressions, which are found in many languages, and in which concepts pertaining to time are expressed in terms of spatial relations (cf. e.g. the English expressions *two* ***hours long***, ***Easter*** *is* ***coming***, etc.). Indeed, both categories display a number of important conceptual analogies, which are rooted in man's cognitive abilities and which underlie significant grammatical distinctions. One such semantic property is what is called *bounding*: a kind of conceptual contour that delimits the extension of an entity. Such entities as "girl", "window", "melon", "picture", "song" or "autumn" are conceived of as bounded, since the constituent parts of each of them (e.g., for "window", the frame, the panes, the sill, etc.) are perceived as making a particular configuration whose internal organization sets the whole apart from other entities. Another similar configuration will be defined as another exemplar of the same category – e.g. as another "window". Thus it is also possible to speak of "windows"; the ability to pluralize is a direct consequence of boundedness, which is an obvious prerequisite for the property known to grammarians as *countability of nouns*.

There are also entities that are conceptualized as not being bounded. For instance, the noun *light* designates an unlimited amount of innumerable particles, which the observer considers as being identical. Nouns which are conceptualized as unbounded are defined by the grammarians as *mass nouns*. As explained in grammar books, in languages like English, the opposition between count and mass nouns conditions the overt marking of reference. Thus a bounded entity may be either merely placed within an appropriate category which constitutes a conceptual domain (thus the expression *a girl* signifies a member of "category of entities called girls"), or identified within a particular space (e.g. the *hic et nunc* space of discourse: *the girl I had mentioned to you before*). By contrast, unbounded entities are either merely defined as appropriate "quality spaces", or "substances" (physical or abstract, e.g. *water* vs. *light*), or identified as particular "portions" of those substances, situated within a particular space (e.g. *the light [that was fading]*).

Thus both definite and indefinite reference implies grounding, or deictic anchoring of things, either within "absolute" domains of conceptual categories, or within "relative" space- and time-bound domains of discourse, which are defined by contextual pragmatic parameters. Coming back to Morgan's poem, it will be seen that the "timeless" quality of the description given in lines 1 – 3 consists in the use of indefinite rather than definite noun reference. This stylistic device can be perhaps better appreciated when compared to the standard guidebook use of definite reference (cf., e.g., a fragment of the description of the *Lotharkreuz* from a guide to the Treasury of Aachen Cathedral: *the rock crystal mounted on the lower half of the vertical beam...*), where the text is addressed at a person actually looking at the object there and then. While entities referred to in the poem through indefinite noun reference – *a girl, a window, a melon, a picture* – are still grounded by being placed within their respective categories, the title noun phrase is grounded only via its reference to a particular town (*Oban*), thus constituting a category in itself. It will be noticed that such is in fact the convention that governs the construal of expressions used as titles of (figural) paintings in English: what the picture represents is an exemplar of some category (e.g. *Old peasant woman*), but an exemplar that – unlike an object of interest described in a tourist guide – has no reference to any particular external pragmatic setting.

The two cases of definite reference – *the light, the autumn* – complement other instances of deictic grounding, as imposed by the proper name (*Hey Jude*), the personal pronoun (*she*), and the two "opposite" grammatical tenses (*was fading, will be married*). It might be said that the "nominal" and the "verbal" grammatical devices cooperate in creating the two time-bound images.

The pragmatically grounded expressions are contrasted not only with the indefinite noun phrases, but also with the three "-ing forms", which describe three relations: *eating, painting, humming*. Like things, relations may also be conceptualized as either unbounded or bounded. But while within the category of things boundedness implies spatial bounding, in the case of relations the opposition between the presence and the absence of bounding holds within the domain of time. The distinction is known to grammarians as the opposition between the *imperfective* and the *perfective* verbal aspect: cf. *the light was fading* vs. *she'll be married*. CL claims that the opposition imperfective vs. perfective in verbs is notionally identical to the opposition mass vs. count in nouns.

Like things, relations become grounded relative to the particular discourse; grammatical tenses perform the deictic function by situating them in the temporal domain relative to an observer, who canonically becomes identified with the speaker. Thus the light that *was* fading and the marriage that *will be* ground the two images, respectively, in (the speaker's) past and (the speaker's) future. By contrast, the "-ing forms" that are not preceded by auxiliary verbs imply no grounding at all. In other words, conceptually, "eating", "painting" or "humming" are a-temporal in much the same way as "water" or "light" are a-spatial. Or, to say the same in the jargon of the trade, the sequentiality of perception becomes suspended. In consequence, subsequent episodes that constitute each of the three processes (e.g. biting, chewing, swallowing morsels of the melon, consecutive touches of the brush, subsequent cadences of the song Hey Jude, etc.) become notionally equalized, just as individual particles of water of light are, making the substances notionally homogeneous. The picture gets the quality of timelessness and permanence.

Any adequate translation of the poem should preserve the crucial opposition between the temporal and the a-temporal which builds up the meaning of the TT. The Polish translation, glossed for the reader's convenience, clearly does not meet this objective:

Dziewczyna z Oban
The/a/0 girl from Oban

Dziewczyna w oknie je melona
The/a/0 girl in the/a/0 window eats the/a/0 melon

je melona i maluje obraz
eats the/a/0 melon and paints the/a/0 picture

maluje obraz i nuci Hey Jude
paints the/a/0 picture and hums Hey Jude

nuci Hey Jude a światło gaśnie
hums Hey Jude and the/a/0 light fades

Jesienią wyjdzie za mąż
the/0 autumn-INSTR [she] will be married
(Morgan 1998: 21)

The glosses show why the Polish version is simply a different poem. This is partly due to systematic differences between English and Polish but partly also to the translator's carelessness. Within the first category, what is significant is the lack of formal markers of the two oppositions, bounded vs. unbounded and grounded vs. ungrounded, which English codes by means of articles (the zero article included). In Polish the default interpretation imposes grounding (in agreement with pragmatic rules of discourse), and thus in its most natural reading the poem represents the "guidebook" rather than the "painting" style: all things are attributed their space- and time-bound instantaneous existence (cf. above).

The above may be considered as a case of untranslatability. The a-temporality of relations, however, cannot. The three "-ing forms" have been rendered as third person singular finite imperfective present tense verbs. The unboundedness (or imperfectivity) of the corresponding relations has been preserved, but the choice of the particular grammatical tense (the present) anchors the picture in the reader's present time: the perspective is that of a particular viewer, who is looking at the picture at a particular time. This remains in agreement with the "guidebook strategy", but not with the meaning of the original text: the implication that the portrait, although created in the past, is potentially recoverable at any point of time due to its permanent existence in the poet's memory, is gone. Unlike in the case of nominal reference, the translator's decision was not imposed by a lack of systematic correspondence: the grammar of Polish offers to its speakers the so-called *adjectival participles (jedząca* [eating], *malująca* [painting], *nucąca* [humming]), which erase the temporal grounding present in the corresponding finite forms. A construal employing these forms would have produced a more equivalent image.

With temporal grounding introduced from the first line of the poem, the crucial contrast between the temporal and the timeless, the past and the future,

must naturally suffer. To avoid a conceptual clash between the overtly marked present (*je, maluje, nuci*) and the overtly marked past (i.e. an equivalent of the original *the light was fading*) within a single paratactic construction, the translator consistently chooses a present tense imperfective verb: *światło gaśnie* ("the light fades"). The fading light thus becomes an element of the picture itself. The two constituent parts of the image are completed by joining the two constituent parts with a paratactic conjunction *a* ("and"), which expresses semantic juxtaposition.

In line five, the omission of the Polish counterpart of the personal pronoun she, in agreement with the relevant grammatical rule, weakens the pragmatic grounding: the girl, who in the ST is made identifiable through the pragmatically definite pronoun, in the TT is only indirectly "present" in the verb ending. In agreement with the default interpretation of lines 1 – 4, the girl stays "plus definite", but only to the extent that she was "plus definite" when depicted in the portrait. In consequence, the last line of the poem no longer suggests the interpretation whereby the picture (born in the past but having a permanent existence) becomes actually evoked (in the poet's present) by his learning about the girl's pending marriage (belonging to the future).

The translator's choice of finite verb forms has yet another consequence. In order to understand what has actually gone wrong in the translation, we should consider the stylistic function of syntactic parallelism combined with the repetition of actual words. This particular "poetic device" may be explained in terms of what CL defines as the alignment of *primary* and *secondary figures*. The notion itself was inspired by one of the basic tenets of Gestalt psychology, whereby within the visual field of an observer certain elements are perceived as more salient, or prominent, than others. The former are called figures, while the latter serve as their conceptual points of reference. Linguistic expressions are shown to follow the same pattern. For instance, in the phrase *a girl in a window, a girl* is a primary figure, with the adverbial of place (*in a window*) serving as the point of reference, or a secondary figure. On a higher level of structuring, i.e. in the larger phrase *a girl in a window eating a melon*, it *is a girl in a window* that is the primary figure, with *a melon* being the secondary figure, brought up by the relation expressed by the verb *eat*. At this point the English grammar requires either marking the end of a scene (by means of appropriate punctuation or – as is actually the case – by breaking the line) or the choice of grammatical embedding: *a girl in a window eating a melon* (primary figure on a higher level of organization) *painting* (relation between the primary and secondary figures) *a picture* (secondary figure). But the poem does not observe that pattern: in line two, the coordinate structure (*a girl in a window) eating a melon and painting the picture* has its own figure alignment:

a girl in a window is no longer part of the primary figure, or, in CL terms, becomes shifted to the background. The coordinate conjunction and combines two "higher level" figures: (*a girl in a window*) *eating a melon* and (*a girl in a window*) *painting a picture*. The same device is used once again in line three: the prominent elements of the picture (or primary figures) at this point are the next two coordinate relations: *(a girl) painting a picture and (a girl) humming Hey Jude*. Line four breaks the pattern: the primary figure is now (*a girl*) *humming Hey Jude*, and the temporal clause *as the light was fading* provides the setting.

The repetition of elements, which correlates with the division of the poem into lines, becomes an iconic reflection of the way in which the picture emerges, or is perceived: subsequent activities are taken in, one by one, as subsequent aspects of the portrait, each being foregrounded in its turn. With the actor herself demoted, becoming part of the background, attention is focused on a series of details pertaining to the actions themselves: a melon being eaten, a picture being painted, the tune being hummed. Each of the actions is paired with the next one to be perceived, thus iconically reflecting the process of visual perception, where a new thing enters the visual field before the previous one fades away. In this way the syntactic overlap defeats the limits of the linearity of verbal description as opposed to visual perception, which is non-linear by nature.

The original construal has been preserved in the Polish translation, although the three finite verbs, marked for the third person singular, constantly keep the actor in the fore: instead of perceiving the actions themselves, we perceive the actor performing the actions. The difference might seem only slight, but in fact it significantly changes the overall image – or the overall meaning – of the poem.

Conclusions

Was the whole thing really worthwhile? Would it not be enough just to read the ST and the TT in order to realize that the Polish translation is not an adequate rendering of the original? Perhaps it would. But I will still claim that a critic might profit from being offered some precise tools that he might use in order to justify and corroborate his intuitions. It certainly helps if he knows what exactly makes the original text tick, and more often than not it proves to be linguistic minutiae like articles or word endings. It helps if he knows whether the repertoire of the target language offers adequate resources when looking for

translation equivalents, for then he can distinguish between "untranslatability" and "mistranslation", which is a distinction crucial for any brand of TS.

A linguistic hair splitting can teach the translator to look for purely grammatical markers that are symbols of semantic contents, and to understand that seemingly local decisions often have global consequences. In the field of literary translation, linguistic knowledge does not guarantee expertise, but it certainly constitutes an important prerequisite.

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Thinking-aloud Protocol – Interview – Text Analysis

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Background

My specific field of interest in translation research is subtitling. Subtitling is specific in a number of ways: the amount of text is restricted by the length of subtitles and the viewers' average reading speed, language is only one of the meaning carriers and acts in synergy with the picture and sound, the original spoken discourse is reproduced in a written form. As a consequence, subtitling involves some additional decision-making, still insufficiently researched and understood.

Contacts with subtitlers have convinced me that they believe their decisions are unsystematic, spontaneous, almost instinctive. Being a subtitler myself, however, I had a feeling – again very instinctive – that there ought to be some regularities in the production of subtitles. Not rules, but some general principles. With my linguistic background, I first approached the problem from the final point – by analysing subtitles as text (Kovačič 1991, Kovačič 1992). The study showed that an extended functional linguistic model, which included elements of conversation analysis and pragmatics, can be quite successful in revealing at least some of what might be considered as underlying principles in subtitling: e.g. that linguistic elements with the ideational function are preserved more often than those with the (inter)personal function (which is partly redundant with the image and sound) or those with the textual (=cohesive) function (since continuity is provided by the uninterrupted development of the narration, again provided for by the picture). A number of more specific linguistic and textual factors can be identified which characteristically have very little to do with traditional grammatical categories, but much more with the informative and pragmatic values. While this analysis provided a picture of a relatively consistent decision-making process in subtitling, it shed no light on how much of this decision-making is premeditated and intentional, and how much of it is just spontaneous.

The Experiment

When after a few years I recently took up the analysis of subtitling again, I decided to combine different approaches: a text analysis similar to the first study and an analysis of thinking-aloud protocols (TAPs) as an attempt to "look into the subtitler's mind" as closely as possible. Once the initial analysis of TAPs was done and the limits of its scope became apparent, a third method was added, namely the interview. In its final form, the research project thus consists of three sections: (1) TAPs, (2) text analysis, (3) interviews. All three involved the participation of the same six experimental subjects. Two of the subjects were relative beginners (they had subtitled less than 20 hours of programmes), two were moderately experienced (100-120 hours of subtitled programmes) and two had done over 200 hours of subtitling. What follows is a short summary of the findings in each of the sections, while more detailed discussions of the TAP analysis and of the textual analysis can be found in Kovačič (1997) and Kovačič (1998) respectively.

Thinking-aloud protocols

First, the experimental subjects were asked to translate a scene from the American film "Long Day's Journey into Night" according to the guidelines recommended in TAP research. My primary objective in the experiment was to see to what extent, if at all, verbalisations in the protocols correlated with the findings of the textual analysis of the subtitles produced. The verbalisations in the experiment were classified into five categories: (a) common translation problems (plot analysis, 'translation equivalents'); (b) subtitling-specific 'cutting-off' problems (how to cut the dialogue into individual subtitles); (c) subtitling-specific 'condensation' problems (how to squeeze the text into the limited space of a subtitle); (d) problems of spoken-to-written transfer (how to capture the flavour of spoken discourse in the written form of subtitles); (e) execution-related problems (typing errors, outside noise, etc.)

In view of the main focus of my interest (i.e. correlation with the textual analysis), central to the experiment was category (c), but it does not seem to have been central also to the experimental subjects; 'condensation' problems are more typical of the TAPs of the two 'novices', while the other four seem to deal with the issue more or less as they go along. This difference seems to support two widely accepted premises, one from TAP studies and the other from subtitling: first, that experimental subjects in TAPS verbalise only non-routine mental processing, and second, that experienced subtitlers develop a skill of translating and adapting (condensing) text simultaneously. In other

words, while less experienced subtitlers still tend to translate the whole text in their mind first and only then decide how to rewrite it so that it will fit into the frame of a subtitle, 'seasoned' subtitlers eliminate excessive text before translating it or while translating it, with very few misjudgements as to the appropriate length. This does not mean that they do not return to earlier parts of their translation in order to bring them in line with 'later developments' and to remove inconsistencies. But they definitely spend much less time evaluating the quantitative adequacy of their translation. More of their verbalisations belong to groups (d) and (a).

The prominence of group (d) may be specific to the Slovenian situation, where general linguistic norms are extremely prescriptive and thus subtitlers struggle all the time to keep a balance between the norms of the standard written language and the spontaneity of (usually substandard) spoken language. Besides, in the interviews that followed, all experimental subjects said (and a number of other subtitlers in later conversations) that this is the sort of verbalisation (either 'inner' or vocal) they commonly use in selecting the most appropriate option for a subtitle. Subtitlers brainstorm various alternatives before the final choice. Usually this is a sort of inner speech, a dialogue that you hear in your mind, complete with its intonation contour, pronunciation particularities, etc. Exceptionally, subtitlers claim, and especially in emotional dialogues, where emphasis is very important, they even need to hear the phonetic rendering of the translation, so they say their translation aloud before definitively putting it down.

Group (a) includes examples of all four types of local translating strategies discussed by Séguinot 1996 (if the 'interpersonal strategies' of Séguinot's experiment are replaced by 'dialogue with oneself'): a lot of reading and rereading of both the source and target texts, searching for 'the right word/sequence of words', guesses at the wider context of situation in the plot, etc.

First readings of the original text are interesting as an indication of the chunks of text the subjects picked up to translate in one go. Characteristically, these first readings involved chunks larger than one sentence or larger than the content of one subtitle (with the one exception of subject F, a subtitler for 25 years, who just rushed through the text). It is as if the subjects wanted to look ahead a bit, to get some understanding of what follows. In terms of conversation analysis, the unit consisted of an exchange, i.e. a section of conversation revolving around one topic, or, occasionally, a turn, i.e. the speech of one character, especially if it was relatively long. Subject E, whose verbalisations were retrospective rather than 'on-line', even explained that he usually endeavoured to have an adjacency pair in one subtitle (in his words,

"the cue and the response"). Monitoring rereadings of the target text also occurred regularly, and these extended over larger stretches of dialogue than the comprehension readings of the source text.

While looking for answers to my specific question, i.e. correlation between the TAPs and text analysis, I could not but notice what is increasingly emphasised in the literature on TAP research on translation: a great diversity in the behaviour of the experimental subjects as well as its 'human' nature. A comparison between the subjects revealed some quite distinctive differences that could supposedly be related to their idiosyncratic cognitive environments: a subject, who was at the time writing an M.A. dissertation in lexicology, paid specific attention to the selection of words and collocations, another one, who had more knowledge of text analysis than the others, verbalised more about cohesive structures, and a third one, who works as an editor for a publishing house, dwelt more on the narrative and dramatic elements in the text than the others. Besides, in the course of the experiment, the subjects did things or made remarks that had no immediate relevance to what they were translating (a remark on the heavy traffic outside the window, "very annoying, it's like this every day at this time"), an association ("Oh, she's like that character in... what was the title of that movie..."), a generalisation (when considering a substandard colloquial expression: "We'll put it in and then we'll see whether they'll leave it or not [they = the Slovene language revisers at the TV company]. Sometimes I do this and say we'll see whether they'll correct it or..."), etc.

The TAPs in the experiment showed unequivocally that the method does not provide an answer to my original question, i.e. what guides subtitlers in their selective translation. I looked in vain for any mention of linguistic categories, whether functional or grammatical. I also do not know of any mention of such verbalisations in the literature, with a single exception of Englund Dimitrova (paper read at the AILA96 conference), who quotes one of her subjects saying "here we have a Russian *contracted* sentence which I / 4,92 / ee / which I am not going to keep / I'll make / two sentences of this / 2,55 / compound / 2,04 / with *subject* and *predicate*..." (emphasis added). The subject who uttered this verbalisation, however, was a teacher of translation, and it is a safe guess that the verbalisation was not really an instance of thinking-aloud, but rather a – probably involuntary – importation of his classroom method.

A tentative conclusion may be that the sort of linguistic analysis I was looking for (which part of an utterance carries what information, which is more/less important than the others) is even for novice subtitlers so automated that they do not verbalise it. While they are still developing the condensation and subtitle organisation skills – which shows also in their TAPs – the

linguistic analysis underlying their selection of what to include and what to leave out is in all likelihood no different from any other decoding in linguistic communication (cf. Shreve et al. 1993, who report on an empirical study indicating that the translator's reading of a text may be to some extent more thorough and deliberate than that of an ordinary reader, but is not likely to be markedly so). The relative informative weight of various parts of a message is evaluated in any communicative act, and consequently so automated that even in the more careful decoding/encoding process leading to translation it does not get verbalised in any metalinguistic terms.

This conclusion in a way represents the answer to the question asked at the outset of the experiment. There are, however, a number of other aspects of the subtitling – or translation – process that could be investigated. I have already mentioned the strategy analysis in terms of search/inferencing/ monitoring suggested by Séguinot 1996. Another is analysis of the evaluative component in verbalisations as discussed in Tirkkonen-Condit 1997. While my findings agree with those of Tirkkonen-Condit in general (with the exception of subject F, whose idiosyncratic procedure produced little to analyse), i.e. more experienced translators were more specific and more articulate in their evaluative judgements, the protocols differed both in the quantity (or, more significantly, ratio) of evaluative versus other statements and the presence of an addressee. Subject E did not really verbalise mental processes, but basically translated sections of text and then explained what he had done and how he usually proceeded in similar situations, systematically switching between the texts (reading aloud the source text, then typing the translation with or without verbalising it) and addressing a generalised external addressee very much in the manner of a lecture. In the case of two subjects, more than a half of the evaluative judgements were not specifically verbalised, but rather signalled with the tone and pitch of their voices ("exclamatory" intonation for good solutions, "hesitant" intonation for solutions they were uncertain about or not completely satisfied with) or short back-channel signals ('Yes!', 'Oh, well...', 'Aha!', 'Mhm'). A number of evaluations also referred to the content of the source dialogue or the character's behaviour, typically expressed through emphatic reading, mimicking or sarcastic tone. What also appears to be indicative of some mental computing going on at a certain point is the flow of speech or rather its phonetic realisation, from obvious pauses to almost imperceptible hesitations, as well as stress patterns. However, the meaning of these features is evasive and cannot be pinpointed in a similar way as straightforward verbalisations. What we need to find is a valid way of relating these suprasegmental features to the translation process.

The fact that TAPs offer material for discussing so many different aspects of the translation process may be at the same time appealing and confusing. They are only raw material and the researcher has to know what he/she wants to extract from them. After all, TAPs are texts in their own right, and – like any other text – their analysis can never be said to have been exhausted. Second, no matter how objective the researcher strives to be, the reader response theory holds also for him/her: the meaning of a text is created by its reader. A TAP analyst will find in his/her TAPs things that he/she can relate to. Things that have no meaning for him/her will go unnoticed; others may be noticed but not analysed because they do not seem relevant to the field of his/her interest.

Consideration of elements like pauses or the tone and pitch of voice raises the question of the form of TAPs. TAPs are transcripts of spoken language, and like any other transcript, they can be produced in various forms, including or excluding certain components of speech, at different levels of refinement. The researcher has to decide, depending on the sort of analysis he/she wants to perform, whether he/she wants to record hesitations, length of pauses, intonation contours, elements of non-verbal communication, etc. Explicit verbalisations are the easiest to record and to interpret. Videotaping the experiment is another option, but it leaves the researcher with the same problem of identifying non-explicit messages and classifying e.g. facial expressions, nods of approval or disapproval, etc.

The TAP method is not an original invention of researchers of the translation process. However, with its increasing use in empirical research in translation, it seems to be growing into a specific tool of translation analysts, adapting to the specific problem-solving situation of translating and even departing from its original premises (e.g. with refinements of the transcription method, introduction of the dialogue component, combination of introspection with retrospection, etc.). The target of empirical research is still the same, viz. cognitive processing in translation, but paths to it are changing.

Textual analysis

In this part of the study, the texts produced in the TAP section of the experiment were used; besides, the subjects were asked to translate – without speaking aloud – some more dialogue from the same film, so that more material could be analysed. Of the six subtitlers, five used very similar numbers of subtitles (between 120 and 134 for an 11-minute passage, with the average of 129), while one text deviated considerably with its 157 subtitles. The structure and form of subtitles is discussed more in detail in Kovačič (1998). Here, I want to focus on a functional analysis of differences between the source

dialogue and the target subtitles, especially in terms of reductions and omissions.

The original text and the translations were compared using an expanded and adapted model of Halliday's three macrofunctions ((inter)personal, textual and ideational; Halliday 1985); the results of this analysis are given in Table 1.

Table 1: *Textual omissions in subtitles (by functions and experimental subjects)*

FUNCTION/STRUCTURE	**A**	**B**	**C**	**D**	**E**	**F**	**x**
TOTAL	**242**	**212**	**298**	**206**	**278**	**302**	**256**
(1) inter(personal)	**101**	**101**	**128**	**103**	**125**	**125**	**114**
(a) monologic	50	44	63	45	56	60	
(i) exclamatory	*22*	*20*	*25*	*19*	*24*	*22*	
(ii) emphatic	*26*	*18*	*20*	*22*	*12*	*22*	
(iii) modal/evidential	*2*	*6*	*18*	*4*	*20*	*16*	
(b) dialogic	51	57	65	58	69	65	
(i) pure appellative	*47*	*53*	*59*	*52*	*65*	*53*	
(ii) appellative/emphatic	*4*	*4*	*6*	*6*	*4*	*12*	
(iii) appellative/formulaic	-	-	-	-	-	-	
(2) textual (= cohesive)	**50**	**37**	**51**	**45**	**37**	**69**	**48**
(a) connective	6	12	14	13	6	20	
(b) responsive	34	23	37	30	27	41	
(c) directive	10	2	-	2	4	8	
(3) ideational	**84**	**70**	**115**	**48**	**109**	**103**	**88**
(a) co-ordination	6	2	12	2	20	14	
(b) apposition	38	33	33	19	16	16	
(c) subord.-propositional	40	35	60	23	71	64	
(d) subord.-modificational	-	-	10	4	2	9	
(4) other	**7**	**4**	**4**	**10**	**7**	**5**	**6**
(a) spontaneous speech	3	1	-	2	3	1	
(b) secondary omission	1	-	-	3	-	1	
(c) situational (extraling.)	-	1	2	-	-	-	
(d) style (metaphors)	3	2	2	5	4	3	

The analysis yielded results comparable to those of the 1992 study (see above; cf. also Kovačič 1991). Again, ideational elements were (proportionally) preserved to a much greater extent than (inter)personal and textual ones. In absolute numbers this is not so obvious (textual omissions are fewer than

ideational ones), but if we compare the numbers of preserved and omitted elements, the ideational elements are far ahead of the other two categories. The most frequently omitted (inter)personal elements are phatic expressions, terms of address, emotional exclamations, and – in some target texts, somewhat surprisingly – modality. Their (relative) absence from subtitles implies a tacit agreement between subtitlers and TV viewers that the text of subtitles has to be combined with the non-verbal messages coming from the screen (characters' behaviour, proxemics, body language, tone of the voice, etc.). In this sense, subtitles actually become only a component of a polysemiotic text, complementing and depending on the other constituent layers of the text, viz. picture and sound.

Similarly, cohesive devices tend to be omitted because coherence of dialogue is supported by continuity of visual material. Secondly, the main function of cohesive devices in real-life dialogues is to facilitate comprehension and help participants in conversation development and management. In TV programmes, this is taken care of by the screen writer, so cohesive devices are there for the purpose of creating the illusion of natural, spontaneous conversation, much less to help viewers to follow the course of conversation.

When it comes to ideational elements, their omission is basically determined by the kind of functional meaning they have (generally, circumstances are prime candidates for omission) and their redundancy. Descriptive elements (e.g. adjectives or relative clauses) are frequently discarded. It should be pointed out, however, that a mechanical analysis in terms of grammatical categories cannot be a reliable guide in this respect. Also circumstantials and descriptives can be very important for the structure of a story; this goes also for (inter)personal and cohesive elements, when they have a particular function.

Table 2*: Number of omissions and subtitles (by experimental subjects)*

	A	B	C	D	E	F
Subtitles	**134**	**130**	**132**	**157**	**120**	**129**
Omissions	242	212	298	206	278	302
Omission/subtitle	1.81	1.63	2.26	1.31	2.32	2.34
Subtitle/omission	0.55	0.61	0.44	0.76	0.43	0.42

The ratio of omitted text and numbers of subtitles, which is displayed in Table 2, shows considerable differences in skilful condensation of text: a lower number of subtitles need not necessarily mean a greater loss of meaning potential. The two subjects with the lowest loss of meaning potential are D and B. Interestingly enough, their advantage over the rest of the group was achieved in category (3), the ideational function. This is the domain of language where the art of saying more in fewer words comes to the fore. One would be tempted to claim that such achievements result from a more reflective and analytical approach to the translation task. However, the interviews with the two subjects produced completely opposite outcomes. B was the most articulate of the six subjects in her answers, both in describing her general approach to text condensation and in giving reasons for omissions in the text under discussion. D, however, was at the other extreme end of the cline. All her responses were general, vague, not really going beyond "relative importance in a given situation/dialogue".

From a textual perspective, it is also interesting to observe how the subjects tackled the question of language registers, more specifically of the language "appropriate" for subtitles. The problem of language register is a consequence of the shift from spoken to written, which produces a clash of norms: should the subtitler try to reproduce the features of the original dialogue, including false starts, hesitations, loose syntax, etc. In the case of an adaptation of a literary work, how to treat literariness: are metaphors and other figures of speech, specific vocabulary or sentence patterns preserved or replaced by more basic vocabulary and syntax? In our experiment, the subjects differed considerably in the extent to which they retained the literariness of the original, but no one would go so far as to break the norms of the Slovene standard written language for the sake of greater spontaneity.

There seem to be some systematic correlation between verbalisations in TAPs and elements of text structure: those subjects who verbalised more about textual structure were more systematic in their treatment of e.g. cohesive devices. However, the subject who spoke most about the need to preserve the "flavour" of spoken dialogue, actually used a more literary register than any of her colleagues.

While the text analysis showed a high level of consistency in the relative hierarchical value of linguistic structures (even grammatical structures in the narrow sense), this aspect was almost completely absent from the TAPs.

In translating elements specific to the source culture, very different strategies were used (source-oriented, target-oriented or evasive) and yet the subjects did not seem to be bothered by them in their verbalisations. There are other aspects for which it is not clear either from the TAPs or from the texts

whether they were approached in any systematic way or not. This goes particularly for the symbolism of the source text.

Interview

To try and elicit some more information from the subjects on the translation process, a targeted interview was designed in which the subjects were asked to comment on certain solutions in their translations. Previous conversations with subtitlers led me to believe that general questions of the type "Could you describe how you decide what to include into your translation?", "What is your general translation strategy?" "How do you select the language register for a particular movie or programme?" elicit only similarly general, vague answers that are of little help in understanding the subtitling process. Therefore, a group of questions was prepared on the basis of each subject's previous translations and the results of TAP and text analyses.

The most general question in the interview was the request to enumerate three to five general principles, which the subjects regarded as the most important in subtitling. Dominant among these principles are adequate form (one subtitle = one or more syntactic units) and reading speed (with the added concern for how comprehensible a translation is for the Slovenian viewer), faithfulness to the original in content, genre, and style; other answers include "specific requirements of the TV media", "a good film translation is unnoticeable", and "producing a probable/= natural, convincing/dialogue". Interestingly enough, the subject who in the textual analysis was found to have preserved most meaning potential in the subtitles, gave as her guiding principle in subtitling "to reduce, but not excessively (if possible, keeping as much as possible)". Illustrative of the difficulties subtitlers have in verbalising what they do is the answer "careful adaptation ('reduction')". When pressed to elaborate on how such careful adaptation is done, the subject replied, "I look for the meaning nucleus ('bare meaning') and then put ornaments (= less important elements) around it".

When asked what language elements they most frequently omit, two subjects answered in a very general way (one answer was about the meaning nucleus mentioned above, the other was about "preserving meaning units, point of message, and what is audible"). The other four all mentioned appellatives (or "names"), and "fillers" (elements of conversation that do not carry much meaning, but are rather present for the purpose of keeping the conversation going); and one, two or three answers featured greetings, yes/no answers, modal frameworks ("expressions like 'I think', 'it seems'"), "in extreme cases entire clauses unless they lead to what comes next in the conversation".

The subjects were then asked to translate another short passage from the same film, and immediately after the translation their text was analysed according to the selected variables and they were asked questions regarding particular translation solutions. They were first asked to give their own understanding of what they had done in the translation, and if necessary, subsequently guided by more specific questions. The questions were constructed so as to contain as few technical terms as possible, and their answers were accepted as they came.

The answers confirmed again that the decision-making process definitely contains no conscious deliberation in terms of grammatical or linguistic categories. From the answers it also emerges that subtitlers seem to have developed a skill to cut the text down into chunks approximately the size appropriate for a subtitle. These chunks usually coincide with one or more tone units spanning over 5 to 7 seconds, which is the average duration of subtitles. In the interview the subtitlers repeatedly claimed that they had not been aware they had left out a part of the text (sometimes even of the size of a complex phrase or a short clause). It may be concluded that they approached the "subtitle-length chunks" globally, eliminating its less relevant elements (according to the textual analysis) without being aware of doing this.

At the next stage, several passages they had omitted from their subtitles were pointed out to them and they were asked whether they could remember why they had left them out or whether they could see a reason for the omission. Subsequently they were shown comparable passages or structures, which had been retained, and asked why they had not left out those. The reasons given for selective translation include:

(a) not translated because: unimportant when compared to the rest of the sentence/text; already mentioned earlier; it is messy; less audible; lack of space (though text relevant); not common in such a communicative situation in Slovene;

(b) translated because: important when compared to the rest of the sentence/ text; connected with what follows; explaining body movements; core meaning; characterises the character.

Some parts of the text were not completely omitted, but rather condensed or abridged. The subjects' explanations of their procedures in these cases included: "I simply omitted that" (although the element was not really omitted; its semantic value was incorporated into the adjacent element); "I changed 'oral' register into 'written' because it is shorter"; "I felt I had to put into words

also the intonation"; "I replaced an idiom by a usual word"; "it means the same as that other phrase".

Conclusion

When the results of the three stages of the experiment are compared, it becomes apparent that each of them contributes different insights into the process under observation. Very few data from the three sections overlap completely, but results obtained in one section frequently appear in a different light when compared to or complemented with those from another. TAPs do not contain explicit complete verbalisations of the decision-making processes. But in an indirect way – especially through brainstorming – we can at least see which options are considered by the translator. And they do reveal differences – some related to experience, some to personal backgrounds, or idiosyncrasies or other systematic, yet unknown factors. The comparison with the textual analysis and the interview further leads us to believe that the subtitling process, like any translation process, will offer new challenges to researchers while revealing some of its secrets, and tempting us with others.

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What Do Real Translators Do? Developing the Use of TAPs from Professional Translators

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The Symposium of researchers with an interest in translation process research at the AILA World Congress in Jyväskylä in August 1996 served as an instructive and useful forum for focusing the rather disparate work done in this field to date. In this contribution, I shall try broadly to categorise the papers presented in terms of the developments they report, draw out themes and areas that might merit more in-depth investigation, and set out my own vision for development of what is now a solid basis of work involving professional translators in producing 'think-aloud protocols' (TAPs). I shall not be considering the papers given on interpreting – not because they were not relevant, but because interpreting does not, for obvious reasons, lend itself to investigation by TAP which is a concurrent mode of introspection (although researchers with an interest in interpreting are now beginning to develop appropriate introspective methodologies for their own area of interest).

Professional Translators – a Largely Untapped Resource

The existing work involving TAPs from practising professional translators was surveyed in Fraser (1996a). While such work has until now formed a small minority of all TAP studies, with the majority based wholly or largely on language-learners or students of translation, researchers particularly interested in the pedagogical applications of translation process studies have reported some interesting findings from work with professionals. Those researchers who have worked with professionals, including myself in two studies (Fraser 1993, 1994), have focused on five key points:

1. Unsurprisingly, professional translators demonstrate greater task confidence, reflected in less need (or greater reluctance) to use

dictionaries and greater tolerance of ambiguity or uncertainty in the source text.

2. Perhaps more surprisingly, the vast majority of professionals are, however, able to verbalise to a useful extent the processes they engage in, despite assertions in the literature that these processes are 'automatised' (because they are the result of long experience and of highly developed expertise) and hence unavailable for report.

3. Professional translators are more likely than learners to be guided by a translation brief or assignment, whether explicitly specified or assumed by the translator, in their decision-making. This produces translations that meet target-language text acceptability criteria rather than just lexical or semantic acceptability criteria (that is, translations of the kind language-learners, who are still developing their linguistic and cognitive skills and who have less experience in assessing translation at a textual level, typically produce).

4. Professional translators tend to be perfectionist and extremely concerned about detail and, hence, to invest emotional commitment in achieving high standards in their work. The findings of TAP studies with professional translators bear out commonly-held stereotypes about the profession that are themselves borne out by the findings of a survey of translators' and interpreters' personalities (Henderson 1987).

5. Finally, while many professional translators, of the older generation in particular, have not undergone systematic academic training, all have a series of implicit or explicit theories or assumptions about translation and have devised strategies from the highly pragmatic need to be efficient and effective. These theories, assumptions and strategies are, arguably, the most valuable resource we have in designing training programmes for translators, especially those of a more vocational nature. Yet until now, relatively little work has been done on the link between successful professional practice and the design of training programmes.

At Jyväskylä, the imbalance between work done involving professionals and that involving learners was redressed somewhat: Irena Kovačič and I reported on studies involving solely professional translators, and Sonja Tirkkonen-Condit

drew on her own and Riitta Jääskeläinen's work to present conclusions from studies involving both learners and practising translators. Annette de Groot, meanwhile, gave us a psychologist's perspective on some of the features underlying much of our collective work. More significantly, the ambitious joint project launched at the Symposium, involving a number of researchers in eliciting TAPs from professional translators based on a common source text in English and a common set of instructions and procedures, should also put research with professionals on a crucial comparative footing.

Emerging Themes and Focuses

Contrasts were, however, also evident between the papers on translation process studies, which might be seen as falling into one (or more) of three overlapping categories.

The major category was decision-making in translation, on which Fraser, Kovačič and Tirkkonen-Condit reported. These papers, and others not included in this volume, looked for example at how sub-titling is done or how proper names and cultural terms are dealt with, how translators use a brief to account for their translation decisions, and how working in pairs enables translators to illustrate how they negotiate and 'manage' the translation process.

Fraser and House touched, secondly, on the problematic but fascinating area of 'translator personality' as manifested in one specific aspect of translation, that of how translators use dictionaries. Their findings were strikingly similar, even though the former study was based on professionals and the latter on learners: while the professionals in Fraser's study had learned from experience to allow meaning to emerge from an unfolding text, and to use dictionaries to refine their choice of renderings rather than to establish meaning, learners in House's study grew in confidence when they worked in pairs and were able to draw on the lexical resources of another translator rather than just their own.

Thirdly and finally, a distinction might also be made between the studies presented according to the researcher's theoretical or pedagogical focus, reflecting also the differing levels at which translator training is carried out in differing countries (undergraduate or postgraduate). Séguinot is, for example, interested in testing hypotheses about translation as part of language learning, but some of her findings have also been presented to the Association of Translators and Interpreters of Ontario. Englund Dimitrova, a Symposium participant but not included here, is similarly interested in testing hypotheses about language processing units in translation, using a computer programme that logs changes in the target text being produced and that may help to overcome the reluctance to

verbalise that some researchers have reported among their subjects. Kovačič has looked at a specific skill, that of sub-titling by professional translators, while Tirkkonen-Condit and Jääskeläinen have concentrated on the way translation students 'become professional' during a course of study. Fraser, finally, started from analysing successful practice among professional translators to work back from that to consider curriculum design and innovation in pedagogical practice, as well as the needs of the translation profession for ongoing professional development.

Mapping Future Areas of Work

This brief survey of the work presented at the Symposium highlights some interesting trends and illustrates that researchers in this area have been thinking along at least partially similar lines, even though they may have been working in isolation. Above all, they have been seeking in differing but, I hope, slowly converging ways to answer questions posed as far back as the 1950s by Firth and again, nearly 20 years later, by Steiner:

> Translators know they cross over [between languages] but do not know by what sort of bridge (Firth 1957: 27);
>
> We know next to nothing of the generic process which has gone into the translator's practice, of the prescriptive or purely empirical principles, devices and routines which have controlled his [sic] choice of this equivalent rather than that (Steiner 1975: 273).

We should now be aiming to use and develop the work represented at the Symposium to identify not only the sort of bridge being used but also what the most appropriate specification and building materials might be, so that these may be incorporated into curriculum design. The following areas are ones on which research could usefully concentrate with this aim in mind.

Methods of analysis

House (1988, this volume) and Kussmaul (1995) both point to the richness of dialogue-produced TAPs in shedding light on translation processes. In this context, it is interesting that Tirkkonen-Condit (this volume) suggests conversation analysis as a tool for analysing solo TAPs, an innovation that I would endorse from my own experience: most translators, being 'language people', will admit to talking to themselves during at least some stages of a

translation task, and while we ask subjects in a TAP study to verbalise with minimal intervention from the researcher, our presence means in practice that the resulting discourse bears many of the hallmarks of speech and conversation (Austin 1962; Grice 1975; Searle 1976, inter alia). Thus, a modified form of conversation analysis promises to be a valuable tool in moving beyond what is superficially observable in the protocols and testing hypotheses about deeper, and more implicit, assumptions and strategies.

Text- and task-type differentiation

How translators reach decisions as to which of the alternative renderings available to them is the best in any given context is obviously a central issue both in successful translation practice and in effective teaching and training. I have highlighted the importance of a translation 'brief' as a framework within which alternatives may be compared against the yardstick of the use to which the target text will ultimately be put (Fraser 1994, 1996b). Jääskeläinen (1987), too, reports what she terms the 'translation assignment' playing a decisive role in the style of the finished translation. In this respect, Kovačič's work on sub-titling as a specific type of translation is a welcome first stage in what I hope will become a range of studies in a variety of specific areas; we need to investigate whether protocols produced in response to differing text-types or in differing specialist fields shed light on differing processes and, hence, whether professional practice can, in fact, be sub-divided according to text- or task-type and/or specialist field. This should then enable academics and those designing curricula to debate whether translator training should be more differentiated, to take account of variety in strategy and approach.

Dealing with textual uncertainty

Another key element in translators' decision-making is, however, how they manage such features as ambiguity or uncertainty (whether lexical, semantic or pragmatic). Tirkkonen-Condit (this volume) argues that translators learn to manage uncertainty as part of their strategy "to manage means and goals", and suggests that translators "show a capacity for keeping final solutions in suspense". My own findings support a marked difference between learners and practising professionals in their tolerance of uncertainty, and I suggest (Fraser 1996b) some ways in which the unwillingness of learners to 'live with' temporary uncertainty can be countered. This area holds out the promise of being a rich and fruitful one for researchers with an interest in applying good professional practice to a pedagogical setting.

Personality

Tolerance of uncertainty, of course, overlaps to some extent with the very difficult notion of 'translator personality'. In her Symposium presentation, House touched on one aspect of this, linking dictionary use to high or low risk-taking personalities, and I have also commented on it in my own findings (Fraser 1994). In his work on the comparative personality profiles of translators and interpreters, Henderson (1987) found that the two groups did indeed have distinct personality profiles but that while, in some respects, these matched the stereotypes that linguists (and others) generally assume, the differences between the two profiles were fewer, and less marked, than is generally believed: "the extent of the apparent overlap was wholly unexpected", he comments (Henderson 1987: 126).

This overlap notwithstanding (process research focuses on the traits good translators manifest, regardless of whether these overlap or not with those displayed by interpreters), the personality characteristics hinted at by the work presented at the Symposium would be fertile ground for further study by means of more psychologically-oriented analysis of the TAPs. Henderson (1987: 127) himself points out that:

> whether possession of this particular and limited kind of problem-solving capacity in the translator ... is inherent or is inculcated in practising the job is, of course, another question.

Work could also very valuably be done on the personality characteristics demonstrated by successful professional translators, with a view to designing training courses that develop and reinforce these or even, perhaps, to influencing selection criteria and procedures. After all, House's study of dictionary use (this volume) showed that even the group she describes as 'low risk-takers' enjoyed being stretched by being denied dictionaries in a translation task, provided that reassurance and support were given in other ways that boosted their confidence (in this case, by working in pairs and producing dialogue-form TAPs).

Jääskeläinen (1996), Tirkkonen-Condit and Laukkanen (1996) and I (1996b) have, moreover, all speculated on the extent to which emotional engagement with the translation task, so evident in my studies, is also related to confidence in translation as a whole or to a specific translation task. Jääskeläinen (1996: 71), discussing the role of affective factors in translation, points out that:

> Since confidence and positive attitudes seem to go together with high quality, at least in some translating situations, it would be of the utmost importance to enhance translators' self-esteem instead of making it disappear.

However, I have commented above on the need for more differentiated and task or text type-specific studies, to establish whether they produce different kinds of protocol, and Jääskeläinen (1996: 70) goes on to make the crucial point that:

> the role of affect in translation ... should be investigated more thoroughly and should not be under-estimated. Yet its role should not be over-estimated either, as it is likely that not all tasks or all translators require similar levels of motivation in order to be successful. [...] In other words, different kinds of personality traits are desirable for different kinds of job.

Her recent PhD thesis (Jääskeläinen 1999) sheds further light on this intriguing interdisciplinary area.

The translator's skill-set

Underlying all these areas is, however, one that may prove more fundamental than the rest: that of the skill-set a successful translator needs. In Rudd and Fraser (forthcoming), we note that in the wealth of literature about translation, nowhere is that skill-set actually defined or spelled out. Instead, a picture emerges of a professional with a composite profile comprising six differing skills areas: excellent core linguistic skills; textual skills (an ability to process texts according to pragmatic criteria as well as more straightforward lexical or syntactic ones); inter-cultural skills; a raft of non-linguistic skills, such as research, terminology, IT, and project management skills; a cluster of what Mason (personal communication) calls "attitudinal skills", covering such area as the willingness to take pains over details and professional pride and pleasure, as well as the area of 'translator personality' referred to above; and the skill either to apply existing translation theory or to formulate a working theory for the translator's own work (what I refer to above as "theories, assumptions and strategies").

Surprising though it may seem, the coverage of these areas in the literature is patchy, and two are barely dealt with at all. The vast majority of work on translation takes good core linguistic skills (in both the source and the target language) as a given, and only Robinson (1997) touches on lexical development and maintenance, yet good translators belong to a very specific category of linguist: in the most extreme case, it is not unknown for professionals to translate from languages they cannot speak at all, while in the more common scenario, a translator required to expand his or her range of languages will do so differently from a learner wishing to use the language for business or social purposes. The way such a translator goes about developing his or her core linguistic skills is an area, I believe, that could usefully be covered in translation research. Textual skills are, by contrast, perhaps the best-documented skills in the literature, yet

what is missing from the majority of the work in this field is examples of how practising professional translators actually bring such skills to bear in their work.

Inter-cultural skills feature commonly in the literature on international business, but only topically in the translation literature (for example, how to deal with the names of national organisations or institutions) while the non-linguistic skills listed above are well covered in handbook-type works that, however, rarely appear on the reading lists for students of translation in academic institutions; instead, we tend to expect students to pick up these skills once they leave our classrooms.

'Personality' or 'attitudinal' skills, as I have commented above, are an area ripe for further investigation, while the skill of applying or formulating theory, finally, links in with the textual skills referred to above; indeed, in a sense, such skills form the core of the ability to translate successfully.

I would argue strongly that translation process research could be seen as an overarching methodology for bringing together these six skills areas under one analytical roof by observing the activation of these skills by translators producing TAPs. We know, for example, that translators devise strategies for dealing with unfamiliar vocabulary, for making overall sense of a source text, and for bridging any cultural gap between the source- and target-language readers (my own study of community translators (Fraser 1993) contains extensive insights into the latter issue), but that such strategies are rarely, if ever, visible in the final product, the target text. Observation of successful professional translators also holds the key to many effective working practices at the non-linguistic level, while my experience of the eloquence of a group of translators producing TAPs while working on the same text is highly suggestive of scope for investigating 'attitudinal skills' or 'translator personality' by this method. Finally, TAPs are tailor-made for investigating the final skill on the list, which I refer to as the skill to apply or formulate theory: what else is a TAP, after all, but an account of the "theories, assumptions and strategies" that underlie any translation task?

Hatim and Mason (1997) are the scholars to have come closest so far to identifying the skill-set: they propose an initial model of translator abilities based on three sets of skills: source-text processing skills; transfer skills; and target-text processing skills. While their model of translator abilities goes further than any other work to date on defining what underlies – or perhaps should underlie – the design of academic translator training courses, it needs substantial further development and does not, for example, incorporate core linguistic skills, supporting non-linguistic skills or 'translator personality' to any extent. I therefore see wide scope for TAP-based and translation process research in the investigation, definition and application to training of a comprehensive skill-set

for would-be professional translators. Not only would this place academic training on a more systematic footing, it would also help the transition from training to professional life for newly-qualified translators in countries – such as the UK – where in-house translation departments with the opportunity for supervision by more experienced colleagues have all but vanished and young translators have to make the transition from student to unsupported freelance virtually overnight.

Serving the profession

Finally, the growing amount of work being done with practising professional translators has, of course, crucial relevance for academic and pedagogical activity, but I believe we should not forget the benefits to be gained also by the profession itself from the work we do. In the United Kingdom at least, universities are increasingly becoming involved in vocational training for translators (usually at postgraduate level) and also in professional development for practising professionals. The profession is, moreover, increasingly demanding academic accreditation in response to the demand for 'quality' in translation, as in other aspects of economic and social life. As process researchers, we need to consider the ways in which we may collaborate with professionals in our respective countries and disseminate our findings in a way that is relevant to them, that will boost the professional profile of translators and that will enhance communication across the academic/practitioner divide.

Conclusion

As I have argued, we have in TAP methodology a unique tool for finding out very precisely 'what real translators do', with many potential benefits: better selection for courses, resulting in lower drop-out or failure rates; more specifically targeted training; greater support for newly-qualified translators; a better-served profession; and a chance to put translation on a more respected footing, avoiding both the overly-abstract nature of much theory and the school of thought that equates translation with 'typing into another language'. Finally, however, perhaps the most significant benefit may turn out to be the sort of satisfaction described by two of the translators in my second study: "you feel you're getting into these people's world, and that's the nice bit of it", said one, while the other summed up the satisfaction of this kind of empirical research when he explained that "to understand something and then to be able to explain it clearly gives me as much pleasure in life as almost anything else".

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Part III

Featuring the Processes

Uncertainty in Translation Processes

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Introduction

Previous research on translation processes suggests that proficiency in translation involves tolerance of ambiguity and uncertainty (cf. Henderson 1987, Fraser 1996, Tirkkonen-Condit 1996). Theoretically optimal translation is seldom feasible within the physical confines of everyday translation assignments. Even in such optimal situations where the translator's work is not constrained in terms of time and money, the variety of alternative ways to carry out the "same" translation task, or to solve an individual translation problem, will cause at least temporary uncertainty in the course of target text production. It is often the case that there are several possible translation equivalents, or that none of the potential equivalents is exactly right. It could be argued, therefore, that tolerance of ambiguity and uncertainty is needed in translation for reconciling the optimal with what is feasible.

The purpose of this paper is to show how uncertainty manifests itself in translation processes and to argue that translators might in fact have identifiable patterns of uncertainty management. Uncertainty management could be regarded as a dimension of translation strategies as defined by Andrew Chesterman (1997 and 1998). Chesterman looks at translation as an action with a goal; translation strategies boil down to a management of means and goals.

It is typical of human translation that the exact details of the goal, i.e. the target text, are not known to anyone in advance. The goal gets its final shape in the processes that go on in the translator's head. Typically no two processes are the same, even though the task is the same. The differences begin at the very beginning, as the same task can be interpreted in different ways. The potential for difference is created by the fact that each translator chooses those linguistic expressions which best correspond to his own interpretation of the text and of the

communicative context as a whole. Since the potential for ambiguity is at the very basis of human language and communication, it is only natural that interpretations and linguistic choices are not identical (see Melby 1995: 55). Thus there are as many different products as there are translators. The potential for ambiguity is also an inherent feature of translating, and thus it seems reasonable to expect that this shows in translation processes as uncertainty. If it turns out that uncertainty phenomena are not arbitrary but instead manifest some regular patterns, then it might make sense even to talk about uncertainty management as a dimension of translation strategies.

Material

My preliminary analysis covered 20 think-aloud protocols (TAPs) originating from four experiments conducted by Tirkkonen-Condit, Jääskeläinen, and Pöntinen and Romanov at Savonlinna in the late 1980's and early 1990's. The subjects in these experiments represented various levels of translational proficiency. For my present paper, however, I confined my analysis to protocols which represented high-quality professional performance. Therefore I chose from the material six translators' protocols for a close analysis. Two of these translators performed a translation task from Finnish into English in Tirkkonen-Condit's experiment in 1992, whereas four translators translated from English into Finnish in Jääskeläinen's experiment in 1987-88. Both experiments had a realistic translation brief, and the experimental conditions had a close resemblance to the subjects' real-life working conditions. The experiments will not be described in detail here, since my argument will not depend on other details of experimental design.

Method of Analysis

In order to show how uncertainty manifests itself in the translation processes and that there may be identifiable patterns of uncertainty management I will do the following:

(i) I will identify particular processing phenomena in the six translators' protocols as well as the uncertainty phenomena which seem to appear in connection with the processing phenomena.
(ii) I will describe how uncertainty is attached to the identified processing phenomena.

(iii) I will sketch translator profiles designed to reveal individual and shared patterns of uncertainty management.

Processes and Uncertainty

My coding of processing and uncertainty phenomena in the think-aloud protocols is based on two assumptions. First, that translation is goal-oriented action and can therefore be described as problem-solving and second, that coding must be based on verbalised data.

In goal-oriented action, obstacles can in principle be overcome by revising either the means or the goal, or both. Systematic ways of pursuing the goal and overcoming obstacles are called strategies. Chesterman (1997 and 1998) used this framework to define translating strategies: strategies are oriented to either devising or revising the means or devising or revising the goal. The translator's goal is to produce a target text, and the cognitive means to achieve this goal are here referred to as processing phenomena.

A translator might have a vision of an optimal target text but might not have all the necessary means, such as time and information, to attain the optimum. Translation strategies in such a case boil down to either revising the goal in order to make it compatible with the means or giving up the goal. Or they might boil down to revising the means e.g. by negotiating a higher fee which enables more profound information search. In the think-aloud experiments, however, the terms of working were not negotiable beyond the predetermined translation brief. Thus the translators completed the task according to their interpretation of the translation brief, with access to the cognitive and other "means" which they normally had in their professional activity.

My analysis of processing and uncertainty has the aim of revealing how goals and means are reconciled in the individual problem-solving instances which account for the ultimate target text generation, and how uncertainty phenomena are attached to these instances.

Processing phenomena

The processing phenomena which have immediate relevance to the generation of the target text are here assumed to be related to translational problem-solving. These processing phenomena are the cognitive "means" by which the goal in translation is achieved. I have distinguished pivotal and auxiliary processing phenomena. The pivotal processing phenomena are PROBLEM, TENTATIVE

SOLUTION, SOLUTION, AUTOMATIC, EVALUATION and POSTPONE. The auxiliary processing phenomena are Rephrase ST, Explain ST (auxiliaries to Tentative Solution); Audition (auxiliary to Evaluation); Endorse (auxiliary to Solution); Justify (auxiliary to Evaluation, Solution, Tentative Solution and Automatic); ST, TT and Dictionary (auxiliaries to any processing phenomenon). Comment has been coded but it is not a processing phenomenon in my sense, since it has no direct contribution to TT generation.

What follows is a list of the processing phenomena and the ways in which they were verbalised in the protocols.

Pivotal processing phenomena

PROBLEM	Verbalises a problem or lack of knowledge
TENTATIVE SOLUTION	Verbalises one or more hypothetical new TT items without acknowledgement as a solution
SOLUTION	Verbalises TT and its acknowledgment as a solution in response to a problem, rephr.ST, expl.ST or tent.sol.
AUTOMATIC	Verbalises new TT without recourse to rephr.ST, expl.ST or tent.sol.
EVALUATION	Verbalises positive or negative evaluation of solution, tentative solution or automatic
POSTPONE	Verbalises postponement of problem or tentative solution

Auxiliary processing phenomena

Rephrase ST	Rephrases an item in ST
Explain ST	Explains an item in ST
Audition	Verbalises decision to listen to a tentative solution or to see how it looks when it is typed/written down
Endorse	Verbalises confirmation of a solution
Justify	Verbalises justification for a solution, tentative solution, automatic or evaluation
ST	Verbalises or reads aloud ST

TT	Verbalises or reads aloud TT
Dictionary	Verbalises decision to consult dictionary
Not coded as processing	
Comment	Verbalises something which does not directly bear on TT production

Figure 1 gives an idea of how the pivotal processing phenomena relate to one another.

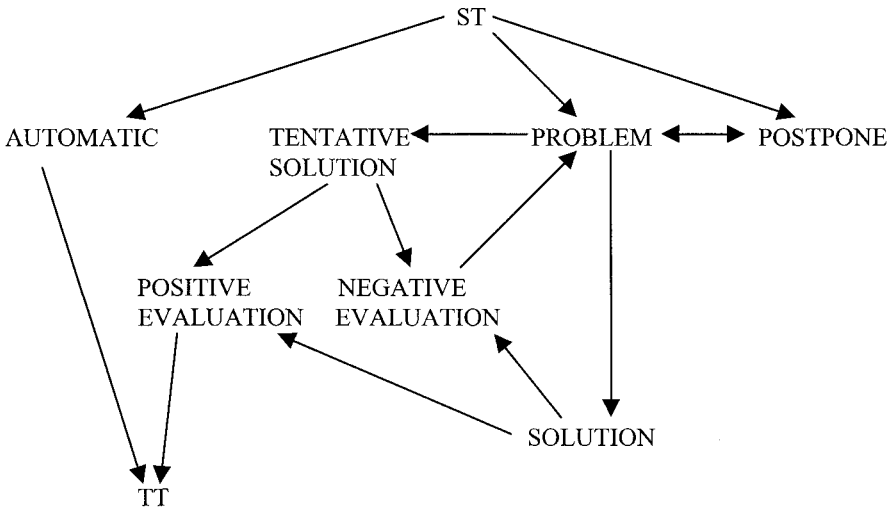

Figure 1. *Pivotal processing phenomena in translation*

Uncertainty phenomena

I have described the uncertainty phenomena in terms of their linguistic manifestations and noticed that they contain expressions of epistemic and deontic modality, hedges on quality and quantity, questions, hypothetical statements, references to ignorance, uncertainty, etc. Below are examples (translated into English), with expressions of uncertainty printed in bold:

(1) this must be **somehow** linked to the previous paragraph
(2) what is needed is **some kind of** reference to
(3) **perhaps something like** 'in this situation'

(4) **one could imagine** 'given this background'
(5) **how should** this sentence **be formulated?**
(6) **perhaps** the word 'situation' **should be added**
(7) 'competition law' **what could it be could it be ...?**
(8) 'we are joining through by way of' **or whatever**
(9) **well let me see could it be something** more impressive
(10) 'after a year' **where should that go?**
(11) 'skinny' is **a bit you know** scoldy
(12) **what is this** 'dicky' then? **something like something** bad
(13) **I think that** in Finnish it is **in a sense** more daring
(14) **so how would it then sound if I placed it in front**
(15) **but isn't it just the same if I say**
(16) 'slim' **is somehow such that such a word that** it makes women's eyes widen
(17) **but I guess there isn't much to be done – cannot put** 'garlic' there **can you**
(18) **can one omit it here okay I will have to see** how it looks on paper
(19) **how would it look without it**
(20) lets put it that way **even though I'm not quite sure what I'm writing**

My analysis shows that uncertainty can appear in connection with any of the processing phenomena. In fact the uncertainty phenomena often function as verbalised signals of a particular processing phenomenon. In what follows I will focus on the pivotal processing phenomena and try to pin down those uncertainty phenomena which are typically attached to each of these. I will do this in connection with my description of the translator profiles.

Translator Profiles

My main focus was on the individual translators' processing and uncertainty phenomena, but I also looked at their think-aloud protocols from a conversational point of view. I noticed that each translator was in fact involved in a conversation while working on the translation task. This might seem surprising, considering that these people worked on their own. The possibility of studying TAP data as discourse or conversation may seem odd, but I will try it out when I draw the translator profiles. The profiles contain three items: a description of the translator's conversational style; an extract from his/her protocol with processing and uncertainty coded in it, and a tentative model of his/her uncertainty

management. I have printed in bold those segments in the extracts of protocols which are coded as uncertainty phenomena. The pseudonyms given to the subjects will be Kari, Hanna, Penny, Fran, Emily and Bertha.

Kari's profile

Kari's "conversation" gives an overall impression of impersonality. He hardly ever refers to himself in the first person but instead uses the various impersonal ways of reference which the Finnish language allows. Typical expressions are e.g. the following:

- jotakin pitäs keksiä [something should be invented]
- vois ajatella [one could imagine]
- yksinkertasinta olis [simplest would be]
- mites tuon muotoilis [how should one formulate that]
- ehkä se on paras jättää [perhaps it's best left as it is]
- olis mukava jos vois [it would be fine if one could]

His style also gives the impression that his problem-solving takes place linearly; for example, there is an inventory of "connectives" which seem to link one protocol segment to the next. These include *no, noh, no joo, joo, no niin, no sitten, sitten* [well, okay, yea, okay then, now then, then]. His discourse is monological rather than dialogical, and I have summarised it as follows: THERE IS A PROBLEM WHICH **SHOULD BE SOMEHOW** SOLVED. **PERHAPS SOMETHING LIKE** THIS WILL SOLVE IT. BUT THERE IS **SOMETHING WRONG** WITH IT. ONE **COULD PERHAPS TRY** THIS. IT **WOULD SOUND** BETTER.

Below is an extract from Kari's protocol, first in its original format and then translated into English. The translation brief required translation from Finnish into English.[1]

Connective	Verbalisation	Process
noh	ihan ensimmäinen ongelma tuossa on että tää alku on **jotenkin** nivellettävä edellä olevaan kappaleeseen .. eli **jonkinlainen** viittaus edelliseen kappaleeseen	Problem
	ehkä jotain tämmöstä että tässä tilanteessa on tarpeen, että ...	Rephr.ST

toisaalta umm	**jotenki** pitäs keksiä **jotain** parempaa kun THIS SITUATION MAKES IT NECESSARY	Problem
no sitten	**vois ajatella** GIVEN THIS BACKGROUND	Tent.Sol.
noh sitte	kaikkein yksinkertaisinta **olis** tietysti viitata yhdellä adverbillä THEREFORE	Tent.Sol.
mietin että	**voiko tuota sitten voiko** therefore-sana viitata kappaleen rajan yli	Problem
	olettaisin että voi	Tent.Sol.
[well	the very first problem here is that this must be **somehow** linked to the previous paragraph ... i.e. **some kind of reference** to the previous paragraph	Problem
	perhaps something like tässä tilanteessa on tarpeen että ... (in this situation it is necessary that ...)	Rephr.ST
on the other hand umm	**somehow one should come up with something** better than THIS SITUATION MAKES IT NECESSARY	Problem
well then	**one could imagine** GIVEN THIS BACKGROUND	Tent.Sol.
well then	simplest of all **would be** of course to refer with just one adverb THEREFORE	Tent.Sol.
I wonder if	**can er can THEREFORE then refer** across a sentence boundary?	Problem
	I would think it can	Tent.Sol.]

Kari's processing follows a fairly distinct problem-solution pattern in which problems are explicitly formulated and each tentative solution is considered in turn. The most frequent uncertainty markers are the adverb ***ehkä*** **[perhaps]** and the conditional forms of verbs such as ***voisi, pitäisi*** [**could** do, **should** do].

Uncertainty markers appear attached to most processing phenomena, but to counterbalance them, there are certainty markers such as *tietysti* and *siis* [*of course, consequently*] which seem to single out decision points in favour of a certain tentative or final solution. The core of uncertainty management for this subject seems to be precisely his deliberate generation of tentative solutions and their evaluation in the target text context. In the TAP extract above he searches his long-term memory to come up with an expression which would connect a passage he has just produced to the passage produced before. He accepts, as a tentative solution, the connective *therefore*. The tentative solution goes together with a modality marker **I would think** which suggests that this is not necessarily an ideal solution but it has the advantage of being the simplest one.

Uncertainty attached to particular pivotal processing phenomena in Kari's protocol can be summarized as follows: Problem co-occurs with hedges on quality (*somehow, some kind of*), deontic modality (*this must be somehow linked; somehow one should come up with something better*), and questions (*can THEREFORE refer across a sentence boundary?*). Tentative solution co-occurs with hypothetical statements (*one could imagine; simplest of course would be to refer*), and hedged expressions of opinion (*I would think*).

Hanna's profile

Hanna's "conversation" is more dialogical than Kari's, and it gives the impression that she is collaborating on this project with a companion. Typical expressions are prompts formulated as first person plural imperatives such as the following:

- pannaas tähän nyt näin että [now then let's put it like this]
- katotaas nyt ihan tiukentaa verbistä löytyiskö siitä
  [let's just look at the verb tiukentaa (tighten) and see if there is something]
- mikähä se ois oiskohan se – [what would it be? would it be –]
- vuoden päästä niin mihinkäs se pantais
  [vuoden päästä (after a year) yeah where should we put that]

Hanna's conversation could be summarised along the following lines: THE SOURCE TEXT READS SO AND SO. OKAY **LETS TRY THIS TENTATIVE SOLUTION** OR THIS OTHER ONE **OR WHATEVER**. AND THIS HERE: **WHAT MIGHT THAT BE? COULD IT BE** THIS OR THIS OR THIS? THIS ONE **MIGHT BE QUITE GOOD**.

Below are two extracts from Hanna's protocol. The translation brief again required translation from Finnish into English.

Verbalisation	Process
ja heti tähän viitataan et tätä taustaa	ST
vasten niin pannaas nyt näin että	
THEREFORE IT IS NECESSARY se **vois olla**	Tent.Sol.
tai FOR THESE REASONS	Tent.Sol.
tai FOR THE ABOVE REASONS **tai jotain semmosta**	Tent.Sol.
[and so they start with the reference	
tätä taustaa vasten (against this	ST
background) so lets put it like this	
THEREFORE IT IS NECESSARY	Tent.Sol.
it could be or FOR THESE REASONS or	Tent.Sol.
FOR THE ABOVE REASONS **or something like that**]	Tent.Sol.
. . . . .	
kilpailulaki **mikähän se ois oiskohan se**	Problem
COMPETITION LAW	Tent.Sol.
tai COMPETITIVE LAW tai	Tent.Sol.
äsh LAW LAWS OF COMPETITION	Tent.Sol.
joo	Endorse
LAWS OF COMPETITION	Solution
[kilpailulaki **what would it be**	Problem
would it be I wonder COMPETITION LAW	Tent.Sol.
or COMPETITIVE LAW or	Tent.Sol.
äsh LAW LAWS OF COMPETITION	Tent.Sol.
okay	Endorse
LAWS OF COMPETITION]	Solution

Like in Kari's case, the core of Hanna's uncertainty management is in the generous production of tentative solutions. There is a difference in that Kari seemed to ponder on each tentative solution in turn, whereas Hanna produced several in succession and then picked out one as the best for the time being. Endorsements appear frequently at the point where a tentative or final solution is chosen.

Uncertainty attached to particular pivotal processing phenomena in Hanna's protocol can be summarized as follows: Problem often co-occurs with hypothetical questions (*would it be?*), and tentative solution co-occurs with hypothetical statements or questions (*it could be; would it be?*).

Penny's profile

Penny's "conversation" is personal and dialogical. She is asking questions and telling the implicit listener what she thinks. She also has audition among her verbalised processes. Typical expressions are as follows. Here translation is from English into Finnish.

- mitäs se on sit tää dicky [what then is this dicky here]
- laitanks mä siihen – [shall I put –]
- miltäs se kuulostaa jos [how will it sound if]
- katotaas miltä se näyttää [let's see how it looks]
- mut eiks se nyt oo sama jos mä sanon –
  [but isn't it just the same if I say –]

Penny's uncertainty management consists of automatic generation of TT as far as possible. Automatic production comes to a halt when she stops to audition a tentative solution or to check if the target text she has produced is acceptable. She also often justifies her choices, and endorses her solutions by using such adverbs as *joo* [yes] or *noin* [that's it] or even *eureka*, or phrases such as *joo nyt pitäs olla* [*okay that should do it*]. Below is an extract from Penny's protocol. Here the translation task is from English into Finnish.

Verbalisation	Process
MUTTA OLISIKO VALKOSIPULI er PELASTUS TÄHÄN PELASTUS TÄHÄN ONGELMAAN	Autom.
joho- johonkihan sen pitää olla	Justify
että VO- OLISIKO VALKOSIPULI PELASTUS	Tent.Sol.
joo ei kyl mä lisään siihen tän **kuitenkin**	Endorse
tän PELASTUS TÄHÄN ONGELMAAN	
vaikka siin tossa ei ookkaa puhutakkaa	Justify
mut ongelmaha se on elikkä	
KAIKEN YLIMÄÄRÄISEN RASVAN POISTAVAN IHMELÄÄKKEEN KEKSIMINEN ON KUITENKIN OLLUT JOKSEENKIN VAIKEAA MUTTA OLISIKO VALKOSIPULI PELASTUS TÄHÄN ONGELMAAN	TT
noin	Endorse
. . . . .	
[MUTTA OLISIKO VALKOSIPULI er PELASTUS TÄHÄN PELASTUS TÄHÄN ONGELMAAN [but would garlic be	Autom.

er a solution to this problem]	
it has to- it has to be a solution to something	Justify
so VO- OLISIKO VALKOSIPULI PELASTUS	Tent.Sol.
(cou- could garlic be a solution)	
allright then I will add it here **anyway**,	Endorse
ie. PELASTUS TÄHÄN ONGELMAAN (solution to this problem)	
even though the text does not have it	Justify
but it is a problem, so	
KAIKEN YLIMÄÄRÄISEN RASVAN POISTAVAN IHMELÄÄKKEEN KEKSIMINEN ON KUITENKIN OLLUT JOKSEENKIN VAIKEAA MUTTA OLISIKO VALKOSIPULI PELASTUS TÄHÄN ONGELMAAN (inventing a wonder medicine which removes all extra fat has however been somewhat difficult but would garlic be a solution to this problem)	TT
that's it]	Endorse

Typical expressions of uncertainty in Penny's protocol are questions of various kinds usually attached to problems and tentative solutions.

Fran's profile

Fran's "conversation" gives an impression of security. The feature which probably contributes to this impression is the frequency of general comments on "how things are". She seldom refers to herself in the first person. While producing her translation Fran is producing an essay-type of text on translation. Uncertainty management in her case consists of demonstration of knowledge in which she embeds her solutions. Below are some examples of her general knowledge comments (the task here required translation from English into Finnish):

- ihan yllättävää että voi otsikon kääntää sanasta sanaan yleensä nää otsikot on ihan järkyttäviä
  [quite surprising that a headline can be translated word by word in general these headlines are quite shocking]
- englannissa ei oikeestaa oo olemassakaa vastaavaa *terveellinen* -sanaa tommosess yhteydessä
  [but then English does not really have an equivalent for the Finnish word *healthy* in that kind of context]
- *solakka*_on jotenkii semmonen että naisilla ainakii heti silmät laajenee

[*slim* is somehow such a word that it is bound to make women's eyes widen]

These comments also function as justifications and endorsements. Endorsement is verbalised, for example, after an automatic production of a target text segment. Uncertainty markers appear less frequently than in the other translators' protocols, and when they do, they accompany evaluations and problems. Below is an extract from Fran's protocol. The task requires translation from English into Finnish.

Verbalisation	Process
JOKAINEN TIETÄÄ ETTEI RASVAISTEN RUOKIEN SYÖMINEN OLE HYVÄKSI	Autom.
good for you	ST
no tuon youn taas voi jättää pois sieltä	Endorse
IHMISELLE HYVÄKSI HYVÄKSI	Tent.Sol.
se on ihan ilman muuta selvä et kenelle	Endorse
tiet- tietenkii ihmiselle	
especially if you have a dicky heart	ST
ETENKIN JOS ON HEIKKO SYDÄN	Autom.
onneks suomess voi jättää tällee pois	Endorse
voiks sen tossa jättää	Problem
no mun pitää kattoo miltä se näyttää kirjotettuna	Audition
elikkä JOKAINEN TIETÄÄ pilkku ETTEI	TT
eating fatty foods	ST
RASVAISTEN RUOKIEN SYÖMINEN	TT
no foods **vois olla** RAVIN- RAVINTOA	Tent.Sol.
tietenki kans ja RAVINTOAINEITA	Tent.Sol.
mut RUOK- RUOKA	Solution
on nyt tässä **oikeestaa**	Evaluation
konkreettisempi ja parempi	
. . . . .	
[JOKAINEN TIETÄÄ ETTEI RASVAISTEN RUOKIEN SYÖMINEN OLE HYVÄKSI	Autom.
(everyone knows that eating fatty foods	
is for no good)	
GOOD FOR YOU	ST
the you can again be omitted	Endorse
HYVÄKSI IHMISELLE	Tent.Sol.
(good for a human being)	
it is crystal clear for whom	Endorse
of course for a human being	

especially if you have a dicky heart	ST
ETENKIN JOS ON HEIKKO SYDÄN	Autom.
(especially if has a weak heart)	
luckily in Finnish one can omit like this	Endorse
can one omit here	Problem
okay I will have to see how it looks	Audition
on paper [writes]	
so JOKAINEN TIETÄÄ comma ETTÄ	TT
eating fatty foods	ST
RASVAISTEN RUOKIEN SYÖMINEN	TT
(eating fatty foods)	
but RUOKA **could also be**	
RAVI- RAVINTOA (nutri- nutrition)	Tent.Sol.
of course and RAVINTOAINEITA (nutritive stuffs)	Tent.Sol.
but RUOK- RUOKA (foo- food)	Solution
is here **in fact** more concrete and better]	Evaluation

Emily's profile

Emily's "conversation" is personal in that she frequently refers to herself with the first person singular pronoun. She also personifies her dictionaries by referring to them as *hän* (he/she). Like Fran, Emily also displays her general knowledge quite frequently. Although her conversation is lively, it gives an impression of a translator who knows what she is doing. She is quite happy to postpone a problematic point to a later stage; thus postponement is her way of managing uncertainty (cf. Matrat 1992 and Jääskeläinen, this volume). Below is an extract from Emily's protocol (translating from English into Finnish). The very last line of the extract shows that her strategy is successful: immediately after her decision to postpone the effort to find an equivalent for *mop* she automatically produces a segment of target text which contains an equivalent.

Verbalisation	Process
VALKOSIPULISTA LÖYTYÄ APU PELASTUS	Tent.Sol.
hh no nyt mun on taas käytettävä	Dict.
sanakirjaa minä katson sitä mopia siitä	
ei hän ei tunne mitään sopivaa sopivan	
puhekielistä vastinetta sille eikä yleensä	
mitään va-vastinetta sille tuossa mielessä	
no jos mie kirjotan siihen jos jotain juolahtaa mieleen	Postpone

however	ST
no alotetaan tolla ihmerohdolla	
the search for a miracle drug	ST
IHMEROHDON LÖYTÄMINEN	Autom.
niin sitähän se on	Endorse
mut niin siis	
ON KUITENKIN OLLUT SUHTEELLISEN VAIKEAA	Tent.Sol.
LÖYTÄÄ IHMEROHTO JOKA	
nyt mie juutun taas siihen – **apua**	Problem
mop **mikä nyt ois semmonen sana joka ois**	
tarpeeks tarpeeks puhekielinen ja kuitenki	
merkitsis samaa	
hmh toisaalta **emmie tiiä kyllä käytetäänkö**	
yleisestikään englannissa	
ehkä sitä käytetään	
no mie palaan siihe myöhemmin	Postpone
JOKA TURVALLISESTI POISTAISI KAIKEN	Autom.
LIIKARASVAN	
. . . . .	
[VALKOSIPULISTA LÖYTYÄ APU PELASTUS	Tent.Sol.
(garlic serve as a help rescue)	
hh okay now I must again consult	Dict.
a dictionary I will look up the <u>mop</u>	
no he does not know any suitable	
suitably colloquial equivalent for it	
nor any equivalent at all in that sense	
okay if I just write it down if something	Postpone
might pop up	
however	ST
okay lets start with the IHMEROHTO	
the search for a miracle drug	ST
IHMEROHDON LÖYTÄMINEN	Autom.
(finding a miracle drug)	
yes that's what it is	Endorse
but then again	
ON KUITENKIN OLLUT SUHTEELLISEN VAIKEAA	Tent.Sol.
LÖYTÄÄ IHMEROHTO JOKA	
(it has however been relatively difficult	
to find a wonder drug which)	
now I'm again stuck to it – **help**	Problem
<u>mop</u> **what would be such a word which would**	
be colloquial colloquial enough and would	
still mean the same	
hmh on the other hand **I don't know in fact**	

if it is used frequently in English	
perhaps it is	
okay I will come back to it later	Postpone
JOKA TURVALLISESTI POISTAISI KAIKEN	Autom.
LIIKARASVAN (which would safely remove	
all excess fat)]	

In Emily's protocol uncertainty attached to problems manifests itself in the form of questions and concessions of lack of knowledge (I don't know in fact if it is used ... perhaps it is). Postponement seems to be a routine for her, and there is hardly any uncertainty attached to it.

Bertha's profile

Bertha's discourse gives an impression of a translator who knows what she is doing and who is aware of her own professional habits. She conveys this information by way of comments and justifications. She refers to herself in the first person singular. However, typical 'reporting' verbalisations, such as evaluations of tentative solutions are very short. Below are some examples (the task is translation from English into Finnish).

- ei ikinä [never]
- ei kolmia pisteitä [no three dots here]
- ei ei ei [no no no]
- miksei tietysti [why not of course]

Another feature in Bertha's protocol is humour, as shown by e.g. the last comment in the following extract from her protocol:

Verbalisation	Process
however the search for a miracle drug	ST
dru:g that could safely mop all the	
excess fats	
IHMELÄÄKETTÄ	Autom.
mä en pidä pitkistä joka-lauseista	Comment
IHMELÄÄKETTÄ JOKA TUHOAISI	Autom.
LIIAT RASVAT	Tent.Sol.
LIIAN RASVAN	Tent.Sol.
tai YLIMÄÄRÄISEN	Tent.Sol.
nii YLIMÄÄRÄISEN RASVAN	Endorse
YLIMÄÄRÄISEN RASVAN TURVALLISESTI ON	Autom.

KUITENKIN KUITENKIN OLLUT HANKALAHKO	Tent.Sol.
ei ikinä	Evaluation
VAIKEA LÖYTÄÄ	Solution
ei kolmia pisteitä	Solution
VALKOSIPULIKO PELASTAJAKSI	Tent.Sol.
ei ei ei	Evaluation
VALKOSIPULiSTAKO	Tent.Sol.
olkoon nyt raakakäännös	Postpone
VOISIKO VALKOSIPULI VOISIKO VALKOSIPULI AUTTAA	Solution
miksei ne mee tutkimaan niitä moldavia-laisia	Comment
. . . . .	
[however the search for a miracle drug dru:g that could safely mop all the excess fats	ST
IHMELÄÄKETTÄ (wonder medicine)	Autom.
I don't like long relative clauses	Comment
IHMELÄÄKETTÄ JOKA TUHOAISI (wonder medicine that would destroy)	Autom.
LIIAT RASVAT (extra fats)	Tent.Sol.
LIIAN RASVAN (extra fat)	Tent.Sol.
or YLIMÄÄRÄISEN (superfluous)	Tent.Sol.
okay YLIMÄÄRÄISEN RASVAN (superfluous fat)	Endorse
YLIMÄÄRÄISEN RASVAN TURVALLISESTI ON KUITENKIN KUITENKIN OLLUT HANKALAHKO (superfluous fat safely has however however been awkwardish)	Autom. Tent.Sol.
no never	Evaluation
VAIKEA LÖYTÄÄ (hard to find)	Solution
no three dots here	Solution
VALKOSIPULIKO PELASTAJAKSI (what about garlic as a rescue)	Tent.Sol.
no no no	Evaluation
VALKOSIPULISTAKO (could garlic)	Tent.Sol.
let it be a rough draft	Postpone
VOISIKO VALKOSIPULI VOISIKO VALKOSIPULI AUTTAA (could garlic could garlic help)	Solution

why don't they go and do research on the Moldavians] Comment

Bertha's protocol does not contain many linguistic uncertainty markers but she typically produces an abundance of tentative solutions. She is also willing to postpone final decisions. Her humorous comments can perhaps also be regarded as tools for uncertainty management.

Conclusion

Table 1 summarises the translator profiles in terms of conversation styles, processing phenomena and uncertainty management: conversation styles are crystallised into one simulated sentence; processing phenomena and uncertainty management are represented by typical instances.

Table 1. *Summary of translator profiles*

	Conversation style	*Processing phenomena*	*Uncertainty management*
Kari	IT COULD PERHAPS BE DONE THIS WAY	problem solution evaluation	Deliberation of tentative solutions
Hanna	LET'S DO IT THIS WAY	tent.sol. tent.sol. tent.sol.	Generous production of tentative solutions
Penny	LET ME SEE HOW IT LOOKS	automatic tent.sol. endorse	Audition of tentative solutions
Fran	THIS IS HOW IT IS DONE	tent.sol. justify endorse	Justification and endorsement of automatic or tentative solutions
Emily	ME AND MY PAL DO IT THIS WAY	tent.sol. evaluation justify	Postponement of problems
Bertha	I DO IT THIS WAY	automatic tent.sol. tent.sol.	Postponement of final decisions; humorous comments

What seems to be shared by the translators is the production of tentative solutions. The alternative ways to handle these are the following: to ponder on each tentative solution in turn; to produce justifications or endorsements; to subject them to audition; or to postpone them. These patterns appear to some extent in all of the six protocols, but the tendencies to favour one or the other vary.

The verbalisations which I have coded as the linguistic manifestations of uncertainty overlap with those which I have labelled as markers of particular processing phenomena. Thus the mere fact that a translator is prepared to postpone a solution or to produce several tentative solutions without endorsing any one of them as a final solution shows that he or she can tolerate a situation in which a decision is pending for the time being. Similarly, when a translator verbalises ignorance or uncertainty in response to a problem situation, this verbalisation serves as a marker of a processing phenomenon (i.e. problem) and as a marker of uncertainty. Thus it might not be justified even to try and distinguish process phenomena from uncertainty phenomena in such a systematic way, for instance, that would make a quantitative analysis meaningful. What I have done here is to exemplify these phenomena and show some trends of their co-occurrence. I hope that by doing so I have been able to give empirical support to the claim that translating, like many other cognitive tasks which require human decision-making, is riddled with potential ambiguity. Thus tolerance of ambiguity is a personality feature which might deserve some attention in the education and recruitment of translators.

There is not much empirical research on translators' personalities. Henderson's (1987) book *Personality and the Linguist* is, however, a significant contribution to this important area. He did not find much evidence for the widely held belief that translators' and interpreters' personalities are different. There was one significant difference, though, and that was in the so-called general intelligence factor, on which the translators scored higher. Henderson suggests that this might be attributable to a different mental approach to problem solving. A translator does not give up when no immediate solution presents itself. In Henderson's (1987: 127) words, "whether the interpreters are less intelligent or simply less tolerant of IQ type questions is (...) irrelevant." What matters is to find "the root cause of differences." It might ultimately turn out that the translating job itself inculcates the persevering kind of approach to problem-solving that is needed in professional translation. My results at any rate point in the direction that translators show a capacity of keeping final solutions in suspense.

Notes

1 In the protocol extracts which follow, segments of verbalised target text production are capitalised, whether they contain Automatic, TT, Tentative solution or Solution; uncertainty markers are bolded, and English glosses of Finnish expressions are bracketed.

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Management Issues in the Translation Process

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By its nature, empirical work in translation is exploratory. As often as studies are used to test hypotheses about translation or interpretation, new hypotheses emerge. You assume that there will be a difference in quality between the work of translation students and the work of professional translators, and in some cases this assumption is overturned (Jääskeläinen 1990 and Laukkanen 1997). What this paper will look at is some of the assumptions that have guided our understanding of the management of the translation process in the past, and some of the evidence for refining our hypotheses about the conscious and unconscious processes involved.

The way in which management of processes was seen in the past was a combination of the descriptive – this is how a translation or an interpretation proceeds – and the prescriptive – this is how a translation should be produced. The notion of the translation as a less-than-fluid process began as developments in functional and textlinguistics lead to theoretical positions that were more closely tied to translation as a pragmatic exercise. Whether the theories themselves were responsible for a more "bottom-up" approach or whether the professionalization of translation programmes, the result was a new focus on activities-in-progress. Peter Newmark is a prime example of someone who has written from this perspective, defining translation studies not as theoretical research but in terms of the problems that can arise in translation. His reference to translation units (1991: 66) stems implicitly from his reflection on how translators work:

> . . . From a translator's point of view, I think the main descriptive units (an extension of Halliday) are a hierarchy: text, paragraph, sentence, clause, group, word, morpheme. In abstract terms, none of these are more important than another (as Halliday states) though in practice, the text is the ultimate court of appeal, the sentence is the basic unit of *translating* (not of translation), and most of the cruxes are centred in the lexical units, if not the words.

This definition of a sentence as a "unit of *translating*", as opposed to a "unit of

translation", is expressed in a slightly different way in another of Newmark's publications where he refers to his own tentative translating process.

> There are two approaches to translating (and many compromises between them): (1) you start translating sentence by sentence, for say the first paragraph or chapter, to get the feel and the feeling tone of the text, and then you deliberately sit back, review the position, and read the rest of the SL text; (2) you read the whole text two or three times, and find the intention, register, tone, mark the difficult words and passages and start translating only when you have taken your bearings.
>
> Which of the two methods you choose may depend on your temperament, or on whether you trust your intuition (for the first method) or your powers of analysis (for the second). Alternatively, you may think the first method more suitable for a literary and the second for a technical or an institutional text. The danger of the first method is that it may leave you with too much revision to do on the early part, and is therefore time-wasting. The second method (usually preferable) can be mechanical; a translational text analysis is useful as a point of reference, but it should not inhibit the free play of your intuition. Alternatively, you may prefer the first approach for a relatively easy text, the second for a harder one.

Empirically-oriented process research is also interested in what contributes to the quality of translation output, but the nature of the research is not typological, and so the hypotheses that have been investigated have isolated particular features of translation for study, for example, the role of the routine, the spurring of invention, and in the case of my own work, the forms of negotiated meaning.

What I mean by the term 'negotiated meaning' is those instances where translation does not occur automatically. The translator is aware of the meaning in the source text and considers alternatives or actively chooses to deviate from the source text. Negotiation refers to the interaction between the understanding of the source text and the production of a target text. What it does not include is language learners' problems, i.e. the translator whose knowledge of the source language is inadequate.

If we look at the way in which translation alternatives have been viewed in the translation literature, for example Levý (1967), Krings (1987) and Tirkkonen-Condit (1989), we see a process explanation in terms of translation problems or decision points. Labelling all points at which the translation process seems non-automatic in the same way has the disadvantage of investing the source text with the difficulty. As has become clear in both

translation and in interpretation (Gile 1997), not all translators or interpreters find all the same items difficult. There is no question that there are texts that are more problematic than others, and that translators have very real problems at specific points in a text. However, if we look beyond translation to the simpler tasks of listening or reading on which they depend, there are a number of obvious phenomena that we do not seem to include in our descriptions of the translation process. For one thing, it is perfectly natural for people to let their minds wander, to drift in and out. Human beings rarely attend one hundred percent to the task at hand. Second, readers and listeners hazard guesses based on the unfolding of the information they receive. And third, readers and listeners with tasks to perform plan their interventions as they listen or read.

Because simultaneous interpreters have to listen and speak at the same time, it was clear very early in models of the interpretation process (Moser 1978) that choices had to be made to direct cognitive resources to more than one activity. In translation it has not been quite so obvious how attention is managed in terms of the impetus to complete translating on the one hand and the constraints on memory on the other.

One way to increase the amount of information available is to provide a second person in the translation setting that is used for study (House 1988). The particular study that forms the basis for what I am about to say about the management of translation makes use of the dialogic situation to increase the amount of verbalization in the think-aloud protocol. I learned that a translator I was filming often worked in tandem with another translator, and I was able to videotape the pair at work. The original translator has her own company translating from English to French and works alone four days a week. She sends the finished translations to the colleague in question to revise. One day a week, even more often when they have a book to translate, the second translator comes to her office and they translate as a team. When they work together, they do not read the text over before they meet. The faster typist normally sits at the computer, and the second translator holds the text and reads the English, a sentence or a clause at a time. They interact, translating verbally, and generally come to an agreement before anything is typed.

I carried out the research in the office where they were working on an assignment for the archives of the provincial legislature, a book on the history of the legislature which they were already half-way through. The video camera was pointed at the computer screen to capture any changes in the translated text. Other than installing the equipment and sitting in the corner to take notes, I did not change their environment in any way or give them instructions of any kind. Two and a half hours of translating produced a target text of 1024 words, and an enormous amount of verbalization. The videotape was transcribed and

analyzed as to the placement and the length of pauses and hesitations, the length and grammatical status of units that were tackled in one go, to look at recurring strategies, possible sources of discrepancies with the source text, and the interplay between the two translators.

Recording one translator working alone lets you see when they turn to reference material, but recording translators working together means you get to see the integration of world knowledge with their understanding of the text as they argue for particular versions. Also when two translators work together, out of politeness one has to signal the end of a brainstorming strategy and the return to the task. This shows the mechanism of attending to a task I was referring to before.

In metaphoric terms, the translators 'bite off' one or more propositions. But the progress of the translation is much more complex than a linear progression or even a series of procedures for arriving at equivalences where the structures do not coincide. There is some evidence from this study that translation can be *non-linear*, that it can be *iterative*, meaning that though a translation is arrived at the mind continues to look for alternatives and comes back to the same item or structure, and that there is *parallel processing*, meaning that the translator can be working on more than one item, structure, etc. at a time, and that the *meaning* on which the translation operates *can be self-generated*, i.e. that it arises during the course of the translation rather than being housed in the source text.

Terms that cause debate like 'testbed' and 'processing' are brought up over and over again even when solutions have been agreed on. It seems clear also when the translators return to a term that has been the focus of discussion that it is in the middle of work on other items rather than at a natural break. The parallel processing that this implies is also evident when one translator types a translation for a term in the source text as she is debating the translation of the term with her colleague but asks about a term that is not actually in the text, but is related to it morphologically. The text says 'processing methods', and she begins to look for the translation of 'processed cheese'. A logical explanation for this digression is that the words are in fact related, that terms are connected in many ways and that attention has slipped from the task at hand and that she is letting herself be lead up a mental garden path.

Just because there are examples which show that translation can be non-linear and iterative does not mean that it always has to be that way. But a theory which purports to explain the processes that underlie translation should be capable of accounting for these phenomena as well. This data suggests that all translation cannot be accounted for by a theory which likens the process to the biting off of a piece of text, chewing it, and spitting it out transformed. A

better analogic explanation, one that is consistent with the non-linearity and iterativity in this data, is that translation involves *a managerial function* rather than a series of procedures. To explain translation as *a managerial function* is to define it *as the interpreting of a task which directs selective attention to communicating the same information in another language within the constraints which are understood to apply in any given instance.*

The 'task' part of the definition is needed to explain the kinds of exploring that occur. The mind has a natural tendency to wander, and the work on the word 'processed' shows that the activation of associations is not necessarily oriented to the task at hand. But the translators do come back to the task at a point when they realize the discussion is not advancing them in their translation. So the ability to monitor the searching with the goal of translation in mind must be part of the apparatus involved in translation.

Similarly, the fact that these translators keep coming back to the words 'testbed' and 'processing' shows that even when they have arrived at a translation, it doesn't mean that they have necessarily stopped working on these terms. The understanding of words and phrases generates associations. Some of these associations will be productive, but others will not, and it appears that there must be some kind of mechanism to suppress these unproductive associations.

What a dialogic study is able to show is thought processes which may not seem directly relevant to the task of translating. A comparison of published source and target texts is unlikely to provide any data about these peripheral and managerial aspects. And even think-aloud protocols may be unconsciously edited as the translator is aware of the interest in the translation process. Looking at the broader picture, at how translation makes use of the comprehending and storage facilities available to other language uses, it is clear that we need to have more ways of accessing the dynamic processes. This will allow us to look more closely at the processes of activation, and the subsequent processes of selection, the suppression mechanisms that prevent the activation of unwanted information, and the attending mechanisms and other managerial functions that orient the comprehension and production strategies to the task of translation.

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Consciousness and the Strategic Use of Aids in Translation

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Introduction

In this paper I will first briefly discuss the role of consciousness in translation process research. This discussion is to provide the background for a small empirical study using thinking-aloud techniques to investigate language learners' use of translational aids (dictionaries, grammars etc.). The original design of the study asked for two groups of subjects: habitual underusers and habitual overusers of translational aids, to engage in the opposite, dispreferred and non-routinized type of behaviour (i.e., habitual underusers were told to use translational aids frequently, habitual overusers were told to abstain from using them), and it was hypothesized that the fact that subjects were forced to engage in behaviour which is marked for them, i.e., non-automatized, would lift subjects' consciousness of the translation process to a higher level. However, it was not possible to conduct the experiment in the way described above because it proved impossible to isolate two distinct groups of underusers and overusers of translational aids. The experiment was therefore conducted in such a way that all the subjects in the sample were exposed to two treatments: one where there were translational aids available and one where there were not. Both thinking-aloud and retrospective data were elicited from the subjects. Following the discussion of the results, some prospects for future research are indicated.

Consciousness and Translation Process Research

In the past, translation theory has concerned itself most frequently with translation as a product resulting from a translator's activity. Detailed contrastive analyses of originals (source texts) and translations (target texts) were conducted leading to hypotheses of the nature of the equivalence relation

between the two texts. Such result-oriented studies have however also often led to more ambitious hypotheses about what happened "in between" the two texts so to speak, i.e., what the translational process was like that linked source text and target text, and many different models of translation were set up, often considered to be reflections of a translator's competence (cf. here Neubert 1991; Koller 1992; House 1997 for overviews). Although clearly attempting to delineate the sequence (or parallel occurrence) of operations through which a translation "emerges" from an original text, these models have traditionally not been based on empirical investigations into "the black box", the translator's mind. Starting with Sandrock's (1982) pioneering study, which was followed by the simultaneous but separate attempts on the parts of several researchers who developed the idea of analysing the translational process by means of "thinking-aloud data" (cf. the contributions in House and Blum-Kulka 1986; Faerch and Kasper 1987 and see Tirkkonen-Condit 1991), the translator's mind has in the past fifteen years become increasingly an object not so much of speculative theoretical concern but of empirical inquiry focussing on "what goes on in translators' minds when they are translating" (Krings 1986) – a development which clearly mirrors the paradigmatic changes in the field of applied linguistics away from contrastive analyses of (parts of) the language systems and of such observable facts as errors and mistakes onto the psychological construct of an "interlanguage". Empirical investigations into the nature and structure of the processes of translation have further greatly benefited from the "re-discovery" of the method of introspection in the field of psychology, where the validity of introspective reports as empirical instruments to uncover subjects' thought processes had been fiercely debated ever since its introduction into German experimental psychology by Wilhelm Wundt in the late nineteenth century. While such a mentalistic procedure as introspection was taboo in the days of behaviourism, researchers who followed the paradigmatic shift to cognitive psychology felt licensed to use this method anew (cf. Boring 1953; Ericsson and Simon 1984 and Börsch 1986 for historical overviews).

Today, inquiries into the process of translation are conducted with the express purpose of improving our understanding of how a translation is made. In using the term "process of translation", we must however keep in mind that we are dealing here not with an isolable process but rather with a set of processes, a complex series of problem-solving and decision-making processes conditioned by semantic, pragmatic, situation-specific and culture-specific constraints operating on two 'levels' – that of the source and that of the target language. We can thus look upon "the process of translation" as any number of operations undertaken by a translator when she is converting (parts of) a source

text into a translation text, with the decision making, the selection and the sequencing of the various operations undertaken by the translator also being contingent upon the emergent translation text itself both in its physical realisation and its on-line cognitive representation.

The assumption behind all investigations into the processes of translation is that the translator has at least partial control over what she is (mentally) doing, and that the mental activities involved in a translation are at least partially or potentially accessible, i.e., open to conscious inspection by the translating subject, and can be verbalized accordingly. The use of "partially conscious" or "potentially conscious" is reminiscent of the use of the concept of "strategy" in interlanguage research (cf. Faerch and Kasper 1983), which also stresses the partially or potentially conscious nature of problem solving activities and the cognitive control a person has over the use of a strategy. In strategy research as in translation process research, however, the basic problem of the validity of the introspective method cannot be regarded as solved, and there remain, as far as I can see, three critical questions that have not been answered and await further basic research:

The first question concerns the very nature of introspective data: Are informants' verbalisations co-extensive, and indeed identical with their underlying cognitive processes, i.e., are there systematic paths and connections between cognitive processes and their (or other?) verbalisations? A second related question is the following: Exactly which mental processes are accessible to verbalizations and which are not? The third (unsolved) question refers to the status of introspective data in general: Does the fact that informants are asked to verbalize their thoughts while translating change the cognitive processes in translation?

These three basic questions all touch upon one of the most controversial issues in cognitive science: the nature of consciousness and, related to this, the extent and limits of unconscious processing. Nisbett and Wilson's (1977) strong and classic claim that reports about higher mental processes underlying choices, judgments, reports and behaviour are not accessible to direct conscious awareness and that conscious awareness is limited to the results and products of ongoing mental processes, i.e., that the processes themselves are not accessible by introspective methods, has never really been disproved, not least because the dichotomy "product" versus "process" is far from being clear and unchallenged. Ericsson and Simon's (1984) attempt to find out whether there might be some kind of conscious introspection that could be trusted has not provided any final answers. The authors concluded from an exhaustive study that verbal reports about what goes on in one's mind can be used reliably to indicate the *outcome* of a decision (e.g., whether you plan to do something) but

that such reports are less reliable about the processes leading up to the decision especially if there is some delay between the occurrence of the process and the verbal report. Information in short-term memory, they claim, is most accessible to verbalization facilitating accurate description of on-going processes. Critical in this view is, it seems to me, the simplistic assumption that *all* processes relevant for behaviour occupy short-term memory and are thus "noticed", i.e., raised to consciousness, and verbalizable. However, processes that are not noticed may still have an influence on behaviour, and other processes while being noticed may not be consciously appreciated in their full significance but still influence our emotions, attitudes and plans without our being aware how we are being influenced. As Ledoux (1996: 307) points out "Even if we wholly accept the Ericsson and Simon view that some aspects of cognition can be characterized on the basis of introspective verbal reports, there remains room for much of the cognitive mind to operate below the tip of the iceberg".

In my own research (House 1988), comparative analyses of the verbalisations of single subjects' and dyads' interacting with one another while translating suggested that in the case of the single subjects' thinking-aloud data, conscious cognitive processes are frequently not verbalized, rather the processes themselves tend to remain hidden and "skipped over", and it seems to be primarily the "end results" of subjects' procedural thinking that get verbalized.

In the space of this paper, the theoretical problems involved in using thinking-aloud protocols in the context of translation studies cannot be discussed fully (but see e.g., Krings 1986, 1994; Smith 1994; Séguinot 1996). Suffice it to say here that despite the fact that there remain basically undispelled doubts about the status of introspective data in translation process research, the *pedagogical* potential of this research is considerable for at least the following four reasons: 1. because of its attempt to go beyond visible translation practices and surface linguistic realizations trying to investigate underlying cognitive processes responsible for the creation of surface forms, 2. because it leads to descriptive statements instead of normative ones, 3. because it proceeds in an empirically-inductive instead of a theoretically-deductive way, and last but not least, 4. because this type of research is oriented towards the practice of translation.

The initial interest in investigating translation processes was in fact pedagogical (cf. the majority of the early studies included in House and Blum-Kulka 1986 and in Faerch and Kasper 1987). Most of the early attempts at gaining access to the cognitive processes involved in translating set out to decompose these processes into different operations, procedures or strategies because researchers had recognized that the century-old controversy about the

role of translation in the processes of foreign and second language learning and teaching could not possibly be resolved unless one had more information about what happened in the "executive" so to speak, i.e., inside language learners' heads when they were doing translations from and into the language to be learnt. While the "first generation" of investigations into translation processes can thus be characterized by a concern with typology and classification of certain specifiable "units" (strategies and procedures) making up these processes, the second generation of studies can be regarded as being more concerned with questions that have a bearing on the outcome achieved through the operation of certain (hypothesized) processes (cf. the papers in this volume) – an important objective from a pedagogical standpoint.

The study to be reported on in this paper belongs to this more recent pedagogically motivated line of studies that spring from an interest in improving the quality of translations, through research which links alleged procedures or strategies with products. The study is an intensely practical one as it deals with the practice of using dictionaries and other translational aids in the process of translating by language learners.

Design of the Study

In the original design of this small-scale investigation of subjects' strategic use of translational aids, habitual under- and habitual overusers of such aids were to be established in a first experiment in which subjects were to be asked to translate and feel free to follow their personal habits with regard to using translational aids available to them. Following this first experiment in which subjects' individual preferences for, or abstinence from resorting to translational aids was to be established, subjects were to be asked in a second experiment to engage in the opposite, non-routinized type of behaviour, the hypothesis being that, given this treatment, subjects would be lifted up to higher levels of consciousness of the translational process in which they were engaged.

In the first experiment, ten students who attended one of my applied linguistics seminars in the winter term of 1995/96, volunteered to take part in the study. They were all very advanced students of English, French and German and applied linguistics in their fourth or fifth year of study. (MA programme or a programme leading to a teacher certification). The subjects were asked to translate from German into English or French a text from a German weekly *Die Zeit* on the general topic of foreigners and refugees in present day Germany (see Appendix) – a topic related to the seminar's focus on

intercultural communication and intercultural differences. Subjects were given a 30-minute time span to translate and to "think aloud". They were given an introduction by the author about the technique of thinking aloud. The resultant verbalizations were audio-taped and transcribed. The experimenter was not present during the thinking-aloud sessions. Subjects were given a particular task or brief, i.e., to translate the German text presented to them for an "equivalent" English/French liberal quality weekly (such as the *Observer*). Monolingual and bilingual dictionaries and an English grammar (Greenbaum and Quirk's *A Student's Grammar of the English Language)* were put at the students' disposal. Immediately following the translation sessions, subjects were asked to retrospect upon the session while being confronted with the audio-recording. This exposure to subjects' own output proved helpful in the analysis, as subjects were able to clarify parts of the data that were difficult to understand and/or interpret.

In the analysis of the data, it proved impossible to isolate habitual "underusers" of translational aids and "overusers" as two distinct groups: all ten subjects were found to have in fact used translational aids with roughly the same frequency (7 to 9 times), such that the procedure following this first experiment had to be changed to the effect that the same subjects were now asked to engage in another translation-cum-think-aloud session, continuing in their translation of the same text (second and third paragraph, see Appendix). This time, however, no reference works of any kind were made available to them.

Results and Discussion

In analysing and comparing the thinking-aloud protocols, the retrospective interviews and the translations produced under the two treatments – availability versus non-availability of translational aids – the following major results have emerged (for convenience sake I will henceforth refer to the experimental session in which subjects were allowed to use reference works as the "U-session", and to the experimental session in which subjects were asked to do without reference works as the "Non-U-session"):

1. While it was not possible to split subjects into habitual overusers and underusers of reference works, two other groups emerged, which I have tentatively labelled "high-risk-takers" and "low-risk-takers". High-risk-takers (6 out of 10), while appreciating the possibility of using the dictionaries and the grammar, do not give one the impression that they cannot function without

them. Their confidence in their natural translation abilities is such that they seem to be able to cope with both the Non-U-situation and the U-situation with an equal amount of confidence in their own capabilities. Witness the following excerpt from a thinking-aloud protocol from a high-risk-taker in a Non-U-session:

(1) *Okay sitzt es it is it is es sitzt ja, das Sitzen also sits kann man bestimmt nicht schreiben weil das irgendwie sich nicht richtig anhört, aber ich mach dann eben it is is ja neutral it is very deep in our patterns of behaviour okay ja sehr gut bändigen also das Bändigen weiß ich auch nicht ich nehme dann eben das Verb was ähnlich ist was mir jetz halt auch einfällt okay äh bändigen...*
(S3, NUS)

Low-risk-takers (4 out of ten), on the other hand, seem to intensely miss the "islands of reliability" (Dechert 1983) provided by the possibility of using a dictionary or a grammar. Compare the following excerpt from a low-risk-taker's protocol of a Non-U-session:

(2) *Mein Gott, was heißt seßhaft das kann ich nie..jetzt müßte ich eben ein Lexikon haben was mach ich jetzt bloß... also das tut mir ja leid aber na ja is ja auch egal...*
(S9, NUS)

2. However, the analysis also revealed that the factor "confidence" must be regarded as playing a more complicated role in the two experimental conditions: while subjects in the Non-U-condition (and here especially low-risk-takers) tended to feel insecure and seemed to suffer from "withdrawal symptoms", both low-risk-takers and high-risk-takers displayed in a sense more "confidence" in the Non-U-session because they were free to creatively delve into their competence reservoir. Since subjects were also forced to become more aware of what they were doing, what they knew and did not know, they felt more active, more creative, and more responsible for the decisions they were making. Even the low-risk-takers, however they may have hankered after their "crutches", seemed to have become more fluent in verbalizing their thoughts. I gained the global impression that all subjects were forced into a heightened degree of awareness of what they were doing while translating in the Non-U-session. This admittedly vague and intuitive "impression" needs, of course, to be made more concrete, i.e., one must try to operationalize the concept of "confidence" in further research. To elucidate this global impression

I gained from the analyses here is an excerpt from the protocol of a low-risk taking subject in the Non-U-session:

(3) *...jede Fremde ist ihnen Heimat und jede Heimat Fremde all all Fremde schön abstrakt ..also im Englischen muß das irgendwie spezifischer sein als so dieses abgehobene Fremde abstrakte Fremde ich habe eben gedacht ob man im Englischen nicht eher seem oder so was nehmen würde aber na nä und jetzt noch son blöder Kommentar inner Klammer ä das so lapidar schönes Wort lapidar tut mir leid weiß ich nicht aber bleibt denn die Satzkonstruktion erhalten...*
(S2, NUS)

3. In the Non-U-session, all subjects tended to translate more fluently, i.e., frequently tackling larger units and operating in a "free association" manner, making ample use of paradigmatic and syntagmatic variation, actively searching for synonyms and near-synonyms, as well as paraphrasing copiously both in their German mother tongue and the translation language. Compare the following excerpt:

(4) *...oder alter ab ändern ändern wechseln nee das is ja blöd ahm piece of ewig mein Gott was heißt denn ewig dauernd immer lange andauernd nee also immerwährend ja eternal so ah...*
(S7, NUS)

One may hypothesize that dictionary searches disturb the flow of thought, preventing the strategic generation of near-synonyms and the internal parading of paradigms and repertoires. The Non-U-session thus resembles "creative writing" or "re-writing" rather than "literal micro-translation". Subjects' more fluent style of translating makes them produce larger coherent and cohesive stretches of translation. This is attested in such typical comments as the following:

(5) *Ach ich mach das jetzt einfach so und dann mach ichs später nochmal und stell alles um wenn mir was Bessres einfällt während ich übersetz.. Seßhaft weiß ich jetzt nich ach vielleicht kommts ja nochmal später also ich versuch das jetzt mal sinngemäß so im ganzen...*
(S4, NUS)

4. The Non-U-condition seems to promote cyclical re-translation and revising activities, enhancing the flexibility of moving from one grammatical category to another and the capacity of what Heinrich von Kleist has called the "allmähliche Verfertigung der Gedanken beim Reden" (in this case with oneself), as well as an awareness of the transitory, unfinished nature of the emergent translation calling for revision and re-translation. Compare the following excerpt:

(6) *die große Wanderung entweder the great or the big the great ähm ähm mir fällt echt nichts ein Wanderung ich wandere ich versuchs jetzt mal das Verb von Wanderung zu finden ah ja wandern to hike und das Nomen ja okay ich geh das dann insgesamt noch mal durch dann wird sich das ergeben...*
(S6, NUS)

5. At the level of lexis, the Non-U-situation seems to promote the use of strategic moves from choosing precise, specific lexical items to opting for more general, superordinate or generic ones. Compare the following excerpt in which a subject (S8) tries to find English equivalents for the German lexical items "abschotten" and "bändigen":

(7) *äh such äh ja abschotten auch ahh vielleicht hostile reaction oder irgendwie sowas Fieses hostile ist paßt da glaub ich ganz gut is allgemein...ä bändigen ja ich würd kontrollieren also son bildliches Bändigen weiß ich auf Englisch nich also ich würd kontrollieren draus machen in this way we control our fear and aggression..*
(S8, NUS)

6. In the Non-U-condition, subjects tended to use generally more creative word-formation rules, drawing on analogy and generalization processes always stretching their competence to "make ends meet". Compare the following excerpt:

(8) *wer die Fremde aus eigener Erfahrung kennt, der kann den Fremden eher gerecht werden who knows oh schon wieder die Fremde who knows the who is experienced foreigners äh himself who know foreigner ob das sind einfach neue neues Wort kreiert von mir ..the one who knows foreignness from his or her experience.*
(S3, NUS)

7. In the Non-U-session, explicit contrasts of lexical and syntactic phenomena of the German mother tongue and the translation language were more frequent than in the U-session. Compare the following extract:

(9) *also jetzt das bei den Fremden ach so gegenüber den Neuen den Fremden damit sind ja auch schon Menschen gemeint und das kann man ja im Englischen nicht so machen wie im Deutschen...*
(S7, NUS)

8. The educational function of raising language learners' consciousness of what they know well, know only shakily and clearly do not know at all is of considerable importance. In the retrospective interviews, subjects commented positively on this experience, cf. (10):

(10) *...es is eigentlich gut, sich erst einmal anzustrengen und man findet raus was man wirklich nicht kann, und was nur so halb da und gewußt is. Wenn ich gleich im Lexikon nachschlag, weiß ich ja eigentlich nich was ich wirklich weiß.*
(S4, NUS)

It may be appropriate here to distinguish between two conditions generally holding in connection with the use of translational aids: 1. an absence of knowledge, especially in the form of gaps in lexical knowledge. These gaps are most painfully felt in connection with co-textually determined idiomatic expressions and routines, 2. a vague insecurity about self-constructed candidates for translational equivalence, which – despite a learner's subjectively felt "passive" lexical knowledge – often drives the learner to "make sure" and check relevant items in a reference work. (The classification of situations in which dictionaries are used suggested by Wiegand 1985 is useful here.)

9. As to the quality of the translations produced under the two experimental conditions, the dialectic relationship between accuracy and fluency and between micro- and macro-perspectives of translation can be fruitfully invoked here, with, obviously, the experimental condition allowing subjects to use translational aids tending to veer towards the accurate- and the micro-end of the cline, and the condition barring subjects from using translational aids occupying the fluent and macro-end of the cline.

Conclusion and Prospects for Future Research

The analysis of both sets of think-aloud protocols left me with a general déjà vu impression that the talk generated appeared to me often slightly "un-natural" and forced – due mostly to the frequent pausing and a number of non-sequitur translational choices, i.e., those that were not verbalized at all or where something completely different from the choice eventually realized was verbalized. The post-hoc interviews with subjects confirmed this impression ("*ich hab oft so einen Druck gespürt, daß ich jetzt was sagen muß*"). This finding confirms one of the results of my earlier study (House 1988) comparing monologic and dialogic think-aloud tasks, in which it turned out that the introspective data produced by pairs of subjects were generally less artificial, richer in translational strategies and often much more interesting. It seems to me, then, that it is advisable in think-aloud experiments to seriously consider giving preference to dialogic think-aloud tasks, in which pairs of subjects might engage in more "natural", less strained and less pressured introspective exercise that resemble "real life" activities much more than the laboratory-type individual thinking-aloud practices.

For the teaching of translation, especially in the context of foreign language learning, one might in future consider more seriously teaching *translation in and as interaction* (House 1986 and forthcoming) giving preference to collaborative translation work over the still overwhelmingly popular practice of asking students to translate in splendid isolation. Further, the results of the small study described above suggest that it may be useful to deliberately expose language learners and translation students to the two conditions – use versus non-use of translational aids. This treatment may be beneficial for making students reach a heightened awareness of their own strategic potential in translating as well as force them to recognize the real limits of their linguistic-cultural knowledge and translational competence. Such a treatment should also include as one of its didactic components a training of students in the systematic and enlightened use of translational aids, i.e., students should be made aware of the rich and rewarding possibilities of using dictionaries for testing hypotheses of various kinds that go far beyond using these aids as mere crutches for quick and superficial checking.

One of the more interesting and pedagogically useful consequences of this small study, which might well be tested out in more extensive and more rigorous research, could be formulated as follows: If the use of reference works is treated not as a substitute but as an enriching supplement for learners' own autonomous search strategies, and if systematic consultations of reference works do not precede but follow one's own creative translational strategies,

then learners' translational competence may be developed more solidly and efficiently.

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Appendix

Text to be translated in both experiments

Source: *Die Zeit* 22. September 1995
Task: Translation to appear in a British Quality Weekly such as *The Observer.*

UNSERE FREMDEN

Worum geht es eigentlich – um den Schutz der Flüchtlinge oder den Schutz vor ihnen? /Von Franz Kamphaus

Zwei Passagiere haben sich in einem Eisenbahnabteil häuslich eingerichtet und Tischchen, Kleiderhaken und die übrigen Sitze in Beschlag genommen. Die Tür öffnet sich, und zwei neue Reisende treten ein. Die Etablierten ärgern sich. Sie betrachten das Abteil als ihr Territorium. Das müssen sie nun mit anderen teilen. Sie denken wie Alteingesessene, sie beanspruchen den ganzen Raum für sich. Mit deutlichem Widerwillen räumen sie die freien Plätze und schieben die Gepäckstücke auf den Ablagen zusammen. Eigentümlich genug, die beiden kennen sich persönlich gar nicht, und doch benehmen sie sich ganz verschworen.

Ein solches Abschotten ist – H.M. Enzensberger macht in seinem Essay "Die große Wanderung" darauf aufmerksam – rational nicht zu erklären. Es sitzt offenbar sehr tief in unseren Verhaltensmustern. So bändigen wir zwar unsere Ängste und Aggressionen gegenüber den Neuen, den Fremden. Aber auf Kosten der ausgeschlossenen Dritten.

Die Szene im Eisenbahnabteil ist paradox genug: Man richtet sich ein an einem Ort, der dem Transfer dient. Dabei ist der Passagier doch das gerade Gegenteil des Seßhaften. Aber so schnell kann man sich festsetzen und aus einem Stückchen Erde quasi ewigen Privatbesitz machen. Christen jedenfalls sollten wissen, daß sie unterwegs sind. Sie haben daheim noch Heimweh: "Jede Fremde ist ihnen Heimat und jede Heimat Fremde" (so lapidar ein Text aus frühen Christenzeiten). Deshalb verstehen sie die, die später in den Zug einsteigen und Platz brauchen. Wer die Fremde aus eigener Erfahrung kennt, der kann den Fremden eher gerecht werden.

Postscript

Multidisciplinarity in Process Research

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The Inherent Multidisciplinarity of Translation Studies

The term 'translation' is ambiguous: once, a fellow participant in a cross-disciplinary conference was surprised to learn that my talk on translation was not about the movement of objects from one place to another. While this false friend scenario represents the extreme case of incompatibility between different discourse communities' (Swales 1990) uses of a term, it is clear that the term 'translation' remains, if not exactly ambiguous, then at least polysemous, even within the community of scholars who see themselves as working within Translation Studies. The polysemy is visible in Holmes' phrasing of the first of the two objectives which he sees for research in Translation Studies (1972/1988: 71 drawing on Koller 1971: 4): 'to describe the phenomena of translating and translation(s)'.

Holmes' formulation highlights the important polysemy of the term 'translation': it may mean both 'translation process' (Holmes' 'translating') and 'translation product' (Holmes' 'translation(s)'). But the term, 'translation process', is itself polysemous in a manner that filters into the term 'translation product'. 'Translation process' may be used to designate a variety of phenomena, from the cognitive processes activated during translating, both conscious and unconscious, to the more "physical" process which begins when a client contacts a translation bureau and ends when that person declares satisfaction with the product produced as the final result of the initial inquiry. And at whatever point we wish, of any of these processes and their sub-processes, we could break in and ask what outcome or "product" had now been achieved. So what is to count as a translation in the product-sense will be radically affected by what is to count as translation in the process-sense. If we mean by "translation process" the process that begins when a language student meets with a sentence in French and ends when that student has produced what they consider a corresponding sentence in English, well, then that sentence in

English is a translation. Whereas if we mean by "translation process" the process that begins with the client's request and ends with a satisfied customer, well, then no English sentence produced in the manner just described can be considered a translation, and the student's effort will hardly be recognised as translating (see Vienne 1994).

Of course, we can, in each instance of use, specify fairly precisely what we want our terms to mean, and it is certainly important for us to do so to avoid fruitless discussions. It would probably also be very helpful if we were to adopt and use consistently Holmes' terminology ('translating' about doing it and 'translation' about the result of doing it; a similar distinction could also be drawn by the same means in interpreting studies, although the need seems to be less keenly felt there; besides, the second term, 'interpretation', would import an ambiguity of its own). However, if that were done, there is a danger that the name of the discipline, 'Translation Studies', which already does little to encourage interpreting scholars, would be seen as favouring the more product-oriented aspects of the discipline with which it shares its formal designation, in rather the same way as the term 'man' may be considered to favour males over females for the same reason.

But the polysemies I have just referred to are, I believe, more than mere linguistic inconveniences (otherwise I would not have spent so long deliberating on them, of course). They are, I think, useful reminders of one of the reasons for the inherent multidisciplinarity of Translation Studies: Translations are made by people, and they invariably bear marks of their creators; and people are affected by the circumstances in which they act. Therefore, it is not possible to separate absolutely the study of the translation product from the study of the translation process, in both senses of this term, and a complete theory of translation, the establishment of which was Holmes' second objective for the discipline of Translation Studies, must account for all three aspects of translation: (primarily physical) products, (primarily mental) processes, and those affective factors which arise from the settings and scenes (Hymes 1972) in which translations are commissioned, made, distributed and used (on this point, see further Jääskeläinen, this volume).

It is not surprising that a theory aimed at accounting for such a diverse array of phenomena needs to avail itself of insights accumulated within other disciplines, and a volume such as the present one demonstrates beyond all doubt the inevitability of this: a great many of the phenomena observed during empirical research on the processes of translation such as those recorded here (and, of course, elsewhere) simply cannot be accounted for without recourse to theories framed within other disciplines. For these reasons Translation Studies is inherently multidisciplinary.

The tremendous benefits that can accrue to Translation Studies from drawing on other disciplines is evident when we consider how many of the research methodologies employed in the studies described in this volume were developed in other disciplines: as several contributors remark (House; Kovačič; Jääskeläinen), we inherit TAPs from psychology; Langacker's (1991) cognitive grammar, which Tabakowska draws on, comes to us from linguistics; Tirkkonen-Condit draws on methods developed within discourse and conversation analysis to analyse her TAPs; and Kovačič draws on functional text analysis to examine subtitles, and stresses the need to select suitable transcription conventions for which, again, linguistics can be a useful feeder discipline.

What characterises most of these borrowings is the gradual adaptation of the methods and approaches borrowed to the particular purpose to which they are now being put. Researchers are generally aware of the need to keep translation as such clearly in focus, and these days most are professional translation scholars, rather than, for example professional linguists (cf. Tabakowska, this volume). Nevertheless, it has, not unnaturally, become increasingly common for translation scholars to concentrate on the interaction between Translation Studies and one particular feeder discipline, so that there are now a number of quite distinct approaches to translation. This situation represents a natural and healthy division of labour, and there is really no need, in general, for proponents of the different approaches to consider themselves competitors: each approach contributes valuable insights to the entire body of knowledge which makes up the discipline of Translation Studies. Currently, in my own experience, and also apparently in that of several research students I have talked to at conferences, Translation Studies is in fact relatively conflict free and the mood is co-operative and helpful.

There are, however, some potential problems inherent in any multidisciplinary field of study, and I should like to address some of these below.

Potential Problems of Multidisciplinarity

There is, first of all, the problem of "a little knowledge": for a translation scholar to achieve a sufficient command of another discipline to be able to draw profitably on it, is obviously just as difficult as it is for a scholar from another discipline to reach a sufficient level of understanding of Translation Studies to be able to contribute to it (or draw on it in their own discipline). As de Groot points out (this volume), it is easy to find oneself 'overwhelmed by

the large number of possible starting points' within feeder disciplines, and it is necessary to be able to select those aspects of the feeder disciplines that are the most relevant to Translation Studies, or to the particular problem within it that is of interest. To be able to make a properly informed selection, it is useful to understand the immediate, and perhaps even the wider theoretical context of candidates for selection: the axioms (assumptions) underlying them, and their implications. For example, if one wants to borrow the idea that translation is indeterminate (Quine 1957-8; 1959; 1960) – perhaps to explain why several translators working with the same text typically produce different text versions (which is not actually Quine's point at all) – then it is useful to be aware that within its original setting, the notion of translational indeterminacy is grounded in a combination of behaviourism, holism and empiricism, and that it implies that there cannot be a theory of translation, in Holmes' (1972/1988: 73) desired sense of a system which can 'explain and predict what translating and translations are and will be'. And when I say 'cannot be', I do not simply mean that we shall never have the definitive theory; no theorist in their right mind believes that the theoretical enterprise will ever reach a state of perfection. No, on the Quinean view, that there cannot be a theory means what it says: translation is not a theorisable discipline. This may not be an implication which a translation scholar would like to import along with the notion of indeterminacy.

I do not, of course, mean that it is necessary to accept all of the assumptions and implications of an aspect of a theory that promises to be useful to Translation Studies; an idea can very well be re-sited and partially redefined for its new setting. But it is useful to understand the axioms and implications that characterised the idea in its original setting for two reasons: first, as I hope my example of the Quinean notion illustrates, it is as well to be aware what implications a notion may have, in order that they may be dealt with, if necessary, in the notion's new theoretical home; and secondly, any idea one may like to borrow is very likely to be familiar to others who will tend to associate with it its original implications in its new use unless warned not to, so it is important, when borrowing and adjusting, to make sure to include the kind of caveat which we find, for instance, in Ivanova's paper (this volume).

Of course, there is a difference between borrowing a descriptive or explanatory or investigative tool from a neighbouring discipline, on the one hand, and, on the other, the wholesale adoption of a full blown theory in order to explain translation (away) in terms of the borrowed theory. Both strategies are best employed with the kind of implicational awareness that I have just been advocating; but the former strategy, the strategy of limited borrowing, is, in my view, preferable to the latter. It is, first, most likely to allow for the

retention of a properly translational focus, and it is, secondly, less likely to limit this focus too severely.

Wholesale borrowing and explaining in another discipline's terms is often done, not in the service of the discipline that is being explained, but rather in the service of the discipline in whose terms the explaining is being done. As Tabakowska (this volume) stresses 'evaluation of various linguistic theories comes via their practical application', and this is true not just of linguistic theories, of course, but of any theoretical framework. Tabakowska herself uses a linguistic model the better to explain a translational phenomenon, and her evaluation is of that model as against some other linguistic model as useful for that particular purpose; but sometimes the application is done purely to the benefit of the feeder discipline. For example, Gutt's (1991) claim that relevance theory can provide all the theory that Translation Studies requires, however well meant, would, if it were accepted, obviously be more likely to strengthen the perceived status of relevance theory than of Translation Studies.

It is, according to Lakoff and Johnson (1980) a peculiar compulsion of the human race to view one thing in terms of another; in fact, they say, it is the primary way in which the human intellect operates. So it is hardly surprising that translation scholars occasionally fall into the practice. But it is generally advisable, at least it is in the interest of the promotion and strengthening of Translation Studies as an academic discipline, for prospective borrowers of approaches to translation to ask themselves what there is to be gained by any seeing-as exercise. For example, Chesterman's (1997) adoption of the meme-metaphor not only provides a new angle of vision on how ideas about translation spread; it also enables him to organise his overview of past thoughts about translation innovatively.

There is, however, always a danger that viewing translation as a special case of action, of communication, of applied linguistics, of language testing, of text production, of literary activity, or whatever, can lead to the unfortunate result that the actual activity of translating itself, and the nature of the translation product, are lost sight of. All the researcher's effort may go into a seeing as X, Y or Z, and all of his or her teaching can slip into teaching X, Y or Z. But if translation becomes a special branch of cultural studies, of literary studies, of business studies, of applied linguistics, or of any other discipline, then we will be back in just the kind of situation which Susan Bassnett-McGuire was keen to consign to the past in 1980 when she described the aim of her book as being (1980: 1):

> to demonstrate that Translation Studies is indeed a discipline in its own right: not merely a minor branch of comparative literary study, nor yet a

> specific area of linguistics, but a vastly complex field with many far-reaching ramifications.

And even if a full scale slide of that kind did not take place, then a narrow focus on one aspect of Translation Studies (on what it shares with writing, testing, reading, problem solving, action, etc. etc.) may obscure many other aspects of the phenomenon.

In both types of case, it may then happen that progress in our understanding of the phenomenon of translation itself may become blocked and we shall loose sight of its ramifications. The result of this would be, I think, that the discipline of Translation Studies could not itself become a strong discipline, feeding insight to other disciplines. It is doubtful whether it is widely perceived as such even now, and it clearly has not been perceived as such in the past, generally speaking, by scholars in other areas, as we can see very clearly if we consider, for a moment, what has happened when these other disciplines have (or have pretended to have) metaphorised themselves in terms of translation.

Within philosophy, as we saw above, Quine (1960) uses the example of translation as a model for all spoken interaction and Davidson (1973) does more or less the same with the notion of interpreting. A similar strategy is pursued by Paz (1971) and by Nossack (1965), who adds that each act of original writing is also a translation. And so, of course, is reading in one's own language.

The perception of all language use as translational has, as Steiner (1975/1992) points out repeatedly, profound consequences for linguistic and literary theory, for the philosophy of language, and for the relationship between these disciplines and translation theory. But what is interesting is that, as far as I am aware, none of the scholars mentioned here have expressed much interest in what is special to translation, that is, in what translation does *not* share with the non-translational case, but has over and above it; this may not seem an obviously interesting question from a philosophical, literary or even linguistic point of view, but it is deeply interesting from the point of view of Translation Studies. The question is why it should not seem interesting from the philosophical, literary or linguistic point of view. Compare the relationship between semiotics and linguistics, for example: here it is quite clear that linguistics goes one step further than semiotics in concentrating on what is special to the *linguistic* sign – on what language has that other semiotic systems do not have – and I don't think that any discipline that acknowledged its relationship to linguistics would neglect to pay attention to language.

But when translation is the notion that is being borrowed, attention is absurdly directed away from Translation Studies and into the neighbouring

disciplines: the pretence is that important questions about language, meaning, reading, writing, or whatever are now going to be illuminated by discussing them in translation-theoretic terms – only as there is no attempt at finding out just what those terms might be, a rather different effect is in fact achieved: it is taken for granted that the aforementioned important questions are questions of translation; in other words, the other discipline defines Translation Studies to suit its own purposes by imposing upon it its own questions. This, I think, is a symptom of the aura of weakness that still besets our discipline, and it is vital, if we really want to have an academic discipline of our own, to emphasise that it is a strong discipline: a theory-lender on which other disciplines can draw, and not just a multidisciplinary area which draws prolifically on other disciplines. This is a second, vital stage in a discipline's development, once it has established its autonomy, and we cannot complete it without devoting a considerable amount of study to the central subject matter of Translation Studies, namely the processes of translation and the outcomes of those processes. As the contributors to this volume have done.

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Author Index

Subject Index