"Difficulty of the translation of primary and complex metaphors" is an experimental study that focusses on the translation processes of two types of metaphors defined in the conceptual metaphor theory: universal and embodied primary metaphors and culture-specific complex metaphors. Through translation experiments, the study examines whether and how the alleged conceptual differences show in the translation processes of a colorful variety of metaphorical expressions in political texts.
DIFFICULTY OF THE TRANSLATION OF PRIMARY AND COMPLEX METAPHORS: AN EXPERIMENTAL STUDY
Kati Turkama

DIFFICULTY OF THE TRANSLATION OF PRIMARY AND COMPLEX METAPHORS: AN EXPERIMENTAL STUDY

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The aim of the study was 1) to test the cognitive reality of the conceptual metaphor theory with regard to (i) the distinction into primary and complex metaphors and (ii) the compositional structure of complex metaphors, and 2) to explore the difficulty of the translation of primary and complex metaphors from English to Finnish.

Two translation experiments with advanced translation students were carried out in order to test the following hypotheses: 1) Primary metaphors are easier to translate than complex metaphors, and 2) complex metaphors are composed of primary metaphors. The starting point of the study was the Cognitive Translation Hypothesis, according to which a metaphorical expression is more difficult to translate if its translation equivalent exploits a different metaphorical mapping or conceptualization. The processes of translation were analyzed with regard to fixation and time in key log files collected by the Translog software. The difficulty of translation was assessed by four indicators that concerned both the quality of the translation products (acceptability and blank translations) and the cognitive effort of the translation process (fixation and time of translation).

The experiments yielded strong evidence for the hypothesis that metaphorical expressions based on primary metaphors are easier to translate than those based on complex metaphors. This was true even in cases where the target language uses another metaphor or a non-metaphorical way to express the idea of the source language metaphor. The finding corroborates the idea that primary metaphors have a more universal experiential grounding than complex metaphors, as suggested by the conceptual metaphor theory, and this helps in their translation.

The second hypothesis of the compositionality of complex metaphors was not supported. Priming the translation of complex metaphors with the translation of primary metaphors did not facilitate but rather made the translation of the complex metaphors more difficult. The results indicate that complex metaphors are primarily processed in translation through the domains used in the complex mappings and not by accessing any primary metaphorical mappings.

The analyses of the translation processes showed that literal translation of metaphors at the linguistic level is the default strategy. Literal translation takes the least cognitive effort, while translating a metaphor with another metaphor or with a non-metaphorical paraphrase takes higher cognitive effort due to a conceptual shift required from the translator. Thus, the Cognitive Translation Hypothesis gets additional support from the study.
The study also provided novel information about cognitive activities involved in the processes of metaphor translation. Fixation was, for instance, found to be a natural part of the translation process of metaphors and correlate with an efficient and successful execution of the translation task.

Key words: metaphor, translation process, translation difficulty, cognitive effort
TIIVISTELMÄ

Tutkimuksella on kaksi päätavoitetta: 1) testata käsitteellisen metaforateorian esittämää i) jakoa primaareihin ja komplekseihin metaforiin ja ii) kompleksien metaforien kompositionaalista rakennetta sekä 2) tutkia primaarien ja kompleksien metaforien kääntämisen vaikeutta englannin ja suomen kielen välillä.


Kokeen tulokset tukevat hypoteesia, että primaarit metaforat ovat helpompia kääntää kuin kompleksit metaforat, jopa tapauksissa, joissa lähde- ja kohdekielten käyttävät eri metaforia tai käsitteellistyksiä alkuperäisen metaforan merkityksen ilmaisemiseen. Havainto vahvistaa käsitteellisen metaforateorian väitetä siitä, että primaareilla metaforilla on universaalimpi fyysinen kokemusperusta kuin kompleksseilla, ja tämä helpottaa primaarien kääntämistä.

Toinen hypoteesi ei saanut tuloksista tukea. Primaarin metaforan kääntäminen priming-ärsykkeenä kompleksin metaforan kääntämiselle ei tehnyt kompleksin kääntämistä helpompaa vaan vaikeampaa. Tulokset viittaavat siihen, että kompleksit metaforat prosessoidaan käännettäessä niiden kielellistymissä käytettyjen käsitealu- eiden kautta eikä hajottamalla niitä primaareihin metaforiin.

Käännösprosessien analyysit paljastivat, että metafora käännetään lähtökohtaisesti sana-sanaisella vastineella kielen tasolla. Sana-sanainen käännös on kääntäjälle kognitiivisesti vähiten kuormittava, kun taas metaforailmauksen kääntäminen toisella, erilaisella metaforalla tai ei-metaforisella parafraasilla kuormittaa kääntäjää enemmän vaadittavan käsitteellisen siirtymän takia. Tutkimus vahvistaa siis kognitiivisen kääntämisen hypoteesia.

Tutkimus tuotti myös uutta tietoa metaforien kääntämiseen liittyvistä kognitiivisista prosesseista. Esimerkiksi fiksaation havaittiin olevan luonnollinen osa tehokasta ja onnistunutta metaforan käännösprosessia.

Avainsanat: metafora, käännösprosessi, kääntämisen vaikeus, kognitiivinen kuormittavuus
ACKNOWLEDGEMENTS

In the acceptance speech for my first research grant just before the millennium, I quoted the famous metaphorical phrase “It is not about the destination, but the journey”. I remember then looking forward to a demanding but interesting journey towards the Doctor’s Degree, but I honestly had no idea how long and winded it would be. Now that I have finally reached the destination, I want to take this opportunity to look back to my journey and to thank all those people who have travelled with me over the years.

I started putting together ideas of further research about metaphors and translation after graduating from the Savonlinna School for Translation Studies at the University of Joensuu in 1999. During the last years of study, I had gotten fascinated about metaphors, and this fascination had resulted in a Candidate’s Thesis and, later on, in a Master’s Thesis, both dealing with the translation of metaphors.

I would not have chosen the academic path without the special encouragement from Professor Emerita Sonja Tirkkonen-Condit, a distinguished translation scholar who shared her research interests and projects in metaphor translation with me, and Professor Jukka Mäkisalo, an expert in experimental psycholinguistic methods in language studies. These two became my supervisors, and their combined expertise provided a stable foundation and the specific topic for my doctoral dissertation. Sonja and Jukka are the two persons I owe the greatest respect and gratitude for completing this journey. I want to thank them both for their professional and enthusiastic guidance as well as their constructive critique throughout the years, especially in times when I struggled and was close to losing faith and focus.

I also wish to acknowledge the Eastern Savolax University Foundation for financial assistance in initiating my research, as well as Langnet, the Finnish Language School for Doctoral Students, which offered me instruction and discussions with acclaimed Finnish language scholars as well as the precious peer support of other doctoral students.

The biggest inspiration for my research has undoubtedly been provided by the groundbreaking work with conceptual metaphors by George Lakoff, Professor of Linguistics and Cognitive Science at the University of California at Berkeley, and his associates. I am particularly grateful to the University of Joensuu and the Fulbright Center for awarding me an ASLA-Fulbright Grant that allowed me to spend the academic year 2001–2002 as a Visiting Scholar at the University of Berkeley, California. I would like to express special thanks to Professor Eve Sweetser and Professor George Lakoff at the Department of Linguistics for their insightful guidance and advice during that year. This time in the international and inspiring academic atmosphere not only gave me a glimpse into the top of the line academia in cognitive linguistics, but also broadened my view of the world and of myself.

At one point, life interfered in my Ph.D. journey, however. Various posts in translation and communications at Finnish Customs as well as family issues forced me to prioritize other things than academic research. For a few years, the dissertation was more or less forgotten.

But metaphors did not leave me alone, and in 2014, I had gathered enough courage to contact my supervisors, and after some consideration, we decided to get back on track and push the dissertation over the finish line. The past two years finalizing the study have been hectic and challenging. A lot had happened both in the field of
metaphor research and translation process studies in a decade. During short periods of study leave and alongside full-time work I have revisited and rewritten, even conducted some new analyses, to meet the requirements of today. This would not have been possible without Professor Jukka Mäkisalo – I want to thank him, once more, for his patience and invaluable input into my study in these stressful years.

My particular thanks go to the pre-examiners, Professor Emerita Christina Schäffner and Professor Jarmo Jantunen, as well as Professor Kaisa Koskinen, for their interest in my research and the constructive comments that helped me a great deal in complementing and refining the dissertation.

I would also like to thank my superiors at the Communications Unit of Finnish Customs for their positive attitude towards my academic work, without which it would not have been possible to finish the dissertation.

It goes without saying that I owe special and heartfelt thanks to my mother, father and brother, who have supported me in this project the best way they know, by listening and helping me with the everyday life. I am also grateful to my smart and sensitive son Kalle, who has shown incredible patience and understanding with his sometimes very stressed mama. Special thanks go to my beloved Stefan for sharing both the moments of sorrow and joy involved in preparing the dissertation over the years, never failing to believe that I could do it. I am also indebted to my dearest friends: Jukka for insightful conversations, Emmi for sharing the academic agony with me, Esther for setting an inspiring example, and Susa and Sari for being such good friends over the years. Besides them, I want to thank all my other wonderful friends, relatives, workmates and soccer teammates for their support and encouragement during this long endeavour.

This dissertation is a destination that should have been reached a long time ago. But perhaps it took all this time for a reason. I am utterly happy that I am there now, but it does not mean that I would not already be planning new journeys. Metaphors, languages and the human mind are mysteries that will never cease to intrigue me, no matter where and how far I travel.

Vantaa, December 2016

Kati Turkama
If you manipulate words, it is a lie;
If you play on words, it is a joke;
If you rely on words, it is ignorance;
If you transcend words, it is wisdom.

Sri Sri Ravi Shankar
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1 INTRODUCTION

Up until the 1980’s, metaphor was a marginal matter in the study of translations. Metaphors were treated as linguistic decorations that were used for making texts more beautiful or poetic, and their translation was considered particularly difficult (e.g. Dagut 1976; Newmark 1988). The conceptual theory of metaphor introduced by cognitive linguists Lakoff and Johnson (1980, 1999) changed the idea of metaphors by stating that metaphors form the foundation of our conceptual system by providing us with a tool to understand and structure our experiences, which is reflected in metaphorical language. Since the experiences vary across cultures, each language is metaphorical in its own way. In the past thirty years, abundant empirical evidence of conceptual metaphors and their linguistic and cultural differences has been obtained (e.g. Kövecses 2002, 2005; Gibbs 2008; Lakoff 2014), but there is still relatively little information about how metaphors are being translated. Despite that the conceptual theory of metaphor has become the dominant approach in exploring the translation of metaphors, the studies that concentrate on the actual mental processes involved in the translation of metaphors are still few. Moreover, there is no research yet on the processes of translating metaphors into Finnish.

The purpose of this study is to explore the translation processes and products of metaphors from a cognitive perspective within the theoretical framework of the conceptual metaphor theory. The conceptual theory of metaphor claims that metaphorical expressions (underlined), such as I see what you mean or he’s not getting anywhere with that project, are only linguistic realizations of conceptual metaphors KNOWING IS SEEING and ACTION IS MOTION that are used for understanding and structuring of abstract concepts (Lakoff & Johnson 1980). In a conceptual metaphor, a concrete source domain of experience (SEEING) is mapped onto an abstract target domain of experience (KNOWING). This implies that the difficulty as well as the strategy of translating metaphors depends not only on the similarity or dissimilarity of the linguistic metaphorical expressions but also, or initially, on the compatibility / incompatibility of the conceptual metaphorical mapping systems between the source and target cultures that give rise to the linguistic metaphors. Thus, also in cases where the translation equivalents in the source and target languages are linguistically different, translating metaphors based on different conceptual mappings can be assumed to be more difficult than translating metaphors based on shared conceptual mappings, because in cases of incompatible mappings the translator is required to make a shift not only between two different linguistic systems but also between two different conceptual systems in order to find a suitable translation. This so-called Cognitive Translation Hypothesis (Mandelblit 1995:487–495) provides the starting point for the present study. Some support for the idea has been found, among others, by Burmakova and Marugina (2014), Sjørup (2013) and Wojtczak (2009).

More specifically, the study at hand focuses on examining the translation processes of two different types of metaphors defined in the theory viz. 1) primary metaphors and 2) complex metaphors (Grady 1997; Lakoff & Johnson 1980, 1999). Primary metaphors are metaphors that have been found to be widespread across cultures, or even universal, due to their grounding on elementary bodily experiences (e.g. Sweetser 1990), whereas complex metaphors are according to the conceptual theory combinations of two or more primary metaphors (Lakoff & Johnson 1999:60) that allow more
cultural and linguistic variation (e.g. Kövecses 2005). In the conceptual metaphor paradigm, the metaphorical expression *His life doesn't seem to have any direction* is regarded as a manifestation of a complex metaphor LIFE IS A JOURNEY, which is a combination of two primary metaphors ACTION IS MOTION and PURPOSES ARE DESTINATIONS (Lakoff & Johnson 1999:60; Grady 1997:278–280). While some proof has been found that primary metaphors are neural connections in the brain and can create complex metaphors through neural binding (Narayanan 1997; Loenneker-Rodman & Narayanan 2012; Lakoff 2014), there is still little empirical research of the cognitive reality of primary and complex metaphors in normal language use (e.g. Nunez, Motz and Teuscher 2005; Soriano & Valenzuela 2009). In translation research, there appears to be only a single study that has taken the suggested distinction of primary and complex metaphors into account (Rydning & Lachaud 2011). In the Finnish translation context, the current study is the first of its kind, since the other two studies on metaphor translation (Lehikoinen 2004, Kela 2007) were focused on the products of metaphor translation (see p. 25).

Based on the assumptions above, it was hypothesized that there are differences in the difficulty of translating metaphorical expressions based on primary conceptual metaphors and complex conceptual metaphors. Primary metaphors were assumed to be easier to translate than complex metaphors due to their grounding on universally shared bodily experiences that the translators can utilize during translation. Thus, an attempt was made to test the Cognitive Translation Hypothesis not only with regard to metaphors with shared vs. different conceptual mappings but, primarily, with regard to their suggested division into primary and complex ones. Another hypothesis tested in the current study was that complex metaphors are semantically composed of primary metaphors in a molecular way, as suggested by the conceptual metaphor theory. If this was the case, activating part of the meaning of the complex metaphor with the help of one of its component primary metaphors might facilitate the processing - and the translation - of a metaphorical expression based on the complex metaphor.

In order to test the hypotheses, two translation experiments were designed in which altogether 31 (16 in Experiment I; and 15 in Experiment II) advanced students of translation translated from English to Finnish different kinds of metaphors that had been subjected to a conceptual analysis (primary/complex metaphors with shared/different mappings). In Experiment I, the translation material was a collection of related sentences with metaphorical expressions, while Experiment II used an authentic text which was manipulated with regard to certain metaphorical expressions in order to serve the purpose of the experiment. While the goal of the first experiment was to initially explore whether there is any difference whatsoever between the translation of primary and metaphors with as little interfering factors as possible, the second experiment was conducted to test the potential differences in more realistic conditions with an entire text as well as to gather information on the structure and relation of primary and complex metaphors. The translation data was collected into key log files by the Translog software which records all keyboard activities, such as modifications and deletions, as well as their timing, and thus can be assumed to provide some information about the cognitive effort devoted by the translator to the task.

The operational hypotheses tested in the experiments were 1) primary metaphors are easier to translate than complex metaphors, 2) metaphors with similar mappings are easier to translate than metaphors with different mappings, and 3) complex metaphors are easier to translate in a primed condition in which one of its component primary metaphors functions as a prime. The first hypothesis was tested in both exper-
ments, while the second hypothesis was tested only in Experiment I. To test the third hypothesis, a special translation experiment that utilized the psycholinguistic method of semantic priming was designed (Experiment II). It was assumed that translating metaphorical expressions that stem from complex metaphors becomes easier if it is preceded by the translation of a metaphorical expression stemming from one of its component primary metaphors. To create the desired primed translation conditions, the translation text used in Experiment II was manipulated so that the metaphors in the text formed so-called priming pairs, of which the primary metaphor was translated first and, after that, the related complex metaphor.

The difficulty of translation was assessed by a tool developed by Tirkkonen-Condit (2000) using four indicators that concern both the quality of the translation products (acceptable and blank translations) and the cognitive effort of the translator during the translation process (fixation and time of translation) as revealed by the Translog protocols. Acceptability refers here to the translation’s correct meaning content, idiomacy as well as suitability in the given context, while blank translations reflect loss of content in the form of a zero translation. The notion of ‘fixation’ (e.g. Toury 1995; Tirkkonen-Condit 2002) describes the process of searching of translation equivalents in which the original expression is copied literally or word-for-word. The concept of ‘translation difficulty’ has been problematic in translation research as there is no consistent theoretical approach to it. Sun (2015) suggests that several factors related both to the translation text and the translator should be taken into account when assessing translation difficulty. By measuring cognitive effort as part of the translation difficulty as a whole, the present study attempted to clarify the difference between the concepts of ‘difficulty’ and ‘cognitive effort’ in translation. A critical discussion of the validity of the chosen indicators of ‘translation difficulty’ and their applicability in the study of translation processes of metaphors was also carried out.

The more general aim of the research conducted for the current study was to gather data of the translation processes of different kinds of metaphorical expressions in order to find out what kind of metaphors require the most cognitive effort in translation and to identify typical strategies of translating metaphors. This was done by conducting a qualitative analysis of the processes leading to the different translations (literal, metaphorical or paraphrase) of the metaphors contained in the translation text used in Experiment II. The cognitive effort of the processes was measured by the indicators fixation and time as recorded in the Translog files. Fixation as a phenomenon was paid special attention to in relation to the traditional dichotomy between literal and free translation strategies (e.g. House 2015), since it seems that the choice between literal rendering of the original metaphorical expression and free translation where other than the original experiential domain is used or replaced with a paraphrase is crucial in the process of translating metaphors. The study thus also investigated whether the processes of searching of and revising translation equivalents to metaphors takes place at the language level of metaphorical expressions or at the conceptual level of metaphorical mappings as well as the alteration and interplay of these levels during the whole translation process.

In addition, the metaphoricity of the translations was tentatively analyzed in the translation material of both experiments to find out whether translating metaphorical

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1 ‘Idiomacy’ in this dissertation is used to describe words, structures and other features that are used conventionally and systematically in a particular language and are thus characteristic of that language.
language is more difficult than translating non-metaphorical language. Also the question of the activation of conceptual metaphorical mappings during the translation of primary and complex metaphorical expressions was addressed by studying the processes of target text generation in the Translog files. Besides these aspects, other findings made during the examination of the translation materials, such as the potential role of metaphors as text-constructing elements, were briefly reported and discussed.

While the main objective of the study was to gather information on the processes of translating metaphorical expressions originating from primary and complex metaphors, the findings were also anticipated to reveal such aspects of the conceptual structure and cognitive processing of metaphors themselves that monolingual research cannot, since translation is an activity that requires complex, and potentially more conscious, mental processing between two languages. Thus, the study also yielded information about the cognitive reality of some of the assumptions of the conceptual metaphor theory in translation, in particular, the suggested distinction and the molecular structure of primary and complex metaphors. Furthermore, as metaphors are pervasive in all kinds of natural language (Lakoff & Johnson 1980), studying the translation of metaphors could provide information about translation processes in general.

The study at hand contributes to the increasing amount of cognitive-oriented research of the translation processes (e.g. Göpferich, Jakobsen & Mees 2009; Halverson 2010; Shreve & Angelone 2010; Rojo & Ibarretxe-Antuñano 2013). Since the 1980’s, the branch that was first called translation process studies and, later on, translation process research has focused on studying the mental aspects of translation, that is, how the human mind performs the complex communicative task of translation involving various cognitive activities. The current study is an example of the results of the enhanced cooperation between translation studies and cognitive linguistics in the 21st century, which has benefited both fields (Shreve & Angelone 2010; Rojo & Ibarretxe-Antuñano 2013). Cognitive science has become the primary theoretical framework for the study of translation processes and led to the emergence of a new branch of translation studies called cognitive translation studies (Muñoz Martin 2015) or cognitive translatology (Halverson 2010). Cognitive translation studies aim at creating theories and models of translation, which can be applied to translator training practices. This ultimately leads to improved translation competence (Jääskeläinen 2011). In today’s globalized world, the importance of translation in facilitating international communication is greater than ever.

OUTLINE

The present study is organized in the following way. After the introduction, the theoretical chapter introduces the models and concepts used in the analyses of the translation processes as well as the relevant previous research on metaphors and their translation that form the theoretical framework for the study. Also the key concepts of ‘translation difficulty’ and ‘cognitive effort’ will be defined and discussed.

Chapter 3 specifies the objectives and hypotheses of the study. The main objectives, on the one hand, with regard to metaphors and, on the other hand, with regard to the translation of metaphors are laid down, followed by a number of secondary objectives.

The research methods utilized for achieving the objectives and testing the hypotheses set for the study are presented in Chapter 4, which provides a detailed account of the methods used in the preparation, collection and analysis of the translation data.
produced by the experiments. The process of conceptual metaphor analysis will be demonstrated with examples from the experiment data, after which the designs of the two experiments included in this study are reported. In addition, the variables that were used to measure the difficulty and cognitive effort of the translation of metaphors will be defined.

Chapters 5 and 6 report on the design, analysis and results of the two translation experiments conducted within the framework of the study. Chapter 5 deals with Experiment I, which was aimed at testing the hypothesis that primary metaphors are easier to translate than complex metaphors. Chapter 6 reports the results of Experiment II, in which the conceptual structure and relation of primary and complex metaphors was examined through a primed translation task. The results of the analyses will be presented with examples from the experiment data.

Chapter 7 lays out the results of the qualitative analyses carried out on the translation data gathered from Experiment II, with a special focus on the applicability of the indicators of ‘translation difficulty’ and ‘cognitive effort’ in bringing out aspects of the processing of metaphors in translation. A systematic analysis of the different strategies adopted in the translation of different types of metaphorical expressions will be presented. In addition, the questions of the activation of metaphorical mappings during translation and the difficulty of translating metaphorical vs. non-metaphorical language will be addressed. Some new hypotheses for further experiments will also be proposed.

The results of the study will be discussed in Chapter 8. The final chapter provides a summary of the results and their implications both for the study of metaphor and for the study of translation processes. The significance of the findings within the larger scientific framework as well as the usability and viability of the methods will also be evaluated.
2 THEORETICAL FRAMEWORK

The theoretical framework of this study comes from two disciplines. The translation processes of metaphors are examined applying the models and concepts used in cognitive translation studies, while the hypotheses are derived from and the metaphor material is described and analyzed within the framework of the conceptual metaphor theory developed in cognitive linguistics. The primary object of this research is the translation of metaphors, so the dissertation does not focus on defining metaphor or describing the cognitive metaphor theory, but rather suffices to refer to the ample literature published on these topics.

In the following, some cognitive models of the translation process as well as strategies used in the translation of metaphors will be presented in order to introduce the theoretical concepts used in the current study for analyzing the translation processes of metaphors. After that, the theoretical and empirical foundations for the hypotheses tested in the study are discussed. Finally, the tool used for measuring difficulty and cognitive effort will be introduced.

2.1 MODELLING THE TRANSLATION PROCESS OF METAPHORS

A lot of progress has been made in exploring the translation of metaphors within the cognitive framework in the past decades, but the number of studies that concentrate on the cognitive processes involved in the translation of metaphors is still limited. Neither is there yet any coherent cognitive model or theory of metaphor translation. The present study contributes to this area of research by attempting to identify, describe and model the complex set of cognitive processes involved in the act of translating metaphors.

2.1.1 General Models of the Translation Process

The study of translations was for long concentrated on linguistic aspects and the products of translation. Similarly, the translation of metaphors was explored by categorizing metaphorical expressions in different linguistic types which determined the way they were to be translated (e.g. Newmark 1988; Dagut 1976). In the mid 1980’s, the focus of research within translation studies was shifted from language-oriented theories to those who take into account the cultural dimensions of translation. Simultaneously, more interest arose for describing and empirically verifying what actually goes on in the mind of the translator during the process of translating. The first empirical explorations of translation processes, in particular, the problem-solving and decision-making strategies of the translators were made by Gerloff (1986), Krings (1986) and Lörscher (1986). These studies can be said to mark the emergence of translation process studies (e.g. Alves 2003; Göpferich 2009) that later on developed into a more comprehensive field of translation process research and, recently, into an integrated field of cognitive translation studies (Muñoz Martin 2014).
In the present study, the process of translating metaphors will be looked at as a series of cognitive processes involving language-processing and text-production in two languages: the source language and the target language. First, some general models of the translation process will be presented, after which strategies that can be applied to the translation process of individual metaphorical expressions that is the focus of this study will be discussed.

The translation process has generally been modelled as a writing process divided into three main stages. In the model originally developed for writing tasks by Hayes, Flower, Schriver, Stratman and Carey (1987) and applied to translation by Englund Dimitrova (2005:25), the three stages of translation process are: 1) planning, 2) target text generation and 3) revision. Jakobsen’s similar model (2002) separates the stages of 1) planning, 2) drafting and 3) revision (or post-drafting). Both models concentrate on the text production processes involved in translation.

It has been found by Englund Dimitrova (2005), Séguinot (1996) and Krings (2001) that the translators first produce smaller text segments than a sentence during the target text generation stage and, only after that, complete the sentences and the whole text by making revisions. Besides Englund Dimitrova (2005), many other scholars (e.g. Bell 1998; Munday 2012) have defined revision as a stage of its own. Krings (2001) calls this process post-editing\textsuperscript{2}. Studies with Translog protocols have shown that revisions take place throughout the entire translation process at all levels of language: at the word, morphological, syntactic as well as the textual level (e.g. Englund Dimitrova 2005; Tirkkonen-Condit 2005, 2006; Tirkkonen-Condit, Mäkisalo & Immonen 2008).

According to the so-called Monitor Model presented by Tirkkonen-Condit (2005, 2006), revisions show that translators monitor and evaluate their performance constantly during translation (Tirkkonen-Condit 2005:407–408), and this ability develops along with their level of experience and expertise (Tirkkonen-Condit 2007). Observed signs of the working of this control mechanism called “The Monitor” (Toury 1995) in the translation protocols include e.g. time delay, false starts or misprints that reflect structures or expressions of the source text and are corrected immediately or later on during the process of translation. Similarly, Séguinot (1989) has argued that there are three global strategies of translating: 1) Translate as long as possible without interruption, 2) correct surface language errors immediately but leave errors involving meaning until later, and 3) leave the monitoring for qualitative or stylistic errors in the text to the revision stage. This is being done in order to save time and effort, due to limitations of working memory capacity. Testing the Monitor Model as such is not one of the aims of the current study, but if the translation processes of metaphors show signs of monitoring, it can bring additional evidence for the model.

Hence, the three stages of translation do not seem to occur in a linear mode but rather parallely, simultaneously or circularly, as has been claimed by e.g. Englund Dimitrova (2005) and Séguinot (1996) who has found evidence of parallel processing where the translator works on more than one item, structure, etc. at a time. Séguinot discovered that even after a translation solution has been found, the mind continues to look for alternatives and may come back to the same item. Revisions can thus also be taken to implicate that the source language expression has not been fully understood in the beginning and the translator has to return to the comprehension stage.

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\textsuperscript{2}In current translation research, ‘post-editing’ refers to the process of manually improving a translation created by a machine (Krings 2001).
and restart the whole process. On the other hand, it is possible that the translators start producing the target text before they have fully comprehended the idea of the source text or an individual item in it.

The models presented above concentrate on the text production processes involved in the translation process as a whole without considering the mental processes that take place in the translator's mind prior to generating the actual target text. The terms "target text generation", "drafting", and "revision" used in the models of Englund Dimitrova (2005) and Jakobsen will be applied in this study to describe stages in the translation of individual items - metaphorical expressions - but since the aim of the present study is to examine the cognitive processes involved in the translation of metaphors, the models as such are not sufficient for the purposes of this study.

A more comprehensive model of the translation process by Diamond and Shreve (2010) is better applicable in the current study of metaphor translation, because it covers also the mental activities of the translator related to the reading and comprehension of the source text before the target text generation process. Diamond and Shreve define the three stages of translation as 1) source text reading and comprehension, 2) cross-language lexical matching and transfer and 3) target text generation. The empirical analyses included in the present study are mainly focused on the last two stages during which the translation equivalents are searched and revised, as recorded in Translog files, as well as on the final translations, but the measurements of time also cover the reading and comprehension stage that is assumed to primarily take place before the translators start typing the translation.

One aim of the analyses is to obtain information about the time used for the translation processes of different metaphorical expressions. The duration of the translation processes will be studied by measuring the overall time devoted to all the three stages of translation process for each individual metaphorical expression. Since the various cognitive activities are assumed to be conducted simultaneously and incoherently throughout the translation task as a whole, the translation of individual metaphorical expressions will be in the analyses included in this study explored as one process, without separating it into different stages. Looking at the cross-linguistic transfer and revision processes as well as measuring the time used for the whole process of translating different metaphorical expressions can be expected to indicate the cognitive effort of the translation process as well as to reveal which strategies are followed when translating metaphors.

Metaphorical expressions will in this study be regarded as translation processing units according to the definition by Gile (2005), and their translation will be approached from the point of view of translation problems and the decisions, or strategies, selected to solve them. The relevant strategies will be discussed below.

### 2.1.2 Metaphor Translation Strategies

It has been said that translation, as any other text-processing activity, is to a large extent a matter of problem-solving and decision-making (Levý 1967; Bell 1998; Pym 2011). Lörscher (1991:76) has defined translation strategy as “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”. Thus, strategies are understood as both conscious and unconscious cognitive activities used by the translator during translation when encountered with a problematic item (Séguinot 1991). Metaphors
have been pointed out by many scholars to be problematic in translation (e.g. Nida 1964: Dagut 1976:77). Newmark (1988:104) has argued that translation of metaphor is “the most important particular problem” of translation. Besides providing information about the cognitive activities involved in the translation process of metaphors, the choice of strategy can also be assumed to correlate with the difficulty and cognitive effort of the translation process.

The strategies the translators have available when encountered by a metaphorical item in the text will be characterized with the help of an example sentence (metaphorical expressions in bold):

How Ted Cruz attacks and mocks Donald Trump and still claims to take the high road.
(Source: The Dallas Morning News, April 4, 2016)

In the conceptual metaphor theory formulated by Lakoff and Johnson (1980), the metaphorical expression attack is regarded as a linguistic realization of a conceptual metaphor ARGUMENT IS WAR, in which the conceptual domain3 of “war” acts as a source domain whose image-schematic4 structure complete with all of its inferences and denotations is mapped into the target domain of “argument” in order to make it easier for us to understand and reason about. Similarly, the other expression to take the high road is grounded on two conceptual metaphors MORAL IS UP and ACTION IS MOTION in which the metaphorical mappings are formed between “morality” and “vertical dimension” respectively “mental action” and “movement”. The strategies of translating metaphors are usually classified into three types. Schäffner (2005:55) described the main strategies as follows: 1) metaphor into same metaphor, 2) metaphor into another metaphor; or 3) metaphor into sense. These strategies are consistent with those identified by Dobrzynska (1995:595), as a result of which the translation is 1) an exact equivalent of the original metaphor, 2) another metaphorical phrase with the same meaning, or 3) a paraphrase. Toury (1995) added to these strategies a complete omission of the metaphor. In the analyses included in the present study, the translation types of the participants are defined in the following way:

- literal equivalent
- metaphorical equivalent
- paraphrase
- omission / blank translation

In this study, ‘literal equivalent’ refers to metaphorical translations using the same metaphor, i.e. the same conceptual source domain, while ‘metaphorical equivalent’ is a translation utilizing another metaphor, i.e. a different source domain, than the one utilized in the source language. As opposed to these, paraphrases are non-metaphorical equivalents. A difference is made between ‘omissions’ that are acceptable

3 In cognitive linguistics, ‘domain’ is defined e.g. as “any coherent area of conceptualization relative to which semantic structures can be characterized (including any kind of experience, concept or knowledge system)” (Langacker 1991:547).

4 Johnson (1987:24) defines image-schemas as “structures that organize our mental representations at a level more general and abstract than that at which we form particular mental images”. This knowledge is stored in our memory and automatically called forth by a concept (Nikanne 1992). Common image schemas include “container”, “link”, “enablement” and “balance” (Johnson 1987:126).
translation solutions, whereas ‘blank translations’ are non-acceptable translations. In addition, the strategies identified by Toury (1995) of translating a source-text non-metaphorical expression into a metaphorical expression and adding a metaphorical expression to target text without any equivalent in the source text will be tentatively discussed.

Thus, in analyzing the translation equivalents, attention will be paid to the choice of translating the metaphorical expressions literally or word-for-word versus translating them in some other way, such as using another metaphorical image or paraphrasing. Addressing the use of these strategies with regard to the translation of metaphors is one of the aims of the present study, since it seems that the choice between translating at language level and translating at conceptual level is crucial with regard to the process of translating metaphorical expressions, which according to the conceptual theory of metaphor (Lakoff & Johnson 1980, 1999) are linguistic realizations of deeper conceptual structures.

It has been argued by several scholars (e.g. Chesterman 1997; Tirkkonen-Condit 2005) that literal or word-for-word translation is the default strategy in translation. Traditionally, the strategies utilized in the translation process have been divided into two major categories: a) literal or word-for-word translation and b) free or sense-for-sense translation, and the choice between these strategies largely determines how the process continues and what kind of cognitive activities it involves. These two “prototype” translation strategies have been labelled with various terms throughout the years depending on the perspective but are nowadays commonly seen as part of a continuum rather than a strict dichotomy (see Sun (2012) for further discussion). House (2015:120) provides a more process-oriented taxonomy describing the two processes as follows: 1) Strategy of translating via the conceptual system, involving processes of linguistic decoding (comprehension) of the source text material + encoding (production) of target text material; and 2) Strategy of translating at the linguistic level, in which case the translator moves directly from the source text linguistic items to equivalent target text items, without conceptual-semantic processing. There is, however, still little empirical evidence to support the suggestion that translators actually detach themselves from the level of language and access the conceptual level during the process of translation, not to mention how exactly this happens in cognitive as well as linguistic terms.

It has been detected in earlier research on metaphor translation by Sjørup (2011, 2013) and Wikberg (2004) that literal translation of metaphorical expressions seems to be a norm and the default strategy. Wikberg (2004) explored the translations of metaphorical expressions with the help of text corpora from English to Norwegian, Swedish and Finnish and found that a direct or word-for-word transfer of the image used in the metaphor was the preferred translation strategy. Also Fernández, Velasco Sacristán and Fuertes Olivera (2005), who studied the translatability and the equivalence of metaphors between Spanish and English, obtained results suggesting that it is most common for the translators to copy the original metaphor. In case of frozen or dead metaphors (Lakoff & Turner 1989), the translators have been found to have a tendency to make the expressions more colorful or even create in the target language novel metaphors (Gibbs 1994; Kövecses 2002) that are metaphors in which conceptual domains are mapped in a creative way compared to conventional mappings.

5In time, some metaphors become so conventional in a language that they lose their imaginary power, such as fall in love or see (in the meaning ‘understand’). These metaphors are called frozen or dead, since they are not productive or active in language any longer (Lakoff & Turner 1989).
At this point, it is necessary to shortly clarify the relation between the concepts ‘idiom’ and ‘metaphor’. In the traditional view, idioms are conventionalized and frozen elements of language with arbitrary meanings. Idioms have been described as decomposable collections of words whose meaning cannot be predicted from the literal meanings of the constituent words, such as kick the bucket or It’s raining cats and dogs. Within cognitive linguistics (e.g. Lakoff & Johnson 1980; 1999), many or most idioms are seen to be motivated by certain patterns in our conceptual system, such as metaphors. For instance, the expressions walk a fine line and burn the candle at both ends, can be considered idioms grounded on conceptual metaphors. To summarize, conventional metaphors are idioms, but not all metaphors are idioms.

Due to the conceptual differences, the translation of non-metaphorical idioms and metaphorical idioms can be assumed to show crucial differences. Non-metaphorical idioms, such as kick the bucket, can never be translated literally, whereas metaphorical idioms, such as burn the candle at both ends, can have literal equivalents in another language. Furthermore, while idioms must be treated as single semantic units, metaphors may be broken down and analyzed with the help of our conceptual system. Metaphorical idioms are thus also compositional in nature, which the other idioms are not.

Burmakova and Marugina (2014) carried out a contrastive study of some literary works in Russian and their translations into English to explore the translation of anthropomorphous metaphors (metaphors that use human form or attributes to conceptualize non-human items). They concluded that the most common strategy to translate metaphorical expressions was to copy the original metaphor into the target language. This was done most often in the case of metaphorical expressions with literal equivalents in the target language. If metaphorical expressions shared the metaphor (conceptual mapping) but not the linguistic realization, they were translated using the same metaphor but replacing the original source domain with a more specified one.

Also Schäffner (2004) and Stienstra (1993) looked at translations of metaphorical expressions with regard to their underlying conceptual metaphors both at macro-level (domain-level) and micro-level (specific metaphorical expression) of the translation text. Schäffner (2004) identified different strategies of translating metaphors in political texts between English and German, while Stienstra’s (1993) research material was the Bible and its translation into Dutch. Their conclusions were similar: metaphors are often preserved at the macro-level in translations, but their specific linguistic manifestations may vary.

Research on the translation of metaphors into Finnish is scarce. In her dissertation, Kela (2007) studied the phenomenon of metaphorisation in translated biblical language and the translations of metaphors from Hebrew into Finnish in some editions of the Finnish Old Testament. The most relevant result of her corpus study with regard to the current research was that the more corporal a metaphoric image is, the more universally understandable it is, while a less corporal metaphoric image requires more cultural and contextual information in its translation. Also Lehikoinen (2004) conducted a corpus study of the translations of the metaphors of JOURNEY from Russian into Finnish in historical texts focusing on the values carried by metaphors. Both studies utilized the cognitive metaphor theory as their theoretical framework.

Even if literal translation has commonly been regarded as an unprofessional translation strategy often resulting in an unacceptable translation, Schäffner (2005:75) has noted that literal translation can be the optimal and conscious choice and not an indication of a lack of expertise. One explanatory model for the use of the literal translation strategy is also provided by the Monitor Model (see 2.1 above) introduced by Tirk-
The model suggests that producing a word-for-word or literal translation is the default strategy in target text production, and this strategy is followed as long as the translator detects that an equivalent literal translation is not available or it is contextually or pragmatically not acceptable, and a new translation has to be found. The translators seem to first "test" the possibility of a word-by-word or structure-by-structure translation equivalent and only revise it later if necessary. Thus, initiating the process of translation with a literal equivalent can be the most efficient strategy that saves the translator time and energy.

In the case of the metaphorical expression *attack* in the sentence above, following the literal translation strategy into Finnish would result in the translation *hyökätä*. In this translation, the word used in the source text metaphor is changed into the equivalent word in the target language. There is a literal or word-for-word equivalent available, and the translator only needs to check whether the expression works in the target language as well as in the context of the target text. If it does, the translation process is quick and easy.

However, the other metaphorical expression presented above *take the high road* can be used to illustrate a process where the literal translation strategy does not work. The literal translation of the metaphorical idiom into Finnish *ottoma korkea tie* would not make any sense. There is no translation equivalent in Finnish that would express the idea of moral behavior metaphorically by using the source domain of "road" or "driving" with an added dimension of "high". In this case, the translator first has to figure out the meaning of the source text expression and then find another way of expressing this meaning in the target language, either with another metaphorical expression or with a paraphrase. It can be noted at this point that when the ultimate goal of translation is to fulfill the communicative purpose of the text, it is not always necessary to convey all of the original inferences of a metaphor, but to decide upon the central ones and find something equivalent in the conceptual system of the target language. In cases where there are no corresponding metaphorical expressions in the target language, the communicative purpose may best be fulfilled by a non-metaphorical translation.

It has been found out that, in cases like the above, the translators are so restricted by the linguistic constraints of the source language (Carl & Dragsted 2012) that they are nevertheless likely to choose a translation that utilizes the same conceptual domain or the words used in the original metaphorical expression. This phenomenon has been referred to as fixation in translation research (Tirkkonen-Condit 2002, 2005). It means that the translators get stuck on the words and structures of the source language and produce translations that are not acceptable in the target language.

The translators’ tendency to get fixated to the original metaphorical domains and to produce unidiomatic word-by-word translations has come out in earlier studies on the translation of metaphorical expressions (e.g. Mandelblit 1995:485-492; Martikainen 1999; Sjørup 2011). Fixation can be temporary and serve as a strategy for initiating the translation process, as discussed above (Monitor Model in 2.1), or permanent, which leads to inappropriate and unidiomatic final translations. In this study, only temporary fixation observed during the process is considered. In these cases, the translators get temporarily stuck to the linguistic realization of the idea but manage at a later stage of the process to free themselves from the language and find alternative ways of expressing the original idea in the target language.

It can thus be assumed that when encountering metaphorical expressions such as *to take the high road*, the translators have to transfer from the language level to the
conceptual level of meaning in order to find a suitable way to express the original idea in the target language. This assumption known as the **Cognitive Translation Hypothesis** (Mandelblit 1995:482–495) will be discussed more closely below.

### 2.1.3 Cognitive Translation Hypothesis

The Cognitive Translation Hypothesis is built on the idea that the more two cultures conceptualize experience in the same way, the easier the translation of metaphors between the languages of these two cultures is. This hypothesis was proposed and tested by Nili Mandelblit (1995:482–495). On the basis of the conceptual metaphor theory, Mandelblit hypothesized that if the source and target languages utilize different source domains in the metaphorical conceptualization of the same idea, the process of metaphor translation becomes more difficult, because it must involve not only a transfer from one *linguistic form* to another but also a transfer from one *way of conceptualizing the world* to another. Mandelblit’s study provides the inspiration as well as the overarching hypothesis for the present dissertation.

The underlying assumption behind the Cognitive Translation Hypothesis is that the task of a translator is to translate *intentions* instead of linguistic forms, as laid down in the relevance theory⁶ (Gutt 1991). The relevance theory considers figurative language as something that needs to be retained in the translation, and not only a more decorative way of expressing something that could have been expressed literally. Thus, when translating metaphorical expressions, the translator must find an expression that best communicates the intentions of the source expression, whether it means conveying the original expression’s linguistic, intentional or other contextual aspects, or all of them.

In order to test the Cognitive Translation Hypothesis, Mandelblit conducted an experiment in which bilingual translators and graduate students translated a number of temporal idioms based on different metaphorical mappings into their mother tongue, either into English or French. The idioms had been divided into groups according to whether they shared their underlying metaphorical mapping with the (expected) target language equivalent idiom (**similar mapping condition**), such as *to waste time* (French: *perdre du temps*) or not (**different mapping condition**), such as *I am almost there* (French: *j’en approche*). The group of expressions with a similar mapping condition had further been divided into cases in which the target language equivalent had the same *wording* with the source language expression and into cases in which there was some difference in the source and target language expressions (see Mandelblit 1995: 482–495 for examples). In order to measure the difficulty of translation, the times that it took to translate the different expressions (reaction times) were recorded.

The results of the study strongly supported the Cognitive Translation Hypothesis. It took about ten times longer to translate the expressions that used a different metaphorical mapping compared to the equivalent expressions in the target language. The translation of metaphorical expressions with different mapping conditions was

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⁶ The *relevance theory of communication* developed by Sperber and Wilson (1986, 1995) was applied to translation by Ernst August Gutt (1991) as the first cognition-based theory of translation. According to the relevance theory, the translator must give as much information as is needed in a given communicative situation to convey the intentions of the source text to the target language reader with the help of context and other implications.
more difficult also compared to metaphorical expressions with similar mapping conditions with a different wording, i.e. metaphorical expressions which utilized similar metaphorical mappings in both source and target languages but whose linguistic realizations are different. The different mapping condition or domain conflict caused more hesitation and translation errors during the translation performance, as well as fixation (in Mandelblit’s (1995:482) terms functional fixedness) to the source language metaphorical conceptualization. Fixation showed in translation e.g. as longer translation times and unidiomatic translations.

The main result of Mandelblit’s study was that it is more difficult to find target language equivalents to such metaphorical expressions that are based on different conceptual mappings in the source and target languages, regardless of the surface linguistic manifestations of the ideas. Hence, in order to translate metaphorical language, translators have to move from the level of language to the level of conceptual mappings during translation in cases when there is inconsistency between the conceptual mappings of the two languages. More generally, the outcome of the experiment was an indication of the cognitive reality of conceptual metaphors as well as of the active role of metaphorical mappings in the translation process.

Mandelblit’s results can be extended to apply to translation in general. As metaphors are ubiquitous in all kinds of language, the difficulty of the translation of any natural language can be said to depend on the similarity vs. difference of the metaphorical mapping systems of the source and target languages. Another significant finding was that translation takes place at a level deeper than the language surface, when necessary. Furthermore, the experiment proved that translation can successfully be used as a method to study metaphors.

The Cognitive Translation Hypothesis has been tested in a number of studies in different languages. The majority of the studies have concentrated on the products of translation. Maalej (2003) and Al-Hasnawi (2007) studied the translation of metaphors between Arabic and English and found support to Mandelblit’s findings (1995:482-495). Their research showed that metaphorical expressions based on such metaphorical mappings that only exist in the source language are more difficult to translate than those exploiting a shared conceptual mapping in source and target languages due to the conceptual transfer that is necessary in the former case. In his corpus-based study Maalej (2003) found out that metaphorical expressions based on ontological metaphors in the conceptual metaphor paradigm (Lakoff & Johnson 1980:25), such as the CONTAINER metaphor, are more readily translatable than metaphorical expressions that originate from structural metaphors (Lakoff & Johnson 1980:61), such as PEOPLE ARE MACHINES or INEDIBLE ENTITIES ARE FOOD, since they can often be translated literally (similar mapping condition and similar linguistic realization). Metaphorical expressions relying on structural metaphors, on the other hand, may be difficult to comprehend, as well as translate, especially in cases of a different mapping condition. Also Al-Hasnawi’s (2007) experiments suggest that translation becomes more difficult when the source and target languages lack counterpart metaphors related to the same conceptual domains, because the translator has to do the work of conceptual mapping on behalf of the target language reader and find similar “cognitive equivalence” in the target language culture.

The influence of other factors than conceptual mapping on the translation of metaphors has also been acknowledged in previous research. On the basis of the results of two think-aloud experiments, Tirkkonen-Condit (2002) suggested that differences in metaphorical mappings can only partially explain the difficulties in the translation of
metaphorical expressions and that there are other factors, such as compatibility with the text as a whole or compatibility with the global context construed by the translator, that guide the choices of the translator. Tirkkonen-Condit concluded that the translation difficulty of an idiom depends on the availability of translation equivalents which are equally conventional in the source and target languages. Correspondingly, a corpus study conducted by Yan, Noël and Wolf (2010) on the cross-cultural variation of FEAR metaphors and their translations from English to Chinese showed that metaphorical expressions with a high frequency (=entrenchment) in the target language are more easily preserved in translations, while metaphors that have a low frequency or are not shared in the target language are less likely to be preserved. Rather, they are translated non-metaphorically or changed into more frequent metaphorical expressions. This suggests that metaphorical expressions are not necessarily translated literally even in cases where the same metaphor exists in the target language. Also Martikainen (2007) pointed out in the concluding remarks of a think-aloud study on metaphor translation that the familiarity and conventionality of the metaphors as well as the role of the context must be taken into consideration when exploring the translation of metaphors.

The cognitive translation of metaphors can also be approached from a viewpoint that takes into account not only the similarity / dissimilarity of the conceptual mappings and their linguistic realizations between the source and target languages, as was done in the Cognitive Translation Hypothesis, but focuses on dividing metaphors into primary and complex ones in terms of their grounding in physical experience as well as the complexity of their conceptual structure.

2.2 TRANSLATION OF PRIMARY AND COMPLEX METAPHORS WITHIN THE FRAMEWORK OF THE CONCEPTUAL METAPHOR THEORY

The conceptual metaphor theory (Lakoff & Johnson 1980, 1999) was complemented by the theory of primary and complex metaphors by Grady (1997), which along with some other developments in the field of cognitive linguistics led to a formation of a more comprehensive cognitive framework of how metaphors are developed and structured in the mind – the Integrated Cognitive Theory of Metaphor (Lakoff & Johnson 1999). Instead of the earlier categorizations, the current cognitive metaphor paradigm separates two main types of metaphors: 1) primary and 2) complex (Grady 1997; Lakoff & Johnson 1999). The key notions of the theory of primary and complex metaphors will be explained in detail below, since they form the foundation for the hypotheses in the present study as well as provide the guidelines for the conceptual analysis of the metaphors in the experiment material and their translations. For a more comprehensive overview of the conceptual metaphor theory, see e.g. Kövecses (2010), Lakoff (2014).

2.2.1 Primary Metaphors

The research conducted at the end of the 1990’s by Grady (1997), C. Johnson (1997) and Narayanan (1997) presented results that suggest that there are simple metaphors that arise automatically and unconsciously through regular correlations in everyday bodily experiences (Lakoff 1999:47). These metaphors are called primary metaphors.
C. Johnson (1997) found that primary metaphors are developed in early childhood, usually before acquiring any language skills, through an ongoing cognitive process called **conflation**, during which our frequent everyday experiences called **basic events** (Grady 1997:196), such as looking at something, and our subjective responses to these events become correlated in our cognitive system. These **primary scenes** (Grady 1997:23) form the basis for conceptual metaphors. Empirical evidence of the existence of cross-domain mappings was first found by Narayanan (1997), whose neurological studies suggested that permanent neural connections between the networks that define the source and the target domains of primary metaphors are formed during the period of conflation, and these connections are activated whenever we use or see those metaphors.

As an example, Grady’s category “Time, action and event structure” includes the following primary metaphors (Grady 1997:284–286):

- STATES ARE LOCATIONS
- ACHIEVING A PURPOSE IS ARRIVING AT A DESTINATION (PURPOSES ARE DESTINATIONS)
- MEANS ARE PATHS
- ACTION IS SELF-PROPELLED MOTION

According to Grady (1997), the experiential motivation behind the above metaphors is the correlation between our location and how we feel about it, as well as the correlation between our experiences of perceiving motion and the changes it causes in our surroundings (=action). In language, this is reflected as expressions such as *I’m in trouble*. In Grady’s view, we understand our purposeful mental actions as physical movement along certain paths towards a spatial location. This is why we have linguistic expressions such as *I was too scared to make the first move* and *I still have a long way to go before this project is finished*.

The underlying principle behind the formation of primary metaphor, and the conceptual theory of metaphor as a whole, is the idea of **embodiment**, viz. that metaphor can serve as a vehicle for understanding a concept only by virtue of its grounding in bodily experience (Lakoff and Johnson 1980:18-19). It means that the metaphorical correspondences that arise between concepts are determined, or motivated, by aspects of bodily experience. For instance, Lakoff and Johnson (1980:15) suggested that our recurrent physical experience of being in an upright position when we are healthy or, reversely, lying down when sick, has led to the formation of the primary metaphor **HEALTHY IS UP; SICK IS DOWN**, reflected in language as e.g. *I’m coming down with a flu* or *His health is declining*. This idea is supported by the findings of Sweetser (1990) about the **unidirectionality** of metaphorical mappings, i.e. that the mappings are always projected from a physical source domain to an abstract target domain.

Another key concept that plays a central role in metaphorical mappings is **image schema** (Lakoff 1990; Johnson 1987; Fauconnier & Turner 1994). Johnson (1987) claimed that metaphorical mappings are not only based on image-schemas but they are also constrained by them. This idea was summarized by Lakoff (1993) in the **Invariance Principle**:

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7 Johnson (1987: 24) defines image-schemas as “structures that organize our mental representations at a level more general and abstract than that at which we form particular mental images”.

32
Metaphorical mappings preserve the cognitive topology (that is, the image-schema structure) of the source domain, in a way consistent with the inherent structure of the target domain. (Lakoff 1993:215)

A metaphorical mapping always preserves the source domain's vocabulary as well as its inferences and image-schematic structure (Talmy 2000). According to Lakoff (Lakoff 1993; Johnson 1987), it is due to the bodily basis of image-schemas that metaphors allow us to reason about target domains on the basis of the structure of the source domains. The projection of image-schemas from source domains onto target domains is a natural and unconscious part of human thought and cognition, and this makes metaphors pervasive and explains why we may not even notice that we are using metaphors when thinking and processing language (Lakoff & Johnson 1980).

Image-schemas are an essential part of primary metaphors, because they allow us to analyze and recognize basic experiences and see patterns in them and, this way, provide sources for primary metaphors (Grady 1997:194). According to Grady, the source concepts for primary metaphors always involve a physical perception or sensation, such as the experience of warmth, heaviness or hunger. In other words, they have image content (Grady 1997:26). Primary target concepts, on the other hand, lack image content and are characterized by our responses or operations over the physical perceptions.

Lakoff and Johnson (1999) applied a slightly more elaborate analysis on primary metaphors compared to Grady (1997). They provided not only the metaphorical mapping and the primary experience (=motivation) for each metaphor but also distinguished the sensorimotor experience (=source domain) and the subjective experience or judgment (=target domain) involved in the mapping. The metaphor PURPOSES ARE DESTINATIONS is according to them composed of the sensorimotor experience of “reaching a destination” and the subjective judgment of “achieving a purpose”. The primary experience is: “Reaching destinations throughout everyday life and thereby achieving purposes (e.g., if you want a drink, you have to go to the water cooler).” The concepts proposed by Lakoff and Johnson (1999) are followed in analyzing the metaphors in the experiment material of this study.

Lakoff (1999, 2014) has claimed that there are at least hundreds of primary metaphors structuring our conceptual system. Some examples (primary metaphors in capital letters) accompanied by their linguistic manifestations (underlined) and experiential basis will be provided below:

(a) AFFECTION IS WARMTH
She gave me a warm smile.

The primary experience behind this metaphor is the feeling of warmth when being held affectionately as a child, which has led to the correlation between the sensorimotor domain of “temperature” and the subjective judgment of “affection” (Lakoff & Johnson 1999).

(b) IMPORTANCE IS MASS/WEIGHT
This is a consideration of great weight.

The above metaphor is based on the correlation between the weight of objects and the value, threat, difficulty etc. they represent as people interact with them (Grady 1997).
The motivation of this metaphor is the correlation between being in a higher physical position and having greater control over objects, people, and situations. Hence, the subjective experience of “being in control” is conceptualized with the help of the sensorimotor domain of “vertical orientation” (Grady 1997).

The idea of primary metaphors has interesting implications for the translation of metaphors. Lakoff and Johnson (1999:56) argue that since people all over the world have basically the same kind of bodies and essential surroundings, many human experiences are universal. If metaphors are based on experiences, as postulated by the conceptual metaphor theory, it can be assumed that there are many universal, or at least widely-spread, metaphors in the cultures of the world. On the other hand, Lakoff and Johnson (1980) recognized that even the most basic experiences may vary across cultures. Studies have shown (e.g. Lakoff 1987; Johnson 1987; Regier 1995) that there is only a limited number of primitive image schemas that structure the major spatial orientations in all the languages around the world, such as in-out, up-down, part-whole, center-periphery, link, cycle, path, contact, adjacency, forced motion (e.g. pushing, pulling, propelling), support, balance, straight-curved, and near-far (Lakoff & Johnson 1999:35). However, it is the individual cultures that determine which orientations are chosen as bases for metaphors and which way (Lakoff & Johnson 1980:19). The range of complex spatial relations that can be built out of these schemas is enormous, and these conceptual differences are reflected in the metaphorical expressions used in a culture. For instance, it has been discovered that the Aymara language spoken in the Andean highlands contains metaphorical expressions in which “future” is seen as being “behind” us, not “in front of” us, as it is conceptualized in the Western world (see Núñez & Sweetser 2006). This raises a question, whether there can be any “purely” universal metaphors that are independent of culture and/or language.

The question of universal metaphors has been addressed by various researchers who have studied the cultural similarities and differences in the linguistic metaphors that within the cognitive theory of metaphor are believed to reflect the conceptual metaphors. Kövecses (2002, 2005, 2006), among others, has conducted extensive research on the cultural differences of metaphors between Hungarian and English and found that there are many conceptual metaphors that can be identified in a great many languages, but there are also metaphors that are highly language-specific. The widespread metaphors include TIME IS SPACE (Yu 1998), KNOWING IS SEEING, THE MIND IS THE BODY (Sweetser 1990) as well as the EVENT structure metaphor (Lakoff 1993; Kövecses 2005). Also Martikainen (1999) conducted a small-scale comparative study of the metaphors related to “understanding” between English and Finnish and discovered that the major metaphorical conceptualizations are shared but there are differences in the linguistic realizations of the metaphors in the two languages. Metaphors related to emotions, such as “anger”, have been compared between Spanish and English by Soriano (2003; 2005), between Hungarian and English by Kövecses (1990, 2003, 2005), and between Chinese and English by Yu (1998). All studies uncovered similarities but also crucial differences in the way ANGER is conceptualized in the different languages. Maalej (2004) even found that many emotions may be metaphorically conceptualized in a culture-specific way, without any direct physical grounding. Kövecses (2010) concludes that the fact that the same conceptual metaphors exist even in languages that are not linguistically related and that are cul-
urally very far from each other, such as English and Hungarian, indicates that there must be some shared universal experiences that give rise to same metaphors. Within the conceptual theory of metaphor, primary metaphors can be assumed to represent these universal metaphors.

It must, however, be kept in mind that even if the central concepts in the majority of cultures may be conceptualized via some universal metaphors that arise from embodied experiences, their metaphorical reflections in language can vary. Lakoff (1987) has proposed that the cross-linguistic differences between metaphors can partially be accounted for by the prototype theory\(^8\) (e.g. Rosch 1978). Prototypes are usually picked up from basic-level categories, such as “chair” or “seeing” or “happiness” (Rosch 1978), that involve concrete experiences and interaction between our bodies and the environment. It is therefore natural that the prototypical representatives for categories selected as the source domains of a metaphor vary across cultures (Lakoff 1987). It can furthermore be assumed that the greater the historical or cultural differences between the cultures and/or languages, the larger the variation of the linguistic metaphors. This is an important aspect with regard to the translation of metaphors and can be considered a major reason for difficulties in translating them. However, the ideas presented above implicate that primary metaphors should be relatively straightforward and easy to translate, since their meaning can be understood with the help of the shared conceptualization even in cases where the linguistic manifestation is different in the source and target languages.

### 2.2.2 Complex metaphors

As opposed to primary metaphors that are directly grounded on embodied experience, Grady (1997) and Lakoff & Johnson (1999) suggested that there are also complex metaphors which do not have a direct experiential grounding on their own, but are formed by putting together primary metaphors in the same way as molecules are formed from atoms plus common cultural models and beliefs (Lakoff & Johnson 1999:60).

The idea of the compositional structure of metaphors was first presented by Grady, Taub and Morgan (1996:177–186), who coined the notions of primitive vs. compound metaphors, which correspond to the notions of primary vs. complex metaphors. See the figure below:

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\(^8\)It has been found that most concepts are fuzzy and organized around prototypes that represent the “best examples” of the category and possess the most typical properties of the concepts in that category (Rosch 1973; McCloskey & Glucksberg 1978). Prototypes often reflect individual preferences, cultural and social issues, and are highly dependent on context. Prototypes are typically picked from the basic-level categories (Rosch 1975). For example, prototypical “furniture” would be “chair” or “table”, and not “drawer”.

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Figure 1. The conceptual structure of metaphor. Source: Grady, Taub & Morgan (1996)

The figure demonstrates how the complex metaphor THEORIES ARE BUILDINGS is composed of two primary metaphors STRUCTURE IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING ERECT. The composite complex metaphor can also be formulated in a more abstract form as VIABLE ORGANIZATIONS ARE ERECT PHYSICAL STRUCTURES, in which case THEORIES ARE BUILDINGS is considered a culture-specific extension of the metaphor, in which “building” serves as the prototypical example of a physical structure. The figure (Grady, Taub & Morgan 1996:177–186) also illustrates that the primary metaphor STRUCTURE IS PHYSICAL STRUCTURE can be combined with another metaphor INTERRELATED IS INTERWOVEN, which utilizes a different kind of physical structure, “fabrics”, as the source domain of the metaphor.

The more elaborate form of the theory was presented by Grady (1997) and Lakoff & Johnson (1999). They claimed that the complex metaphors are formed when two or more experiences conceptualized as primary metaphors co-occur regularly in our mind and neural connections are formed (see Lakoff 2014). To give an example, the metaphor LIFE IS A JOURNEY is according to Grady (1997:116) composed of two primary metaphors PURPOSES ARE DESTINATIONS and ACTION IS MOTION based on our common experiences of achieving purposes. These primary metaphors combined with the cultural belief of life having a purpose make up a complex metaphor A PURPOSEFUL LIFE IS A JOURNEY. In Lakoff and Johnson’s paradigm (1999:61), this complex metaphorical mapping includes the following four submappings or submetaphors:

A PURPOSEFUL LIFE IS A JOURNEY
A PERSON LIVING A LIFE IS A TRAVELER
LIFE GOALS ARE DESTINATIONS
A LIFE PLAN IS AN ITINERARY

The above submappings bring about various entailments into our understanding of “life” that are based on our knowledge of journeys, such as that we need to plan our lives if we want to achieve our purposes or that we should anticipate possible difficulties and try to avoid them. This approach emphasizes an important element of the theory: the metaphor LIFE IS A JOURNEY does not have a clear physical basis itself, but works with the help of its component primary metaphors that are directly grounded in experience.
However, the formation of complex metaphors does not seem to be as simple and straightforward as presented above. It has been proposed by Fauconnier and Turner (1998; 2008) that complex metaphors are formed in a subconscious cognitive process called **conceptual blending**, in which different **mental spaces** (Fauconnier 1994; 1997), such as those characterized by primary metaphors, are “blended” and become **coactivated** in our neural system, and long-term connections across the domains are formed. This coactive combination of primary metaphors constitutes a complex metaphorical mapping, such as LIFE IS A JOURNEY, but there are also other concepts and ideas involved in the metaphor. According to Fauconnier and Turner (2008), conceptual concepts are never the result of one simple mapping but also include complex cultural models and beliefs. In a conceptual blend, concepts may be brought together in a way that cannot be predicted or explained by conventional metaphorical mappings alone and, therefore, blending is primarily being used to create novel and imaginative metaphorical expressions. For an example of a blended expression, see the case of “the Grim Reaper” (e.g. Kövecses 2002:229) in which various metaphorical and metonymic mappings combined with some cultural models come together to mean “death”. Fauconnier and Turner (2008) thus claim that some cases referred to as “complex metaphors” that are not analyzable through the conventional **two-domain model** (source domain – target domain) may be explained by the **network model** involving conceptual blending of several domains. Also the latest neurological findings reported by Lakoff (2014) suggest that the simple pair-wise cross-domain mappings are not able to account for the versatile character of metaphors, but metaphors are instead structured of much more complex webs of various conceptual correspondences than presented in the early version of the conceptual theory of metaphor.

If there are metaphors that are as complex as the LIFE IS A JOURNEY or “the Grim Reaper” involving a variety of culture-specific models, beliefs and narratives, it can be assumed that translating metaphorical expressions stemming from complex metaphors can be extremely challenging. This study examines the translation of metaphors used in political discourse in (American) English into Finnish. The two languages do not have any linguistic-historical relation, and the countries are geographically distant even if both belong to the Western culture. Also the political cultures between the United States and Finland are fundamentally different. Hence, there can be expected to be crucial differences in political communication between these countries. These differences can be hypothesized to show, in particular, in the complex metaphors that are well suited for carrying larger clusters of culture-specific information, such as ideologies. The variation of political metaphors in different cultures has been studied by Deignan (2005), Kövecses (2005) and, in American political discourse, by Lakoff (1996), among others. Political metaphors have been considered particularly demanding to translate because transferring their ideological content may cause an ideological conflict (see Schäffner 1997; Bulut 2012). Despite the popularity of the study of political metaphors, there are no studies conducted on the specific differences between metaphors used in the American versus Finnish political discourse or their translation. Comparing political metaphors between English and Finnish falls outside the main scope of the present study, but the results may provide insights and inspiration for further studies.

In order to be able to carry out cross-linguistic analyses between English and Finnish metaphors for the purposes of the present study, the key ideas of the conceptual theory of metaphor discussed above were gathered together and integrated into a chart as teamwork between three experienced translation scholars. This chart called
“Metaphor Map” attempts to characterize the structure of conceptual metaphors in a consistent and transparent way. See Figure 2 below:

<table>
<thead>
<tr>
<th>Conceptual level</th>
<th>Observations / Experiences</th>
<th>Sensory experiences: [ontological being], [object experience], [balance], [night], [hearing], [smell], [taste], [physical Image schemas: [part-whole], [center-periphery], [repetition], [connection], [touch], [closeness], [movement], [support], [straight-curve], [up-down], [near-far]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic metaphors</td>
<td>ABSTRACT ENTITIES ARE OBJECTS, ABSTRACT ENTITIES ARE EMBODIED EVENTS, MIND IS A BODY</td>
<td></td>
</tr>
</tbody>
</table>
| Complex metaphors | (PURPOSES = DESTINATIONS + ACTIONS = MOTIONS) > Purposeful Life → Journey | He hasn't really found a direction in his life.
He hasn't really found a direction in his life. There have been some bumps in the road lately. Our relationship is off the track. |
| Primary metaphors | AFFECTION = WARMTH, IMPORTANT = BIG, HAPPY = UP, INTIMACY = CLOSENESS, BAD = STINKY, DIFFICULTIES = BURDENS, MORE = UP, SIMILARITY = CLOSENESS, LINEAR SCALES = PATHS, ORGANIZATION = PHYS. STRUCTURE, HELP = SUPPORT, TIME = MOTION, STATES = LOCATIONS, CHANGE = MOTION, ACTIONS = SELF-PROPELLED MOTIONS, PURPOSES = DESTINATIONS, PURPOSES = DESIRED OBJECTS, ATTRIBUTES = POSSESSIONS, CONTROL = UP, KNOWING = SEEING, UNDERSTANDING = GRASPING, APPEARING = TASTY, THOUGHTS = POSSESSIONS, LEARNING = ACQUIRING, ASSOCIATION = PHYS. CONNECTION | That greeted me warmly.
Today is a big day.
I'm feeling up today.
We've been close for years.
This movie stinks.
She's weighed down by responsibilities.
Prices are high.
Are tomatoes in the fruit category?
They are not quite the same, but close.
John's intelligence goes way beyond Bill's.
How do the pieces of the theory fit together?
Support your local charities.
Time flies. |
| Senso-motoric level | | |

Figure 2. Metaphor Map.

At the bottom of the “Metaphor Map” are listed the most basic, goal-oriented bodily experiences and image-schemas that give rise to conceptual primary metaphors depicted above them. The table shows how primary metaphors can be combined at the conceptual level to form more complex metaphors that utilize all the conceptual cross-domain mappings of their constituent primary metaphors. At the top of the table there is a category of metaphors that Lakoff and Johnson (1980) call generic metaphors. These are extremely abstract generalizations of large groups of metaphors that share certain characteristics, but too general to count as primary or complex metaphors, since they do not refer to any particular individual experiences where the two concepts of the metaphor co-occur (primary scenes), but to unspecified abstractions of collections of experiences.

Some linguistic manifestations of the conceptual metaphors in English are presented in the right column of the table. The experiences at the sensory-motor level are not directly realized in language. The generic metaphors can only be manifested in language as instances of more concrete domains of experience.

With the help of the Metaphor Map presented above, it was possible to analyze the conceptual metaphors underlying the metaphorical expressions both in the English source texts and the Finnish translations as well as to divide them in various categories for the purposes of the current study. The conceptual analysis of the metaphors will be described in more detail under 4.3 below.

The conceptual metaphor theory presented above bears important implications to the translation of metaphors. If the division into universal primary and culture-bound
complex metaphors is cognitively plausible, and primary and complex metaphors are fundamentally different with regard to their shared conceptualizations across cultures (Grady 1997; Lakoff & Johnson 1999), there must be differences also in the translation of metaphorical expressions based on primary and complex metaphors. To be more accurate, there should be a difference in the difficulty of the translation of primary metaphors and complex metaphors. Following the line of reasoning in the Cognitive Translation Hypothesis, if primary metaphors are more often based on shared conceptual mappings in the source and target languages, they could be assumed to be easier to translate than complex metaphors that are more often based on different conceptual mappings and, in addition, can be expected to differ more in the linguistic realizations of the conceptual metaphors as well. Furthermore, even if the primary and complex metaphors utilized different conceptual mappings in English and Finnish, the shared experiences giving rise to the primary metaphors could be hypothesized to facilitate their translation. In the following, the theoretical considerations behind this approach as well as some previous findings of the difficulty of the cognitive processing of metaphors will be described.

2.3 ‘DIFFICULTY’ AND ‘COGNITIVE EFFORT’ OF THE PROCESSING OF METAPHORS

This subchapter is introduced by a discussion of two key theoretical concepts of ‘difficulty’ and ‘cognitive effort’ that will be applied in the present study. The discussion is followed by short reviews of how these aspects have earlier been studied in relation to the processing of metaphors, in general, and in relation to the translation of metaphors, in particular. Also the tool used in this study for measuring difficulty and cognitive effort of the translation of metaphors will be introduced.

2.3.1 Defining Translation Difficulty and Cognitive Effort in Translation

Defining and measuring translation difficulty has been experienced as problematic in translation research (Sun 2015). Within psychology, ‘difficulty’ refers to the amount of mental resources required to complete a task or solve a problem. Accordingly, ‘translation difficulty’ can be considered to encompass the cognitive workload a translator needs to devote on producing a successful translation. The amount of mental work involved in translation has also been examined by measuring the cognitive effort, a term coined by Kahnemann (1973), or the mental or cognitive (work)load that are terms used in cognitive psychology to describe the total mental effort required in the working memory (Sweller 1988). The term ‘mental load’ has been applied to translation e.g. by Sun (2015), while e.g. Schäffner and Shuttleworth (2013) have used ‘cognitive load’ in studying the translation of metaphors. It will be argued in this study that the two concepts, despite that they come from different scientific paradigms and are

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9 Kahnemann proposed a model of mental attention according to which attention can be deliberately allocated depending on how much mental effort is needed for a particular task. The model equates attention with effort, defined as the mental energy or attentional resources invested in a task. Kahnemann claimed that the more difficult the task, the higher the attention and effort and, furthermore, the more likely it is that the task will not be successfully completed.
therefore not parallel, can be used together to complement each other in characterizing 'difficulty of translation'. This contributes to clarifying the meanings of the concepts for the benefit of further research.

In this study, the overarching operational term is ‘translation difficulty’, since it seems in the most accurate way to characterize the overall cognitive nature of the task of translation imposed upon a translator, and ‘cognitive effort’ is considered to best indicate the amount and efficiency of the deliberately targeted work invested during the process of translating. The term ‘cognitive effort’ has been used in the context of translation by Jakobsen and Jensen (2008) and Nord (2005), and in metaphor research by Gibbs (2006) and Sjørup (2011, 2013), among others.

2.3.2 Cognitive Effort of the Monolingual Processing of Metaphors

One of the fundamental claims of the conceptual metaphor theory that will be explored through a primed translation test included in this study is that conceptual metaphors are understood and used constantly and automatically in language processing, without any noticeable effort or awareness (Lakoff 1993:245; 2009 & 2014), just like the processing of literal language. Lakoff bases his claim on some preliminary neurolinguistic findings (e.g. Feldman 2006) suggesting that, “in situations where the source and target domains are both active simultaneously, the two areas of the brain for the source and target domains will both be active” (Lakoff 2009:15). Lakoff (2009:17) says that when one sees a metaphorical expression, the literal meanings of the words activate the source domain circuitry and the context activates the target domain circuitry, and together they activate the metaphorical mapping circuit.

The cognitive reality of Lakoff’s argument in monolingual language processing has been studied rather extensively in the past decades e.g. by using the methods of reaction time measurement, priming, eye-tracking, reading tasks, memory tasks, paraphrasing and questionnaires, but little agreement has been reached. It is still questionable whether metaphorical mappings are active in real language processing. The current study contributes to previous research by examining if conceptual metaphors are activated during one type of linguistic processing – the translation process of metaphorical expressions, and if there are differences in the activation of mappings between primary and complex metaphors as well as metaphors with similar vs. different mappings. In addition, it will be examined if metaphorical language is more difficult to translate than non-metaphorical language, in other words, if metaphoricity of the text increases the difficulty and cognitive effort required for translation. As empirical background, some results of previous studies designed to test Lakoff’s claim both with regard to the activation of conceptual metaphors as well as the cognitive effort devoted to the processing of metaphors will be reviewed below.

Support to the cognitive reality of conceptual metaphors in language processing has been obtained, for instance, in studies with regard to the metaphors of TIME (Boroditsky 2000; Gibbs, Lima & Francuzo 2004). Also Nunez, Motz and Teuscher (2005) examined the metaphorical mappings referred by Lakoff and Johnson (1999:137–169) as MOVING-OBSERVER (We’re getting closer to Christmas) and MOVING-TIME (Christmas is approaching) vs. TIME-REFERENCE-POINT (Christmas follows Thanksgiving) in a visual priming experiment, in which the participants were shown various objects with different orientations on the screen. They answered some priming questions first, after which they were asked a target question related to dif-
ferent conceptualizations of “time”. The study brought evidence of the existence of metaphors in thinking about “time”.

The reality of primary metaphors in language processing has been looked into in a few studies, including Soriano and Valenzuela (2009), who conducted three priming experiments involving decision-making tasks concerning the assumed primary metaphor CONTROL IS UP, based on the correlation between vertical orientation and the domain of CONTROL and manifested in language as e.g. “The project is under control”. The experiments tested whether vertical spatial orientation is present in online language processing of control relationships. The outcome of the test was that the existence of the metaphor CONTROL IS UP seemed most probable in the case of common schemas, but its use in ad-hoc cases and in online processing of language requires further research.

Some other researchers have found in various psycholinguistic tests that it may rather be so that metaphors are available in semantic or long-term memory, but they are activated only in a certain context or task requiring deliberate attention (McGlone 1996; Glucksberg & McGlone 1999). Gibbs and Perlman (2006) claimed that there is no evidence that people access the conceptual mappings when interpreting metaphors in real language, especially familiar or conventional language. McGlone (1996) also noticed that it was only in the case of novel metaphors that the participants appeared to perform the conceptual mappings. Novel metaphors have also been found by others to be plausible candidates for activating conceptual metaphorical structures (Keysar et al. 2000), since they can be assumed to cause a reaction in the language user, and they are recognized as metaphors, unlike conventional metaphors. Steen (2011a, 2013) is in the same line by claiming that most metaphors are processed automatically without online cognitive processing and, therefore, it seems that the online effect of metaphor on cognitive processing is more restricted than has been assumed by the conceptual metaphor theory.

A crucial question with regard to the translation of metaphors follows: are conceptual metaphors activated during the processing of metaphorical expressions that depend on different metaphorical mappings between the source and target languages or does the processing take place at the linguistic level? In testing idiom comprehension, McGlone (1993) found that conceptual metaphors are not automatically accessed in processing idioms as well as that the participants relied in their interpretations primarily on the stereotypical properties of the vehicle (=source) concept of the metaphor (McGlone 1996). Gibbs’s experiment (2006) provided information that readers of metaphorical phrases may experience simulation of the perceptual experience related to the source vehicle of the metaphor because of the image schemas activated by the source domain but they may, alternatively, only experience perceptions related to some of the words associated with the image schema of the source domain (Barsalou 2007), if the language is processed superficially at the linguistic level without deeper consideration of the meaning. This result indicates that sometimes the interpretation of the meaning of the metaphor may depend on just one word or words related to the source domain of the metaphor. Furthermore, Ritchie (2016) suggested on the basis of his discourse analysis that metaphorical expressions seem to activate very different simulations, schemas and narratives for different people depending on the context.

Based on the research discussed above, it remains controversial whether conceptual metaphorical mappings get activated when people read and understand metaphorical expressions during their translation process. It can, however, be hypothesized
that, if forced to translate a metaphorical expression that is linguistically different from its equivalent in the target language and/or, does not utilize the same metaphor that is conventionally used in the target language to conceptualize the same idea, the translator may deliberately access the metaphorical mapping in order to understand and to be able to find a suitable translation for the expressions, and this process is likely to require extra effort from the translator. Consequently, translating metaphorical language could furthermore be assumed to be more difficult than translating non-metaphorical language that does not require such activation of complex conceptual structures. These ideas will be tested in the present study.

As far as the cognitive effort of processing metaphors is concerned, Glucksberg (2001) is one of the few researchers who have achieved results suggesting that the processing of metaphors does not involve any greater mental load compared to processing of non-metaphorical language. Glucksberg measured response times to judging statements as literally false or true and found that metaphorical expressions are interpreted as quickly as literal meanings. The study supports the idea of the relevance theory refined by Wilson and Sperber (2004), according to which metaphor does not require any special treatment, since it involves the same basic cognitive processes as all other forms of language use. Glucksberg’s study (2001) can, however, be criticized for not revealing anything about the actual processing of the metaphors in a real communication situation.

In contrast, Coney and Lange (2006) found some proof in a priming test that metaphor comprehension requires greater cognitive effort and attention than the comprehension of literal language in cases where an unfamiliar metaphorical expression is preceded by only a short supporting context. With longer context (=prime), the processing of unfamiliar metaphors is more automatic. Mashal and Faust (2010) used neuro-imaging of the brain activity to examine metaphor processing. Their results suggest that the same cognitive mechanisms are responsible for the processing of both metaphorical and non-metaphorical language, but the inconsistency of the presentation style or form with the expected metaphoricity of the text may cause extra brain activity in the processing of the text (Mashal & Faust 2010:31).

As far as the present writer knows, only a single study on the effect of the suggested division of primary vs. complex metaphors in the context of the difficulty of translating metaphors has been published. Rydning and Lachaud (2011) conducted an experiment in order to test whether primary metaphors are easier to understand than complex metaphors by measuring processing speed and conceptual clarity at the first stage of the translation process - comprehension. The results of their experiment showed that there was no difference in the comprehension time (processing speed) between primary metaphors and complex metaphors. Neither did they find any difference between the comprehension time of non-metaphorical and metaphorical expressions. The main result of their study was that conceptual clarity was greater in the case of primary metaphors compared to complex metaphors; in the case of literal language compared to figurative language; and in the case of literal primary meanings compared to literal complex meanings. To sum it up, the study brought some evidence for the hypothesis that primary metaphors are easier to understand than complex metaphors. However, even if Rydning and Lachaud (2011) claimed that the difficulties at the comprehension stage of metaphors can predict potential difficulties at the later stages of the translation process, their experiment cannot be considered to provide any information about the actual processes of translating primary and complex metaphors that is the focus of the present study.
Thus, it seems that there are differences in the cognitive effort of processing conceptually different types of metaphors in some conditions, but not all. The activation and effort seem to be affected by multiple factors, such as the conventionality and novelty of the metaphorical expressions as well as the surrounding context.

2.3.3 Difficulty and Cognitive Effort of the Translation of Metaphors

Within the conceptual metaphor framework (Lakoff & Johnson 1980, 1999), the translatability or the difficulty of translation of metaphors does not depend on the semantic type of the linguistic metaphor, as proposed by some traditional theories (e.g. Newmark 1988; Dagut 1976), but rather on the compatibility of their conceptual metaphorical mappings with the target language. It has been demonstrated above that crucial discrepancies have been found by language scholars in the way different cultures and languages express ideas metaphorically and this can be assumed to pose extra challenges to the translator. The effects of the discrepancies on the translation processes of metaphors and other figurative language have, however, been studied to lesser extent.

The cognitive effort during the translation of figurative language in general (including metaphor, metonymy, idioms) compared to the translation of literal language was examined by e.g. Wojtczak (2009), who used Translog protocols to measure processing time and translation quality between the translation of figurative and literal expressions from English to Polish. Wojtczak’s results (2009:35) produced evidence that translating figurative language is more difficult and takes more time than that of literal language. In addition, Wojtczak discovered that the translation of metaphorical expressions in different mapping conditions was more time-consuming than that of metaphorical expressions in similar mapping conditions, which provides support for the Cognitive Translation Hypothesis. Zheng and Xiang (2013:160–183) also compared cognitive effort required in sight translation for non-metaphorical vs. metaphorical expressions between Chinese and English in terms of processing times, translation quality assessments, questionnaires and retrospective interviews and concluded that metaphors slowed down the production and compromised the quality of translation because of the extra effort required for the comprehension of metaphors as well as re-allocation of cognitive resources. The extra effort showed most notably in the reading and comprehension stage of the translation process.

Sjørup’s (2011, 2013) results of the translation of metaphorical expressions between English and Danish are consistent with the ones referred to above. Sjørup’s eye-tracking and key-logging experiments showed that eye-fixation times were longer for metaphorical expressions than for literal expressions at the initial reading (comprehension) stage, but there was no difference in the total fixation times when the whole translation process was taken into account. This result indicates that the cognitive effort devoted to understanding metaphorical expressions for translation purposes is higher than that devoted to understanding literal language for translation purposes (Sjørup 2013:205). In terms of time devoted to the production of the translations, she found that it took more time, i.e. was more effortful, to translate metaphorical than literal expressions. An interesting finding was that familiarity of the metaphorical expressions (as rated prior to the test) did not have any effect on the results (Sjørup 2013:205), and nor did she find any priming (facilitating) effects of metaphors on the translation of similar metaphors later during the process (Sjørup 2013:207).
Sjørup’s (2011, 2013) research also revealed interesting correlations in the cognitive effort between applying the direct (literal) translation strategy, on the one hand, and the indirect (free) translation strategy of switching the metaphor into another metaphor or paraphrasing, on the other hand. The hypothesis that the choice of translation strategy affects the effort required in the translation of metaphors (Sjørup 2011:201) was thus supported. The results of her experiments indicated that paraphrasing requires the highest mental effort from the translators compared to other strategies, whereas the lowest effort was devoted to literal translations. Replacing one metaphorical image with another metaphorical image was also more effortful than literal translation. The higher effort required in paraphrasing translation was in her opinion due to the “double conceptual shift” that the translator has to go through during the process of translating metaphorical expressions with different mapping (cf. Mandelblit’s “conceptual shift”). The double shift involves, first, a shift from one metaphorical domain to another and, secondly, a shift from a metaphorical expression to a non-metaphorical expression (Sjørup 2011). To put it differently, it seems to be the cognitive distance, i.e. the similarity / dissimilarity of the conceptual information between the source language metaphorical expression and its translation, which determines the cognitive effort required for the translation process. Sjørup’s findings clearly indicate that the choice of translation strategy plays an important role in the difficulty and cognitive effort of the translation of metaphors.

2.3.4 Measuring Difficulty and Cognitive Effort of the Translation of Metaphors

Studying and measuring ‘translation difficulty’ has always been one of the key objects of translation research, but the approaches have tended to be based on the individual researchers’ personal intuitions rather than any unified theoretical framework corroborated by empirical evidence, as pointed out by Sun (2015), whose comprehensive and empirically grounded approach to translation difficulty is partially applied in the current study.

Sun suggests that assessments of translation difficulty must take into account all the various aspects involved in the task of translation. These aspects include translation-related (text difficulty and translation-specific difficulty) and translator-related (mental workload) factors. The text difficulty has been measured, for instance, by readability tests or assessed by various indicators. According to Jensen (2009), one indicator of translation difficulty in the source text is its non-literalness, i.e. that the text does not contain figurative language. In accordance to Jensen’s claim, metaphors as non-literal expressions would make the text more difficult. The translation-specific difficulty, on the other hand, is in Sun’s model closely related to the concept of ‘translation equivalence’ and basically encompasses the most typical translation problems divided by Nord (1991, 2005) into four groups: 1) text-specific, 2) pragmatic, 3) cultural, and 4) linguistic. The translation-specific factors can be measured by analyzing verbal protocols (e.g. think-aloud protocols), and recording and analyzing translation behavior (e.g. by Translog protocols).

Sun (2015) considers translator-related factors to contribute to the global difficulty of the translation task. According to Sun, the translator-related difficulty depends largely on the competence or expertise of the translator, which has been studied by a number of researchers (e.g. Rydning 2005; Göpferich 2009; Jääskeläinen 2010), but
she also adds the aspect of the ‘mental workload’ required from the translator into the approach. Sun notes that the most commonly used indicators of mental workload in translation performance are the speed (time) of translation and accuracy (number of errors). The physiological measures include eye-tracking and various brain function measurements. Some studies that have utilized these methods and indicators for measuring cognitive effort of the translation of metaphors were reported and discussed in the previous subchapter.

Earlier approaches to identify and measure ‘translation difficulty’ both in the products and processes of translation include an instrument developed by Tirkkonen-Condit (1998). This instrument designed for studies using the method of thinking aloud takes into consideration 1) the translation variants produced; 2) the runs-through; 3) the dictionary checks, verbalized problem identifications, evaluations, questions and comments; and 4) the length of the translators’ think-aloud protocol segments (in terms of printed lines) devoted to processing of certain linguistic items. Studies of the translation of metaphors using this instrument have been reported, for instance, by Tirkkonen-Condit (1998, 2001) and Martikainen (1999).

The present study utilizes another model of Tirkkonen-Condit (2002) that is more suitable for experiments in which key-logs are used for data analyses. In this model, the following four variables are used for measuring the translation difficulty of metaphorical expressions: 1) acceptability, 2) blank translations, 3) fixation, and 4) time of translation. Of these, the two first ones concern translation products while the two latter ones concern translation processes.

In the analyses included in the study at hand, the four variables were, however, treated slightly differently. The first two variables were used to assess translation products in terms of their acceptability/unacceptability. The products of translation were used to identify potential translation problems that contribute to the difficulty of translation, as the failure of the translation task (unacceptable translation or blank translation) was considered to correlate with difficulty of translation. The latter two variables concentrated on identifying indicators of translation difficulty in the processes of translation by measuring the cognitive effort required during the process of translating metaphors. The cognitive effort was measured in terms of the time as well as the techniques used for the search of translation equivalents (fixation), as recorded in the Translog key log files. Together the four variables were considered to provide a comprehensive account of the difficulty of translation of metaphors. Theoretical considerations related to each of the chosen variables will be shortly discussed in the following.

### 2.3.4.1 Acceptability

Within the framework of this study, acceptability (Toury 1995) refers to the idiomaticity and conventionality of the translation product as well as its suitability in the particular textual context. It was assumed that an acceptable translation reflects easiness of the task, whereas an unacceptable translation indicates difficulty of translation.

To be considered acceptable, the translation needed to convey the essential information of the original expression but also be grammatically correct and idiomatic in its context. An acceptable translation could be metaphorical or non-metaphorical. Omission of the original metaphorical expression was also considered an acceptable translation strategy, provided that the translation managed to convey the intended meaning in another way that was fluent and idiomatic. In some cases, leaving out the metaphorical expression proved to be the most conventional way to express the original idea in the target language.
2.3.4.2 Blank Translations
In the experiments reported in this study, omissions of expressions or blank translations were also regarded as an indicator of difficulty of translation. Leaving out a source-text expression from the target text was considered to show that it was too difficult for the translator to understand or to render an expression into the target language.

In the current study, all omissions of expressions were, however, not considered ‘blank translations’. The cases where metaphorical expressions had been left out of the translation without the overall structure or meaning of the sentence suffering significantly were considered acceptable translations. In other words, expressing the original idea with the help of other linguistic means was sometimes considered a successful translation strategy. It was crucial that the translated sentence, as a whole, formed an understandable and idiomatic equivalent to the original idea. Thus, all the translations categorized as blank translations were also categorized as non-acceptable translations.

2.3.4.3 Fixation
The phenomenon called fixation (see further discussion in 2.1.2 above) can be considered to reflect the cognitive effort invested in searching an appropriate translation equivalent during the translation process. Earlier studies (e.g. Tirkkonen-Condit 2002, 2005; Mandelblit 1996; Martikainen 1999) have provided evidence of translators getting fixated in the conceptual domains used by the original metaphorical expressions in cases of domain conflict, i.e. where the metaphorical expressions in the source language use different conceptual domains than the equivalent expressions available in the target language. Thus, it seems that higher cognitive effort in translation can at least partly be accounted for by the incompatibility of conceptual domains exploited in the metaphors of source and target languages.

Fixation can be detected both in the translation products and processes. At the linguistic level, fixation can be considered as “signs of the original conceptualization in either the translation alternatives or final translations”. The products of translation may show features or be complete reproductions of the original conceptualization. In more concrete terms, the translations may contain parts of words or expressions that repeat the source-text expression word by word. This has been called permanent or “unwanted” fixation (Tirkkonen-Condit 2002).

At the level of cognitive processing during translation, fixation can show as e.g. as false starts (producing unsuitable beginnings of the words based on the original expression) or inappropriate provisional translation alternatives produced before the final translation. Since the focus of this study was on process phenomena, only the cases where there were signs of fixated processing of the metaphorical expression in the key-logs produced by Translog were considered fixation. Instances of translation products with fixated structures will be discussed in Chapter 7.

Occurrences of fixation were analyzed with special focus on primary and complex metaphors that do not utilize a shared source domain in English and Finnish and, therefore, cannot be translated successfully “word-for-word”. However, there can also be fixation in the processes of translation of metaphorical expressions that share metaphorical mapping but not the linguistic form with Finnish, so the metaphorical expressions with similar mappings were also included in the analyses.
2.3.4.4 Time of Translation

Time of translation has been considered an objective parameter to measure cognitive effort during the translation process. The length of the time it takes to translate an expression seems to correlate directly with the cognitive effort invested in the process and, thus, the difficulty of translation. In psycholinguistic research, pauses during a task of this kind are assumed to indicate mental activity related to the closest text segments, more closely, processing time, effort or typing skills related to either the reception or the production of language. Text segments processed at one go are generally interpreted as a cognitive processing unit, because translators do not necessarily process every word separately but as larger meaningful units. For more discussion of the problematics of segmentation see Englund Dimitrova (2006) and Immonen (2006).

Determining the connection between pauses and individual expressions or passages of texts is not straightforward, however. It is impossible to know for sure what happens during the pauses, for example whether the pauses are used for thinking about the expressions before or after the pause or for processing the whole sentence or other aspects of the text. This study follows the methodology used in earlier studies in the interpretation of pauses in Translog, as discussed by Barbara Dragsted (2004). According to her findings, the most common interpretation is that the pause preceding the translated expression correlates with processing effort. For example, a pause between two sentences is interpreted to be associated with the following sentence, and not with the preceding sentence. Pauses during the translation process have also been studied by Immonen (2006), who utilized key-logging in a study comparing monolingual writing and translating. She came to the conclusion that pauses in the production of the text do not occur randomly but at distinct lexical and syntactic passages of the text and indicate increased cognitive effort during the processing. In this study, the overall length of the pauses taken during the translation of individual metaphorical expressions was measured without speculating the allocation of time to the various stages of the translation process.

To sum up, the purpose of this chapter has been to describe the theoretical framework that provides the inspiration and empirical grounding for studying the translation of metaphors, in particular primary and complex metaphors, with regard to their difficulty and cognitive effort as well as the strategies applied in their translation. The objectives and hypotheses of the study will be specified in the following chapter.
3 OBJECTIVES AND HYPOTHESES

In the following, the objectives of the study at hand will be specified both at the theoretical and at the operative level. The chapter defines the main research objectives and hypotheses, first, in relation to metaphor studies and, second, in relation to cognitive translation studies.

3.1 OBJECTIVES AND HYPOTHESES IN RELATION TO METAPHOR STUDIES

According to the conceptual theory of metaphor, formation of conceptual metaphors is one of the primary human cognitive processes and this process is reflected in metaphorical language that is understood and used constantly and automatically, without any noticeable effort or awareness (see 2.3.2 above). The conceptual metaphor theory further claims that metaphors can be classified under two categories: 1) universal and embodied primary metaphors and 2) culture-specific complex metaphors that are conceptually composed of primary metaphors.

The problem is that even if there is abundant linguistic evidence to support the idea of conceptual metaphors, the cognitive reality of conceptual metaphors in natural language processing is controversial. The suggested distinction and the molecular structure of primary and complex metaphors as well as the utilization of conceptual metaphorical mappings in the linguistic processing of metaphorical expressions require empirical psychological validation. Another problem is that the typology and terminology for describing the structure and function of metaphors within the cognitive paradigm is deficient and lacks a psychologically reliable basis.

The objective of the present study was to explore the effects of the suggested distinction of primary and complex metaphors and their compositional structure on the process of translation of metaphorical expressions. More particularly, the aim was to find out a) whether there are differences in the difficulty of translation of primary and complex metaphors and b) whether complex metaphors are conceptually composed of primary metaphors.

The hypotheses formulated for the study were: 1) primary metaphors are easier to translate than complex metaphors; and 2) complex metaphors are composed of primary metaphors. The first hypothesis was tested in both translation experiments, while the hypothesis about the compositional structure of complex metaphors was only tested in the second experiment specifically designed for this purpose.

Provided that Experiment I yielded evidence that there are differences in the difficulty of translation of primary and complex metaphors, there was reason to explore them more closely in another experiment. Therefore, Experiment II was arranged to search an answer to the following research question: Are primary metaphors active in the translation of complex metaphors? It was assumed that if primary metaphors are conceptual building blocks of complex metaphors, as postulated by the conceptual theory of metaphor, they should be active in the processing of complex metaphors. On the basis of this, it was hypothesized that priming the translation of a complex metaphor with the translation of one of its composite primary metaphors facilitates the translation of the complex metaphor. Thus, the operational hypothesis tested in
the second experiment was: complex metaphors are easier to translate in a primed condition in which one of its component primary metaphors functions as a prime. If priming with primary metaphors was found to make the translation of complex metaphors easier, it would provide tentative support to the hypothesis that primary metaphors are constituent parts of the complex metaphors. Alternatively, if there was no effect, it might indicate that primary metaphors do not play a role in the cognitive processing of complex metaphors, at least not during the process of translation.

Simultaneously, the experiments were to provide information about Lakoff’s claim (see 2.3.2) that metaphorical mappings are automatically and effortlessly activated during language processing, in this case, during translation. It was assumed that translation as a complex activity requiring deep cognitive processing and flexible movement between two linguistic systems and, presumably, also between two conceptual systems, may force the activation of metaphorical mappings.

Furthermore, as a product of the analyses, a model was constructed that enables a more systematic and transparent identification, analysis and description of conceptual metaphors. This “Metaphor Map” is presented in subchapter 4.4.

3.2 OBJECTIVES AND HYPOTHESES IN RELATION TO COGNITIVE TRANSLATION STUDIES

It has been found that there are significant differences between cultures regarding which entities provide the prototypical examples of the metaphorical mappings and serve as sources of the specific metaphorical expressions in a language (see 2.2.) On the basis of these findings, it can be suggested that the discrepancies between the metaphorical mapping systems of the source and target languages are responsible for many of the difficulties in translating natural language.

The main aim of the present study was to gain information about the translation processes of metaphors between English and Finnish from a cognitive perspective. More specifically, which cognitive activities are typical for the translation processes of metaphorical expressions, what kind of processes contribute to a successful translation and whether there are differences in the difficulty and cognitive effort of the translation of different metaphors, in particular, primary and complex metaphors.

The starting point of the study was the Cognitive Translation Hypothesis formulated and tentatively verified by Mandelblit (1995: 482–495), according to which translators have to go through a conceptual shift during the process of translating metaphorical expressions that do not have straightforward equivalents in the target language, in other words, when the source and target languages exploit different conceptual domains (mappings) in conceptualizing the same idea. Mandelblit’s research suggests that the conceptual shift makes the translation more difficult and time-consuming.

The present study integrated into the Cognitive Translation Hypothesis the distinction between primary vs. complex metaphors, in the sense that these have been defined in the conceptual theory of metaphor (see 2.2). From the point of view of translation studies, the suggestion that primary metaphors are to a large extent universal, i.e. their metaphorical mappings are widely shared among most languages, or at least languages that are culturally related, implicates that metaphorical expressions based on primary metaphors should be easier to translate than metaphorical expressions based on complex metaphors that are grounded on culture-specific experiences and their culture-specific realizations in language.
Furthermore, assuming that the chances of combining primary metaphors into complex metaphors are not constrained by bodily experiences but only by general compatibility requirements, thus enabling an almost endless number of different combinations for languages to pick from, translating complex metaphors can be expected to be more difficult than translating primary metaphors. When languages put together primary metaphors into complex metaphors, each source domain brings its own inferences and entailments to the target domain, and the different combinations yield even more inferences. Thus, it was also hypothesized that the more complex a metaphor, i.e. the larger number of primary metaphors it is composed of, the harder it is to find exactly the same composite metaphor with all the same inferences in another language. Even if exactly the same conceptual metaphors with the same composite source domains were available in both source and target language systems, the same aspects or elements of the source domain might not be realized in language. Following this line of thought, it can be assumed to be challenging, if not impossible, to find an equivalent expression in the target language that would render all the inferences and entailments carried by the composite primary metaphors and their combinations in the source language. Complex metaphors have also been suggested to involve a rich web of other conceptual correspondences than cross-domain metaphorical mappings, which makes their processing even more complicated. Thus, it was also hypothesized that the more complex the metaphor, the more difficult its translation. In addition, since there are a great number of translation equivalents available for complex metaphorical expressions, regarding e.g. which source domain to prioritize in the translation, the variety of translations of complex metaphors were also expected to be greater than that of primary metaphors.

Thus, the study made an attempt to answer two research questions 1) Is there a difference in the difficulty of translation between metaphorical expressions based on primary metaphors and those based on complex metaphors? and 2) Is there a difference in the difficulty of translation between metaphorical expressions based on different conceptual domains in the source and target languages and those based on similar conceptual domains?

The operational hypotheses formulated on the basis of the research goals and tested in the two experiments can be summarized as follows:

- Primary metaphors are easier to translate than complex metaphors. (Exp I & II)
- Metaphors with shared mappings are easier to translate than metaphors with different mappings. (Exp I)
- Complex metaphors are easier to translate if primed by the translation of one of their assumed primary components. (Exp II)

The first hypothesis was tested both in Experiment I and Experiment II, while the second hypothesis (Cognitive Translation Hypothesis) was only tested in Experiment I. The third hypothesis was tested in Experiment II, which was a primed translation test specifically designed for this purpose.

In order to test the hypotheses, the difficulty of translation of different metaphorical expressions was measured. It was hypothesized that the difficulty would reveal itself in translation processes as well as translation products. In translation products, the difficulty was expected to show as unacceptable translations or omissions (blank translations). In translation processes, the difficulty was assumed to be reflected as cognitive effort manifested as longer times of translation, caused by pauses, false starts
and revisions, as well as fixation to source-language structures. Taking into account the assumptions of the theory of primary and complex metaphors, it was expected that the translation products of complex metaphors would display a higher number of 1) unacceptable translations and 2) blank translations, and their translation processes would show higher cognitive effort realized as 3) fixation and 4) longer translation times.

Theoretically, one aim of the study was to test the validity of the selected indicators of translation difficulty and cognitive effort as well as to clarify the similarities and differences between these two concepts with regard to translation. A coherent application of these concepts would contribute to improved approaches in measuring ‘difficulty’ in translation research.

In order to more closely examine the cognitive effort required for the translation of primary and complex metaphors as well as to identify typical strategies applied in their translation, a qualitative analysis of the processes leading to different types of translations were analyzed with regard to the indicators time and fixation. The purpose of the analyses was to find out which metaphorical expressions are most effortful to translate and what kinds of translations are produced for the different metaphors. An attempt was also made to explore which strategies during the process contribute to a successful translation of metaphors.

Besides the main objectives, the study had two more aims. A comprehensive analysis of the translation variants during the translation processes of primary and complex metaphors was also carried out in order to see whether the conceptual metaphorical mappings were active during the translation of primary and complex metaphors and, more particularly, whether primary metaphors were active in the processing of the complex metaphors during their translation. In more concrete terms, it was explored whether the search for translation equivalents of metaphors took place at the level of metaphorical language or at the level of conceptual metaphors beyond the words as well as how the activities at the two levels alternated, overlapped and interacted during the translation process of metaphors.

An attempt was also made to analyze the difficulty and cognitive effort of translating metaphorical language compared to translating non-metaphorical language, which has been studied relatively little so far. It was hypothesized that the translation of a text containing a higher number of metaphors is more difficult and requires higher cognitive effort than the translation of a text with a lower number of metaphors.

To sum it up, the primary aim of the study was to glean information of the cognitive processes involved in the translation of primary and complex metaphors. Simultaneously, the study made an attempt to test the psychological reality of primary and complex metaphors in translation, with a special focus on the distinction between primary vs. complex metaphors and their compositional relation. This way the study aimed at contributing to a better understanding of the processes of translation as well as of the general cognitive processes of the human mind. The methods and materials used for achieving these objectives will be described in the following chapter.
4 MATERIALS AND METHODS

This chapter presents the methodological tools that were used in this study to test the hypotheses specified in the previous chapter. In order to obtain reliable information on the cognitive processes involved in the process of translation, in particular, in the translation of metaphorical expressions, a combination of methods derived from cognitive science, translation studies, and psycholinguistics was used. The conceptual metaphor analysis developed within cognitive linguistics was applied in the analysis of the experiment materials; the Translog software was used in the elicitation of data of the translation processes; and the psycholinguistic method of priming was utilized in order to reveal mental processes during translation. The quantitative analyses were applied to test pre-defined hypotheses set for the experiments, while the qualitative analyses were carried out to gain more detailed information about the translation processes of different metaphorical expressions, to interpret the outcome of the tests in more depth as well as to generate new hypotheses. The methods as well as the application of the tool developed to measure the difficulty of translation of metaphors will be described in more detail below.

The study was conducted by arranging two translation experiments that were preliminary planned at the onset of the research. The purpose of Experiment I was to examine whether there was any difference in general in the translation of primary and complex metaphors in pure conditions with as little interference as possible from textual factors. Therefore, single separate sentences were used as the experiment material. Considering that the results of Experiment I showed differences, another experiment was to be designed in order to see whether similar differences appeared in the translation of primary and complex metaphors embedded in a natural text with more factors at play. Another goal of Experiment II was to create an experiment in which the structure and relation of primary and complex metaphors could be explored through translation.

One major problem in translation process research has been the lack of ecological validity. Translation experiments have been conducted in artificial settings with single, unrelated sentences, in which case the results cannot be generalized. The current study aimed at a higher ecological validity by using authentic texts in a close-to-natural translation setting.

Besides being the object of study, translation was used as a method to explore the processing and, potentially, also the structure of metaphors. Translation is an activity that requires deliberate movement between two different languages and may prompt the conscious activation of some of the unconscious processes involved in the processing of metaphors (cf. Martikainen 2007). Therefore, translation of metaphorical expressions can be assumed to reveal such information about metaphors that may remain hidden in studies that only operate on one language. The idea that cross-linguistic research would benefit from, or even necessitate, information of translation processes has been proposed by Bernárdez (2005): “I think linguistics working cross-linguistically should necessarily acquire some knowledge on the translation process and its cognitive bases.” Later on, Lehtinen and Mäkisalo (2010) have suggested that translation may work as evidence for cognitive linguistics. Empirical research is scarce, however.
4.1 EXPERIMENT TEXTS

In Experiment I, the translation material was a collection of English sentences dealing with the United States presidential campaign of 2000. The data for the experiment were collected from various American and British magazines and newspapers published during the years 2000 and 2001. Thus, the experiment material was not a textual entity, but the sentences shared a common theme, which provided a coherent context for the metaphorical expressions and made the translation situation closer to a real one without, however, bringing too many textual factors into play in the translation process. For the test, the sentences were arranged in an order as logically as possible. The number of the sentences to be translated from English into Finnish was 40, and they contained altogether 53 different metaphorical expressions that were the object of the analyses. Of the sentences, 30 included metaphorical expressions, while 10 did not have any metaphors but worked as distracters. The participants were given written as well as spoken instructions to translate the sentences carefully and naturally to be published in a comparable political publication in Finland. The experiment text is attached as Appendix 1.

In Experiment II, a full text was used as experiment material to gain an insight into the translation of primary and complex metaphors in a real textual environment. The text to be translated from English to Finnish was based on a column by Bill Keller in The New York Times originally published in an American newspaper, The International Herald Tribune, on 10 February 2003 (Appendix 2). The title of the column was “Is it about democracy? The question of American power”, and it discussed the then current situation between the United States and Iraq. The style of the text is typical of a column - critical, ironic and figurative - created by an intelligent and personal choice of expressions, in which metaphors play a central role. The text was too long for the purposes of the experiment, so it was cut down to nearly half of its original length, making sure, however, that the text still formed a comprehensible whole. To create the desired priming conditions, the text had to be slightly modified. This was carried out as teamwork with three translation research experts working at the University of Joensuu. As a result, there were two different texts, one for the Test Group and one for the Control Group. The experiment was targeted at altogether twelve pairs of metaphorical expressions. The modifications and the differences between the texts of the two tested groups will be described in more detail in Chapter 6. The modified experiment texts are attached as Appendices 2A (Test Group) and 2B (Control Group).

In Experiment II, the participants were instructed to translate the text into Finnish with the purpose of publishing it as a column in Helsingin Sanomat, the largest Finnish newspaper. Since the political situation had somewhat changed by the year 2005, when the second test session was arranged, the Test Group of April 2005 was further advised to translate the text as if it was to be published in 2003, without making any adjustments to the text in this regard.

In both texts, the translators were given instructions to produce a fluent and comprehensible text, avoiding “getting stuck” to single words or expressions they were not familiar with. The time of the experiment was limited to two hours, and dictionaries or other translation tools were not allowed, since it was assumed that “taking the easy way” and primarily turning to the often conventionalized translation equivalents offered by dictionaries would restrain the “pure” cognitive reasoning process of the translators. To obscure the real purpose of the test, the translators were told that the experiment was organised in order to obtain information on the usability of the Translog program in translation research.
The texts presented above were chosen as experiment material because political texts typically contain a large number of metaphors and were thus expected to provide a rich material for the study. Metaphors have been found to be used in political discourse in order to make complicated and abstract concepts more understandable to the people (e.g. Kövecses 2005). On the other hand, political metaphors are considered to pose special challenges for translators due to the ideological aspects carried by them, as pointed out by Schäffner (1997, 2005), among others. The metaphors in the experiment texts reflect fundamental American political values, such as freedom, democracy and the supremacy of the USA (see e.g. Lakoff 1992, 1996). Examining these aspects was not within the scope of the present study, but translating metaphors of this kind can be expected to bring out differences between the American and Finnish ideologies.

4.2 PARTICIPANTS

The experiments were carried out in the translation laboratory of the Savonlinna School of Translation Studies, University of Joensuu, and the participants were students or professionals of translation.

In Experiment I, the group of participants consisted of 16 advanced students or professionals at the Savonlinna School of Translation Studies. In Experiment II, altogether 15 students of translation participated in the test in two separate but identical sessions. The participants in Experiment II were divided into two groups, viz. the Test Group and the Control Group. The Test Group was composed of eight translators and the Control Group of seven translators. The text of the Test Group included a set of primary and complex metaphorical expressions that were arranged to form priming pairs with a primary metaphor and a complex metaphor (see 4.6). In the text of the Control Group these primary metaphors were either left out or replaced by a non-metaphorical expression. The text manipulation process is explained in detail in 6.1.

The original aim was to use only advanced translation students as subjects in both experiments, but since it turned out to be too difficult to arrange, also two students in their first years of study were accepted to take part in the second experiment. As a result of this, the participants of Experiment II formed a slightly heterogenic group, which caused some problems in the analysis. The translation processes and products of the less advanced students somewhat stood out from the group. This was not taken into account in the statistical analyses, but the effect of the expert vs. novice performance was discussed in qualitative terms.

After the test, the participants filled in a retrospective questionnaire in which they provided background information about the stage of their studies as well as their personal experiences of the difficulty of the text on a scale from 1 to 5. Besides this, the translators were given a chance to comment on whether in their opinion the text contained some specifically problematic items. The questionnaire also included a question about the usability of the Translog software, since the translators had been informed in advance that the purpose of the experiment was to test the Translog software. The answers of the questionnaire were analyzed only with regard to comments about metaphors that could provide further evidence of the difficulty of translation of metaphors. The questionnaire is attached to the study (Appendix 3).
4.3 DATA ELICITATION

The experiment data about the processes of translation was collected by the Translog software. The Translog software developed by Jakobsen (1999) is an example of the more modern methods of translation data elicitation that interfere less in the process compared to the method of thinking aloud, for instance, that has also been used in studies on metaphor translation processes (e.g. Tirkkonen-Condit 1998, 2001; Martikainen 1999). Translog allows some access to the unconscious processes of the translators by recording all the translator’s keyboard and mouse activities during translation, such as additions, deletions or cut-and-pasting, during translation performance into electronic protocols. The key logs produced by Translog show the timing of the revisions and alterations as well as the length of pauses between them, and were this way considered to indicate which expressions or passages required more time and effort during the translation process.

With the help of Translog, the experiments yielded three sources of information for analyses: 1) final translation products, 2) Translog protocols showing the keyboard activities of the translators during the translation process, and 3) electronic screen recordings of the translation performances which can be played in real time. The Translog protocols provided the primary source of information for the present study by providing detailed information of the processes of translation as reflected in their keyboard activities. The products of translations are included in the analyses because they can provide valuable information to complement the findings about the process, as pointed out by Halverson (2010). The screen recordings were used for confirming some observations made on the basis of the key-logs, but they were not systematically analyzed.

In Experiment I, the analysis material consisted of 53 tokens of metaphors translated by 16 translators, i.e. a total of 848 translations. In Experiment II, the analyses were focused on 12 priming pairs of expressions translated by eight translators in the Test Group, i.e. altogether 192 translations, plus the 12 complex metaphors translated by seven translators in the Control Group, i.e. altogether 84 translations. In total, the translation material analyzed in Experiment II consisted of 276 translations.

4.4 CONCEPTUAL ANALYSIS OF THE METAPHORS

To test the hypotheses set for this study, the metaphorical expressions in the texts selected for the experiments were subjected to a conceptual analysis along the lines suggested by Lakoff and Johnson (1980, 1999) and Grady (1997). The different steps of this analysis will be described below with the help of examples taken from the experiment data.

The purpose of the conceptual metaphor analysis was to identify the underlying conceptual metaphors of the English metaphorical expressions and to determine whether the metaphor was a primary metaphor or a combination of several primary metaphors, i.e. a complex metaphor. In other words, the conceptual source and target domains of experience utilized in the metaphorical mappings were determined. In order to avoid subjectivity of analyses, the analyses were carried out as teamwork in a small group of translation research experts including the present writer. The decisions were made in consensus after several sessions of discussion. For the purposes of this study, “domain” was used as the technical term to describe the source vs. target concepts in a metaphor. “Metaphorical mappings”, on the other hand, make the
inferences and dimensions involved in a metaphor more tangible as well as allow the comparison of metaphors between languages.

After the metaphorical domains and mappings underlying the English metaphorical expressions had been identified, a comparative analysis between the original English expressions and their potential Finnish equivalents was carried out. On the basis of the analysis, the metaphorical expressions were classified in four groups according to their primary vs. complex type and the compatibility of their conceptual mapping with potential Finnish translation equivalents (similar vs. different mapping):

1) primary metaphors with a similar mapping (e.g. to pick – valita, poimia joukosta);
2) primary metaphors with a different mapping (e.g. drop – jättää, lopettaa);
3) complex metaphors with a similar mapping (e.g. stay on course – pysyä kurssissa);
4) complex metaphors with a different mapping (e.g. walk a fine line – tasapainolla).

The identified metaphorical mappings were defined, following the conventions by Lakoff and Johnson (1980, 1999), either in the form of action (CHOOSING IS PICKING) or simply by stating the concrete source and target domains (ELECTION IS COMPETITION). Examples of conceptual analyses of metaphorical expressions in each of the four groups above will be given below.

The metaphorical expression pick was classified as a primary metaphor with a similar mapping (Group 1 above). It appeared in the following sentence (sentence number 3) in Experiment I:

[3] The Democrats know they’re walking a fine line by picking a Centrist running mate all the while calling for the workers to unite.

To pick was identified as an instance of a primary metaphor, since it seems to be based on a metaphorical mapping between the domains of CHOOSING (target domain) and ACQUIRING OBJECT (source domain). It can be assumed that the mental process of choosing has in early childhood become associated with the basic physical act of acquiring an object, leading to the emergence of the metaphor CHOOSING IS ACQUIRING OBJECT, which is reflected in language as the expression pick. Following the lines of the conceptual metaphor theory, this primary metaphor can further be seen to be based on the general complex called EVENT-STRUCTURE METAPHOR, and more specifically the OBJECT EVENT-STRUCTURE metaphor (Lakoff & Johnson 1999:195–197), in which “attributes” are seen as “objects” one possesses. This metaphor has its experiential basis in our everyday experiences with handling physical objects and it includes the metaphors ACTION IS MOTION or ACTIONS ARE POSSESSIONS OF OBJECTS, among others, that can be considered to form a basis for the above metaphorical expression pick.

After this, the metaphor was compared to equivalent Finnish expressions describing the act of choosing, and it was determined that a similar expression exists in Finnish, based on the same metaphorical conceptualization, viz. poimia (joukosta), even if it must be noted that a non-metaphorical expression valita (‘choose’) is perhaps the primary way to express the meaning in Finnish. On these grounds, pick was found to have a similar metaphorical mapping in Finnish.

The analysis of primary metaphors was challenging. Most primary metaphors were found to be highly conventionalized idioms that are no longer identified as meta-
aphors. Moreover, it was particularly hard to find primary metaphors with different mappings, since the analyses showed that the majority of the primary metaphors were to some degree based on similar conceptualizations between English and Finnish, which is compatible with the idea of universal primary metaphors. Thus, in order to see some differences between the metaphors, all conceptual aspects as well as the various conventional linguistic realizations of the metaphors were taken into account in the classification process.

An example of a metaphorical expression based on a primary metaphor with a different mapping was *to drop* in sentence number 6 in Experiment I (Group 1 above):


The sentence refers to Joe Lieberman, who left his former duties and activities when he agreed to be Al Gore’s running mate in the presidential election. The highlighted metaphorical expression was in the analysis was also found to be a realization of the OBJECT EVENT-STRUCTURE METAPHOR (Lakoff & Johnson 1999:195–197). The complex metaphor is composed of the combination of primary metaphors ATTRIBUTES ARE POSSESSIONS, CHANGES ARE MOVEMENTS and CAUSES ARE FORCES, producing the following metaphorical submappings (Lakoff & Johnson 1999:196) manifested in the expression *drop*:

- ACTIONS ARE POSSESSIONS OF OBJECTS
- CHANGES IN ACTION ARE CHANGES IN POSSESSION OF OBJECTS
- ONGOING ACTIVITIES ARE THINGS YOU POSSESS
- STOPPING ACTIVITIES IS “DROPPING” THINGS YOU POSSESS

Even if the metaphor has such a basic physical grounding, the mapping of the metaphor is slightly different from Finnish; the physical action of “dropping something” (‘pudottaa’) is not used in standard Finnish to express the idea of “stopping an activity”, but the idea is conventionally expressed by other verbs, such as *jättää (taakseen)* (‘leave (behind)’) or *lopettaa* (‘stop’). The Finnish expressions are, however, so conventionalized that they are hard to identify as metaphorical. According to the conceptual metaphor theory, the expressions are metaphorical and reflect a conceptualization of “time” called the MOVING OBSERVER METAPHOR, according to which time is understood as standing still, while we are moving through it (Lakoff & Johnson 1999:146). Combining the MOVING OBSERVER metaphor with the TIME ORIENTATION metaphor, in which the future is ahead and the past is behind, yields the following mappings utilized in the Finnish expression *jättää (taakseen)*:

- PAST ACTIVITIES ARE BEHIND / FUTURE ACTIVITIES ARE AHEAD

Therefore, it was decided that *drop* is a primary metaphor that has a different mapping than its conventional equivalents in Finnish.

The analyses brought out that, in most cases, even the simplest looking metaphorical expressions can be composed of several conceptual metaphors. There are some very basic metaphors, such as ACTION IS MOTION, that seem to underlie the majority of metaphors that have to do with some kind of human activity. Furthermore, the very basic primary metaphors seldom seem to appear in language alone, but
tend to be combined to other primary metaphors. It can thus be questioned whether there can be linguistic realizations of primary metaphors that are based on only one single mapping. In this study, the decisive factor was the direct physical grounding. If the expression seemed to be founded on a single basic physical experience, it was classified as a primary metaphor.

The analyses of metaphorical expressions originating from complex metaphors were complicated in the sense that complex metaphors were often composed of a multi-dimensional web of various correspondences that were hard to identify. After it was established that a metaphorical expression was composed of several metaphors, the different components were identified. The complex metaphorical mapping was formulated on the basis of the linguistic metaphor, as has been done within the conceptual metaphor theory, and this served as the reference in the comparative analysis.

The metaphorical expression *stay on course* appeared in the following sentence in the experiment material:

[11] *Blindsided just four days before the start of the Democratic Convention, the Gore campaign managed to stay on course.*

The expression was identified as an instance of the established complex metaphor LIFE IS A JOURNEY, consisting of numerous primary metaphors, such as ACTION IS MOTION, PURPOSES ARE DESTINATIONS and MEANS TO ACHIEVING PURPOSES ARE ROUTES. This metaphor has been claimed by e.g. Lakoff (1999) and Kövecses (2005) to be universal and shared by the majority of languages and cultures. The Finnish language has several conventional expressions utilizing this metaphor, including a direct equivalent *pysyä kurssissa.* Thus, *stay on course* was classified as a complex metaphor with similar mapping (Group 3). The number of these metaphors was the highest in the material.

The expression *walk a fine line* in the following sentence serves as an example of a complex metaphor with different mapping (Group 4):

[3] *The Democrats know they're walking a fine line by picking a Centrist running mate all the while calling for the workers to unite.*

It is clear that the above metaphorical expression is more complex than the previous one, since it is not possible to express the idea behind it with one single concept. *Walk a fine line* can be seen as a realization of one of the most basic primary metaphors ACTION IS SELF-PROPELLED MOTION, in which all of our mental actions, such as “thinking”, are considered as physical movement. It is grounded on our early experiences of moving ourselves through space (Lakoff & Johnson 1999: 52) to get an object, for instance. According to Lakoff and Johnson (1999:170–171), this metaphorical expression is a realization of a larger complex of different metaphors, so-called EVENT-STRUCTURE metaphor, which allows us to understand, conceptualize and reason with the most central human concepts, such as events, causes, changes, states, actions and purposes in the world around us and life in general.

*To walk a fine line* manifests the LOCATION EVENT-STRUCTURE METAPHOR, which is a coherent mapping from the source domain of “motion in space” onto the target domain of “events”. It conceptualizes “events” in terms of “locations” (STATES ARE LOCATIONS) (Lakoff & Johnson 1999:179). It includes the following submappings and the primary metaphor ACTION IS SELF-PROPELLED MOTION:
PURPOSEFUL ACTION IS MOTION ACCORDING TO A DEFINED PATH TO A DESTINATION
MEANS TO ACHIEVE PURPOSES ARE PATHS TO DESTINATIONS
PROGRESS IS FORWARD MOVEMENT TOWARD A DESTINATION
DIFFICULTY IN ACTION IS DIFFICULTY IN MOVEMENT
MANNER OF ACTION IS MANNER OF MOVEMENT
CAREFUL ACTION IS CAREFUL MOVEMENT.

This is experientially reasonable, since people normally have an idea where they are “walking”, i.e. the walking has a purpose. In political context, the presidential candidate has a goal to get as many voters as possible, and thus being able to walk the line means progress towards this goal.

Furthermore, the line can be seen as a line dividing two sides, in this case two political parties and their ideologies. Another metaphor could be formulated as

AGREEMENT IS BEING ON THE SAME SIDE / DISAGREEMENT IS BEING ON OPPOSITE SIDES.

In the metaphorical expression, the line is “fine” or “thin”, which indicates that there is only a slight difference between the two things.

One more central metaphor involved in the above expression is

BALANCE IS GOOD; IMBALANCE IS BAD

This metaphor has a clear experiential basis: it is important for a person to stay erect and balanced and not fall down (cf. let somebody down above). The experiential connection between MENTAL CONFUSION / PROBLEMS and IMBALANCE is strong. The idea of being able to keep one’s body balanced in a difficult location where balancing requires some special qualities maps onto the difficulty of a politician trying to please the potential voters of both major political parties.

In the Finnish language and culture, the idea of partial association with two different ideologies with the risk of not being fully associated with either of them seems to be conceptualized with the help of some other metaphorical correspondences than “walking” on “fine line”. Even though Finnish shares many of the primary conceptual metaphors that could work as composite parts of “walking a fine line”, it was agreed that the combination realized in English is not in conventional use in the Finnish language, even if it can be used in creative contexts. The most suitable Finnish equivalents, such as tasapainotella, utilize the aspect of “balance” in their conceptualization. Hence, walk a fine line was categorized as a complex metaphor with different mapping.

Running all the metaphorical expressions in the experiment texts through a conceptual analysis was a challenging procedure, since there are no direct guidelines of how to identify the conceptual metaphors underneath the linguistic manifestations. Furthermore, there is no coherent account of which aspects of human experiences can be considered as basic as to qualify as “primary experiences” leading to primary metaphors. The list of primary metaphors compiled by Grady (1997) provided some assistance, but it is far too vague and inconsistent as to serve as a reliable source of information in empirical work. Metaphorical analysis is further complicated by the fact that, despite the metaphorical mappings, there seem to be various other aspects involved in metaphors, such as metonymy or culture-specific beliefs and practices.
A chart called “Metaphor Map” (see 2.2.2), was compiled by the analysis group in order to make the process of analyzing metaphors more systematic and transparent. To summarize the conceptual metaphor analysis, a simplified version of the map illustrating the key steps of the analysis of two metaphors in one sentence will be presented below in Figure 3:

<table>
<thead>
<tr>
<th>Conceptual level</th>
<th>Generics</th>
<th>Complex metaphors</th>
<th>Primary metaphors</th>
<th>Observations / Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Generic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>metaphors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABSTRACT ENTITIES ARE OBJECTS, ABSTRACT ENTITIES ARE EMBODIED EVENTS, MIND IS A BODY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREVENTING OBIECTION = PARRYING ATTACK</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ORGANIZATION = PHYSICAL STRUCTURE, IDEAS = FOOD, ACTION = SELF-PROPELLED MOTION, MENTAL ACTION = PHYSICAL ACTION, OBJECTION = ATTACK, PREVENTING = PARRYING</td>
<td>Meet the man in charge of feeding him substance</td>
<td></td>
</tr>
</tbody>
</table>

![Figure 3. Metaphor Analysis Map.](image)

The starting point of a conceptual metaphor analysis must always be the surface realization of a conceptual structure in metaphorical language (Stage 1). From there on, based on general knowledge of basic perceptual experiences and the image-schematic structures, the scholar can try to anticipate what kind of experiences have motivated the development of the primary metaphors that are manifested as the metaphorical linguistic expressions. In case of complex metaphors, the analysis has to be constructed in a different way. Since complex metaphors do not seem to have a direct physical motivation, their metaphorical mappings have to be construed on the basis of existing linguistic metaphorical expressions. When potential complex metaphors have been determined, it should be possible to decompose them into their assumed parts, primary metaphors. The analysis will be demonstrated with a help of an example from the text for Experiment I:

[24] **Meet the man in charge of feeding him substance – and parrying Gore’s policy attacks.**

The expression *feed* was first identified as having a metaphorical meaning in this context. It was determined that one of our basic physical or sensory experiences of “eating” has given rise to this expression (Stage 2). Thus, the expression *feeding* was classified as a linguistic manifestation of the primary metaphor IDEAS ARE FOOD (Stage 3).
The analysis of the other expression in the above sentence, *to parry attack*, was slightly different. The process started at the language level by identification of the expression as metaphorical (Stage 4). The expression could also have been regarded as two separate metaphorical expressions. It was seen that the expression was a combination of several metaphors and had no single direct experiential basis. So, it was classified as complex metaphor. The formulation of the complex metaphorical mapping behind the expression was more difficult (Stage 5). The analysis group agreed on a formulation PREVENTING OBJECTION IS PARRYING ATTACK. After this, it was possible to analyze the mapping and the physical experiences that may have motivated it (Stage 6). The most general primary metaphors according to Lakoff et al. include MENTAL ACTION IS PHYSICAL ACTION and ACTION IS MOTION. Both of these could be considered to be involved in the metaphor. This way, two more accurate metaphors were outlined: OBJECTION IS ATTACK and PREVENTING IS PARRYING. These were the assumed primary components of the complex metaphor which was manifested in language as *parrying attack*.

The discussion above was intended to demonstrate the complexity of the process of conceptual metaphor analysis and highlight some of the biggest challenges involved in it. A clearly defined approach of the conceptual analysis of metaphors would benefit all metaphor scholars and add credibility and viability to the research.

### 4.5 TOOL FOR MEASURING ‘TRANSLATION DIFFICULTY’ AND ‘COGNITIVE EFFORT’

In order to test the hypotheses formulated for the study, a tool to measure the ‘difficulty’ and ‘cognitive effort’ of translation was formulated. It takes into account both the products and the processes of translation in the way discussed more closely in 2.3.4 above. In the following, the application of the four selected indicators in the experiment material will be illustrated with examples.

#### 4.5.1 Acceptability

To illustrate the basic criteria for judging translations of metaphorical expressions acceptable or non-acceptable, some examples from the experiment material will be presented below.

The primary metaphorical expression *to come down to* in the following context and its translations will be discussed in the following:

[14] *A year and a half spent building a policy foundation for the Bush candidacy could come down to whether the man has the right answer during a single 30-second exchange in a television debate.*

The idea of the expression is that the election could be decided on the basis of a television debate. In accordance with the conceptual metaphor theory, the expression *to come down to* is based on the image-schema UP-DOWN and the underlying metaphor can be formulated as SETTLED IS DOWN vs. UNSETTLED IS UP. Since there are no equivalent expressions in Finnish that utilize the same mapping or domain, the expression was classified as having a different conceptual mapping. The translations displayed a wide variety of metaphorical source domains.
The acceptable translations displayed a variety of metaphors. Some utilized the domain of DEPENDENCE realized in language as *olla kiinni jostakin* or *riippua jostakin*, which mean “to depend on” or “hang on”. See the complete sentences below:

1. *Puolentoista vuoden ajan rakennettu toimintasuunnitelma Bushin ehdokkuutta var-ten voi olla kiinni sitä*, osaako mies vastata oikein kolmenkymmenen sekunnin mitattaisessa televisioidussa väittelyssä.

Also translations with the verb *huipentua* (‘culminate’ or ‘climax’) were judged as acceptable, since the sentences conveyed the intended meaning but also suited the colorful style of the text very well:


In other acceptable translations, the idea of “going wasted” or the domain of WATER or some other liquid substance “running” or “spilling” was used. Even if the possible negative effect was emphasized more than in the original, the deep meaning was preserved:

4. *Se puolitoista vuotta, joka on kulutettu Bushin vaalikampanjassa käytettävän poliittisen agendan rakentamiseen, saattaa valua hukkaan puolella minuutissa, jos mies sattuu vastaamaan huonosti johonkin to-tenin kysymykseen.*
5. *Puolentoistavuoden työ Bushin vaaliohjelman aikaansaamiseksi voi mennä hukkaan, jos Bush vastaa väärällä tavalla puolen minuutin mittaisessa televisiowäittelyssä.*

The non-acceptable translations were all different. One expressed the idea through the verb “concentrate” (‘keskittyä’), which shifts the emphasis of the sentence to a wrong direction:


In the following translation, the core meaning of the whole sentence was changed, making the translation non-acceptable:


The acceptable / non-acceptable translations of a complex metaphor will be illustrated by the expression *run in borrowed clothes* in the following sentence:

8. *When Bush said Thursday night that he is “not running in borrowed clothes”, it was a deft dig at Gore, but not altogether, because Bush is fighting his father’s fight with weapons borrowed from the enemy camp.*
This expression is not founded on any image-schemas but on an idea that what you’re wearing symbolizes your character, ideas or values. The expression originates from the Bible and means that one is using somebody else’s thoughts and values as one’s own. In this context it refers to Gore who is blamed for using Clinton’s ideas and success in his campaign. The metaphor is not commonly used in Finnish, so the metaphorical mappings are incompatible in English and Finnish.

Literal translations rendering the original image of “borrowed clothes” or parts of it were considered non-acceptable:


(9) Kun Bush sanoi torstaina, ettei ryhdy “keikaroimaan lainahöyhenissä”, se merkitsi Gorelle aikamoista tööväisyä, mutta silti on pidettävä mielessä, että Bush itse taisteele isänsä vanavedessä vihollisleiristä lainatuilla aseilla.

The latter translation above keikaroida lainahöyhenissä (‘to flaunt in borrowed feathers’) goes close to the original expression but expresses that a person is trying to be more “fine” than in reality, and therefore the translation was not considered acceptable.

The translations that were considered acceptable managed to break free from the original metaphor and express the idea in a different way, either with another metaphor or paraphrase. One metaphorical translation utilized the domain of “war”, which matched the rest of the sentence:

(10) Kun Bush sanoi viime torstaina, että taisteele omana itsenään, kyse oli Goren pilkkamaisesta vaikka hän itsekin käy isänsä kamppailua vihollisleiristä lainassa olevilla aseilla.

(‘When Bush said last Thursday that he fights as himself, it was about mocking Gore, even if he himself is also fighting his father’s fight with his weapons borrowed from the enemy camp.’)

Another metaphorical translation was ratsastaa (‘to ride’), which means “to use another person’s achievements or reputation for one’s own advantage”. This expression is conventional in Finnish and was well-suited for the context:


(‘When Bush said on Thursday that he is not going to ride on his father’s reputation, it was a hard blow at Gore. Bush is, however, fighting like his father but with weapons borrowed from the enemy.’)

The following paraphrase was also considered a successful translation:

(12) Bushin torstai-iltainen lausunto ”En osallistu vaaleihin toisen aatteella” oli eräänlainen hyökkäys Gorea vastaan, mutta muistuttaa myös siitä, että Bush itse jatkaa isänsä jalanjäljissä, ja vieläpä vastustajapuolen käyttämillä aseilla.

(‘Bush’s statement on Thursday evening “I am not participating in the election with someone else’s ideas” was kind of an attack against Gore, but also reminds of the fact that Bush himself continues in his father’s footsteps, and even with weapons used by the enemy side.’)
4.5.2 Blank Translations

In the most typical cases, blank translations were revealed by unacceptable gaps or source language expressions in the middle of the translated text:

(13) Jos nämä kannattajat , Gore pystyisi kiristämään kilpailua ja kääntämään huomionsa valoisammalla ja keskustalaisemalla viestillä.

Also translation products of the following type in which some English expressions had been preserved as part of the translated text were identified as blank translations:

(14) Jos base came home and waitresses tuned in, Gore voisi tehdä kilvasta tasaväkisemmän ja keskittää sitten huomionsa vaikutusvaltaisempien swing äänestäjiin lähettämällä aurinkoisempaa keskustalaisista viestä.

In some cases, omission of the metaphorical expression did not change the original meaning of the sentence significantly, in which case the omission was not considered a blank translation. See the following example sentence:

[9] Why would Gore want to keep down someone who can raise buckets of cash and fire up the Democratic base.

Several translators translated the end of the following sentence without using a specific equivalent to the metaphorical expression “base” and simply conveyed the idea of “the Democratic party”:

(15) Miksi Gore haluaisi pitää piilossa henkilön, jonka avulla voidaan kerätä ämpärikau-palla rahaa ja antaa uutta potkua demokraateille?
(16) Miksi Gore haluu pitää peitossa jonkun, joka voi kerätä kasoittain rahaa ja syttyttää demokraatit?

Translations in which the Finnish sentence was complete and comprehensible but some original expressions were missing were problematic and had to be analyzed in the larger context. As an example, see the following sentence and one of its translations:

[31] If his base came home and waitresses tuned in, Gore could tighten the race and then turn his attention to more affluent swing voters with a sunnier, centrist message.
(17) Jos se onnistuisi, Gore voisi kiristää kilpailua ja keskittyä sitten vaikutusvaltaisempien äänestäjien kosiskeluun, käyttäen linjausta, joka on edellistä aurinkoisempi ja lähempänä demokraattien keskustaa.

In the above translation, the second metaphorical expression “tune in” as well as the attribute “swing” (voters) had been left out. These were considered blank translations, since some important information was missing.
4.5.3 Fixation

In this study, fixation was examined primarily in the processes of translation as recorded in the Translog protocols. The translation process was judged to involve fixation if the key-log showed signs of the original linguistic realization, i.e. so-called word-for-word or literal equivalents, which were not acceptable translations but were during the process changed into non-literal acceptable translation equivalents. If there was no evidence of the processing of the expressions in the Translog protocols, the final translations with fixated structures were classified unacceptable, and the process was not considered to involve fixation.

Some examples of translation processes with fixation will be presented in the following. The translation processes of the metaphorical expression to take the high road (a complex metaphor with different mapping) revealed a lot of fixation:

[Il] Much as we might wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.

The Translog protocol shows (see the meanings of the symbols in Appendix 4.) that one translator first provided the following fixated translation that reproduced the aspect of “high” manifested in the original expression:

\[ \text{vaikka me kuinka yrittäisimme}\ \text{noustaa korj keammalla le(?) ja tuhah kahduttaa ylu imielisyyden k a kaksinaismoralismin...} \]

Later on, the expression was modified into “päästä muiden yläpuolelle” (‘get above the others’) which was still considered as a fixation to the original mapping:

\[ \text{Ei autaa ja yriitammekein asettua ylim ylim ylim ylim...} \]

In some cases, there was fixation to be seen in the key log files, indicating higher translation effort, but the final translation was blank. The following Translog excerpt illustrates a start of the translation process within the original metaphorical mapping. The process was not completed, and the expression was left out in the end:

\[ \text{vaikka yrittämme...} \]

In many cases of fixation, revisions were made at a later stage of the translation process of the text, and the final translation was a paraphrase. The first version of one translator was derived from the original metaphorical mapping with the dimension “high” as follows:
4.5.4 Time of Translation

In the study at hand, the time spent on the translation process of metaphors was measured by summing up the pauses recorded in the Translog protocols for each individual metaphorical expression. The key logs showed the exact timing of the whole translation process in desired units, including the keyboard inactivity, i.e. the pauses taken during the process. Translog was set to automatically record the length of pauses in the protocols with an accuracy of seconds (* = one second). The protocols could also be replayed on the computer screen, which helps to locate the pauses and understand the rhythm of the translation process as a whole. In this test, the times of the pauses before and during the production of metaphorical expressions (including modifications, reruns etc.) were summed up to constitute the total time of translation for each metaphorical expression.

Among problematic cases were metaphorical expressions in the beginning of the sentence, since the translators usually take time to read the whole sentence through before starting to translate it (Immonen 2006), cases where the metaphor was a part of a longer phrase, or cases where no translation was produced for the metaphorical expression. In cases where the metaphorical expression started the sentence, the time before the first keystroke was included in the total time of translation (Jakobsen 2002). If a metaphorical expression composed of a longer phrase consisting of a verb and adjective, for example, the time before the whole phrase was counted. On the other hand, in cases where there was no translation equivalent for the original metaphorical expression, including “blank” translations and instances of paraphrasing, only the times that could in the key logs clearly be attributed to the processing of the given translation were counted.

The two examples below illustrate how the time used for translating metaphorical expressions was counted in the experiments included in this study.

The metaphorical expression *to walk a fine line* occurred in the following sentence:

[IVa/b] *All three are walking a fine line* in trying to maintain their prestige at the home front while expressing their approval of war.

The following excerpt from the Translog protocol was used for counting the time of the translation (the highlighted parts) of the expression. In the log, each asterisk (*) is equal to one second.
After two line feeds (ÃÃ) and the first two words of the sentence, the Translog protocol shows a pause of 10 seconds (rounded from 10.47 to 10) before the first translation option, i.e. kulkevat veitsen terällä (‘when they walk on the edge of a knife’). The translator refines the intended meaning with the expression yrittäessään (‘when trying’), and seven seconds later, with tasapainotella (‘to balance’), followed by four more seconds after completing the expression. After this, there are a few lines in the protocol indicating that the translator struggles with finding a translation to some single words, but perhaps also, processing the sentence as a whole. This shows in the end of the above extract, where the translator, after a pause of seven seconds, settles for a colourful expression combining the earlier ones, meaning “balance on the edge of the knife”. This was considered an acceptable translation:

(18) Kaikki kolme tasapainottelevat veitsen terällä kotirintamalla, koska tukevat sotaa. (‘All three are balancing on the edge of the knife, because they support war.’)

The time used by the translator for finding the final solution was calculated by taking the time used immediately before producing the first and/or the final translation(s). The total time of translation of the above metaphorical expression was calculated as 10 + 7 + 7 = 24 seconds.

The following case is another example on how the Translog protocols can be utilized in reconstructing the translation process. The process illustrates that it was common for the translators to return to their translations after completing the first translation version of the whole text. See the following sentence:

[IIIa/b] Some, probably including a few in Bush’s cabinet, will argue that it was all about cutting off Saddam’s regime at the knees.

In the first round, one translator used altogether 25 seconds to formulate a translation which literally rendered the original metaphorical image into Finnish, i.e. katkaistua polvista (‘cut off at the knees’). (Note the translator’s own exclamation “EI” (‘NO’) at the end of the sentence, indicating that she was not pleased with her translation.)

After translating the whole text, the translator returned to the passage and made some changes to it as follows:

The first revised version was katkaista Husseinin hirmuvalta lyhyeen (‘to cut Hussein’s dictatorship short’), which is idiomatic Finnish but carries a different meaning than
the original metaphorical expression, implying that the regime would not have been very long-lasting. Later on, the translator deleted the word lyhyeen (‘short’) and settled for katkaista Husseinin hirmuvalta (‘to cut Hussein’s dictatorship’).

As illustrated in the above example, the pauses that occurred during reruns or reconsiderations of translations were also noted and included in the time of translation. In the above case, the time was counted to be a combination of the two separate instances of dealing with the translation: 25 seconds in the first round plus 8 seconds in the second round, making a total of 33 seconds.

In the preceding sections, an account of the methods used in the translation experiments conducted for the present study was provided. The conceptual metaphor analysis characterized above formed the basis of the design for both Experiment I and Experiment II. The translation materials yielded by the experiments were analyzed by the variables chosen to be indicative of the difficulty and cognitive effort in translation in the way described above. The validity of the indicators will be discussed in more depth in Chapter 7.

While Experiment I tested the difficulty of the translation of primary vs. complex metaphors, Experiment II was primarily designed to test the suggested molecular structure of conceptual metaphors. In order to be able to test this, another method was needed that could bring out the potential conceptual relation between the different metaphors. For this purpose, a psycholinguistic method of semantic priming was chosen. The method as well as the motivation for its use will be discussed in the following.

4.6 SEMANTIC PRIMING

Semantic priming is a cognitive effect that has been used in psycholinguistic research as a tool for investigating aspects of perception and cognition, such as word recognition, language comprehension, and knowledge representations (McNamara 2005). Priming has been popular in studies on idioms and figurative language, including metaphors, since it can be assumed to capture some aspects of the mostly automatic and unconscious processes involved in their comprehension and use. In contrast to psycholinguistic methods that are based on memory after the processing, the priming technique is aimed at revealing online mental processing.

Semantic priming involves the facilitation of task performance, such as naming or lexical decision. In a priming experiment, the subjects are exposed to a meaningfully or associatively related stimulus (prime) prior to the test stimulus (target). The general psychological assumption behind the method is that the processing of an input becomes easier if information relevant to the input has already been accessed (Katz 1996). Priming tasks used in the research of language comprehension may include a reading task in which the reading speed of the target stimulus is measured, and a lexical decision task in which two words are presented after another and the subjects are asked to determine as quickly as possible whether a string of letters is a word. For example, the participants can be first presented with the word “cat”, followed by either the word “dog” or the word “house”. In studies like these, the participants tend to recognize “dog” as a word more quickly than they recognize the word “house”. It has been proved that lexical decision responses are faster if the two words (prime and target) are semantically related. Furthermore, it has been claimed that the faster the response is, the more closely related the words are.
It has been claimed that semantic priming only occurs at short lags, but there are also some studies that have produced empirical evidence of long-term effects in tasks that include semantic-level processing to a sufficient degree (e.g. Becker, Moscovitch, Behrmann & Joordens 1997). In a translation priming experiment, Schaeffer and Carl (2013:169–190) found that translation activates features of both source and target language items sharing the same cognitive representation, and this activation facilitates translation. The priming experiment included in the present study relies on this evidence when applying the method of semantic priming on a translation task of metaphors that either share or not share cognitive structure in source and target languages.

As discussed above in 2.3.2, the conceptual metaphor paradigm includes an idea of the automatic accession and activation of conceptual metaphors in any use of language. If the claim was true, then the conceptual metaphors should get activated whenever there is a reference to the source domain of the metaphor. This claim has been explored with the help of different methods, including priming, but the results of the studies have been controversial.

In this study, the method of semantic priming was used in an experimental setting as realistic as possible, viz. in a translation task of an authentic-like text to give the results more ecological validity. It was reasonable to assume that priming would reveal 1) whether the different metaphorical expressions are conceptually related or not and 2) whether conceptual metaphors are accessed during the translation of metaphorical expressions. In Experiment II, metaphorical expressions based on primary metaphors were used as primes for activating complex metaphorical structures. In the test, the subjects were exposed to a translation task in which they first translated a metaphorical expression grounded on a primary metaphor (the prime) and, after that, a complex metaphor which contained the primary metaphor as one of its assumed conceptual components (the target). It was hypothesized that if translating the prime facilitates the translation of the complex metaphor, it proves that 1) complex metaphors are conceptually composed of primary metaphors and 2) conceptual mappings are in active use during online processing of metaphors in translation.

To be able to compare the translation performance of the participants in different metaphorical conditions, the participants were divided into 1) a Test Group, which had primed metaphors in their text and 2) a Control Group, which did not have primes in their text. In order to reach the desired priming conditions, the source text that was to be translated by the Test Group was manipulated so that the metaphorical expressions formed priming pairs. A detailed description of the text manipulation process will be provided in Chapter 6.

The analyses and results of the two translation experiments will be reported in the following chapters.
5 EXPERIMENT I – TESTING THE PRIMARY VS. COMPLEX DIVISION THROUGH TRANSLATION

The purpose of the first experiment was to examine the cognitive processes involved in the translation of different types of metaphors, in particular, primary and complex metaphors, as well as the translations produced as a result of these processes. More accurately, the experiment was designed to test the Cognitive Translation Hypothesis and the hypothesis that primary metaphors are easier to translate than complex metaphors. Besides testing hypotheses about the translation of metaphors, the experiment made an attempt to find out if there are differences in the cognitive processing of primary and complex metaphors in translation.

5.1 CONCEPTUAL ANALYSIS OF METAPHORS

Prior to carrying out the experiment, the 53 metaphor tokens giving rise to the metaphorical expressions chosen for the test were subjected to a conceptual analysis along the lines formulated originally by Lakoff and Johnson (1980) and later refined by Grady (1997). The metaphors were categorized according to 1) their primary vs. complex nature, and 2) whether the source domain(s) used in English were similar vs. different with regard to their potential Finnish equivalents (similar vs. different mapping condition). The process of conceptual metaphor analysis has been more accurately described under 4.2 above.

Examples of the different types of metaphors in the experiment material are presented in Table 1 below. The closest Finnish equivalents used as the basis for classification similar vs. different domain are given in brackets.

Table 1. Examples of the four metaphor types in Experiment I with Finnish equivalents.

<table>
<thead>
<tr>
<th>PRIMARY METAPHORS</th>
<th>SIMILAR DOMAIN</th>
<th>DIFFERENT DOMAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>to pick (poimia joukosta, valita)</td>
<td>to have the weight (olla painoarvoa)</td>
<td>to dig (tölväistä, piikitellä) to let sb down (jättää pulaan)</td>
</tr>
<tr>
<td>COMPLEX METAPHORS</td>
<td>to stay on course (pysyä kursissassa) foundation (perusta)</td>
<td>to walk a fine line (tasapainotella, olla veitsentärällä) to take the high road (toimia moraalisesti “oikein” jnk. suhteen)</td>
</tr>
</tbody>
</table>

Table 2 below shows the number of the different types of metaphors in the experiment text.
Table 2. Distribution of metaphor types in numbers in Experiment I.

<table>
<thead>
<tr>
<th></th>
<th>SIMILAR DOMAIN</th>
<th>DIFFERENT DOMAIN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td>7</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>COMPLEX</td>
<td>14</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21</td>
<td>32</td>
<td>53</td>
</tr>
</tbody>
</table>

5.2 ANALYSIS OF THE TRANSLATION MATERIAL

Before summarizing the results of the experiment, some examples of the metaphorical expressions in the experiment text and their translations will be given in the following to more closely illustrate the conceptual analyses of metaphors as well as the rich variety of translations solutions and the grounds for judging them acceptable or unacceptable.

5.2.1 Primary Metaphor + Similar Mapping (to pick)

The Finnish translations of the majority of primary metaphors with similar mappings were uniform, many literally identical. See an example with the metaphorical expression *to pick* in sentence 3:

[3] *The Democrats know they’re walking a fine line by picking a Centrist running mate all the while calling for the workers to unite.*

The expression to pick was in the analysis identified to be a manifestation of the primary metaphor

CHOOSING IS ACQUIRING OBJECT (see 4.4. for a detailed conceptual analysis).

Each one of the 16 translations into Finnish utilized the verb *valita* (’choose’) or a noun derived from it. All translations were acceptable. Two examples are given below:

(19) *Demokraatit tietävät, että he tekevät riskaabelin valinnan kun valitsevat keskilinjaa edustavan aisaparin samalla kun julistavat että vasmman laidan pitäisi pitää yhtä.*

(’The Democrats know they make a risky choice when choosing a partner representing middle ground while at the same time declaring that the left side should be united.’)

(20) *Demokraatit tietävät liikkuvansa heikoilla jäillä valitessaan keskustalaisen kanssahdokkaan samaan aikaan kun kehottavat työläisiä yhdistämään voimansa.*

(’The Democrats know they’re moving on thin ice by choosing a Centric running candidate while at the same time telling workers to unite.’)

The translations show that even if the equivalent English and Finnish metaphorical expressions are based on similar conceptual mappings, the literal translation ”pomia” (’to pick’) was not used in the translations. This suggests that the conceptualization behind the linguistic realization of the metaphor was so familiar to the translators that they had no difficulty of finding the most idiomatic way to express the idea in Finnish.
5.2.2 Primary metaphor + Different Mapping (*a dig and to hammer*)

*A dig* and *to hammer* serve as examples of primary metaphors with different mappings. The expressions appeared in the following sentences:

[8] When Bush said Thursday night that he is “not running in borrowed clothes”, it was a deft *dig* at Gore.
[18] Gore has been running a campaign based on “specifics”, *hammering* Bush for not offering more high-fiber proposals.

Both metaphorical expressions above are among the most fundamental metaphors and based on early physical experiences about the correlation between physical contact and emotional effect. More technically, they are manifestations of the following metaphor and its submetaphor:

PSYCHOLOGICAL EFFECT IS PHYSICAL EFFECT
PSYCHOLOGICAL HARM IS PHYSICAL HARM

*A dig* is derived from the verb *digging* that indicates penetrating a surface with a sharp object, resulting in a change in the surface. Combined with another basic metaphor MIND IS A CONTAINER, sentence [8] indicates something that affects a person’s mind negatively. “Hammering” in sentence [18], on the other hand, highlights the strength and the repetitive nature of the act and its effect.

The Finnish language shares the conceptualization of “psychological effect” as a physical act, but does not conventionally use the same counterparts of the verbs or objects in the linguistic realization of the metaphor. However, the shared conceptualization may have helped the translators, since the majority of the translations were acceptable. The most common translations of the metaphorical expression “dig” expressed a physical action involving an object “spike” or “thorn”:

(21) …*se oli piikki* Gorelle.
    (‘it was a thorn to Gore’)

In the following translations, another kind of physical contact was utilized in expressing the idea:

(22) …*se merkitsi tölväisyä* Gorelle
    (‘it meant a taunt to Gore’)
(23) …*se oli kova isku* Gorelle.
    (‘it was a hard blow to Gore’)

Also the following non-metaphorical paraphrases were considered acceptable:

(24) …*kyse oli Goren pilkkaamisesta.*
    (‘it was about scoffing Gore’)
(25) …*se oli syvä loukkaus* Gorelle.
    (‘it was a deep insult to Gore’)

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Fixation to the English-specific source domain, viz. the act of “digging”, was seen in the products and processes of two translators:

(26) …hän kaivoi sudenkuoppaa Gorelle.
     (‘he dug a wolf hole to Gore’)
(27) …tämä kaivoi maata hänen jalkojensa alla.
     (‘he dug soil from under Gore’s feet’)
     (…kaivoi Gorea)
     (‘he dug Gore’)

These expressions render the idea that it was something negative that happened, but the Finnish expression in example (31) means ‘to set up a trap for someone’, which was not the original idea. Example (32) conveys the intended meaning but is not idiomatic Finnish. The above translations were considered non-acceptable.

Some translations related to the similar metaphorical expression to hammer in the example sentence [18] above will be presented below. The most common acceptable translations (8 out of 16 translators) were non-metaphorical paraphrases:

(28) …on moittinut Bushia kunnollisten suunnitelmien puutteesta.
     (‘has blamed Bush for the lack of decent plans’)
(29) …on kritisoinut Bushia siitä, ettei Bush ole luvannut tarkempia ehdotuksia.
     (‘has criticized Bush for not promising more accurate proposals’)

Some translations displayed fixated word-for-word reproductions of the original source domain with different variants of the verb hitting. Even if the metaphorical expressions can be understood, they are not idiomatic Finnish and were thus not accepted.

(30) …on moukaroinut Bushia siitä, että hän ei tarjoa yksityiskohtaisempia ratkaisu-ehdotuksia.
     (‘has hammered Bush for not offering more detailed solution proposals’)
(31) …on lyönyt Bushia alas, koska tämä ei anna konkreettisempia ehdotuksia.
     (‘has struck Bush down, since he doesn’t give more concrete proposals’)

One translation included a conventional Finnish metaphorical expression referring to cold climate. The translation was, however, classified unacceptable, because the meaning of the expression does not bring out the individual forceful act but emphasizes a negative long-term effect.

(32) …on tehnyt hallaa yleiskysymyksiin keskittyvälle Bushille.
     (‘has caused frost to Bush who concentrates on general questions’)

5.2.3 Complex Metaphor + Similar Mapping (a bad patch along the road)

The complex metaphorical expression a bad patch along the road was translated in the context of the following sentence:

(33) It was a message aimed at every American who ever survived a bad patch along the road.
The expression is according to the conceptual metaphor theory a realization of the general metaphor LIFE IS A JOURNEY (Lakoff & Johnson 1999:61) shared between the source language English and the target language Finnish. A more detailed analysis of the metaphor has been given in 2.2.2. As expected, the translators did not experience difficulty in translating the expression into Finnish. Eight of the 16 translations used the non-metaphorical Finnish equivalent of the word ‘difficulty’ in their translations. See examples:

(34) Viesti oli suunnattu kaikille niille amerikkalaisille, jotka ovat selvinneet vaikeuksista. ('The message was aimed at all those Americans who have survived difficulties.')

(35) Tämä viesti oli suunnattu kaikille niille amerikkalaisille, jotka ovat matkan varrella kohdanneet vaikeita aikoja ja selvinneet niistä. ('This message was aimed at all those Americans who have been faced with difficult times along the journey and survived them.')

Translations of the type above suggest that the metaphorical expression as a bad patch along the road activated such a familiar conceptual metaphor in the translators’ minds that it was easy for them to find Finnish translations. There were no signs of getting fixated to the English linguistic manifestation in the processes of translation either.

One translation utilized the basic conceptual metaphor describing good and bad, i.e. BAD IS DOWN vs. GOOD IS UP that is conventionally used to refer to ‘life’:

(36) Viesti oli tarkoitettu kaikille niille amerikkalaisille, jotka joskus ovat selvinneet elämän alamäestä. ('The message was intended for all those Americans who have sometimes survived a downhill of life.')

Another translator picked an expression that used the metaphor IMPEDIMENTS IN MOTION ARE PHYSICAL OBSTACLES, a submetaphor (or primary component) of the complex metaphor LIFE IS A JOURNEY:

(37) Viesti oli suunnattu kaikille amerikkalaisille, jotka ovat joskus selviytynneet tielleen tulleista esteistä. ('The message was directed at all Americans who have sometimes survived obstacles in their way.')

There was only one unacceptable translation among the translation products:

(38) Se oli viesti jokaiselle amerikkalaiselle, joka on joskus selviytynyt kuopasta tiessä. ('It was a message to every American who has sometimes survived a hole on the road.')

This translation was trying to utilize the same metaphor as the original expression, and it seems that the intended meaning was understood, but the expression is not idiomatic Finnish, so it was judged unacceptable.

All in all, all except one of the translations of a bad patch along the road were acceptable, even in cases where different metaphorical expressions were used. This can be assumed to be due to the shared metaphorical mapping (or domain), which made
it easy for the translators to understand the original expression and render it into Finnish in various ways.

5.2.4 Complex Metaphor + Different Mapping (to walk a fine line)

To walk a fine line is used as an example to illustrate the translation solutions of a complex metaphorical expression that utilizes a different conceptual domain from Finnish. A thorough conceptual analysis of the metaphor has been presented in 4.4. above.

[3] The Democrats know they’re walking a fine line by picking a Centrist running mate all the while calling for the workers to unite.

The translations of the expressions revealed differences between Finnish and English with regard to metaphorical mappings, perhaps due to slightly different cultural models. Of the sixteen translators, five produced an unacceptable translation, which indicates differences in conceptualizing the idea between these two languages. The five cases will be illustrated in the following.

For two translators, the expression activated the original metaphorical domain of “journey” and the metaphor MEANS TO ACHIEVE PURPOSES ARE PATHS LEADING TO DESTINATIONS, but the final interpretations were incorrect, expressing the idea of “doing the right thing” with regard to long-term goals:

(39) ... tietävät olevansa oikealla tiellä...
   (‘they know that they’re going the right way’)
(40) ... tietävät, että he valitsivat oikean tien...
   (‘they know that they chose the right way’)

The idea of “doing the right thing” also came out in another non-acceptable paraphrase:

(41) ... tietävät toimineensa oikein...
   (‘they know that they’ve done the right thing’)

It seems that the words “walking” and “line” caused fixation to the original domain. Maybe also one sense of the word “fine”, namely ‘right’ or ‘good’, may have lead to the misinterpretation. This frame may have guided the translator whose translation refers to “thinness” or “weakness”:

(42) ... tietävät olevansa heikoilla...
   (‘they know that they’re on the weak’)

The acceptable translations (eleven translators) into Finnish utilized a variety of different metaphors. The most common translations (the final translation of 6 translators + first translation of one translator) used the domain of “ice on the lake”. See examples below:

(43) ... tietävät kävelevänsä heikoilla jääillä...
   (‘they know that they’re walking on weak ice’)

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These expressions highlight the aspect of the metaphor CAREFUL ACTION IS CAREFUL MOTION, but contrary to the original expression, they do not bring out the idea of moving on a border between two different areas, but emphasize the general danger of movement. It is obvious that this metaphorical model is more relevant in a country such as Finland, where the lakes and the sea freeze in winter and people have direct experience of how dangerous it is to walk on thin ice. However, the above expressions were considered idiomatic and close enough to the original meaning and thus acceptable.

One translator conveyed the expression into Finnish through a metaphor using the domain of water:

(46) ...tietävät kulkevansa vaarallisilla vesillä…
('know that they’re moving on dangerous waters')

The above translation was classified acceptable because it brings out the general hazardous nature of moving, even though it does not specify why. Another metaphorical translation was more successful in bringing out the inferences of the original expression:

(47) ...valinta on leikkiä tulen kanssa.
('the choice is playing with fire')

Both metaphors above seem to draw from the metaphor DANGEROUS ACTION IS DANGEROUS MOVEMENT (MANNER OF ACTION IS MANNER OF MOVEMENT). The latter translation emphasizes the idea that one has to know how close to the fire one can go without getting burned. In other words, one has to know the limits of harming oneself, which maps rather well onto the idea of trying to appeal to the two groups of people. The Finnish saying usually indicates that damage is inevitable, which is not necessarily the case with the meaning intended in the English text. The translation solution also fails to convey the original inferences of “the boundary between two areas” and the necessity of “balance”. However, the translation was considered one of the closest equivalents of the original metaphor and classified acceptable.

One translator found a translation that uses the original metaphor DANGEROUS ACTION IS DANGEROUS MOVEMENT:

(48) ...tietävät olevansa veitsenterällä…
('know that they are on the knife’s edge')
...tietävät kävelevänä veitsenterällä
('know that they’re walking on the knife’s edge')

This was regarded as an acceptable translation since it not only highlights the aspect of careful movement in a very risky location, but also manages to bring out the domain of “balance” and to communicate the idea of “boundary” between two areas.
The Translog protocol revealed that the above translator first got fixated on the domain of “walking” in the English expression and translated it literally into Finnish as kävellä. After some processing, it was changed into the more suitable olevansa (‘being’). The verb kävellä was also shown in another translator’s key log file before the production of an acceptable translation.

Three of the translations were not metaphorical but expressed the idea of ‘taking a risk’. See the following examples:

(49) …tietävät, että he tekevät riskaabelin valinnan
    (‘know that they’re making a risky choice’)
(50) …tietävät, että he ottavat melkoisen riskin
    (‘know that they’re taking quite a risk’)

These paraphrases indicate that the translators were able to understand the original idea, but had a hard time finding a good equivalent metaphorical translation in Finnish or considered the non-metaphorical ones more suitable. However, it was surprising that none of the translators chose the expression tasapainotella jnk välillä (‘to balance between’), which is probably the most conventional metaphorical equivalent in Finnish in this kind of context.

As hypothesized (see 3.2), the complex metaphorical expression with different mapping, to walk a fine line, caused considerable difficulty to the translators, which showed in different ways in their translation products and processes. Five translators could not find a good Finnish equivalent to the expression, and there was fixation to be seen both in the translation products and processes.

5.3 RESULTS

The purpose of the experiment was to find out 1) whether it is more difficult to translate complex metaphors than primary metaphors and 2) whether it is more difficult to translate metaphors whose counterparts in the source and target languages utilize different conceptual domains than metaphors which utilize similar conceptual domains in the source and target languages. The difficulty of translation was measured by four variables: 1) acceptable translations, 2) blank translations, 3) fixation, and 4) time of translation. The indicators have been illustrated with examples in 4.5 above, and their applicability will be more thoroughly discussed in Chapter 7. The results of the quantitative analyses of the experiment will be reported and discussed in the following.

5.3.1 Acceptable Translations

It was hypothesized on the basis of the conceptual metaphor theory that the translations of primary metaphors and the translations of metaphors with similar mappings would display a higher number of acceptable translations than the translations of complex metaphors and metaphors with different mappings. The following table shows the distribution of acceptable translations of the different types of metaphors:
Table 3. Acceptable translations in numbers and in per cent (%) in Experiment I.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Similar Domain</th>
<th>Different Domain</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td>95/112, 85 %</td>
<td>121/176, 69 %</td>
<td>216/288, 75 %</td>
</tr>
<tr>
<td>COMPLEX</td>
<td>164/224, 73 %</td>
<td>194/336, 58 %</td>
<td>358/560, 64 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>259/336, 77 %</td>
<td>315/512, 62 %</td>
<td>574/848, 68 %</td>
</tr>
</tbody>
</table>

As hypothesized, there were a higher number of acceptable translations of metaphorical expressions based on primary metaphors than of those based on complex metaphors. Altogether 75 per cent of the translations of primary metaphors were acceptable, while only 64 per cent of the translations of the complex metaphors were considered acceptable. The difference was statistically highly significant by Chi square test with Yates’ correction ($p < 0.001$). This supports the idea of the suggested universal experiential basis of primary metaphors, which should make them easier to understand and translate.

Furthermore, the results show that primary metaphors were easier to translate than complex metaphors both in cases where the metaphorical expression utilized a similar domain in source and target languages (85 per cent vs. 73 per cent acceptable translations) and in cases where the metaphorical expression utilized a different domain in source and target languages (69 per cent vs. 58 per cent acceptable translations). The differences are statistically significant ($p < 0.05$). In cases of different mapping, where the metaphor types manifest differently at the language level, the difference in the number of acceptable translations may thus be attributed to the primary vs. complex nature of the conceptual metaphors. In other words, it seems like the conceptual shift from one domain to another is easier to carry out, if the metaphor is based on a basic primary experience.

The most significant difference ($p < 0.001$) in the results was found between the translations of metaphorical expressions grounded on similar domains in English and Finnish and expressions grounded on different domains. In total, the share of acceptable translations in different mapping conditions was 62 per cent, while the share of acceptable translations in similar mapping conditions was 77 per cent.

Furthermore, when the complexity of the metaphor is taken into account, there was a statistically significant difference to be seen both in the translation of primary metaphors and in the translation of complex metaphors in cases where the source and target language equivalents used a different conceptual domain. The effect of domain was highly significant ($p < 0.001$) in the translation of complex metaphors: only 58 per cent of complex metaphors with different mapping were acceptable compared to 73 per cent of acceptable translations of complex metaphors with similar mapping. Also the difference between acceptable translations of primary metaphors utilizing different mapping (69%) versus similar mapping (85%) was significant ($p < 0.01$). This means that the complexity of the metaphor alone did not make the translation more difficult, but it was strongly affected by the conceptual domain used in the metaphor, in particular when the metaphorical expression was complex.
5.3.2 Blank Translations

It was assumed that the translations of complex metaphors as well as the translations of metaphors grounded on incompatible mappings in English and Finnish would produce more blank translations than those of primary metaphors and metaphors with compatible mappings in English and Finnish. Blank translations were considered one type of unacceptable translations in the present study. Table 3 below presents the number of blank translations per each type of metaphor:

Table 4. Blank translations in numbers and in per cent (%) in Experiment I.

<table>
<thead>
<tr>
<th></th>
<th>SIMILAR DOMAIN</th>
<th>DIFFERENT DOMAIN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td>12/112     11 %</td>
<td>20/176 11 %</td>
<td>32/288 11 %</td>
</tr>
<tr>
<td>COMPLEX</td>
<td>7/224 3 %</td>
<td>31/336 9 %</td>
<td>38/560 7 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19/336 6 %</td>
<td>51/512 10 %</td>
<td>70/848 8 %</td>
</tr>
</tbody>
</table>

The analysis of blank translations produced evidence for the hypothesis that the similarity / dissimilarity of the conceptual mapping affects the number of blank translations and thus, the difficulty of translation. The calculations by Chi square test with Yates’ correction shows that there was a significant difference ($p < 0.05$) between the number of blank translations in the translations of metaphorical expressions involving a different conceptual domain (10%) and in the translations of metaphorical expressions involving a similar conceptual domain (6%).

However, the effect of the mapping was significant only in case of complex metaphors ($p < 0.05$), whereas domain did not have any effect on the translation of primary metaphors ($p > 0.05$). This indicates that complex metaphors were more difficult to translate if they exploited different conceptual domains in English and Finnish. No such difference was observed in the translation of primary metaphors.

With regard to the hypothesis concerning the distinction primary vs. complex metaphors, the results suggest that primary metaphors would be easier to translate than complex metaphors. The results show that there were a higher number of blank translations for primary metaphors (11%) than for complex metaphors (7%). The difference was significant ($p < 0.05$). But it is only in the case of metaphorical expressions with similar mappings in the source and target languages where the primary vs. complex type of metaphor plays a role. More accurately, primary metaphors with similar domains were left out more often than complex metaphors with similar domains ($p < 0.01$). When the domain was different, there was no significant difference between primary and complex metaphors ($p > 0.05$). Complex metaphors with different mappings were slightly easier to translate (9% blank translations) than primary metaphors with different mappings (11% blank translations).

The findings about the effects of the distinction primary vs. complex metaphor are controversial with the results measured by acceptable translations and suggest that primary metaphors, especially the ones with similar mappings, would be more difficult to translate than complex metaphors. It seems plausible that other factors have contributed to the findings, and blank translations may indicate something else than the difficulty of producing a translation. It can be assumed that leaving out an
expression may have more to do with other factors and/or some aspects of the experiment material.

The results may be partly explained by some complicated sentences including both primary metaphors and complex metaphors with different mappings (including Example [31] above). Many translators struggled with the sentences, as revealed by the Translog protocols, and ultimately left the sentences out in their translations; most likely due to the difficulties in translating complex metaphors but, at the same time, the primary metaphors were left out and counted as blank translations. Since the number of primary metaphors with similar mappings was small, the effect on the overall results became significant.

To sum it up, the number of blank translations in the experiment was affected by both the type of the metaphor – primary or complex – and the compatibility vs. incompatibility of the conceptual domain of the metaphor. However, compared to the results of acceptable translations, it seems that blank translations do not indicate translation difficulty as directly as acceptable translations, as was hypothesized, but must be studied further on a case by case basis.

5.3.3 Fixation

It was hypothesized that there would be more fixation observed in the processes of complex metaphors and metaphors with different mappings in the source and target languages compared to primary metaphors and metaphors with similar mappings. The following table demonstrates the distribution of fixation observed in the processes of different types of metaphors:

Table 5. Fixation in numbers and in per cent (%) in Experiment I.

<table>
<thead>
<tr>
<th></th>
<th>SIMILAR DOMAIN</th>
<th>DIFFERENT DOMAIN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td>2/112 2 %</td>
<td>6/176 3 %</td>
<td>8/288 3 %</td>
</tr>
<tr>
<td>COMPLEX</td>
<td>6/224 3 %</td>
<td>17/336 5 %</td>
<td>23/560 4 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8/336 2 %</td>
<td>23/512 5 %</td>
<td>31/848 4 %</td>
</tr>
</tbody>
</table>

The overall number of fixations was very low in all categories, and the results must therefore be interpreted with caution. All the differences between fixations occurring in the translation of different types of metaphors were marginal, and no statistically significant differences were found by Chi square test with Yates’ correction.

The results show that the translators got most often (in 5 per cent of the cases) fixated during the processes where they translated complex metaphorical expressions utilizing different conceptual mappings or domains. The biggest difference between different groups of metaphors can be attributed to the conceptual domain that the metaphorical expressions originate from: there was more fixation observed in the translation processes of metaphorical expressions using different domains in the equivalent expressions in the source and the target languages (5%) than in the translation processes of expressions using similar domains (2%). The difference did not, however, reach statistical significance ($p > 0.1$).
There was also a notable difference between the translation processes of primary metaphors with different domain and complex metaphors with different domain. More specifically, there was fixation to be observed in 5 per cent of cases of complex metaphors using different domains whereas in cases of primary metaphors using different domains, there was fixation only in 3 per cent of the cases. In other words, the difference in the conceptual domain used did not cause as much fixation in the translation of primary metaphors as in the translation of complex metaphors. The difference was not statistically significant, though \( p < 0.5 \). This finding is compatible with the results measured by acceptable translations, viz. that the assumed shared physical basis of primary metaphors helps in translating metaphorical expressions even if the metaphorical mappings and, thus, the domains used in the linguistic realization are different in the source and target languages.

The translation processes of primary metaphors as a whole (3%) revealed slightly less fixation than the translation processes of complex metaphors (4%). This can tentatively be attributed to the idea that primary metaphors can be understood and translated with less cognitive effort and are thus easier to translate than complex metaphors also in cases where there are differences in their linguistic realizations between languages.

In conclusion, the results presented above did not bring any statistically significant evidence of fixation and processing difficulty between the two different types of metaphors. This may be due to the fact that the number of occurrences was too low to make any generalizations. However, certain tendencies consistent with other results could be seen. The role of fixation in the difficulty and cognitive effort of translation seems to be more complicated. Fixation will be examined and discussed in more depth in chapters 6 and 7 in the context of Experiment II.

### 5.3.4 Time of Translation

The times of the translation processes of primary vs. complex metaphors and metaphors with similar vs. different mappings were also expected to reveal differences in the cognitive effort of their processing. A summary of the translation times recorded in the Translog protocols is provided in the following.

Table 6. The average time of translation per type of metaphorical expression in seconds (s) in Experiment I.

<table>
<thead>
<tr>
<th></th>
<th>SIMILAR DOMAIN</th>
<th>DIFFERENT DOMAIN</th>
<th>TOTAL AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td>8 s</td>
<td>11 s</td>
<td>10 s</td>
</tr>
<tr>
<td>COMPLEX</td>
<td>11 s</td>
<td>15 s</td>
<td>14 s</td>
</tr>
<tr>
<td>TOTAL AVERAGE</td>
<td>10 s</td>
<td>14 s</td>
<td></td>
</tr>
</tbody>
</table>

The analysis of the times of translation shows that the translators spent more time in average in translating metaphorical expressions that manifest complex metaphors (14 seconds) than metaphorical expressions that manifest primary metaphors (10 seconds), excluding the aspect of the similarity/difference of their metaphorical mapping (domain). The statistical difference as determined by ANOVA is highly significant \( p = 0.0004, F = 12.461 \). In addition, there was a notable difference \( p = 0.012, F = 6.385 \)
between the times of translating metaphorical expressions that use similar conceptual domains in English and Finnish (10 s) and metaphorical expressions that use different conceptual domains in English and Finnish (14 s). These results are consistent with the results of the other analyses (except blank translations) and indicate that the translation of metaphorical expressions based on complex metaphors that utilize different conceptual domains in source and target languages requires more cognitive effort than the translation of metaphorical expressions based on primary metaphors that tend to use similar conceptual domains in source and target languages.

The translation times were longer both for primary metaphors and complex metaphors, when the metaphorical mapping of the expression was different in the two languages. However, the difference between primary metaphors with similar mapping (8 seconds) vs. primary metaphors with different mapping (11 seconds) was not quite statistically significant ($p = 0.052, F = 3.828$), while the difference between complex metaphors with similar mapping (11 seconds) vs. different mapping (15 seconds) was ($p = 0.044, F = 4.080$). Similarly to other results given above, this finding suggests that complex metaphors are slightly more affected by the domain than primary metaphors.

The significant ($p = 0.004, F = 8.255$) difference between the primary metaphors with different mapping condition (11 seconds) and the complex metaphors with different mapping condition (15 seconds) is particularly interesting, since it further supports the idea that there is something about primary metaphors that makes them easier to translate than complex metaphors even in the cases where the conceptual domains used in the equivalent metaphorical expressions are different. This could be due to the shared universal bodily basis of primary metaphors, as has been suggested by cognitive linguists. Complex metaphors, on the other hand, do not have any shared conceptual grounding and therefore it is logical that the domain plays a larger role in their understanding and translating. It can thus be said that in different mapping conditions, it is more decisive for the cognitive effort whether the metaphor is of a primary or complex type.

The most time-consuming metaphorical expressions to translate, i.e. 15 seconds per expression in average, were complex metaphorical expressions that do not share the conceptual source domain with the equivalent expressions in Finnish, while primary metaphorical expressions with shared domains were translated in the shortest time, i.e. 8 seconds per expression in average. Out of the individual expressions, the longest pauses were clustered around some complex metaphors with different mapping, viz. the expressions blindsided, which took 39 seconds in average to translate, to take the high road (35 seconds), to have one’s work cut out for oneself (26 seconds), downscale – upscale (25 seconds), and to walk a fine line (21 seconds). The translation products and processes of some of these metaphorical expressions have been demonstrated earlier in this study.

The analysis of translation times is in line with the results produced by the other tools of analysis presented above with the exception of blank translations. It brings additional support to the original hypothesis that it takes more cognitive effort to translate complex metaphors than primary metaphors and that the use of different conceptual domains in the equivalent metaphorical expressions in the source and target languages increases the cognitive effort required. The higher effort seems to correlate with the difficulty of the task. The conformity of the results of the time analyses with the results of the other analyses also suggests that time of translation is as a reliable indicator of difficulty of translation.
5.4 METAPHORS AND TEXTUAL COHERENCE

During the analysis of the translation solutions in Experiment I, some interesting aspects about metaphors were observed that fall outside the primary focus of the current study but deserve attention and give rise to further investigations. No statistical calculations were made on these aspects, so the analyses are based on qualitative considerations. The observations will be shortly dealt with below.

5.4.1 Metaphoricity

The experiment text was loaded with metaphorical expressions typical of the American political discourse. Since the general purpose of translation is not only to convey the original message but also the character and style of the original text as closely as possible to the readers of the target language, it was hypothesized that the translators would make an effort to preserve the metaphoricity of the experiment text in their translations. The tendency for translators to preserve the metaphoricity of the original text has been discussed in research literature before, e.g. in Bible translation by McElhanon (2006) and in literary translation by Burmakova and Marugina (2014).

The translations produced in Experiment I were studied further with the purpose of finding out whether the Finnish translations were as metaphorical as their English counterparts as well as whether there were any differences between the different metaphor categories in this respect. Therefore, it was determined whether the Finnish translation equivalents were metaphorical expressions or non-metaphorical paraphrases. Conventionalized metaphors, such as “kannattaja” (‘supporter’) were categorized as metaphorical, while fossilized or dead metaphors that have lost their metaphorical meaning, such as “käsittää” (meaning ‘fathom’, developed from the word ‘hand’) were not. Blank translations are included in the analysis and counted as non-metaphorical translations. The distribution of metaphorical translations is displayed in the table below:

Table 7. Metaphoricity of translation in Experiment I.

<table>
<thead>
<tr>
<th></th>
<th>SIMILAR DOMAIN</th>
<th>DIFFERENT DOMAIN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td>32/112</td>
<td>103/176</td>
<td>135/288</td>
</tr>
<tr>
<td></td>
<td>29 %</td>
<td>59 %</td>
<td>47 %</td>
</tr>
<tr>
<td>COMPLEX</td>
<td>170/224</td>
<td>134/336</td>
<td>304/560</td>
</tr>
<tr>
<td></td>
<td>76 %</td>
<td>40 %</td>
<td>54 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>202/336</td>
<td>237/512</td>
<td>439/848</td>
</tr>
<tr>
<td></td>
<td>60 %</td>
<td>46 %</td>
<td>52 %</td>
</tr>
</tbody>
</table>

The results show that about half of all the translations were metaphorical. Reversely, this suggests that about one half of the original metaphors were translated either non-metaphorically with a paraphrase or left out. The translations of complex metaphors included a slightly higher number of metaphorical translations (54%) than the translations of primary metaphors (47%). The difference reached statistical significance ($p < 0.05$). More interesting was, however, the difference between primary and complex metaphors when categorized according to the similarity/difference of their conceptual domains. The lowest share of metaphorical translations, that is 29 per cent,
was found in cases of primary metaphors with similar domain, while the complex metaphors with similar domain were most often, that is in 76 per cent of the cases, translated with a metaphorical expression. This finding could be attributed to the idea that primary metaphors, which utilize similar conceptual domains in the majority of the languages and cultures, are so natural and conventional that they are not recognized as metaphors any longer, and thus the translators did not see it necessary to preserve these in their translations. It is furthermore plausible that primary metaphors with similar mapping may not be translated as individual expressions but integrated in other expressions or rendered by means of grammar or sentence structure. On the other hand, it can be assumed that complex metaphors were clearly recognized as metaphors, as they stick out in the text and play an important role in creating the general style of the text, and were therefore maintained more often in the translated text. Consistent findings have been obtained e.g. by Fernández, Velasco Sacristán and Fuertes Olivera (2005), whose study indicates that recognizable metaphors are usually translated by copying the original metaphors, and Burmakova & Marugina (2014), who discovered that metaphors with literal counterparts (that corresponds to the idea of similar mapping condition) are more likely to be preserved in translations. None of the earlier studies has taken into account the division of primary and complex metaphors, though.

There was an opposite kind of difference observed between the translations of the metaphorical expressions using different domains in English and Finnish. The translations of primary metaphors with different mapping were 59 per cent metaphorical, whereas only 40 per cent of the translations of complex metaphors were metaphorical. Keeping in mind the findings reported above concerning the difficulty of translation, this difference could be explained by the idea that primary metaphors, even if they utilize different domains in the source and target languages, have a shared physical basis and thus the conceptual shift to the equivalent source domain in the target language is easier to make, while complex metaphors have no such shared grounding and therefore it takes more effort to find equivalent expressions for them and, in particular, equivalent metaphorical expressions for them.

A more general reason for not translating the English metaphorical expressions with Finnish metaphorical expressions can be attributed to cultural differences. Deignan (2005:27) and Kövecses (2005:174–176) have found that metaphors describing opposition, such as those using the domains of WAR, SPORT, COMPETITION, are typical for American political discourse. It can be speculated that these metaphors are more strongly entrenched in American than in Finnish political texts, and the metaphorical expressions based on these metaphors are more aggressive and harsh than the ones used in Finnish. Due to this, the translators may have considered some metaphorical expressions inappropriate in the Finnish context that favours more neutral style.

The results presented above indicate that metaphorical expressions are not always translated as metaphorical expressions. In some cases, the share of metaphorical translations was less than a half. The reasons for this can be many. The results of this study suggest that finding an equivalent metaphorical expression was in some cases too difficult. On the other hand, leaving out a metaphorical expression or replacing it with a literal, non-metaphorical expression could also be a conscious translation strategy. It can be assumed that the translators sometimes considered a zero or literal translation to be more suitable in the specific textual context but also in the larger context of culture and society.
5.4.2 Variation of Conceptual Domains

It was hypothesized that the translations of complex metaphors would display a greater variety of conceptual source domains than the translations of primary metaphors, both because of the larger spectrum of opportunities complex metaphors offer and also because a greater variety in translation can be hypothesized to reflect the difficulty of translation. Similarly, it was hypothesized that the translations of metaphorical expressions using different domains in English and Finnish would be more versatile than the translations of metaphorical expressions using similar domains.

These hypotheses got support in Experiment I, as illustrated above (in 5.4.) by the translations of the metaphorical expressions to drop, to dig and to walk a fine line, among others. The translations of the metaphorical expressions based on complex metaphors in the experiment showed a colourful selection of the most imaginative source domains, some of which seemed to be self-created, whereas there was less variation in the translations of the metaphorical expressions manifesting primary metaphors. The Finnish translations of primary metaphors were rather consistently taken from the same source domain (either the one used in the original metaphor or another one) among all the translators, and the lexical choices were often exactly the same as well, despite the conceptual mapping of the original metaphorical expression. It was notable that also primary metaphors with different mapping tended to be translated in a systematic and consistent way into Finnish. If the original metaphorical expressions were translated into Finnish using a non-metaphorical paraphrase, these showed high uniformity as well.

The examination of the translation material brought out some interesting metaphorical domains characteristic of the Finnish culture and language. These included domains that were inspired by traditional Finnish activities, such as “hunting” or “fishing”, in expressions such as kalastaa/metsästää ääniä (‘fish/hunt votes’) See the following example:

[28] Facing a blizzard of possibilities, parties traditionally begin by making one broad choice: do they concentrate more on winning undecided or independent voters.

(51) Puolueilla on suunnattomasti mahdollisuuksia alussa, mutta perinteisesti ne keskit-tyvät valitsemalla sen, kenen ääniä aletaan metsästää: itsenäisten äänestäjien vai niiden, jotka eivät vielä ole tehneet valintaansa.

(‘The parties have an enormous number of possibilities in the beginning, but traditionally they concentrate on choosing the one, whose votes they start to hunt: independent voters or those who haven’t made their choice yet.’)

References to the cold Finnish climate and winter were made by several translators. Examples of metaphorical expressions utilizing these culture-specific conceptual domains included the expressions hypätä jonkun kelkkaan (‘jump in somebody’s sledge’), which means ‘to begin to support someone’, or tehdä hallaa (‘make frost’), which means ‘to do harm’:

[6] It’s amazing how Lieberman dropped everything when he jumped on the Gore election train.
On hämmästyttävää, miten Lieberman pystyi jättämään menneisyytensä saman tien kun hyppäsi Goren kelkkaan. ('It’s amazing, how Lieberman could leave his past behind straight away when he jumped on Gore’s sledge.')

Hätkähdyttävä on se, että Lieberman käänsi täysin kelkkansa, kun hyppäsi Goren vaalijunaan. ('Amazing is that Lieberman completely turned his sledge when he jumped on Gore’s election train.')

Gore has been running a campaign based on “specifics”, hammering Bush for not offering more high-fiber proposals.

Goren kampanja on perustunut yksityiskohtaisiin asiakysymyksiin, mikä puolestaan on tehnyt hallaa yleiskysymyksiin keskittyville Bushille. ('Gore’s campaign has been based on detailed substance questions, which in part has made frost to Bush who has been concentrating on general questions.')

The variety of different metaphors in the translations was vast, in particular in the translations of the complex metaphors, but there was some systematicity and conformity to be observed at the level of the text as a whole with regard to the use of specific conceptual domains. This seemed to serve a more general, textual purpose.

5.4.3 Coherence of Metaphors

The examination of all the translation material used in the test, aside from the metaphorical expressions that were the actual focus of the study, revealed an overarching tendency to treat the sentences as a whole text and to preserve the metaphoricity and colourfulness of the original text. No statistical calculations were made, however, because so the analyses are more descriptive and serve as a starting point for more detailed investigations. This showed for instance in that the translators added metaphorical expressions in places in their translations where the original sentences did not have any. Some examples are presented below:

[3] The Democrats know they’re walking a fine line by picking a Centrist running mate all the while calling for the workers to unite.

[55] Demokraatit tietävät, että heillä tulee oltavat tukalat oltavat keskus-talaisen ehdokkaan, vaikka he jatkuvasti käskevät täskevät työläisten puhaltaa yhteen hiileen. ('The Democrats know they will be in an uncomfortable situation, if they choose a Centrist candidate, even if all the while asking the workers to blow on the same coal.')

[17] If Gore’s convention goes the way he hopes, the choice could turn out to be the beginning of a new public attitude toward him – one that will make this a new race.

[56] Jos Goren yritys toimii hänen toivomallaan tavalla, valinta saattaa muuttaa kansan julkista suhtautumista häneen, ja se puolestaan tuo uutta tuulta kilpaan. ('If Gore’s effort works as he wishes, the choice can change the people’s public attitude to him, and this would in turn bring new wind to the race.')

It was also notable that there was consistency in the domains used in the translated metaphorical expressions. Particularly the domains of WAR, COMPETITION and GAME tended to be used as sources for translations, regardless of the domain used in
the original metaphorical expression or whether there was a metaphorical expression at all in the original text. See an example:

[26] The problem with playing the character card is that you undermine your own message.

(57) Ongelmana siinä, että hyökkää toisen henkilöä vastaan on se että oma viesti jää tyhjäksi.
('The problem with attacking the other’s person is that your own message remains empty.’)

It appeared that also in cases where the original metaphor was not understood, the translators often resorted to a translation which utilized one of the dominant metaphors. Below are some examples of translations taken from the domains of RACE and GAME:

[34] Lieberman and Gore were so upbeat last week that it was hard not to wonder if the other shoe was going to drop.

(58) Lieberman ja Gore olivat viime viikolla niin uupuneita, että toinen heistä olisi hyvinkin saattanut pudota kisasta.
('Lieberman and Gore were last week so tired that one of them could’ve easily been dropped out from the competition.)

[37] No one as evil as Saddam Hussein has cropped up since, except the nearly down-and-out Slobodan Milosevic.

(59) Ketään yhtä ilkeää kuin Saddam Hussein ei ole ilmestynyt kansainvälisille kentille, melkein pelinsä menettänyttä Slobodan Miloseviciä lukuunottamatta.
('No one as evil as Saddam Hussein has appeared in international fields, despite Slobodan Milosevic who has almost lost his game.’)

Furthermore, the translators tended to choose a metaphorical expression that utilized the same domain as the metaphor(s) in the same or the previous sentence, regardless of the source domain used in the individual metaphorical expression. For example, one translator first translated the following sentence with several metaphorical expressions by using the domain of BUILDING:

[14] A year and a half spent building a policy foundation for the Bush candidacy could come down to whether the man has the right answer during a single 30-second exchange in a television debate.

(60) Kaikki se, mikä on rakennettu Bushin tueksi puolentoista vuoden ajan saattaa romahdta puolessa minuutissa, mikäli Bush vastaa väärin televisioväittelyssä.
('All that’s been built for Bush’s support in a year and a half may come down in half a minute, if Bush answers wrong in a television debate.’)

A little later in the text, the following sentence [19] was translated utilizing the same domain, even if the sentence did not have any equivalent metaphorical expression:

[19] Here they hope to get to raising doubts whether Bush has the weight for the job.

(61) Niiin pyritään horjuttamaan Bushin uskottavuutta ja tätä kautta sopivuutta presidentiksi.
('This way they try to undermine Bush’s credibility and through this his suitability for a president.’)
Thus, it seems that some general metaphorical structures were active throughout the whole translation performance and directed the translators' choices. The findings illustrated above could also be interpreted as an intention to create uniformity in the translations.

Coherence and cohesion of translated texts has been studied by Blum-Kulka (1986), Nida (1997), among others. As translation is considered an act of communication, the translator can be considered a communicator who aims at retaining the coherence of the source text in the translated text using different approaches (Zheng 2009), despite the fact that coherence may be more difficult to sustain in the translation than in the original text, as argued by Hadla (2015). The translation material in this experiment was not a whole text but a collection of separate sentences, dealing with a common subject. Nevertheless, the translations disclosed efforts to create coherence not only within the individual sentences but also between the sentences. It would be interesting to study whether this was a conscious strategy.

The findings about the conceptual domain activation during metaphor translation and the role of metaphor in creating textual coherence are more thoroughly studied in the context of Experiment II that used a complete text as the experiment material. The results of the analyses are reported in Chapter 7.

5.5 SUMMARY

The experiment reported above provided convincing evidence that there are differences in the translation between metaphorical expressions depending on their conceptual structure and/or linguistic realization. The hypotheses received fairly strong support, and the experiment yielded general information about the translation of metaphors as well as the cognitive reality of metaphors in translation.

The experiment lent strong support to the hypothesis that the translation of metaphorical expressions based on primary metaphors is easier and requires less cognitive effort than that of metaphorical expressions based on complex metaphors. Also the hypothesis that different conceptual domains used in the metaphorical counterparts in the source and target languages make translation more difficult and increase the cognitive effort invested in the process proved correct. Indications of the difficulty and higher cognitive effort in the translation of complex metaphors were obtained by all the variables used, except blank translations, whose results were inconclusive, mostly due to the small number of occurrences. Differences were not, however, all statistically significant. For instance, the measured differences in fixation were all marginal due to the small number of cases.

The metaphorical expressions that were based on primary metaphors were easier and less effortful to translate than those based on complex metaphors, which suggests that the equivalent metaphorical expressions based on primary metaphors in English and Finnish share more conceptual or linguistic structure than those based on complex metaphors or, in case of non-metaphorical translations, the ideas conceptualized with primary metaphors are more similar and can more easily be understood and translated into Finnish by other means, such as paraphrase. Reversely, the translators put more cognitive effort into the translation of metaphorical expressions based on complex metaphors and the translations were more often unacceptable, which indicates that there are more conceptual and linguistic differences between complex metaphors between English and Finnish, as suggested in the theory of primary and
complex metaphors. This finding reinforces the idea embedded in the conceptual metaphor theory that primary metaphors are directly grounded in the basic human bodily experiences, which makes them globally shared and available, while complex metaphors do not have a direct experiential basis and allow more variation in the conceptual domains used.

The outcome of the experiment was not completely consistent though. The analysis of blank translations produced controversial results of the distinction between primary and complex metaphors. There were more unacceptable omissions in the translations of primary metaphors than in those of complex metaphors, both in cases of similar and different mapping conditions, which would imply that it is more difficult to translate primary metaphors than complex metaphors. It is more likely, however, that other factors have contributed to the finding. It is possible that primary metaphors, especially the ones which use similar domains in the majority of languages, are not recognized as metaphors because they have become so conventional or frozen. Metaphors of this kind no longer carry special stylistic meaning and may not be seen important to be conveyed in the translation. In contrast, it can be assumed that complex metaphors are more prominent in the text and play an important role in creating the text’s general character, and are therefore maintained more often in the translation. The analysis of the metaphoricity of the translations (see 5.5. above) yielded results that support this idea: the translations of primary metaphors with similar mappings included the lowest number of metaphorical expressions, that is only 29 per cent of the translations, which means that the majority of the translations of these metaphors were either left out or replaced by a literal expression. This is also an indication that primary metaphors may not be considered essential components of the text and the ideas carried by them can easily be expressed in other ways.

On the basis of the results, it is clear that the conceptual structure of and the relationship between primary and complex metaphors as well as their role in the translation or – more generally – in the cognitive processing of metaphorical expressions must be examined more closely.

The second hypothesis about the effect of the conceptual domain on the translation received strong support in the experiment. In fact, the conceptual domain or mapping used as the basis of the metaphorical expression was found to be a more significant factor in the difficulty and the amount of cognitive effort of translation than the primary vs. complex nature of metaphor. Metaphorical expressions grounded on both primary and complex metaphors were more difficult and effortful to translate if they exploited different conceptual domains in English and Finnish. This finding is consistent with the Cognitive Translation Hypothesis studied earlier by Mandelblit (1995), Burmakova and Marugina (2014), Al-Hasnawi (2007) and Sjørup (2011), among others, indicating that in cases of different mapping conditions the translators are forced to make a conceptual shift between two different conceptual domains during translation, which takes more time and makes the translation more difficult.

The differences in the difficulty and cognitive effort of translation between primary and complex metaphors came out more clearly in different mapping conditions. Primary metaphors were considerably easier to translate than complex metaphors in different mapping conditions where their linguistic realizations were different in the two languages. The effect of the conceptual domain used was significantly greater on complex metaphors than on primary metaphors. This result was acquired in the analyses with all variables consistently.
The results indicate that in cases where the complex metaphors utilize different domains in English and Finnish, the translators had no shared experiential ground that would help them to interpret the meaning of the metaphorical expression. Instead, they had to rely on the linguistic realization of the metaphor and the concrete domain used in the metaphorical expression. In cases of primary metaphors, on the other hand, the translator had the shared experiential grounding to draw from despite the different conceptualization and linguistic manifestation of the metaphor, which made the primary metaphors easier to translate even in the cases of different mapping. In Mandelblit’s terms, this finding indicates that it is easier for the translators to make a conceptual shift from one domain to another in cases where the metaphorical expression is grounded on a single basic experience, as in primary metaphors. However, it remains to be studied further at which point of the translation process the translators enter the conceptual level, if they do, and in which cases the translation process takes place mainly at the linguistic surface level.

Besides the statistical analyses with the independent variables of acceptability, blank translations, fixation and time of translation, the translation material yielded by Experiment I was examined with a more descriptive approach, concentrating on the rich variety of the translations produced for the original metaphorical expressions with regard to their metaphoricity and conceptual source domains as well as on the role of the metaphors in the text as a whole.

The original text was teeming with metaphors, so it was interesting to see whether the translators had retained the same metaphorical characteristics in their translations. The results of the analyses showed that slightly over half of the translations in total were metaphorical, but there were significant differences between the various groups of metaphors. The translations of complex metaphors were more often metaphorical than those of primary metaphors, and the translations of metaphorical expressions using similar domains in English and Finnish were more often metaphorical than the translations of those using different domains. The results can be interpreted from various perspectives. The fact that there were fewer cases of metaphorical translations of primary metaphors, especially of primary metaphors with similar mappings, can imply either that it was difficult for translators to find metaphorical equivalents for primary metaphors or that there were other reasons to change the metaphorical expression into a non-metaphorical one or leave it out, such as the neutrality of the metaphorical expressions or its minor textual role, as discussed above. The highest number of metaphorical equivalents was found in the translations of complex metaphors with similar mapping. Two reasons for this can be anticipated: complex metaphors using similar domains were, firstly, readily recognised as metaphors and thus judged crucial for the style of the text and, secondly, were not difficult to translate because the original conceptual domain could be exploited in the translation.

The finding that both primary and complex metaphorical expressions using similar domains in English and Finnish were more often translated with metaphorical expressions than those using different domains can be assumed to depend on the idea that in similar mapping conditions the equivalent Finnish expression could be found in the same conceptual domain as the original one, while in different mapping conditions the translator had to break free from the original domain and find a different domain in the Finnish language to be able to produce a suitable metaphorical translation equivalent. In this respect, this finding also supports Mandelblit’s Cognitive Translation Hypothesis (1995:482–495).
It was also hypothesized that the translations of complex metaphors and the translations of metaphors using different source domains in English and Finnish would show more variation than the translations of primary metaphors and metaphors with similar source domains, due to the wider spectrum of culture-specific and linguistic opportunities the former types of metaphors allow and offer for the choice of the conceptual domain they can utilize. Variation was used as one indicator of translation difficulty. The analysis of the translation material gave support to the hypothesis, but the variety itself became a more interesting object of investigation.

The variety of metaphors used in the translations was vast and colourful. The most common source domains were WAR, COMPETITION, RACE and GAME, which are typical metaphorical conceptualizations of “politics”, but also some more general metaphors were used frequently, such as PERSISTING IS STAYING ERECT or ACTION IS MOTION. The translations indicated that English and Finnish share many of the metaphors used to conceptualize the topic of politics, but the concrete objects or actions selected as linguistic representations of the metaphorical mapping are more culture-bound. The translations also included a noticeable number of metaphors that used domains characteristic of the Finnish language and culture, such as WINTER or FISHING. Thus, it seems that the translators’ choices were at least partially dictated by the conventionality of Finnish metaphors, in other words, there are certain prototypical concrete objects or actions that have been conventionalized in Finnish to conceptualize certain abstract ideas in the form of metaphorical expressions, and these were used in translations despite the original conceptualization in English.

When analysing the variety of the conceptual domains used in the translations of metaphorical expressions, it came out that the translators were rather systematic in their choices of metaphors. It appears that there were certain metaphors, typical of both American and Finnish political discourse, that the translators favoured also in cases where the original metaphorical expression utilized some other domain. These metaphors seemed to stay active throughout the whole translation performance conducting the choices of the translators. By maintaining the original metaphoricity and even adding it as well as by systematically using certain metaphors, the translators seemed to create coherence to the translated text. This was particularly interesting, since the experiment material was not a textual whole, but a collection of sentences with the same topic.

Also other reasons can be anticipated to have contributed to the results of Experiment I. For instance, the experiment text contained many complex metaphors that utilize the same conceptual domains and are linguistically realized in the same way in English and Finnish. These complex metaphors did not cause any significant difficulty of translation despite their complexity. There were also a few expressions classified as complex metaphors with a different domain that similarly were easy to translate. It appears that the key factor in these cases was the conventionality of the metaphors rather than the primary or complex nature of the metaphor or the incompatibility of the metaphorical mapping. This is in line with the results obtained by Tirkkonen-Condit (2002) and Yan, Noël and Wolf (2010), among others. The role and effect of the conventionality of metaphorical expressions should be studied further.

Signs of following more general translation strategies were also observed in the translation solutions. For instance, the translators did not always choose the “easiest” translation, even if a similar linguistic expression would have existed in English and Finnish, but consciously attempted to break free from the original metaphorical conceptualization, as revealed by the Translog protocols. It has been suggested that one
of the universal translation strategies is the avoidance of repetition (e.g. Jääskeläinen 2004). Signs of this were also seen in the translations produced by this experiment – if some idea or expression was repeated in the original text, the translators clearly made an effort to either leave out the repetitive expression or to replace it with a synonymous one. Translators have also been trained to be cautious of so-called word-for-word translations, which may have contributed to not always selecting the closest translation equivalent, even if it had been available in Finnish.

The role of context can never be ignored. In some earlier studies, context has been found to play a crucial role also in the comprehension and translation process of metaphors (e.g. Tirkkonen-Condit 2002). As illustrated above, it was clear that the translators adapted their translations both to the local context of the surrounding expressions or sentences and the global context of the Finnish language and culture.

From the viewpoint of the conceptual theory of metaphor, the experiment reported above provided further evidence for some of its claims but also revealed that the suggested compositional structure of metaphors into primary and complex metaphors requires further research. Also the idea of conceptual shift suggested by Mandelblit must be studied more closely to find out when and in which cases the translators actually access the conceptual level, if ever. In particular, the finding that some metaphorical conceptualizations were activated during the translation performance and stayed active and kept on stimulating and motivating the translators throughout the whole translation process, provided inspiration to study the textual role of metaphors more closely.

In the next two chapters, the analyses and results of the second experiment will be presented.
6 EXPERIMENT II – TESTING THE FOUNDATIONS OF THE COGNITIVE METAPHOR THEORY THROUGH PRIMED TRANSLATION

Experiment II was encouraged by the results provided by Experiment I about the differences in the translation of primary and complex metaphors, but the focus of Experiment II was more on the translation processes and the conceptual structure of metaphors. Contrary to Experiment I, the metaphorical expressions were in Experiment II translated as part of a whole text instead of independent sentences, so it was possible to gain more information of the translation of metaphors in more natural conditions as well as of the textual roles of metaphors.

Experiment II was designed to test the hypothesis that complex metaphors are semantically composed of primary metaphors. Assuming that this is true, activating a component primary metaphor should help in the cognitive processing of the complex metaphor. Since translation involves cognitive processing, it is motivated to use it as a method to find out whether primary metaphors are active in the processing of complex metaphors. It was hypothesized that if during the translation task the translators translate a metaphorical expression based on a primary metaphor, and subsequently a metaphorical expression based on a complex metaphor whose component the preceding primary metaphor is, the translation process of the latter becomes easier. This would be because the translators had already accessed and activated a part of the conceptual structure of the given complex metaphor. The role and activation of the metaphorical domains during the translation processes will be discussed more closely in Chapter 7.

Besides testing the main hypothesis, Experiment II was simultaneously expected to produce more evidence for or against one of the hypotheses tested and tentatively verified in Experiment I, namely that the translation of primary metaphors is easier than the translation of complex metaphors.

6.1 CONCEPTUAL ANALYSIS AND BUILDING UP THE PRIMING PAIRS

The metaphorical expressions in the experiment text were analyzed along the lines discussed in 2.2 and 4.4 above. The key steps of the conceptual metaphor analysis have also been illustrated in the “Metaphor Map” (see 2.2.2).

To begin with, the expressions were categorized as 1) primary or 2) complex metaphors, and the most suitable complex and primary metaphorical expressions for the experiment were identified. After this, the selected twelve expressions based on complex metaphors were broken down into their assumed primary components. Because the emphasis was on testing the compositional structure of the metaphors, the dimension of the linguistic realization (domain) of the metaphors had to be ignored.

In order to reach the desired priming conditions (see 4.6 above), the text had to be manipulated. This was done by implanting in the text some metaphorical expressions, either of a primary or a complex nature, so that the expressions formed pairs in
which the first of the expressions was a manifestation of a primary metaphor, such as make a move, and the second was a manifestation of some complex metaphor whose component the primary metaphor was, such as to stand pat. It was important to ensure that the modifications were as invisible as possible and the text remained natural and consistent. Another aim was to keep the distance between the primes and the targets short enough to obtain potential priming effects without too much interference from other expressions in the text.

As a result, there were two different texts: one containing twelve priming pairs that consisted of a primary metaphor and a complex metaphor, and another containing twelve control pairs that consisted of a non-metaphorical expression (or no expression) and a complex metaphorical expression. The former text was translated by the Test Group and the latter by the Control Group. In the following, two examples of the priming pairs formed will be presented.

The text passage below is extracted from the text to be translated by the Test Group (the metaphorical expressions selected for the test are in bold and the arrows show the priming pairs):

**TEXT PASSAGE A. (Test Group)**

[VIa] We reluctant hawks may disagree among ourselves about the most compelling logic for the seemingly low alternative of war – protecting America, relieving oppressed Iraqis or outrooting terrorism—but we generally agree that moves have to be made, the logic for standing pat does not hold.

Much as we wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.

The above passage contains a metaphorical expression standing pat, which means that no action or measures are taken, in this case by the United States towards Iraq. To stand pat is an expression based on a complex metaphor that could be formulated as POLITICS IS A CHESS GAME. This is a metaphorical cluster consisting of various complex metaphors and, consequently, multiple assumed component primary metaphors. It was not necessary to make a full conceptual analysis of this metaphor for this test, but only to identify some of its essential potential primary components. One of the key image-schematic structures that the expression to stand pat utilizes is the basic domain of “movement”; here the idea that there is no movement. This idea has its grounding on the basic metaphors ACTION IS MOTION and can be considered the most central primary metaphor utilized in the metaphorical expression in question. Therefore, the expression to make a move, meaning ‘to take action’, which exists in the same conceptual domain of GAME, was added in the text before the expression standing pat. Through these changes, the priming pair make a move + standing pat was formed. In the test, to make a move worked as a prime for standing pat that was the target expression.

As another example, the expression to take the high road, based on a complex metaphor MORAL ACTION IS MOTION ALONG AN ELEVATED PATH, was implanted in the text because it had turned out to be interesting in previous tests. It found a natural place in the sentence dealing with issues related to morality, since this expression intends to convey the idea of ‘thinking according to good moral principles’. The complex metaphor needed as a prime a metaphorical expression based on one of its
primary components, viz. ACTION IS MOTION or MORAL IS UP. The adjective low that besides its literal meaning has a meaning ‘morally not good’, a manifestation of the metaphor MORAL IS UP, was added to a suitable slot in the previous sentence. This way, a priming pair low + take the high road was created. In this pair, low was the prime for the target to take the high road.

In order to see the potential effect of the primes on the translation of the complex metaphorical expressions, the Control Group was given a slightly different text to translate. This group translated only the expressions grounded on complex metaphors, without any preceding primary metaphors. For example, the Control Group’s text passage did not contain the expression low and the expression moves have to be made was replaced by the non-metaphorical something has to be done. The equivalent text passage of the Control Group reads as follows:

**TEXT PASSAGE B. (Control Group)**

[VIb] *We reluctant hawks may disagree among ourselves about the most compelling logic for war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that something has to be done, the logic for standing pat does not hold.*

Much as we wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.

As a result of the steps described above, there was an experiment text with a total of 12 priming pairs which consisted of a metaphorical expression based on a primary metaphor followed by a metaphorical expression based on a complex metaphor whose component the preceding primary metaphor was. The translation of these complex metaphorical expressions was the focus of the experiment. Before reporting on the results of the experiment, the translation performances and the metaphorical analyses will be demonstrated with a number of examples.

### 6.2 ANALYSIS OF THE TRANSLATION MATERIAL

In the following, the translations of two priming pairs by the Test Group versus the corresponding pair of expressions by the Control Group will be presented and discussed.

#### 6.2.1 to make a move + to stand pat

The Test Group translated the priming pair make a move + stand pat in the following context:

[VIIa] *We reluctant hawks may disagree among ourselves about the most compelling logic for the seemingly low alternative of war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that moves have to be made, the logic for standing pat does not hold.*
Below are all the translations produced by the eight translators of the Test Group as identified in the printed final versions as well as Translog protocols, which provided also the intermediate translations. The Finnish translations for the target expression *standing pat* accompanied with translations into English are presented in the right column whereas the translations for the priming expression *moves have to be made* are in the left column. The intermediate translation versions are indented. Acceptable translations are underlined.

Table 8. Translations of *to make a move* and *to stand pat* by the Test Group.

<table>
<thead>
<tr>
<th>PRIME</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>to make a move</strong></td>
<td><strong>to stand pat</strong></td>
</tr>
<tr>
<td><em>on toimittava</em> (must act)</td>
<td>-</td>
</tr>
<tr>
<td><em>jotain täytyy tehdä</em> (something must be done)</td>
<td>-</td>
</tr>
<tr>
<td><em>jotain on tehtävä</em> (something must be done)</td>
<td><em>sivustakatsominen ei kestä</em> (watching from side does not last)</td>
</tr>
<tr>
<td><em>jotakin on tehtävä</em> (something must be done)</td>
<td>-</td>
</tr>
<tr>
<td><em>pelissä täytyy tehdä siirtoja</em></td>
<td><em>paikallaan pysymisen logiikalla ei ole pohjaa</em> (the logic of staying still does not have a basis)</td>
</tr>
<tr>
<td><em>jotain on tehtävä</em> (something must be done)</td>
<td><em>tuleen ei auta jäädä makaamaan</em> (there is no point lying in the fire) <em>paikallaanseisomisen logiikka ei auta</em> (the logic of standing still does not help)</td>
</tr>
<tr>
<td><em>jotain on tehtävä</em> (something must be done)</td>
<td><em>ei auta vain seistä tumput suorina</em> (it does not help standing mittens down)</td>
</tr>
<tr>
<td><em>siirtoja täytyy tehdä</em> (moves must be made)</td>
<td><em>paikallaan seisominen ei ole vaihtoehto</em> (standing still is not an option)</td>
</tr>
</tbody>
</table>

Five out of eight translations were acceptable. Three translators left the expression out, but this seemed to be an intended strategy, to avoid repetition of the preceding expression *something has to be done*, so the omissions were considered acceptable. Two of these translations are given below:

(62) …mutta olemme samaa mieltä, että *on toimittava* ---------.  
(‘but we agree that some action must be taken’)

(63) …mutta olemme kuitenkin yleisesti sitä mieltä, että *jotain täytyy tehdä*.  
(‘but we generally think that something has to be done’)

A non-metaphorical paraphrase was the most common translation for the prime *moves have to be made*. Only two translators retained the metaphorical nature in their translations and used an equivalent Finnish metaphorical expression originating from the original domain of “chess game”:

(64) …olemme yleensä sitä mieltä, että *pelissä täytyy tehdä siirtoja*…  
(‘we generally agree that moves have to be made in the game’)

(65) … olemme yleisesti ottaen samaa mieltä siitä, että *siirtoja täytyy tehdä*…  
(‘we generally taken agree that moves have to be made’
However, the two translators did not utilize the same domain of “chess game” in their translations of the immediately following target expression *standing pat*. The translations of *standing pat* presented below were metaphorical, but were based on other metaphors. The translator who produced the translation (64) above continued as follows:

(66) …*paikallaan pysymisen logiikalla ei ole pohjaa.*
     (‘the logic of staying still does not have a basis’)

Here, the translator combined the primary metaphor ACTION IS MOTION (“staying still”) with the complex metaphor PERSISTING IS STANDING ON FIRM GROUND (“does not have a foundation”). This was considered an acceptable translation.

The other translator (Example 65) translated the rest of the sentence in the following way:

(67) …*paikallaan seisominen ei ole vaihtoehto…*
     (‘standing still is not an option’)

The translation was not acceptable, since *seisominen* (‘standing’) is not idiomatic in this context. It appears that the translator became fixated on the English expression *standing*, which lead to the word-for-word translation. The case was, however, not considered process fixation in this study, since there were no signs of fixation or breaking free from it in the Translog protocol.

The two acceptable translations of *standing pat* utilized different metaphors than the original expression. See a translation with a metaphor referring to “fire” that is based on the idea that one should not stay in an uncomfortable or dangerous place:

(68) …*tuleen ei auta jäädä makaamaan.*
     (‘it does not help to remain lying in the fire’)

The excerpt from the Translog file shows that the translator typed this expression only in the second rerun of the text after first typing a literal translation of “standing still” (‘seisominen paikallaan’). The translation process took altogether 45 seconds. This was considered a case of fixation, as defined within the scope of this study, since it shows that the original linguistic structure interfered in the search of an appropriate translation equivalent in the target language.

Another acceptable metaphorical translation has its origin in the cold Finnish climate where people can get so frozen that they do not want to move but feel warmer standing in one place:

(69) …*ei auta vain seistä tumput suorina.*
     (‘it does not help to only stand mittens down’)

mutta • yleensä • olee ≤ imme • samaa • mieltä • [ • :11.39] siitä • että • jotakin • on • tehtävä • • • • • • • • • paikallaanseisomisen • logiikka • ei • auta

• • • • • ???????

---

[ • :27.47] tuleen • ei • auta • jäädä • makaamaan.

The excerpt from the Translog file shows that the translator typed this expression only in the second rerun of the text after first typing a literal translation of “standing still” (‘seisominen paikallaan’). The translation process took altogether 45 seconds. This was considered a case of fixation, as defined within the scope of this study, since it shows that the original linguistic structure interfered in the search of an appropriate translation equivalent in the target language.

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mutta • yleensä • olee ≤ imme • samaa • mieltä • [ • :11.39] siitä • että • jotakin • on • tehtävä • • • • • • • • • paikallaanseisomisen • logiikka • ei • auta

• • • • • ???????

---

[ • :27.47] tuleen • ei • auta • jäädä • makaamaan.
This translator rendered the original verb for “stand” (‘seistä’) in her translation, but completed it with an idiomatic and descriptive Finnish phrase of “mittens down” (‘tumput suorina’), expressing that a person is standing straight and inactive, with both hands hanging on the sides. This translation expresses the intended meaning and also matches the tone of the article.

It may be hypothesized that the complex metaphor POLITICS IS A CHESS GAME was activated for the above translators when they translated the prime into Finnish, but they did not continue to use the same domain in their translations of the target expression, which lead to unacceptable translations. Thus, translating the component primary metaphor did not help in finding a translation for the following complex metaphorical expression. Nor did it seem to have any effect on the metaphorical conceptualizations used in the Finnish translations of the complex metaphors. However, it is impossible to know on the basis of the translations alone what actually went on in the translators’ minds, for instance, whether they processed the metaphor at the conceptual level but still produced a word-for-word translation.

In the place of a metaphorical prime, the Control Group translated a non-metaphorical phrase prior to translating the target stand pat in the following text passage:

[VIb] We reluctant hawks may disagree among ourselves about the most compelling logic for the seemingly low alternative of war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that something has to be done, the logic for standing pat does not hold.

Below are the translation products of the Control Group (acceptable underlined):

Table 9. Translations of something has to be done and to stand pat by the Control Group.

<table>
<thead>
<tr>
<th>PRIME</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>something has to be done</td>
<td>to stand pat</td>
</tr>
<tr>
<td>jotain olisi tehtävä</td>
<td>aloillaan istuminenkaan ei auta asiaa</td>
</tr>
<tr>
<td>(something should be done)</td>
<td>(sitting still does not help the matter)</td>
</tr>
<tr>
<td>jotakin on tehtävä</td>
<td>ettei pattitilanne voi iatkua</td>
</tr>
<tr>
<td>(something must be done)</td>
<td>(that the pat situation cannot continue)</td>
</tr>
<tr>
<td>jotain on tehtävä</td>
<td>-</td>
</tr>
<tr>
<td>(something must be done)</td>
<td></td>
</tr>
<tr>
<td>jotain pitää tehdä</td>
<td>logiikka ettei tehdä mitään, ei toimi</td>
</tr>
<tr>
<td>(something must be done)</td>
<td>(the logic of doing nothing does not work)</td>
</tr>
<tr>
<td>jotain täytyy tehdä</td>
<td>mitään tekemättömyyen logiikka ei ole pätevä</td>
</tr>
<tr>
<td>(something must be done)</td>
<td>(the logic that nothing is done is not valid)</td>
</tr>
<tr>
<td>jotain on tehtävä</td>
<td>sivustalle katsominen ei ole vaihtoehto</td>
</tr>
<tr>
<td>(something must be done)</td>
<td>(watching from the side does not work)</td>
</tr>
<tr>
<td>jotain on tehtävä</td>
<td>sivustalle jääminen ei ole vaihtoehto</td>
</tr>
<tr>
<td>(something must be done)</td>
<td>(staying on the side is not an option)</td>
</tr>
</tbody>
</table>

The translations of the prime expression something has to be done were very similar; the most common translation was a paraphrase, like in the Test Group. But as a difference to the Test Group, the Control Group’s translations of the target expression to stand pat were less metaphorical, that is, they included a fewer number of metaphorical expressions than the translations of the Test Group. See an example:
Only one translator in the Control Group utilized the original metaphorical domain of “chess game” in the translation that brings out the intended idea of neither side taking action:

(71) …ettei pattitilanne voi jatkua.
(‘that the pat situation cannot continue’) 

Two acceptable translations in the Control Group, like one translator in the Test Group, used another metaphor grounded on the ideas BEING IN THE PERIPHERY IS BEING ON THE SIDE or BEING ACTIVE IS BEING IN THE CENTRE combined with the basic metaphor ACTION IS MOTION:

(72) …sivustka katsominen ei käy.
(‘watching from the side does not work’)

(73) …sivustalle jääminen ei ole vaihtoehto…
(‘staying on the side is not an option’)

To sum it up, there was no significant difference in the number of acceptable translations of the target expression standing pat between the Test Group and the Control Group. This suggests that the prime did not make the translation of the target easier. There were, however, some qualitative differences to be observed in the translations. The Test Group’s translations were more metaphorical than the Control Group’s. It may be that the metaphorical prime element in the Test Group’s text contributed to their efforts to maintain the metaphorical nature of the target expression in the translations.

6.2.2 low + to take the high road

As another example of the diversity of the metaphorical expressions, the translations of the Test Group for the priming pair low + to take the high road in the following context will be presented:

[VIIa] We reluctant hawks may disagree among ourselves about the most compelling logic for the seemingly low alternative of war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that moves have to be made, the logic for standing pat does not hold.

Much as we might wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.
The translations of the Test Group are displayed below.

Table 10. Translations of *low* and *to take the high road* by the Test Group.

<table>
<thead>
<tr>
<th>PRIME</th>
<th>TARGER</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>low</em></td>
<td><em>to take the high road</em></td>
</tr>
<tr>
<td>näennäisen pienestä sodan vaihtoehdon logiikasta (on the logic of the seemingly small alternative of war)</td>
<td></td>
</tr>
<tr>
<td>matalasta (low)</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>tehdä oikein (do the right thing)</td>
</tr>
<tr>
<td><strong>kuinka hyväksytäviä ovat perustelut sodalle</strong> (how acceptable the reasons for war are)</td>
<td></td>
</tr>
<tr>
<td>olla ylevä (try to be noble)</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
</tr>
<tr>
<td>näennäisesti vähäarvoista vaihtoehtoa sodalle (logic concerning the seemingly cheap alternative of war)</td>
<td></td>
</tr>
<tr>
<td>ajaa valtatiет (drive along the highway)</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
</tr>
<tr>
<td>alhaiselle sodan vaihtoehdolle (low alternative of war)</td>
<td></td>
</tr>
<tr>
<td>päästä muiden yläpuolelle (try to get above the others)</td>
<td></td>
</tr>
<tr>
<td>nousta korkeammalle (rise higher)</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>saada voiton ylimielisyystä (overcome arrogance).</td>
</tr>
<tr>
<td><strong>ilmeisen alhaiselle sodan mahdollisuuudele</strong> (seemingly low alternative of war)</td>
<td></td>
</tr>
<tr>
<td>lähteä lipettin (take to one’s heels)</td>
<td></td>
</tr>
</tbody>
</table>

The complex metaphorical expression *to take the high road* was particularly difficult to translate, as only two out of eight translators managed to produce an acceptable translation for it. This can be assumed to be due to the fact that no equivalent complex metaphor exists in Finnish. The prime expression *low*, on the other hand, was translated in an acceptable way by the majority of translators, which was expected, since Finnish includes many metaphorical expressions that utilize the vertical dimension UP-DOWN in conceptualizing morality. Four translations were omissions. Omission was considered an intentional translation strategy and did not change the original idea of the sentence. See the following examples:

(74) *Liberaalien keskuudessa on erimielisyyyttä siitä, kuinka hyväksytäviä ovat perustelut sodalle.*

(‘There is disagreement among the Liberals about how acceptable the reasons for war are.’)

(75) *Me vastahakoiset haukat voimme olla montaa mieltä sodan vaikuttimista.…*

(‘We reluctant hawks can have many opinions about the motivations for war…’)

Two translators found an acceptable Finnish metaphorical equivalent to *low*, even though one left it out from the final translation. The word *alhainen* utilizes the dimension UP-DOWN and brings along the aspect of morally bad action. One of the translations is given below:
Two examples of unacceptable translations will be presented below. The first is metaphorical:

(77) ...saatamme olla eri mieltä näennäisen pienestä sodan vaihtoehtoon logiikasta...

('we may disagree on the most compelling logic concerning the seemingly cheap alternative of war…')

It seems that the translator did not understand the idea of the original text. The first translation alternative to the expression *low* was a word-for-word equivalent *matala* (‘low’), which reveals fixation to the source domain of the English metaphor. The translator did not find any translation for the target expression *to take the high road* either, and left an empty space in the translation text.

Another translation solution was a paraphrase that did not convey the intended meaning:

(78) Me haluttomat hävittäjät saatamme olla eri mieltä pakottavimmasta logiikasta, joka koskee näennäisesti vähäarvoista vaihtoehtoa sodalle....

('We reluctant fighters may disagree on the most compelling logic concerning the seemingly cheap alternative of war…')

Based on the average good performance of the translators in translating the prime *low*, it could be hypothesized that the translations of the target *to take the high road* would be successful as well. On the contrary, the translations were imaginative and metaphorical but mostly unacceptable.

Two translators did not manage to produce any equivalent to the expression (blank translations). The dashes in the final translation as well as long pauses in the Translog protocol revealed that one of them could not understand or translate the expression despite the high cognitive effort devoted:

(79) Toivoimmepa miten paljon tahansa, että USA:n johto olisi järjestänyt asiat niin, että asetarkastajilla olisi aikaa kolmen kuukauden sijasta, yritämmepää -------------- huolehdimmepä....

('As much we wish that the US leadership would’ve arranged it so that the weapon inspectors would have, as much as we try --------------, as much as we worry….')

Another one left out the metaphorical expression, but the sentence still formed a logical and comprehensible whole, so the translation was considered acceptable:

(80) Niin paljon kuin toivoimmekin, että tarkastajilla olisi ollut aikaa kolmen kuukauden sijasta vuosi, niin paljon kuin yritämmekin välttää ylimielisyyttää ja kaksinaismoralia....

('As much we wish that the US leadership would’ve arranged it so that the weapon inspectors would have had a year instead of three months, as much as we try to avoid arrogance and double moralism…')
Only two out of the eight translators in the Test Group found an acceptable translation to the original expression. One of those was the following non-metaphorical translation:

(81) *Nyt yritämme tehdä oikein, tuomita ylpeyden ja kaksinaismoralismin...*  
(‘Now we try to do the right thing, to judge pride and double moralism...’)

The other acceptable translation was metaphorical, by using the word *ylevä* (‘noble’), which contains the aspect of “high” in Finnish. This expression is a solemn Finnish way of describing a morally fine person or action. See the translation below:

(82) *...ja vaikka kuinka yrittäisi olla ylevä ja arvostella hallinnon ylimielisyttä...*  
(‘...even though one tried to be noble...’)

The rest of the translations were inadequate and unacceptable, some even amusing. The fixation to the domain of “road” in the English expression resulted in the following translation, which cannot be used in standard (non-poetic) Finnish in other than literal meaning:

(83) *...vaikka kuinka yritämme ajaa valtatieltä...*  
(‘...even though we try to drive along the highway...’)

Another translator searched for appropriate metaphorical expressions from the domain of vertical dimension HIGH-LOW:

(84) *...me kuinka yrittäisi päästä muiden yläpuolelle...*  
(‘...despite how hard we tried to get above the others...’)

(...me kuinka yrittäisi *nousta korkeammalle*...)  
(‘...despite how hard we tried to rise higher...’)

One translator came up with a colourful but obsolete expression. It is hard to trace the etymology of the expression, but it is clear that it was not suitable for this context:

(85) *...vaikka yritämme lähteä lipettiin...*  
(‘...even though we try to take to our heels...’)

The text translated by the Control Group did not have the prime *low*. The corresponding text passage containing the complex metaphor to take the high road is given in the following:

[VIIb] *We reluctant hawks may disagree among ourselves about the most compelling logic for war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that moves have to be made, the logic for standing pat does not hold. Much as we might wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.*
The translations of the Control Group are presented below:

Table 11. Translations of low and to take the high road by the Control Group.

<table>
<thead>
<tr>
<th>PRIME</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no prime)</td>
<td>to take the high road</td>
</tr>
<tr>
<td>-</td>
<td>nähdä asian objektiivisen tasapuolisesti</td>
</tr>
<tr>
<td></td>
<td>(to see the matter objectively and impartially)</td>
</tr>
<tr>
<td>-</td>
<td>-                        asettua yläpuolelle</td>
</tr>
<tr>
<td></td>
<td>(set above)</td>
</tr>
<tr>
<td>-</td>
<td>ohittaa ylimielisyyden</td>
</tr>
<tr>
<td></td>
<td>(to pass arrogance)</td>
</tr>
<tr>
<td>-</td>
<td>valita viisaamman katsantotavan</td>
</tr>
<tr>
<td></td>
<td>(to choose a wiser viewpoint)</td>
</tr>
<tr>
<td></td>
<td>valita korkeamman katsantotavan</td>
</tr>
<tr>
<td></td>
<td>(to choose a higher viewpoint)</td>
</tr>
<tr>
<td>-</td>
<td>olla moraalisesti parempia</td>
</tr>
<tr>
<td></td>
<td>(to be morally better’)</td>
</tr>
<tr>
<td>-</td>
<td>yritämmekin olla menemättä siitä missä aita on matalin</td>
</tr>
<tr>
<td></td>
<td>(try not to cross where the fence is the lowest)</td>
</tr>
</tbody>
</table>

The first thing to be noted is that there were more acceptable translations in the Control Group (four out of seven) than in the Test Group (three out of eight). This result goes against the hypothesis that the prime makes the translation of the target easier. Instead, the prime seemed to make the translation of the target more difficult.

The majority of the translations of the Control Group were non-metaphorical. This result is consistent with the translations of the priming pair make a move + stand pat presented earlier. The translations of the targeted metaphorical expressions produced by the Control Group tended to be less metaphorical than the corresponding translations of the Target Group which translated a metaphorical prime in the text before translating the target expression. See three examples of non-metaphorical translations of the target expression to take the high road:

(86) …vaikka kuinka yritämme nähdä asian objektiivisen tasapuolisesti…
     ('even though how hard we try to see the matter objectively and impartially’)
(87) …vaikka miten yrittäisimme olla moraalisesti parempia…
     ('even though how hard we tried to be morally better’)
(88) …vaikka kuinka yritämme valita viisaamman katsantotavan…
     ('even though how hard we try to choose a wiser viewpoint’)
     …vaikka kuinka yritämme valita korkeamman katsantotavan…
     ('even though how hard we try to choose a higher viewpoint’)

The translation (86) was not accepted, because its meaning is incorrect, but the other two were considered acceptable. The Translog protocol of the translator who produced the translation number (88) uncovered fixation to the word high during the process.

A common Finnish metaphorical proverb utilizing the aspect HIGH-LOW was used by one translator but since the meaning was incorrect, the translation was not considered acceptable:
All in all, there was not any notable difference between the translation products of the Test Group and Control Group in terms of acceptability or blank translations. This indicates that priming the complex metaphorical expression *to take the high road* by its assumed constituent primary metaphor *low* did not help the translators to find an adequate translation for it. In some cases, it instead made the translation of the target expression more difficult. On the other hand, the processes of the Control Group revealed more fixation than those of the Test Group, which suggests that the prime may have somewhat decreased the cognitive effort during the translation process.

The quantitative results of the analyses will be summarized in the following.

### 6.3 RESULTS

The difficulty of translation was measured in the products and processes of translation applying four variables: 1) acceptability of translation, 2) blank translation, 3) fixation, and 4) time of translation, of which the two latter ones measured the cognitive effort required in the process of translation. This section provides a summary of these measurements. The results will be given in a table format. The statistical significances of the results with regard to acceptable translations, blank translations and fixation were calculated by the Chi square test with Yates’ correction and, with regard to the time of translation, by ANOVA and t-test.

#### 6.3.1 Acceptable Translations

The following table summarizes the number and percentual share of acceptable translations in the Test Group vs. the Control Group. The Control Group did not have priming expressions in their text, which is why this box is empty.

<table>
<thead>
<tr>
<th></th>
<th>TEST GROUP</th>
<th>CONTROL GROUP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIMES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary metaphors</td>
<td>77/96</td>
<td>80 %</td>
<td></td>
</tr>
<tr>
<td><strong>TARGETS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex metaphors</td>
<td>59/96</td>
<td>61 %</td>
<td>64/84</td>
</tr>
<tr>
<td></td>
<td>61 %</td>
<td>76 %</td>
<td>123/180</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>136/192</td>
<td>71 %</td>
<td></td>
</tr>
</tbody>
</table>

The most interesting result is that the Control Group translated 76 per cent of the targeted metaphorical expressions in an acceptable way, while the Test Group managed to produce an acceptable translation for the targeted metaphorical expressions in only 61 per cent of the cases. The difference, determined by the Chi square test with Yates’ correction, was statistically significant ($p = 0.05$). The effect of the prime was negative rather than positive as hypothesized, *not* making the translation of the target expression any easier.
As far as the other hypothesis concerning the primary vs. complex type of metaphor is concerned, the tendency of the results was the same as in Experiment I: the translation of complex metaphors (targets) was more difficult than the translation of primary metaphors (primes). The analysis showed that the translators in the Test Group translated 80 per cent of the primary metaphors acceptably, while the share of acceptable translations of complex metaphors was only 61 per cent. The result was statistically significant ($p < 0.01$).

Judging from the number of unacceptable translations, the metaphorical expressions that were the most difficult to translate were to empty the swamp (two acceptable translations out of 15); to take the high road (seven acceptable translations); and cut off at the knees (nine acceptable translations). It was not surprising that these expressions were difficult to translate, since they are complex metaphorical expressions whose metaphorical conceptualizations do not have direct equivalents in the Finnish language. The expressions have to be translated into Finnish by utilizing different conceptual domains than those used in the English metaphorical expressions in order to best bring out the key inferences carried by the original expressions.

In terms of unacceptable translations, the most difficult out of all metaphorical expressions to translate was to purge, a primary metaphor used as a prime in the text of the Test Group. None of the eight translators in the Test Group succeeded in translating this expression into Finnish. The translations suggest that the translators did not know the meaning of the English word and therefore left the expression out or translating it by using various expressions that refer to actions during war or battle, such as “destroying” or “eliminating”.

### 6.3.2 Blank Translations

The number and share of blank translations observed in the translations are presented below:

Table 13. Blank translations in numbers and in per cent (%) in Experiment II.

<table>
<thead>
<tr>
<th></th>
<th>TEST GROUP</th>
<th>CONTROL GROUP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIMES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary metaphors</td>
<td>3/96</td>
<td>2/84</td>
<td>15/180</td>
</tr>
<tr>
<td>3 %</td>
<td>2 %</td>
<td>8 %</td>
<td></td>
</tr>
<tr>
<td><strong>TARGETS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex metaphors</td>
<td>13/96</td>
<td>2/84</td>
<td>15/180</td>
</tr>
<tr>
<td>14 %</td>
<td>2 %</td>
<td>8 %</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>16/192</td>
<td></td>
<td>8 %</td>
</tr>
</tbody>
</table>

As can be seen from the table, there was a greater share (14% of blank translations in the translations of the targeted complex metaphors in the Test Group than in the Control Group (2%). The difference is statistically significant ($p < 0.01$). Similarly with the results of acceptable translations, this suggests that the priming element did not make the translation of the complex metaphorical expressions any easier, as was hypothesized, but instead more difficult.

There was also a significant difference ($p < 0.05$) in the Test Group in the number of blank translations between the expressions based on primary metaphors (3%) and the expressions based on complex metaphors (14%). This provides additional support
to the idea that the translation of primary metaphors is easier than that of complex metaphors.

The number of blank translations was in line with the results measured by acceptable translations, which suggests that both variables are good indicators of the difficulty of translation. A high number of unacceptable or blank translations appears to indicate difficulty of translation. However, there can be other reasons to leave out an expression than that the translation task is too demanding. Therefore, blank translations must be examined in more detail individually in their contexts. The total number of blank translations was very small, only 8 per cent in all the translation products in the Test Group. This could be interpreted to imply that the translators were highly motivated to find translations for the metaphorical expressions. These aspects are discussed in the following chapter.

6.3.3 Fixation

The table below summarizes the share of translation processes of metaphorical expressions involving fixation.

Table 14. Fixation in numbers and in per cent (%) in Experiment II.

<table>
<thead>
<tr>
<th></th>
<th>TEST GROUP</th>
<th>CONTROL GROUP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIMES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary metaphors</td>
<td>5/96</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td><strong>TARGETS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex metaphors</td>
<td>8/96</td>
<td>8%</td>
<td>14/84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>22/180</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>13/192</td>
<td>7%</td>
<td></td>
</tr>
</tbody>
</table>

The above table shows that the phenomenon of fixation during translation processes was rather marginal. Signs of processing source language structures could be seen the most, that is in 17 per cent of the cases, in the translation processes of the Control Group, which did not have metaphorical primes in their texts, but only translated the targeted complex metaphors.

Thus, the hypothesis of the facilitating effect of the primes on the translation of the targets received some support as the Control Group showed more fixation (17%) during their translation processes of the targeted complex metaphors than the Test Group (8%). This suggests that the prime decreased the cognitive effort invested in the translation of the target, as hypothesized. The difference did not, however, reach statistical significance ($p > 0.05$) as determined by the Chi square test with Yates’ correction.

The share of cases of fixation (8%) in the translation processes of the targeted complex metaphors was slightly higher than in those of the primary metaphors used as primes (5%). However, due to the small number of cases, the difference was not statistically significant ($p > 0.05$).

Out of individual expressions, the processes of the same expressions that had proved highly effortful to translate with other variables also revealed the most cases of fixation. These included the complex metaphorical expressions *to take the high road*, whose conceptual domain four out of fifteen translators was fixated to at some stage of the translation process, *to walk a fine line* (4 translators), and *to cover* (also 4 translators).
As stated earlier, these complex metaphors utilize different conceptual domains than their equivalents in Finnish, so the finding brings some more support to Mandelblit’s (1996) Cognitive Translation Hypothesis and the idea that in cases where a conceptual shift is required, the translation processes show more fixation to the original source domain of the metaphorical expression.

Fixation was the only variable which produced results for the hypothesis. It seems that the prime had an effect more on the processes of translation than the products. The results suggest that the prime decreased the cognitive effort during the process of understanding and searching for a translation equivalent and thus made the process of translation easier.

As noted before, numerous translation products also showed signs of fixation to the source language metaphorical structures, but if there was no fixation to be seen in the key log files, these cases were not counted in the category of fixation but as unacceptable translations.

6.3.4 Time of Translation

The following table provides a summary of the average times consumed for the translation processes of the primes and the targets in the experiment. The statistical significances of the observed differences were calculated by ANOVA.

<table>
<thead>
<tr>
<th></th>
<th>TEST GROUP</th>
<th>CONTROL GROUP</th>
<th>AVERAGE TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary metaphors</td>
<td>10.4 s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TARGETS</td>
<td></td>
<td>15.3 s</td>
<td>16.3 s</td>
</tr>
<tr>
<td>Complex metaphors</td>
<td>17.3 s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVERAGE TOTAL</td>
<td>13.9 s</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results of the time analysis point in the same direction as the results measured with the variables of acceptable translations and blank translations: the translators of the Control Group spent a shorter time for translating the targeted complex metaphorical expressions than the translators of the Test Group. This suggests that the Test Group put more cognitive effort into the translation process of the complex metaphors than the Control Group. The average time for translating each complex metaphorical expression in the Control Group was 15.3 seconds, as opposed to 17.3 seconds in the Test Group. However, the difference calculated by ANOVA is not statistically significant ($p = 0.640$, $F = 0.219$). This finding, even if suggestively, indicates that the processing of primary metaphors prior to processing the complex metaphors with which they share some of their conceptual structure does not facilitate the translation process of the complex metaphors.

The results show that it took significantly ($p = 0.017$, $F = 5.768$) longer (17.3 seconds) for the translators to translate complex metaphors than primary metaphors (10.4 seconds). This brings more evidence to the hypothesis that the translation of metaphorical expressions based on basic primary experiences requires lower cognitive effort and is thus easier than the translation of metaphorical expressions based on complex metaphors.
The individual times of translation also support the idea that the translation of complex metaphors requires higher cognitive effort than that of primary metaphors. The longest times of translation were clustered around largely the same metaphorical expressions in both groups, that is around some complex metaphors that had proved to be the most difficult to translate also in earlier experiments, such as the one reported in the previous chapter. These metaphorical expressions include *to take the high road*, whose average translation time was 17.8 seconds in the Test Group and 15.8 seconds in the Control Group, *to walk a fine line* (18.2 s and 15.6 s) which were also tested in Experiment I, *to cut off at the knees* (17.4 s and 15.9 s) and *to empty the swamp* (16.8 s and 15.8 s). These were among the five top expressions in both groups with regard to the length of the time of translation, assumedly owing to the complexity of the metaphors and the unfamiliar conceptualizations utilized. For a more detailed analysis of the expressions and their translations, see 6.2. above.

The translation times of individual primary metaphors used as primes were considerably shorter than those of complex metaphors, except for the expression *set on a shaky ground*, which took as long as 34.6 seconds in average to translate. This metaphorical expression was classified as a primary metaphor, but it does not have an equivalent in Finnish that would use the same conceptual domain to express the idea of difficult situation. This difference and the conceptual shift required may have made the translation process of the expression longer.

Translation times were consistent with the other results of analyses except for the ones measured by fixation. This raises some questions, since both time of translation and fixation were assumed to indicate cognitive effort invested into the translation process. There were also cases where the translation times were short but the translations unacceptable. For example, the translators did not spend exceptionally long time (10 seconds in average) translating the prime expression *purge*, but all of the translations were unacceptable. Perhaps the word was unfamiliar to the translators and, without dictionaries or other translation tools, the translators did not use more time to figure out the meaning. It seems that the results measured by translation times have to be studied in more depth with qualitative methods, concentrating on individual cases. This will be done in the following chapter.

6.4 SUMMARY

The priming experiment is apparently the first of its kind and must be evaluated as such. At the time the experiments for the present study were conducted, there were hardly any empirical studies on the primary vs. complex aspect of metaphors in the context of translation. The design of the experiment is still unique in the sense that it combines the psycholinguistic method of priming with the conceptual theory of primary and complex metaphors and applies these to a close-to-natural translation situation.

The experiment provided results against the hypothesis that translating a primary metaphor prior to translating a complex metaphor whose conceptual component the preceding primary metaphor is makes the translation process of the complex metaphor easier. The analyses with the chosen variables indicate that the translators of the Test Group experienced more difficulty in translating the targets of the test, i.e. the metaphorical expressions grounded on complex metaphors, than the translators of the Control Group. In terms of the products of translation, the experiment showed...
that the Test Group produced an acceptable translation for only 67 per cent of the complex metaphors, whereas the Control Group translated the target expressions in an acceptable way in 81 per cent of the cases. The Test Group also had a clearly higher share of blank translations (14%), in their translations of targeted complex metaphors than the Control Group, which had left out the complex metaphors in their texts only in 5 per cent of the cases. The results of blank translations must, however, be treated with caution, since the total number of occurrences was so low. Furthermore, the average time spent for translating each targeted metaphorical expression was higher in the Test Group than in the Control Group (26.4 seconds vs. 22.8 seconds), which suggests that the prime increased the cognitive effort required for the translation of the target.

As far as fixation is concerned, the results deviated somewhat from those obtained with other variables. The translators of the Control Group got fixated in the structures of the source language more often, that is in 17 per cent of the cases, when translating the complex metaphors, than the translators of the Test Group who experienced fixation in only 8 per cent of the cases. This indicates that the prime made the translation process of the complex metaphors less effortful for the Test Group, as hypothesized. The difference is only suggestive, since it did not reach statistical significance due to the small number of occurrences. Cases where the translators remained permanently fixated and produced an unacceptable translation with structures or words adopted from the original conceptualization are discussed in the following chapter.

To sum it up, the results obtained from Experiment II suggest that the primary metaphors used as primes do not facilitate the translation of the complex metaphors whose components they are assumed to be. In fact, the outcome of the experiment indicates that processing primary metaphors may interfere in the translation of complex metaphors and increase the cognitive effort required for completing the translation task. Thus, it can be tentatively concluded that there was an effect of the prime on the target, but the effect was inhibitory instead of stimulatory, as was hypothesized. However, as mentioned before, the experiment groups were not entirely homogenous as the Control Group included some novice translators, which may have somewhat distorted the results of the experiment given the rather low number of participants. Furthermore, due to the pilot nature of the test, there were some other factors that may have affected the outcome. For instance, it was a difficult and laborious task to manipulate the translation text so that it would have different types of metaphors in ideal priming conditions but still retain its authentic feel. Thus, the inhibitory effect must be examined more closely in further experiments in which the potentially interfering factors can be better controlled.

The experiment also provided some insights into the conceptual theory of metaphor which must be considered tentative, however. It was found out that activating conceptual structures of assumed composite primary metaphors did not help in the translation of complex metaphorical expressions that consist of those primary metaphors. Thus, the findings do not support the assumptions of the compositional structure of primary and complex metaphors presented by Grady (1997) and Lakoff and Johnson (1999). On the other hand, the fact that there were some differences in the translation performances between the Test Group and the Control Group suggests that there is a cognitive connection of some kind between primary metaphors and the complex metaphors they may be part of. The experiment brought some evidence that primary metaphors may be active in the processing of complex metaphors, but the mechanisms and effects must be studied in more detail through
other tests. The results of the experiment thus cannot be considered sufficient evidence to either support or to reject the claim that complex metaphors are composed of primary metaphors.

The secondary hypothesis tested in the experiment, viz. that the metaphorical expressions originating from complex metaphors are more difficult to translate than those originating from primary metaphors, gained more support. Measured with all the variables used in the test, complex metaphors caused more difficulty in translation than primary metaphors. The results were consistent with the results of the first experiment included in the present study. Similar results have also been achieved by Rydning and Lachaud (2013) in their study focussed on the comprehension of primary and complex metaphors. The obtained results provide additional evidence in favour of the existence of universally shared primary metaphors and culture-specific complex metaphors, as suggested by the conceptual metaphor approach.

On the other hand, the effect of the conceptual domain or the metaphorical mapping condition (similar vs. different mapping condition) was found to be a more decisive factor in the translation process and to have a stronger effect on the difficulty and the cognitive effort of translation than the primary or complex structure of the metaphor both in Experiment II and Experiment I. A few other scholars (e.g. Maalej 2003; Al-Hasnawi 2007; Wojtczak 2009; Sjørup 2011, 2013) have reported similar results in support of the Cognitive Translation Hypothesis, viz. that metaphors with similar mapping conditions are easier to translate than metaphors with different mapping conditions.

It must be taken into account that the results against the main hypothesis formulated on the basis of the conceptual metaphor theory may also suggest that translation as a complex cognitive process changes the processing of metaphors in some crucial way which is different from the processing of metaphors in only one language. The fact that the translators had to produce text and not just determine the existence or the meaning of the expression, like is the case in an ordinary priming experiment, may have affected the results in ways that were not anticipated before the study. In the light of the results gained from the current study, it seems plausible that there are other factors besides the conceptual structure of metaphors that play an important role in the cognitive processing, and thus also in the translation, of metaphorical expressions. These factors include not only linguistic and textual factors but also cultural and social ones, not to talk about factors characteristic to each individual translator.

It was interesting that both groups of translators experienced rather similar difficulties during their translation; that is the preceding primary metaphors did not significantly change the processing of the complex metaphors, contrary to what was hypothesized. There were no signs in the Translog protocols of processing the complex metaphors by decomposing them into primary metaphors. Instead, there were indications in the translation process as well as final translations that the translators were searching the most appropriate equivalent in the same conceptual domain that was used in the original metaphorical expression. This kind of fixation observed may suggest that when metaphorical expressions are understood and translated, they are not broken down into their conceptual components, but are instead processed as single clusters, through the more concrete conceptual domains used in the verbalisations of the metaphors. It is possible that the metaphorical domain (for instance “chess game” in the case of the expression to stand pat) is first activated in the translator’s mind and, if not processed further, steers the translation process and results in translations which reproduce the domain used in the original metaphorical expression, even though this
domain might not be conventionally used in the target language in expressing the same idea.

The effect of the context on the translation processes and products cannot be left out when studying translation. The analysis of the translation material produced by Experiment I revealed that the translators took into consideration both the local textual context of the metaphorical expressions and the global context of the Finnish language and culture. The translators seemed to realize that metaphors were an essential part of the original text and made clear efforts to maintain the same metaphoricity in the translated text. The outcome of the experiment also revealed that translators often, consciously or unconsciously, tried to create coherence not only among the metaphors but also between the sentences by using same or similar metaphors. These observations are in line with those made by e.g. Schäffner (2004) and Stienstra (1993): translators tend to preserve the metaphors at the macro-level of the text but the individual linguistic metaphors at the micro-level may vary. This hypothesis will be investigated in more detail through qualitative analyses in the following chapter.

In the following chapter, the translation products and, in particular, the translation processes will be analysed in greater depth to find out more about the processing of metaphors during translation.
7 EXPERIMENT II – HOW ARE METAPHORS PROCESSED DURING TRANSLATION

The quantitative analyses of Experiment II provided results against the second main hypothesis: primary metaphors did not help but rather interfered in the translation of complex metaphors whose components they were hypothesized to be. In other words, primary metaphors did not seem to be active in the processing of complex metaphors during the translation of metaphors. On the basis of the analyses of the translation products and processes presented above, it is not likely that metaphors are processed by breaking them down into their conceptual components but rather as larger clusters, such as conceptual domains. Rather, the results suggest that it is the compatibility of the conceptual domain utilized in the metaphorical mapping that determines the difficulty of the translation of metaphors. Furthermore, it seems that translation of metaphorical expressions is regulated by factors that have more to do with coherence of the text as a whole than individual metaphorical expressions.

It is worthwhile to examine these findings in more detail. How are metaphorical expressions processed in translation? Are primary and complex metaphors processed differently in translation? If primary metaphors are not components of complex metaphors, what is their relation, and in what ways do they affect the translation of complex metaphors, if any? Or are there other factors that affect the processing of metaphors during translation? In the following, answers to these questions will be searched by taking a second look at the translation material produced by Experiment II, with a special focus on the processes of translation recorded in the Translog protocols. In this chapter, the processes leading to various translation products will be examined in order to characterize the processes of translating metaphors as well as to identify some potential translation strategies of metaphors. This will be done by applying the same variables of cognitive effort as in the quantitative analyses, but with a more qualitative approach. The applicability of the variables as indicators of difficulty and cognitive effort of translation as well as their validity for both metaphor and translation studies will also be discussed.

Methodologically, the results presented do not bear straight evidential value but are primarily intended to help in formulating new hypotheses for future research about the conceptual structure and the translation of metaphors as well as – potentially – about translation processes in general.

7.1 WHAT CAN INDICATORS OF TRANSLATION DIFFICULTY REVEAL OF THE TRANSLATION OF METAPHORS

In both experiments included in the present study, the variables used as indicators of translation difficulty were 1) acceptable translations, 2) blank translations, 3) fixation, and 4) time of translation. The first two were assumed to indicate difficulty of translation reflected in translation products while the latter two were expected to provide information about the cognitive effort invested in the translation processes of metaphors that contributes to the total difficulty of the translation task. Before going into the translation processes in more detail, the applicability and usability of the indicators in studying the difficulty of metaphor translation will be discussed.
7.1.1 Acceptable vs. Unacceptable Translations

The most straightforward way to assess the translation performance is to determine whether the final product of translation conveys the intended original meaning and is not only idiomatic but also appropriate in its context. These were the criteria according to which a translation of a metaphorical expression was considered acceptable in Experiment II by the expert evaluators. Also leaving out an expression was regarded acceptable if nothing essential content-wise was lost in the translation. The acceptability vs. unacceptability of the translation product was regarded to correlate with the difficulty of the translation task: an unacceptable translation was assumed to show in the processes as fixation and time lag and thus indicate higher cognitive effort and difficulty of the task as a whole.

There was a significant difference between the share of acceptable translations of primary and complex metaphors. A total of 80 per cent of the translation products of primary metaphors were acceptable, while the share of acceptable translations of complex metaphors was 68 per cent. The acceptable translation products were divided in four categories: 1) **metaphorical translations** (other than literal), 2) **non-metaphorical translations or paraphrases**, 3) literal (metaphorical) translations and 4) **acceptable omissions**. In the following, the different types of acceptable translations of complex metaphors that were the main focus of Experiment II will be discussed with examples to characterize the variety of acceptable translation products.

Metaphorical translations formed the largest group (48%) of the acceptable translations of complex metaphors. Metaphorical translations were defined as cases in which the translation was metaphorical but not literal, that is the translation used some other metaphorical image than the one used in the original expression, such as in the example below:

[X] So, what is there left for those who hold on to the democratic vision, or was the original idea to make Iraq a functional democracy with a transparent political progress just a lot of **hot air**?

(90) Vai oliko alkuperäinen tavoite tehdä Irakista toimiva ja avoin demokratia vain pelkkää **sumuttamista**?

(‘Or was the original aim to make Iraq a functional and open democracy just misting?’)

In the above case, a shift from one metaphorical mapping system to another had been made.

Non-metaphorical paraphrases were the second most common type of acceptable translation (30% of all acceptable translations of the complex metaphors). A paraphrase also requires a transfer between the different conceptual systems of the source and the target language. The following translation to the sentence [X] above is an example of a paraphrase:

(91) **Mitä jää jäljelle demokratian visionääreille, vai oliko alkuperäinen idea tehdä Irakista toimiva demokratia vain pelkkää **puhetta**?**

(‘What is left for the democratic visionaries, or was the original idea to make Iraq a functional democracy just talk?’)

The third group of translations, covering a total of 16 per cent of acceptable translations of complex metaphors, was literal equivalents. Literal equivalent was in the
study defined as a metaphorical translation utilizing the same metaphorical image as the original one. In a literal translation, all or most of the words of the original metaphorical domain are retained, and no conceptual shift is made. See an example below:

[XII] Iraq would not become a great regional role model, being at least a decade behind the cutting-edge, although it would live better than it did under Saddam.

(92) Irak on kuitenkin ainakin vuosikymmenen kehityksen kärjestä jäljessä. ('Iraq is, however, at least a decade behind the edge of the progress.')

Omissions, the cases where the expression had been left out intentionally, represented a small part (6 per cent) of the acceptable translations of complex metaphors. The number of cases was very low, which indicates a general effort to produce a translation equivalent. The acceptable omissions did not change the overall meaning of the passage, but rather seemed to serve a textual purpose. For instance, three of the total seven cases of the acceptable omissions involved the expression for starters in the following context:

[Ia/b] If the United States storms into Iraq, which we now seem to have to swallow, it will have been airlifted to war with a tailwind from some unlikely sources. For starters, three men who have little in common with President George W. Bush have articulated the case for war better than the administration itself – at least up until its recent crescendo of case-making.

In the above passage, the expression for starters is a textual element rather than a meaning-bearing unit. It is a text-organizing expression, often accompanied later by another expression, such as secondly, or furthermore. No such expression existed in the text, so the organising role of the element was not important.

Two cases of omissions indicated avoidance of repetition of ideas or expressions in the text. See the translations of the priming pair to make a move + to stand pat in the following context:

[VIa] TEST GROUP:

We reluctant hawks may disagree among ourselves about the most compelling logic for the seemingly low alternative of war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that moves have to be made, the logic for standing pat does not hold.

Two translators in the Test Group left out the expression standing pat, but these were considered acceptable translations. It seems that the vicinity of an expression to make a move with the same meaning of ‘not moving’ made the translators leave out the latter one. Thus, the investigation of acceptable omissions appears to disclose textual strategies during translation rather than the structure or processing of metaphors. The cases were, however, too few for making generalizations.

An acceptable translation product is a result of a successful translation process, but it does not provide much information of the process itself, whereas an unacceptable translation product can reveal more about the process and what has gone wrong. In other words, an unacceptable translation product may indicate that the process has been effortful. The highest number of unacceptable translations per individual expression were produced for the complex metaphorical expressions to empty the swamp,
which only two of the 15 translators managed to translate in an acceptable way; to take the high road, which was acceptably translated by seven translators; and cut off at the knees for which nine translators out of the 15 found an acceptable Finnish translation. As stated above, the translations of complex metaphors contained a higher share of unacceptable translations than those of primary metaphors. The majority of the translations of all individual primary metaphors were acceptable, except for the expression purge, whose translations were all unacceptable. This suggests that the translation of the expression purge was particularly difficult, but does not tell why.

For further analyses, the unacceptable translations were also divided into four categories. In the order of commonness, these were: 1) literal (metaphorical) equivalents, 2) metaphorical translations, 3) blank translations, and 4) (non-metaphorical) paraphrases.

Literal or word-for-word renderings accounted for a total of 35 per cent of all unacceptable translations of complex metaphors. An example of a metaphorical expression whose translations were to a large extent literal was to empty the swamp:

[XIa/b] “They think it’s cheaper to just go back and empty the swamp again if you have to.”

A total of eight of the 13 unacceptable translations for empty the swamp were literal equivalents of the noun swamp (‘suo’) or the verb empty (‘tyhjentää’). See examples below:

(93) He ovat sitä mieltä, että on halvempaa pumpata suo kuivaksi aina uudestaan, jos tarve vaatii.
      (‘They think that it’s cheaper to pump the swamp empty again and again, if necessary.’)
(94) “Heidän mielestään tulee halvemmaksi vain palata kuivattamaan (ensin: tyhjentämään) suo uudelleen, mikäli tarve vaatii.”
      (‘They think it becomes cheaper just to go back and dry up [first version: empty] the swamp again, if necessary.’)

Translations such as the above can be considered indicative of the effect of the original metaphorical mapping. No transfer from the source language metaphor system to the target language system had been made. Studying the processes will provide more information of the reasons for producing unacceptable literal translations.

Metaphorical translations utilizing a different metaphor than the original expression made up for about one third (30%) of the unacceptable translations of the complex metaphors. As an example, see again the sentence [X] and its translation:

[X] So, what is there left for those who hold on to the democratic vision, or was the original idea to make Iraq a functional democracy with a transparent political progress just a lot of hot air?
(95) Oliko se vain tyhjien tynnyreiden kolinaa, että Irakista tehdään toimiva demokratia, jonka poliittinen kehitys on läpinäkyvä?
      (‘Was it just rattling of empty barrels that Iraq will be made into a functional democracy whose political progress is transparent.’)

Another category of unacceptable translations was blank translations that accounted for a total of 26 per cent of all unacceptable translations of the complex metaphors.
“Blank translation” was defined as omission of original expression with significant loss of content. The clearest cases were realized in translations either as visible blank spaces or dashes in the text, like in the following example:

[II]  All three are walking a fine line in trying to maintain their prestige at the home front while expressing their approval of war.

(96)  Kaikki kolme ovat --------- yrittäessään säilyttää arvovaltansa kotirintamalla, samalla kun sanovat hyväksyvää sodan.

The number of blank translations of all the unacceptable translations of primary metaphors was significantly smaller, that is 16 per cent, than that of complex metaphors. Only 8 per cent of the unacceptable translations fell into the category of non-metaphorical paraphrase. An example is provided by the following translation of the sentence [XI]:

[XI]  “They think it’s cheaper to just go back and empty the swamp again if you have to.”

(97)  Heidän mielestäään on halvempaa mennä takaisin ja auttaa, jos se on tarpeen.

(’They think it’s cheaper to go back and help, if it is necessary.’)

The examination of acceptable and unacceptable translation products illustrated above helped to locate the metaphorical expressions that were the most difficult to translate and could be expected to have required high cognitive effort in terms of fixation and time. Applying Kahnemann’s (1973) theory of attention and effort, the metaphorical expressions resulting in the highest number of unacceptable translations were assumed to require the most cognitive effort. However, the reality of this assumption can only be determined by examining the processes behind the products of translation. This will be discussed later with the indicators of cognitive effort, i.e. fixation and time.

7.1.2 Blank Translations

The quantitative analysis of blank translations brought out similar differences between the translation products of different types of metaphors as the analyses of acceptable translations: there was a greater number of blank translations of metaphorical expressions based on complex metaphors than of those based on primary metaphors, and the Test Group had more blank translations than the Control Group. These results were consistent with the results of acceptable translations and supported the other findings about metaphors: it is more difficult to translate complex metaphors than primary metaphors, and primary metaphors do not facilitate the translation of complex metaphors. Furthermore, the same complex metaphors that resulted in the highest number of unacceptable translations also resulted in the highest number of blank translations.

Assuming that unsuccessful result of the task reflects high cognitive effort, the results would mean that it requires more cognitive effort to find translation equivalents to complex metaphors than to primary metaphors, and primary metaphors do not decrease the cognitive effort required for translating the complex metaphors whose components they are assumed to be. However, while the results clearly show that blank translations correlate with the difficulty of producing acceptable translations, they also appear to indicate minor translation effort during the translation process.
A significant finding was that there was no fixation whatsoever in the processes resulting in blank translations. This means that the translators did not tend to produce any translation variants before leaving out an expression. In addition, the times of translation before blank translations were short in average, viz. 14.2 seconds, which shows that the translators did not take a long time to make the decision of leaving out an expression. On the other hand, there was no significant difference in the times of blank translations and other unacceptable translations. To illustrate a blank translation, see the following excerpt from the translation log of one of the translators, where the empty slots are marked with a dash “---”:

[**:12.17]Kun*se*on*tehty*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*,*] [**:13.92]"---"**",**,voimme**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**,**
related to primary metaphors, whereas fixation was observed in 12 per cent of the processes related to complex metaphors. But the results were different in one respect: there were fewer cases of fixation in the translation processes of the Test Group than the Control Group. Since the Test Group had a smaller number of acceptable translations, fixation seemed to correlate negatively with unacceptability. The analyses of fixation showed that in 73 per cent of the cases where fixation was observed in the process of translating complex metaphorical expressions in the Test Group, the final translation product was acceptable. The share of processes with fixation leading to acceptable translations of primary metaphors in the Test Group was even higher, that is 80 per cent. This suggests that fixation makes the process more laborious but predicts an acceptable translation, and that fixation is a natural and even necessary part of the translation process, as has been discussed elsewhere in this study.

Fixation was observed in the processing of metaphorical expressions that do not have literal equivalents in Finnish. One of these expressions was to take the high road in the following context:

[VII] Much as we might wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism ---

The following translation was a non-metaphorical paraphrase:

(98) Vaikka kuinka toivomme, että hallitus olisi järjestänyt tapahtumat niin, että tarkastajilla olisi aikaa kolmen kuukauden sijasta, vaikka kuinka yritämme valita viisaamman katsantotavan ja unohtaa töykeyden ja kaksinaismoraalin --- ('Even if we hope that administration had organized events so that the inspectors had a year instead of three months, even if we try to choose a wiser point of view and forget rudeness and binary moralism ---')

An excerpt from the translator’s key-log file reveals processing from an unacceptable literal (metaphorical) translation to an acceptable non-metaphorical translation (relevant passages are painted grey):

Niin • paljon • kuin • toivomme • että hallitus
järjestänyt tapahtumat niin, että tarkastajilla olisi
aikaa kolmen kuukauden sijasta, vaikka kuinka
yritämme valita viisaamman katsantotavan ja
unohtaa töykeyden ja kaksinaismoraalin

Even if we hope that administration had organized events so that the inspectors had a year instead of three months, even if we try to choose a wiser point of view and forget rudeness and binary moralism ---

---
Another example of arriving at an acceptable translation through fixation is presented in the following. The translation was considered an acceptable omission, since it does not change the meaning of the original passage:

There were also numerous cases in which fixation during the process resulted in an unacceptable translation. In the third example concerning the metaphorical expression cut off at the knees, the translator struggles with finding a translation and produces an unacceptable literal equivalent. The process starts from a complete word-for-word translation katkaistua polvista but the comment “EI!” (NO!) shows that the translator is not satisfied with the product. Later during the translation process the translator returns to the passage and modifies it twice until settling for a metaphorical translation katkaista Husseinin hirmuvalta (‘cut Hussein’s tyranny’), which was, however, too unidiomatic to be an acceptable translation. See the Translog excerpt below:

It is noteworthy that the processes of translation involving consideration of various translation options always started from the original metaphorical domain, which showed as word-for-word translation variants in the key-logs, and progressed towards other metaphorical domains or other, non-metaphorical ways of expressing the original idea, and never the other way around. Thus, fixation not only seems to be a normal initial stage in the translation of metaphors but it also seems to reveal a dimension of a default translation process and the effort put therein.

Furthermore, cross-analyses of the translation times together with fixation showed that there was a strong correlation between fixation and time. The processes involving
fixation were significantly longer than the processes that did not involve fixation ($p < 0.005$ in Chi Square test). It can reliably be claimed that fixation makes the translation process longer, thus increasing the cognitive effort. In comparison, the processes resulting in blank translations were short and there was no fixation.

As an example, see an excerpt of the Translog protocol concerning the translation process of the expression including the complex metaphor cover, in total 81 seconds (the segment counted as time is marked grey).

The above process demonstrates that the translator first produced a translation suojannut (‘covered’), which literally retains the original metaphorical domain but, after some more processing, settled for a non-metaphorical paraphrase perustelut (‘motivation’), which was an acceptable translation. There were three other translators who processed cover with the help of its original domain and ended up in an acceptable translation. The translation times of these processes were the longest translation times among the translation times of the metaphorical expression cover, which reflects the correlation between fixation and time of translation.

On the basis of the analyses of the translation material, it can be stated that fixation can provide a lot of information about the cognitive operations involved in the processing of metaphors during translation. Fixation provides good insight into how the translators process the metaphorical expressions; how they analyze the meaning of the expression and search for potential equivalents in the target language. This way it can reveal something about the conceptual structure of metaphors as well. Fixation seems to be a good indicator of cognitive effort in translation as it correlates with the time of the process.

However, there was no statistically significant difference between all acceptable and unacceptable translations in terms of fixation. This result means that fixation does not correlate with unsuccessful result of the translation task, as expected. Neither does it correlate directly with successful result of the translation task. Thus, fixation cannot alone indicate the difficulty of the translation task. But when fixation was compared between the translations of primary and complex metaphors and between the Test and the Control Group, some differences were discovered. The most noteworthy difference was that the great majority of the translation processes of both primary metaphors and complex metaphors involving fixation in the Test Group resulted in an acceptable translation product. Thus, it can be suggested that a successful translation process of a metaphor does not necessarily require fixation but if there is fixation, the final translation in most cases becomes successful.

### 7.1.4 Time of Translation

As demonstrated above, the analyses of the translation material of Experiment II disclosed a tight correlation between fixation and time, both indicating cognitive effort in translation. The translation processes of complex metaphors took significantly longer (17.3 s) than the processes of primary metaphors (10.4 s), but there was no significant
difference in the translation times of complex metaphors between the Test Group and the Control Group (see Chapter 6). An interesting result was, however, that the successful processes leading to acceptable translations took in average 10.2 seconds for primary metaphors and 16.2 seconds for complex metaphors. The difference calculated by t-test was statistically significant \((p < 0.05)\), which shows that it is faster, or requires less cognitive effort, to translate primary metaphors in an acceptable way than complex metaphors in an acceptable way.

In many cases, fixation during the translation process predicted an acceptable translation product, but statistically the result was not significant. Similarly, the time of translation cannot be taken to predict whether the outcome of the translation process is acceptable or unacceptable. In other words, the translation time cannot tell whether the task of translation as a whole is difficult or easy. The average time of translation leading to acceptable translations was 15.3 seconds, while producing unacceptable translations took in average 17.1 seconds. The difference was far from achieving statistical significance \((p = 0.844 \text{ in t-test})\). There were examples of both unacceptable and acceptable translations with really short translation times and vice versa.

Even if time alone cannot reveal much about the distribution of the cognitive effort during translation, that is whether more effort was needed for the comprehension or the production of the translation equivalent, it can help to locate the most time-consuming expressions for further analysis. It was found out that the longest individual translation times were clustered around the same complex metaphors that with other indicators required considerable cognitive effort. See for instance the successful translation process of the complex metaphorical expression *to take the high road*, which took altogether 175 seconds.

The translation processes of the expression *to take the high road* showed fixation in 27 per cent of the cases, and about half of the translations were unacceptable, including some blank translations. This suggests that the metaphorical expression *to take the high road*, which has been categorized as a complex metaphor with a different mapping, required considerable cognitive effort from the translators.

Furthermore, the analyses of translation times of different translation products revealed that when the translation time was long, the translation product was either a metaphorical equivalent or a paraphrase. Literal translation equivalents did not take as long to produce. It was discovered that the longest translation processes of complex metaphors, i.e. 20.7 seconds in average, were related to acceptable paraphrases. In other words, it took the most cognitive effort to find a translation that did not use the original metaphorical domain or another metaphorical domain but expressed the idea in a non-metaphorical way with a paraphrase.

It also came out in the analyses that producing an acceptable omission (12 seconds) or a blank translation (14.2 seconds) for a complex metaphor did not take a long time on average. Furthermore, acceptable literal translations were found quickly, in 12.8
seconds on average. The cognitive effort required in these cases was thus smaller than in cases where the translation equivalent was non-metaphorical or utilized another metaphor than the one in the original expression.

To summarize, long time of translation can be taken to indicate high cognitive effort but it cannot indicate whether the translation task will be carried out successfully or not. Short times of translation indicate minimum cognitive effort, either that the metaphorical expression is judged too difficult to translate (leading to blank translation) or that it is easy (literal equivalent). While time of translation cannot itself provide any detailed information of the distribution of effort during the processing of metaphors, it helps to focus attention to expressions that can be studied with other indicators, in particular fixation.

To get a deeper insight into the processing of metaphors in translation, the processes related to the different translation products presented above were systematically analysed with the indicators of cognitive effort used in the current study. In the following, a summary of the results of the analyses will be provided.

7.2 TRANSLATION PROCESSES BEHIND THE TRANSLATION PRODUCTS

The processes behind different translation products of primary and complex metaphors in Experiment II were explored by means of fixation and time, and the results are shown in a table below. The processes behind the translation types of complex metaphors will be presented first followed by a shorter report of the translation processes of primary metaphors. The different types of translation have been defined and discussed in 2.1.2 and illustrated with examples in the previous subchapters.

7.2.1 Complex Metaphors

The table below summarizes the results of the analyses of the translation processes resulting in the various translation equivalents defined above.

The table shows that the majority, or 69 per cent, of the translation products were acceptable. The most common translation product was an acceptable metaphorical equivalent that accounted for 32 per cent of all the translation products and the second most common product was an acceptable paraphrase whose share was 21 per cent. The processes of these products included fixation and were time-consuming; the processes leading to acceptable paraphrases took the longest time in average, i.e. 20.7 seconds, out of all processes behind the various translation products.

The share of unacceptable paraphrases was the lowest, 3 per cent. The numbers of acceptable omissions (4%) and blank translations (8%) respectively were also small, which shows clearly that it was more common to produce some kind of translation equivalent to the metaphorical expressions, even an unacceptable one, than to leave out the expression completely. The processes resulting in acceptable omissions were short of all (12 seconds), and those resulting in blank translations were also rather short (14.2 seconds). The shortest time in average (11.7 s) was used for producing acceptable (metaphorical) literal translations, which suggests that it took the least amount of cognitive effort to translate a metaphor with the same metaphor.
Table 16. Translation Processes Related to Translation Products of Complex Metaphors

<table>
<thead>
<tr>
<th>TRANSLATION EQUIVALENT</th>
<th>No.</th>
<th>%</th>
<th>Fixation%</th>
<th>Time avg.(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable Equivalent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acceptable omission</td>
<td>7</td>
<td>4</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>acceptable literal equivalent</td>
<td>22</td>
<td>12</td>
<td>0</td>
<td>11.7</td>
</tr>
<tr>
<td>acceptable metaphorical equivalent</td>
<td>57</td>
<td>32</td>
<td>16</td>
<td>15.8</td>
</tr>
<tr>
<td>acceptable paraphrase</td>
<td>37</td>
<td>21</td>
<td>16</td>
<td>20.7</td>
</tr>
<tr>
<td><strong>Total/Avg.</strong></td>
<td><strong>123</strong></td>
<td><strong>69</strong></td>
<td><strong>13.3</strong></td>
<td><strong>16.2</strong></td>
</tr>
<tr>
<td>Unacceptable Equivalent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>blank</td>
<td>15</td>
<td>8</td>
<td>0</td>
<td>14.2</td>
</tr>
<tr>
<td>unacceptable literal equivalent</td>
<td>22</td>
<td>12</td>
<td>14</td>
<td>16.1</td>
</tr>
<tr>
<td>unacceptable metaphorical equivalent</td>
<td>15</td>
<td>8</td>
<td>13</td>
<td>19.9</td>
</tr>
<tr>
<td>unacceptable paraphrase</td>
<td>5</td>
<td>3</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total/Avg.</strong></td>
<td><strong>57</strong></td>
<td><strong>31</strong></td>
<td><strong>10.5</strong></td>
<td><strong>16.8</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>180</strong></td>
<td><strong>100</strong></td>
<td><strong>12.2</strong></td>
<td></td>
</tr>
</tbody>
</table>

The times resulting in acceptable translation products were in average shorter than the times resulting in unacceptable translation products, but the difference calculated by ANOVA and t-test was not statistically significant ($p = 0.844$). For instance, the average translation times of omissions were shorter than those of blank translations, but the difference did not reach statistical significance either ($p = 0.769$). This was true for all the categories of translation products, but none of the differences were statistically significant. This result thus contradicts the idea of Kahnemann (1973) that high cognitive effort in terms of time correlates with unsuccessful completion of the translation task. Instead, it can be claimed that producing an acceptable translation does not necessarily require more time than producing an unacceptable translation.

The share of fixation was approximately the same, about 15 per cent on average, in all the processes except for the ones leading to acceptable literal translations, which cannot by definition involve fixation, as well as the ones leading to unacceptable blank translations. These processes did not show any fixation. In contrast, the share of fixation was considerably higher than the average, viz. 20 per cent, in the processes resulting in paraphrases. The findings suggest that fixation is a normal part of the translation process of metaphorical expressions. It was also found out that fixation correlates systematically with the time of the translation process: the more fixation there is in the process, the longer the time of translation and, thus, the higher the overall cognitive effort.

The analyses furthermore showed that acceptable literal translations required the least cognitive effort from the translators as these processes did not involve any fixation and the average time was very short, viz. 12.8 seconds. This suggests that if there is a literal metaphorical equivalent available in the target language, it is found easily and quickly. Complex metaphorical expressions in the experiment text with acceptable literal equivalents in Finnish included *transparent* (Finnish: *läpinäkyvä*) and *behind the cutting edge* (Finnish: *terävimmän kärjen takana*). Five out of 15 translation products of the metaphorical expression *behind the cutting edge* were literal equivalents with an average length of the translation process of only 6.2 seconds. It was notable that 14 out
of 15 translations were acceptable, and the process leading to an acceptable translation took only 3.8 seconds on average.

Equally low cognitive effort was related to blank translations whose processes did not reveal any signs of fixation and lasted on average 14.2 seconds. This implies that the translators did not invest much effort into making the decision of not translating a metaphorical expression. The expressions that resulted in the highest number of unacceptable translations, such as to empty the swamp and to take the high road, included several blank translations. Therefore, it can be assumed that blank translations resulted from a quick judgement of the metaphorical expression being too difficult to translate.

Also the translation processes leading to acceptable omissions displayed little effort as the average time consumed was 12 seconds. The difference to the times of producing blank translations was not significantly different. However, the fact that there was some fixation in the processes suggests that finding an alternative way to express the original idea in the text requires a little more cognitive effort than producing a blank translation.

The cognitive effort was higher when there was no literal equivalent to the original metaphor available in the target language and the translator had to find another way to express the original idea. In the majority of the acceptable translations, there was an equivalent metaphorical expression available in the target language, and it was typically found through a process that included consideration of various literal translation options within the original metaphorical domain (fixation) and took longer (15.8 seconds in average) than the processes related to literal translation equivalents (11.7 s) or omissions (12 s). For example, the majority (12/15) of the acceptable translations of the metaphorical expression to walk a fine line were metaphorical, but utilized a different metaphor than the original expression. The average time used for producing these acceptable translations was as high as 33.7 seconds. Also the average times consumed for translating a metaphor with a different metaphor in an unacceptable way (19.9 s) were the longest out of all the times of the processes leading to unacceptable translations.

The results are consistent with the Cognitive Translation Hypothesis (Mandelblit 1995), who has argued that in cases where the metaphorical mapping systems in the source and target languages do not correlate, the translator is required to make a transfer from one metaphorical mapping system to another, and this is more difficult in terms of fixation and time invested in the translation process. Similar results of longer translation times for metaphorical expressions with different mapping conditions have been presented by e.g. Wojtczak (2009) and Sjørup (2011, 2013).

The analyses showed that the cognitive effort was the highest when the translators produced an acceptable non-metaphorical paraphrase. These processes involved the most fixation and were the most time-consuming (16 per cent fixation and 20.9 s), if the two indicators of fixation and time are considered together. Producing unacceptable paraphrases included even more fixation (20 per cent) than producing acceptable paraphrases and the average time consumed was 18 seconds. For example, there were a high number of paraphrase translations for the metaphorical expressions to take the high road, to empty the swamp and cover, and these processes frequently included fixation and took a long time. Six out of the fifteen translation products of to take the high road were acceptable paraphrases, and their processing took in average as long as 46.7 seconds. There was fixation in about 20 per cent of the processes, which is clearly higher than the average share of fixation in the processes leading to other translations.
Some tendencies were found in the results of the analyses of the translation processes presented in the above table. The share of fixation can be considered to correlate with the cognitive distance (i.e. difference in conceptual information) between the source language metaphorical expression and its translation. In acceptable translations, there was no fixation in the processes related to literal translations, whereas the share of fixation was 16 per cent in the processes related to metaphorical translations (not literal) as well as in the processes related to non-metaphorical translations. The unacceptable translations showed a stronger tendency: the processes leading to literal equivalents had fixation in 14 per cent of the cases and the processes leading to other metaphorical equivalents had fixation in 13 per cent of the cases, whereas the processes resulting in non-metaphorical paraphrases involved clearly the most fixation, i.e. 20 per cent. In other words, fixation increases systematically when the cognitive distance between the original conceptualization of the idea and the translation grows. The same tendency was observed in the time of translation.

The results showed that finding a metaphorical translation equivalent, even one that utilizes a different metaphor than the original expression, is cognitively less burdensome than finding a non-metaphorical paraphrase. This would mean that metaphorical expressions that do not have metaphorical equivalents in the target language and have to be translated by a paraphrase require the most cognitive effort in translation.

In summary, the results suggest that the cognitive effort required in translation increases when the translation equivalent of the metaphorical expression moves cognitively further away from the original conceptualization of the idea. If there is no metaphorical conceptualization in the target language of the idea conveyed by the source language metaphorical expression, it can be argued that the translator needs to make a transfer not only from one metaphorical mapping system but from one conceptual system to another, and search for alternative, non-metaphorical ways to express the idea. This idea of a “double conceptual shift” has been presented by Sjørup (2011, 2013). Sjørup found in her eye-tracking experiments that paraphrasing requires the highest cognitive effort from translators due to two conceptual shifts: 1) a shift between two metaphorical domains and 2) a shift from a metaphorical expression to a non-metaphorical expression.

### 7.2.2 Primary Metaphors

The translation processes of primary metaphors were also investigated in relation to their translation products and gathered in the table 17. Since the number of occurrences was low, the results must be interpreted with caution and are not given as much weight in the study as the results concerning complex metaphors. Some tendencies as well as differences to the processes of complex metaphors were, however, noticed.

One notable difference to complex metaphors was that the share of acceptable translations of all the translations of primary metaphors was higher, viz. 80 per cent of all translations (68% in complex metaphors). The difference calculated by Chi Square test was significant ($p < 0.05$). Also the share of acceptable literal equivalents, 25 per cent, out of the acceptable translations was significantly ($p < 0.05$) higher than that of complex metaphors, 18 per cent. In fact, the share of acceptable literal translations was almost as high as that of paraphrases (30%), which constituted the largest group of all translation products of primary metaphors. One of the most notable differences
to complex metaphors was that the share of acceptable metaphorical translations (not literal) was only 19 per cent, while it was as high as 46 per cent among the complex metaphors. This difference was highly significant ($p < 0.005$ in Chi Square test). The result means that complex metaphors have to be translated with another metaphor more often than primary metaphors. It suggests that primary metaphors are more uniform in the source and target languages, and the variety of metaphors conceptualizing the idea is smaller than in case of complex metaphors.

Table 17. Translation Processes Related to Translation Products of Primary Metaphors

<table>
<thead>
<tr>
<th>TRANSLATION EQUIVALENT</th>
<th>No.</th>
<th>%</th>
<th>Fixation%</th>
<th>Time avg.(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable Equivalent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acceptable omission</td>
<td>6</td>
<td>6</td>
<td>17</td>
<td>5.8</td>
</tr>
<tr>
<td>acceptable literal equivalent</td>
<td>24</td>
<td>25</td>
<td>4</td>
<td>8.8</td>
</tr>
<tr>
<td>acceptable metaphorical equivalent</td>
<td>18</td>
<td>19</td>
<td>6</td>
<td>12.2</td>
</tr>
<tr>
<td>acceptable paraphrase</td>
<td>29</td>
<td>30</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td>Total/Avg.</td>
<td>77</td>
<td>80</td>
<td>5</td>
<td>10.2</td>
</tr>
<tr>
<td>Unacceptable Equivalent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>blank</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>21.7</td>
</tr>
<tr>
<td>unacceptable literal equivalent</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>7.5</td>
</tr>
<tr>
<td>unacceptable metaphorical equivalent</td>
<td>9</td>
<td>9</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>unacceptable paraphrase</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>13.8</td>
</tr>
<tr>
<td>Total/Avg.</td>
<td>19</td>
<td>20</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>96</td>
<td>100</td>
<td>5</td>
<td>11.2</td>
</tr>
</tbody>
</table>

The number of all literal translations of primary metaphors was 26, and only two of them were unaccepteable. The share of unacceptable literal translations was thus minimal, while unacceptable literal translations were the largest group of unacceptable translations of complex metaphors, accounting for as much as 39 per cent of all translations of complex metaphors. This shows that primary metaphors can more often be translated by literal equivalents than complex metaphors. Another interesting finding was that there were more acceptable non-metaphorical (=paraphrases) than acceptable metaphorical translations for primary metaphors, which suggests that primary metaphors do not have other metaphorical equivalents as often as complex metaphors whose products displayed a higher number of acceptable metaphorical translations than paraphrases.

As far as fixation is concerned, it was found that the translation processes of primary metaphors involved fewer fixations than the processes of complex metaphors. This was a tendency that did not quite reach statistical significance ($p = 0.065$). Since the total number of translation processes of primary metaphors including fixation was only five, the results are highly tentative and statistical significances could not in most cases be counted. It could be seen that there was more fixation in the processes resulting in metaphorical translations, either acceptable or unacceptable, than in the other processes. In the majority of the processes, there was no fixation.

The translation processes of primary metaphors took a shorter time in average than the processes of complex metaphors, in total as well as in different categories.
Statistically, the majority of the differences were not significant, though. A statistically significant difference (t-test, \( p < 0.05 \)) was found in the processes of acceptable translations of primary metaphors vs. complex metaphors: successful translation of complex metaphors took longer than that of primary metaphors. The biggest and most interesting difference between the primary and complex metaphors was that all processes of primary metaphors resulting in metaphorical (not literal) translations were shorter in average (9.6 s) than the processes of complex metaphors resulting in metaphorical translations (15.3 s in average). This difference was statistically significant (\( p < 0.05 \)). It shows that it is easier to find a metaphorical equivalent to a primary metaphor than to a complex metaphor.

The tendency in the times among the different types of translations was the same as in complex metaphors (see above). The longest times of translation were observed in the processes leading to other than literal equivalents, that is to metaphorical or non-metaphorical translations. An exception was the time of the processes related to blank translations, which was higher than average, but the total number of blank translations was only three, so the results cannot be considered statistically valid and must only be studied on a case-by-case basis. There was one exceptionally long process (51 seconds) leading to a blank translation, which considerably raised the average.

A notable difference to complex metaphors was that acceptable paraphrases for primary metaphors were found in a relatively short time (11.1 seconds) without any significant fixation (3%) in the process, while the translation processes of complex metaphors resulting in acceptable paraphrases were the longest (20.7 seconds) and involved the most fixation (16%) out of all the processes behind different products. Statistically the difference was not significant, since some exceptionally long individual times affected the results. The result can still be taken to imply that even if there was no metaphorical equivalent available for the primary metaphor in the target language, it did not require considerable cognitive effort to find another way of expressing the original idea, as it did in case of complex metaphors. This result must be considered in the context of the outcome of the study by Rydning and Lachaud (2011), who were not able to determine any difference in the reaction times between primary vs. complex metaphor comprehension in their experiments. If Rydning and Lachaud’s result is taken into account, it can be hypothesized that it is not the understanding of the metaphorical expression but the search for the translation equivalent that takes more time in case of complex metaphors than in case of primary metaphors.

On the basis of the analyses of the processes behind the different translation products of primary metaphors, it can be said that the cognitive effort required was highest in the translation processes related to metaphorical (other than literal) translations, in particular, to acceptable metaphorical translations. The share of fixation in these processes was 11 per cent, and the processes took on average 12.2 seconds. The finding is also in line with Mandelblit’s study (1995): in cases where the metaphorical mapping systems of the source and target languages do not correlate, a conceptual shift is needed, and it increases the cognitive effort required.

7.2.3 Summary of the Translation Processes of Metaphors

On the basis of the analyses presented above it can be argued that the translation of metaphorical expressions grounded on primary metaphors requires less cognitive effort than the translation of metaphorical expressions grounded on complex met-
aphors. The main reason for this seems to be that there are more literal translation equivalents available for primary metaphors in the target language, and these can be found quickly and easily without a need to make a conceptual shift between two different metaphorical systems. Furthermore, producing acceptable metaphorical (other than literal) or paraphrase equivalents for primary metaphors, which according to Mandelblit (1995) involves a conceptual shift, did not require as much cognitive effort as in case of complex metaphors in the experiment. This suggests that primary metaphors are cognitively different from complex metaphors. The result supports the idea that primary metaphors have a universal experiential basis which makes them similar across cultures and languages, as has been suggested by the conceptual theory of metaphors and tentatively verified empirically by a number of researchers (e.g. Nuñez, Motz & Teuscher 2005; Soriano & Valenzuela 2009; Lakoff 2009, 2014).

The high shares of literal translations indicate that translating metaphors with literal equivalents is the default translation strategy, as has also been suggested by Wikberg (2004), Burmakova and Marugina (2014), Sjørup (2011) as well as Schäffner and Shuttleworth (2013). Burmakova and Marugina (2014) considered in their study also the similarity of the mapping of the original metaphor with its target language equivalent, which the present analysis did not, and claimed that it is the metaphorical expressions with similar mappings that most often are translated literally by copying the original metaphorical image, while metaphorical expressions with different mappings tend to be translated with a non-metaphorical paraphrase. Contrary to this, the present study suggests that metaphorical expressions with different mappings are also by default translated at the linguistic level, which often leads to unacceptable translations, i.e. the failure of the translation task.

Hence, it can be argued that the key to an acceptable metaphorical translation is the ability to break free of the original metaphorical mapping when necessary, that is in cases where there is no literal metaphorical equivalent available in the target language. The results of the analyses implicate that successful translation of primary metaphors does not require a conceptual shift as often as the translation of complex metaphors and, when it does, the shift is easier to carry out, which showed in the translation processes of primary metaphors as less fixation and a shorter duration of the process. The analyses of both primary metaphors and complex metaphors showed that if the translator managed to break free of the source language conceptualization, the translation product was more likely to become acceptable. This was indicated by the higher share of metaphorical and non-metaphorical translations (paraphrases) together (excluding omissions and literal translations) out of all acceptable translations compared with the share of metaphorical and non-metaphorical translations (excluding blank and literal translations) together out of all unacceptable translations. Furthermore, the share of unacceptable paraphrases of all unacceptable translations was significantly lower than the share of acceptable paraphrases of all acceptable translations (Chi-square, $p < 0.003$). This shows that a paraphrase was more often acceptable than unacceptable.

The analyses of the translation processes and products with the variables used in this study help organizing primary and complex metaphors in an order according to the cognitive effort their translation requires. On the basis of the findings described above it can be argued that primary metaphors are a rather uniform group of metaphors, the translation of which requires relatively little cognitive effort in general, but the general tendency is the same as in the translation of complex metaphors. A primary metaphor is successfully translated quickly and without fixation, most often, by a literal metaphorical equivalent or, second most often, by a paraphrase. The typ-
The process of translating primary metaphors (excluding the effect of the similarity/difference of the mapping) can be characterized as follows:

- **Primary metaphor**
  - No fixation and short time
  - Paraphrase

It was found out that complex metaphors are more varied, and require a higher cognitive effort in translation than primary metaphors. The effort required in the translation of metaphors seems to depend on the following: metaphors that share similar metaphorical mappings and linguistic realizations (literal equivalents) in the target language, such as the complex metaphor *behind the cutting edge* or the primary metaphor *make a move*, require less cognitive effort than metaphors which do not share metaphorical mappings and linguistic realizations in the target language (different metaphorical equivalent), such as the complex metaphor *to walk a fine line* or the primary metaphor *low*. The highest cognitive effort in translation is devoted to metaphors that conceptualize ideas that are not conceptualized with the help of metaphors in the target language, such as the complex metaphor *to take a high road* or the primary metaphor *hold the same opinion*. Thus, it can be summarized that the greater the differences in the conceptualization systems (=cognitive distance) between the source and the target language, the more cognitive effort the translation of metaphors requires. On the basis of the analyses, the process of a complex metaphor typically involves fixation and takes a long time and results in (1) a metaphorical equivalent, (2) paraphrase or (3) literal metaphorical equivalent. See a simple process diagram below:

- **Complex metaphor**
  - Fixation and long time
  - Paraphrase
  - Literal metaphorical equivalent

To conclude this subchapter, an attempt to characterize the translation processes of metaphors in general will be made by formulating new hypotheses about the translation of metaphors on the basis of both quantitative and qualitative analyses of all the experiments included in this study. Excluding the type of metaphor or the similarity/difference of the mapping.
The simple process diagrams above illustrate that if a translation process of a metaphorical expression is short and there is no fixation, it is more likely that the translation product is a literal equivalent, whereas a longer process with fixation more often results in a metaphorical or paraphrasing translation.

If the mapping of the original metaphor is taken into account, the following could be hypothesized:

The above process diagrams attempt to characterize the processes involved in the translation of metaphorical expressions with different mapping conditions in the source and target languages. The qualitative analyses revealed that translation processes during which the translators produced translation alternatives based on the cross-domain metaphorical mappings of the original metaphorical expressions (fixation) tended to result in a translation that reflected a different conceptualization of the original idea. The dif-
ferent conceptualization was either another way of expressing the idea syntactically or
textually by leaving out the original expression (omission), a metaphorical expression
based on a different metaphorical mapping than the original, or a paraphrase. In addi-
tion, the translation processes of this kind were longer in average than processes that did
not involve fixation. The translation products created as a result of these processes were
more often acceptable than unacceptable, which suggests that higher effort in terms of
fixation correlates with a successful completion of the translation task.

On the other hand, translation processes of metaphorical expressions that took a
short time and did not show any signs of fixation to the original metaphorical concep-
tualization more often lead to a literal or word-for-word translation that reproduced
the original metaphorical mapping, either with a different manifestation at the lexical
level or in exactly the same literal form. Processes of this kind also tended to result
in a blank translation. The difference between producing a blank translation and
omission, both of which involve leaving out the original metaphorical expression, is
characterized below:

In general, it can be maintained that fixation during a translation process made the
processes longer, thus increasing the cognitive effort required from the translator,
but contributed to a more successful translation. But this was true only in case of
complex metaphors, which took significantly longer to translate successfully than
primary metaphors. The times did not correlate with unacceptable/acceptable trans-
lations when all the metaphors were taken into account. It can be hypothesized that
in the more demanding tasks, such as translating metaphors with different mapping
conditions (often complex metaphors) or replacing metaphor with a syntactic feature
(omission), a higher cognitive effort (longer time, fixation) is necessary for producing
an appropriate translation, while in the less demanding tasks, such as translating
metaphors with literal equivalents (often primary metaphors), the cognitive effort
invested can be smaller.

On the other hand, the results of the analyses showed that the highest cognitive
effort did not always result in an acceptable translation. It seemed that after a certain
point, spending more effort does not help any more with regard to the successful
completion of the task. The findings are consistent with Kahnemann’s (1973) theo-
ry of cognitive effort as higher effort correlates with unsuccessful result. Following
Kahnemann, who claimed that the required effort decreases with training, it can plau-
sibly be hypothesized that the more trained translators are capable of completing
demanding translation tasks with a lower effort, whereas the less trained translators
need to invest more effort into the task.

These hypotheses can be applied to translation processes in general. In cases where
the translation equivalents in the source and target languages have conceptual differ-
ences, a successful translation requires a higher cognitive effort, which shows in the
process, among others, as utilization of the original conceptualization (fixation), and
longer time. Fixation seems to be useful in the translation process, since it saves the
translator’s time and energy in easier tasks, but is also necessary for the successful
processing in the more demanding tasks. The hypotheses presented above would be
worth testing more accurately in more controlled conditions.

The following subchapter will concentrate on the conceptual domains and their
activation in the translation processes of metaphorical expressions.

7.3 ACTIVATION OF CONCEPTUAL MAPPINGS IN THE
TRANSLATION OF METAPHORS

The quantitative analyses of Experiment II did not provide any evidence for the com-
positional conceptual structure of metaphors. Translating primary metaphors before
complex metaphors whose components they were assumed to be did not help in
translating the complex metaphors. If primary metaphors were semantic components
of complex metaphors, they should have been active in the processing of them dur-
ing translation. On the basis of the results gained from the experiment, it seems that
metaphors are processed in translation in a different way.

To find out more about the structure and processing of metaphors, the material
yielded by Experiment II was studied further, with a specific focus on the cross-do-
main metaphorical mappings, which were in the analyses of the translation material
found to get activated during the process. The qualitative analyses concentrate on
fixation and time of translation, since these were found to reveal crucial aspects of the
processing of metaphors, as discussed above.

One of the most significant findings was that the translation processes and prod-
ucts of the complex metaphors did not contain any indications of processing with the
help of the assumed constituent primary metaphors. Instead the translators seemed to
base their reasoning on the conceptual domain as a whole manifested in the linguis-
tic realization of the metaphor. Furthermore, the processing of primary metaphors
and complex metaphors was crucially different: there was hardly any fixation in the
processes of translation of primary metaphors, which would have shown that the
metaphorical mapping of the primary metaphor was active, whereas there was more
fixation in the processes of complex metaphors. To demonstrate this, the translation
of the targeted complex metaphor to empty the swamp and its prime, the primary met-
aphor purge, will be discussed:

[XIa] Once they see that done, they will say, once Saddam’s Republican Guard is purge,
we can turn the country over to a contingent of Sunni generals and bring out troops
home in 18 months.

---

They think it’s cheaper to just go back and empty the swamp again if you have to.

The primary metaphor GOOD IS PURE realized in language as to purge was assumed
to be a component of to empty the swamp (metaphorical mapping GOOD IS PURE/BAD
IS IMPURE + ACTION IS MOTION). None of the translations for the expression purge
were acceptable, the average translation time was relatively long (10.2 seconds), but
there was no fixation to the original domain of CLEAN to be seen in the processes. The translations utilized a variety of different domains:

(100) “...Saddamin vartio on eliminoitu...”
(‘...Saddam’s guard has been eliminated...’)

(101) “…tuhota Saddamin kaartin...”
(‘...to destroy Saddam’s guard...’)

The above translations show that the translators did not seem to know the meaning of the metaphorical expression purge. There would have been a literal translation equivalent available in the target language but the translators instead picked a different metaphorical equivalent in the target language. It appears that instead of utilizing the metaphorical mapping, the translators attempted to find a translation on the basis of the context.

The translations for the primed expression, the complex metaphor empty the swamp, were also unacceptable except for two cases, but the translation products suggest that the expression was processed with the help of the linguistic realization of the metaphorical source domain. Half of the final translations in both experiment groups rendered the original source domain realized as “emptying a swamp” in some way, either the verb empty or the noun the swamp. There were no indications that the primary metaphor purge had been active during the translation processes of empty the swamp, even if it was in the translation experiment assumed to be one of the semantic components of the complex metaphor. Instead the Translog protocols and the final translations showed that the domain “swamp” used in the metaphorical expression was the strongest factor in choosing the translation equivalent.

The keystroke logs revealed that altogether three translators got fixated on the original domain during the processes of searching translation equivalents. None of them managed to find an acceptable translation. See one Translog excerpt:

In the above case, the translator was not able to break free from the original mapping but produced a literal translation. The large number of signs of the original metaphorical domain in the translations can be assumed to reflect the translators’ tendency to process the metaphors at the language level, without analyzing the expression in parts or accessing the conceptual level of metaphorical mappings underneath the linguistic realizations.

The following Translog excerpt illustrates how the expression empty the swamp was first processed with the help of the original source domain (fixation), and how a non-metaphorical paraphrase was found later in the process:
The literal structures in some final (unacceptable) translations suggest that the processing of the metaphor took place within the complex domain at the language level, and some aspect of the domain was picked for the translation:

(102) *He ovat sitä mieltä, että on halvempaa pumpata suo kuivaksi aina uudestaan, jos tarve vaatii.*

(They think that it’s cheaper to pump the swamp empty again and again, if necessary.)

(103) “*Heidän mielestään tulee halvemmaksi vain palata kuivattamaan (ensin: tyhjentämään) suo uudelleen, mikäli tarve vaatii.*”

(They think it becomes cheaper just to go back and dry up [first version: empty] the swamp again, if necessary.)

The key-log file revealed that the latter of the above translators modified the first version a little, but could not get out of the original domain in order to produce an acceptable translation.

The only two acceptable translations of *empty the swamp* were produced in the Control Group. The translations were non-metaphorical, and no fixation was observed during the process. The translators had managed to free themselves of the metaphorical domain used in the English expression and to convey the original idea into Finnish in an acceptable way through paraphrases:

(104) "*He luulevat, että on helpompaa mennä pistämään asiat järjestykseen uudestaan, jos niin vaaditaan.*”

(They think that it’s easier to go and put things in order again, if required.)

(105) “*He luulevat, että on halvempaa vaan mennä takaisin korjata asiat uudestaan, jos on pakko.*”

(They think that it’s cheaper to just go back fix things again, if they have to.)

The average times of translation between the Test Group and the Control Group were also significantly different. The Test Group used on average 21.8 seconds for translating *empty the swamp*, while the Control Group only used 9.3 seconds. The acceptable translations presented above and the average translation times show that the primary metaphor did not make the processing of the complex metaphor any easier for the Test Group.

There were crucial differences to be seen between the processing of the primary metaphor *purge* and the processing of the complex metaphor *empty the swamp*. Both expressions appeared unfamiliar to the translators, but the meanings and the translation equivalents were searched in different ways. While the translators tried to find the meaning of *purge* from the context, the meaning of *empty the swamp* was analyzed on the basis of its linguistic realization, i.e. the domain used in the metaphorical mapping. The observations indicate that the primary metaphor *purge* did not seem to be active at all during the processing of and searching for a translation equivalent for the complex metaphor *empty the swamp*.

The Translog protocols contained several other examples of translation processes that reflected attempts to find an equivalent in the target language from the domain used in the original metaphorical expression. See again the case of *walking a fine line* and *standing pat*.
All three are *walking a fine line* in trying to maintain their prestige at the home front while expressing their approval of war.

---

...but we generally agree that moves have to be made, the logic for *standing pat* does not hold.

---

This is worth chewing on a little, because with this war the administration is not just *taking down* a dictator, it is beginning to define in blood the new American imperium.
complex metaphor. One translator conveyed the primary expression *to take down (a dictator)* into Finnish as follows:

(106) *...koska tämän sodan myötä USA:n hallinto ei vain kaada diktaattoria...*  
(*...since by this war the US government is not only knocking down a dictator....*)

The complex expression *to cut off (Saddam’s regime) at the knees* was translated similarly as:

(107) *...että kyseessä oli vain Saddamin hallinnon kaataminen.*  
(*...that this only concerned knocking down Saddam’s regime.*)

In the above case, the same metaphorical expression *kaataa* (*knock down*) was repeated in the translations of both the primary and complex expression. See two more examples:

**PRIME** | **TARGET**
---|---
(108) *syrjäytä diktaattoria* | *Saddamin syrjäyttäminen*  
(*put aside a dictator*) | (*putting Saddam aside*)
(109) *syöksemässä vallasta diktaattoria* | *syöstä Saddamin hallinto vallasta*  
(*throw aside a dictator*) | (*to throw aside Saddam’s regime*)

The above examples indicate that translating primary metaphors may have activated some metaphorical mappings which were available during the translation of the related complex metaphors. This may explain the use of similar expressions in the translation of the complex metaphors. On the other hand, the repetition may reveal other strategies characteristic of translation. If an appropriate translation of a metaphorical expression is found once, it saves time and energy in the face of another similar metaphorical expression.

There were cases in which the activation of the same domain during the translations of the primary and complex metaphors did not come out at the level of the words but at the level of *domain* so that different aspects of the same domain were used in the translation of the primary and complex metaphorical expressions. One example of this was *to set on shaky ground* + *to walk a fine line*:

**TEST GROUP:**

[IIa] *Tony Blair, who so resembles the American predecessor whom Bush despises, has been an eloquent and indispensable ally in the face of setting him on shaky ground at home.*

---

*All three are walking a fine line* in trying to maintain their prestige at the home front while expressing their approval of war.

One translator of the Test Group translated the primary expression *to set on shaky ground* as
and the complex expression to walk a fine line as

(111) … tasapainottelevat…
      (’…balance themselves…’)

These two expressions are based on the same conceptual metaphor BALANCE IS STANDING ON FIRM GROUND (UNBALANCED IS BAD+ACTION IS MOTION), and the metaphorical expressions were extracted from the same conceptual domain.

Since there was no difference between the experiment groups in the number of acceptable or blank translations, fixation or time of translation, it cannot be said that the primary metaphor made the translation of the walking a fine line any easier. There were no signs of the primary metaphor in the translation processes of the complex metaphors (fixation). It seems that translating the primary metaphor activated some element of the conceptual domain used and that this element was also available in the translation of the complex metaphor. This showed as utilization of the same domain in the translation of both primary and complex metaphor. This finding suggests that there is some relation between primary and complex metaphors.

As another example, the metaphor POLITICS IS A GAME was manifested as metaphoric expressions to make a move and to stand pat in the following text translated by the Test Group:

[VIa] We reluctant hawks may disagree among ourselves about the most compelling logic for the seemingly low alternative of war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that moves have to be made, the logic for standing pat does not hold.

The Control Group had a non-metaphorical expression something has to be done instead of the primary metaphor. There were differences in the translations between the test groups. The Control Group utilized the non-metaphorical prime in the translation of the complex metaphor, while the Test Group used a variety of other metaphors, such as the following:

(51) Yleensä olemme kuitenkin samaa mieltä siitä, että jotakin on tehtävä, tuleen ei auta jäädä makaamaan.
      (’Usually we agree that something has to be done, it’s not good lying in the fire.’)
(112) …ollaan yleisesti sitä mieltä, että jotain on tehtävä, sivustakatsominen ei kestää pidemmään pääle.
      (’…it is commonly agreed that something has to be done, watching from the side does not hold in the long run.’)

The Control Group utilized the prime expression something has to be done in their translations. The translations of the Control Group were mostly non-metaphorical. See an example:
Two translators in the Test Group and one in the Control Group utilized the metaphorical mapping POLITICS IS A GAME in their translations of both primary and complex metaphor. See examples:

(45) …mutta olemme kuitenkin yleisesti sitä mieltä, että jotain täytyy tehdä.
(‘...but we generally think that something has to be done.’)

The translations of standing pat suggest that various aspects of the metaphorical mapping POLITICS IS A GAME were used in the processing of both expressions. There were no signs of utilizing the primary metaphor make a move in the translations of the complex metaphor in the Test Group, which indicates that the primary metaphor was not activated during the processing of the complex. However, it must be taken into account that both the primary metaphor make a move and the complex metaphor standing pat are conventional expressions in both source and target languages, so the translators did not necessarily need to access or activate the metaphorical mappings in order to understand and find equivalent translations to these.

The results of the qualitative analyses of the role of the suggested primary vs. complex division in translation of metaphorical expressions in Experiment II were consistent with those of the quantitative analyses. The qualitative analyses showed that 1) complex metaphors are generally not processed by decomposing them into their semantic components but more holistically on the basis of the domains used in the linguistic realizations of the metaphors and 2) primary and complex metaphorical expressions are processed differently, and 3) conceptual metaphorical mappings do not tend to get activated during the translation of conventional metaphors.

Primary metaphors were easier to process than complex metaphors; there was hardly any fixation in the processes of primary metaphors, not even in cases where their linguistic realizations were different in the source and target languages. This can be due to the fact that primary metaphors more often utilized shared conventional mappings, so the conceptual mappings did not need to get accessed during translation but the metaphorical expressions could be processed at the lexical level.

If conceptual metaphorical mappings are not activated in translating primary metaphors, they cannot be assumed to be utilized in the processing of metaphorical expressions based on complex metaphors either. Rather, the processing and translation of complex metaphors seems to be determined by the metaphorical mapping’s compatibility with the target language equivalent and some other factors. If the metaphorical mappings were incompatible, the expressions were interpreted and translated primarily on the basis of the linguistic realization of the mapping. This tended to cause fixation during the translation processes and lead to an unacceptable translation unless the translator managed to access the conceptual level, break free from the original domain and find another way of expressing the idea in the target language. On
the other hand, when the complex metaphor was compatible with the target language metaphorical system, the translators did not need to activate the metaphorical mapping, and the metaphorical expressions were generally processed at the lexical level.

With regard to the conceptual structure of the metaphors, the analyses presented above suggest that the conceptual relationship between primary and complex metaphors may not be compositional in the way that has been assumed in the cognitive theory of metaphor. It does not seem plausible that primary metaphors are components of complex metaphors. Instead it appears that certain primary and complex metaphors can be located within a single conceptual domain and may therefore get simultaneously activated in the processing of similar metaphorical expressions. The activation is usually automatic and unconscious, as claimed by Lakoff (2008) and other scholars, such as Glucksberg and McGlone (1999), Keysar et al. (2000) and Steen (2011a, 2013), unless the language user is deliberately made conscious of the mappings, for instance by introducing creative novel extensions of the conventional metaphors. It was expected that translation is also one activity that forces the language user to become conscious of the mappings. It was found out that the translators did not always activate the metaphorical mappings, but only when it was necessary for finding an appropriate equivalent to the metaphor in the target language.

In addition, the analyses suggest that it is the conventionality of the metaphorical expression in both source and target languages that partially determines whether the metaphorical mapping needs to be accessed during translation. The present study has provided abundant evidence that the translation of metaphorical expressions with different mapping requires a transfer to the conceptual level and, thus, higher cognitive effort than the translation of metaphors whose conceptual structure is shared in the source and target languages. However, if the mapping used in the source language expression is shared but not very conventional in the target language, its translation may require the effortful processing at the level of conceptual mappings in order to find a more conventional way to express the idea in the target language. This conclusion has been made also by e.g. Tirkkonen-Condit (2002), who claimed that translation difficulty of idioms can be determined on the basis of the existence of equally conventional translation equivalents. In future studies, investigation of the conceptual structure of the metaphors should focus on incompatible metaphorical expressions, the processing of which may require activation of the conceptual metaphorical mappings underlying the linguistic metaphors. Also the level of conventionality of the potential translation equivalents should be taken into account.

7.4 TRANSLATION OF METAPHORICAL VS. NON-METAPHORICAL LANGUAGE

The idea that metaphors are linked to greater cognitive load in translation compared to literal language has been presented, among others, by Wojtczak (2009), Zheng and Xiang (2013), and Schäffner and Shuttleworth (2013). Also Sjørup (2011, 2013) has conducted experiments on the translation of metaphors using eye-tracking and found out that processing metaphorical expressions takes longer than processing non-metaphorical language during translation.

The analyses of the translation material produced by Experiment I supported the idea that the translators attempt to maintain the metaphoricity of the original text in their translations. The results showed that more than half of the translations of the met-
aphorical expressions were metaphorical (see Table 7 under 5.6.1 above). In addition, the translations of complex metaphors were slightly more metaphorical than those of primary metaphors. These findings were worth examining further in Experiment II.

In Experiment II, the Test Group had more metaphorical expressions in their text than the Control Group, because their text included additional primary metaphorical expressions as primes for the complex metaphors. Both groups showed a tendency to make the translated text as metaphorical as the original. This is indicated by the fact that about two thirds of the translations of the primary metaphors in the Test Group as well as of the translations of the complex metaphors in both groups were metaphorical. The share of all metaphorical translations in the Test Group (61%) was significantly higher ($p < 0.002$) than that in the Control Group (48%), but it must be taken into account that the Control Group did not have primary metaphors in their text. In addition, the complex metaphors were more often than the primary metaphors translated by metaphorical expressions. See the table below:

Table 18. Metaphorical translations in numbers and in per cent (%) in Experiment II.

<table>
<thead>
<tr>
<th></th>
<th>TEST GROUP</th>
<th>CONTROL GROUP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIMES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary metaphors</td>
<td>56/96</td>
<td>25/84 *</td>
<td>81/180</td>
</tr>
<tr>
<td>58 %</td>
<td>30 %</td>
<td>45 %</td>
<td></td>
</tr>
<tr>
<td><strong>TARGETS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex metaphors</td>
<td>62/96</td>
<td>55/84</td>
<td>117/180</td>
</tr>
<tr>
<td>65 %</td>
<td>65 %</td>
<td>65 %</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>119/192</td>
<td>80/168</td>
<td>199/360</td>
</tr>
<tr>
<td>62 %</td>
<td>48 %</td>
<td>55 %</td>
<td></td>
</tr>
</tbody>
</table>

* no metaphorical primes in the source text

The above table does not specify, however, how many of the metaphorical translations were acceptable / unacceptable. A total of 68 per cent out of all the unacceptable translations of the metaphorical expressions based on complex metaphors were metaphorical translations. This suggests that the effort to translate a metaphorical expression by a metaphorical expression often resulted in an unacceptable translation. There was a difference between the Test Group and the Control Group: metaphorical translations made up 65 per cent of the unacceptable translations of the Test Group, while the corresponding number in the Control Group was as high as 75 per cent. Out of the other unacceptable translations of the complex expressions in both groups, 61 per cent were blank, which implies that the number of unacceptable non-metaphorical translations was very small. The quantitative result that the Test Group had a larger share of unacceptable translations and blank translations as well as longer translation times than the Control Group can be considered a consequence of the higher metaphoricity of the Test Group’s text. In other words, the higher number of metaphorical expressions seemed to make the translation task as a whole more difficult for the Test Group. The various products of translation and the processes behind them were discussed in more depth under 7.1 above.

The higher cognitive effort during translation processes was expected to be realized as fixation. It came out in the analyses that translating metaphorical expressions by expressions using other metaphors frequently caused fixation during the process of searching for translation equivalents. As to translation products, there were a great number of final translations that reproduced the original metaphorical domain or parts of it even if it was not understandable or appropriate in the given context. Hence,
a tentative conclusion can be made that metaphors increased the cognitive effort of translation.

The above table shows that the translations of primary metaphors were slightly less metaphorical (58 per cent) than those of complex metaphors (65 per cent) in the Test Group. The difference did not reach statistical significance by Chi-square test, though. As discussed in the previous subchapter, primary and complex metaphors are processed similarly when the metaphor is based on a mutually shared, conventional mapping, and this is more often the case with primary metaphors. Primary metaphors have been argued in the conceptual theory of metaphor (Lakoff & Johnson 1999) to be so entrenched in our conceptual system that they are not recognised as metaphorical, whereas complex metaphors are more easily identified as figurative and metaphorical, which may have urged the translators to search for metaphorical translations. Since complex metaphors are more culture-specific, their processing, at least during translation, seems more often to require analysis of the metaphorical mapping. As discussed earlier, the complex metaphors seemed in most cases to be analyzed on the basis of the metaphorical domain realized in language, which showed as fixation. The complex metaphor take the high road in the following sentence serves as an example:

\[ \text{Much as we might wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.} \]

About half of the translations in both groups were acceptable and there were translators in both groups whose translation processes revealed fixation. See examples from keystroke log files:

[VIIa/b] Much as we might wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.

It is noteworthy that all acceptable translations of this expression in the Control Group were non-metaphorical. See some examples below:

(89) Vaikka miten yrittäisimme olla moraalisesti parempia…
('No matter how hard we tried to be morally better…')

(90) Vaikka kuinka yrittämme valita viisaamman katsontavan…
('No matter how hard we try to choose a wiser point of view…')
The observation that the Control Group produced a slightly greater number of acceptable translations for the complex *take the high road* and that their acceptable translations were all non-metaphorical, while the Test Group had more unacceptable metaphorical translations, can be deemed to reflect the Test Group’s general attempt to maintain the metaphoricity of the text. Alternatively, it can be hypothesized that the preceding primary metaphors encouraged the translators to search for equivalent metaphorical expressions also for the complex metaphors regardless of whether these exist. It has been stated earlier that in the case of the metaphorical expression *take the high road*, such equivalent does not exist but the idea is expressed in Finnish with other metaphors or in a non-metaphorical way. Thus, it appears that it is the complex metaphors, in particular, that increase the cognitive effort required in translation, because they are identified by the translators as metaphorical.

To sum it up, the analyses of the metaphoricity of the translations provided some evidence that metaphorical expressions make it more difficult for the translators to produce acceptable translations. Metaphoricity raises the cognitive effort that must be invested in translation, since translators tend to make an effort to translate metaphorical expressions by metaphorical expressions, and this causes fixation during the translation process. Translating metaphors with metaphors also seems to lead to unacceptable translation products. The result supports and complements the findings of other scholars mentioned above.

### 7.5 METAPHORS AS TEXTUAL TOOLS

Some interesting observations were made about metaphors and their textual roles in analyzing the translation material of Experiment I (see 5.4.2). These observations were examined further in the translations produced in Experiment II. The material used in Experiment II was a nearly authentic article and, therefore, provided a better platform for studying textual aspects of metaphors than the collection of individual sentences used in Experiment I.

When the experiment text was analyzed as a whole instead of concentrating on individual expressions, it could be seen that the text was dominated by a few complex metaphors running through the entire text. These included the metaphors POLITICS IS A JOURNEY, POLITICS IS WAR, POLITICS IS A GAME, POLITICS IS A COMPETITION, POLITICAL IDEAS ARE BUILDINGS, and OPINIONS ARE SIDES. These metaphors have been found to be typical of American political discourse (Deignan 2005; Kövecses 2005). It can be assumed that the role of the metaphors was not only to make the complicated political ideas easier to understand but also to create coherence and organization in the text. This way, metaphors can serve important textual functions, as suggested by e.g. Yin (2013). Kövecses (2002:51) has called metaphors of this kind “mega-metaphors”. In this study, these overarching textual metaphors are called macro-metaphors, which best characterizes the role of the metaphors at the macro-level of the text as opposed to micro-level individual expressions. The concept ‘macro-metaphor’ has been used mainly in literary approaches to metaphor (e.g. Chrzanowska-Kluczsewska 2011).

The translations revealed a general effort to preserve the original text’s metaphorical character, and similar macro-metaphors manifested as a large number and variety of metaphorical expressions were identified in translations. The translated texts contained a versatile collection of metaphorical expressions grounded on the conceptual
domains of JOURNEY, GAME, COMPETITION, WAR and PHYSICAL STRUCTURE, as demonstrated in the previous chapters. There were, however, differences in the realizations of the metaphors at the linguistic level, depending on the prototypical examples selected to represent the source domains of the metaphors in the two languages. Some translations utilized aspects characteristic of the Finnish culture specifically (see also 5.4.2). These observations support the findings made by e.g. Stienstra (1993) and Schäffner (2004) about the translators’ efforts to reproduce the original metaphors at the macro-level of the translation but let the individual expressions be different.

Besides the effort to translate metaphors with metaphors and this way construct metaphorical coherence in the text, the translators also showed a clear tendency to add metaphors in the translated text in places where the original text did not have any. About one third (30 per cent) of the translations of the non-metaphorical expressions in the Control Group’s text (in places where the Test Group had metaphorical primes) were translated with metaphorical expressions. The same tendency was seen in the translations of the individual sentences used in Experiment I. The majority of translators pointed out in the questionnaire after the test that metaphorical expressions were hard to translate, and one translator commented that she had to leave out many metaphors in her translation but tried to make up for this by adding metaphors to other parts of the text. Thus, it appears that, if the translators were unable to convey some of the source text’s metaphors into Finnish (either due to incompetence or other reasons, such as idiomaticity), they attempted to compensate this in some other passage of the text. In these cases, the metaphorical expression was often taken from the conceptual domain of one of the text-constructing macro-metaphors. See some examples below:

[2] Does this mean that Bush is pulling together a new American consensus about how to deal with the dangerous world he inherited?

(113) Voidaan kysyä, tarkoittaako tämä, että Bush on kokoamassa amerikkalaisia yhteen rintamaan sen suhteen, mikä olisi paras tapa toimia…

(’It can be asked whether this means that Bush is getting Americans together as one front regarding the best way to act…’)

The above translation displays a metaphorical expression grounded on the metaphor POLITICS IS WAR, even if the source sentence did not contain any metaphorical expression.

The following examples reveal a strategy to create coherence within sentences by adding metaphorical expressions. In the translation below, another metaphorical expression taken from the domain of JOURNEY utilized in the first metaphorical expression of the sentence is added at the end of the sentence:

[1] The president also has enough prominent Democrats in his vehicle to make this endeavor credibly bipartisan.

(114) Presidentillä on kyydissään myös riittävästi vaikutusvaltaisia demokraatteja, joista osa on mukana vakaumusvaltaisena vuoksi, osa muista syistä. Näin syntyy kuva, että reissuun lähettiiin molempien puolueiden hyyväksynnän saattelemina.

(’The president has in his vehicle also enough influential Democrats, some of which are in because of their devotion, others for other reasons. This way it gives the idea that they set off for the journey with acceptance from both parties.’)
The same strategy is seen in the following example where the metaphorical expressions are again based on the domain of WAR:

[1] The president also has enough prominent Democrats in his vehicle to make this endeavor credibly bipartisan.

(115) Bushilla on joukoissaan myös tarpeeksi perusdemokraatteja, jotta hankkeen kannatus on uskottava molemmissa leireissä.

(‘Bush also has in his troops enough basic Democrats so that the support for the endeavor is credible in both camps.’)

The above sentence also shows that even if a literal translation (‘kyydissään’) would have been available in Finnish, the translator chose a more conventional Finnish metaphorical expression using the domain of WAR as well as added another one in the end of the sentence. This idea has been presented by Yan, Noël and Wolf (2010), whose study suggested that the conventionality (‘entrenchment’) of the metaphorical expression in the target language can be more decisive in the choice of the translation than the fact that the original metaphor is available in the target language.

See one more example where two metaphorical expressions based on the metaphor POLITICAL POWER IS WEIGHT are added to a sentence, creating a new, coherent metaphorical frame for the whole sentence:

[3] Thanks to all these grudging allies, Bush will be able to claim, with justification, that the coming war is a far cry from the rash, unilateral adventure that some of his advisers would have settled for.

(116) Vaikutusvaltaisten liittolaistensa ansiosta Bush on saanut sodalle oikeutuksen, jolla on painoarvo, kun taas moni hänen neuvonantajistaan olis tyytynyt heiveröisempin perusteihin.

(‘Thanks to his influential allies Bush has received a justification for war that has weight value, while many of his consultants were more hasty and would’ve settled for lighter reasons.’)

The above examples also demonstrate that, by adding metaphors, the translation became more colourful than the original text. This finding is in line with the idea presented by Fernández, Velasco Sacristán and Fuertes Olivera (2005) that it is common for translators to make the text more colourful by replacing very conventional metaphors with more creative ones. See one example of a translation of the neutral English suit using an old Finnish saying sopia pirtaan that refers to a handicraft tradition:

[XIII] It consists of a determination to keep America an unchallenged superpower, a willingness to forcibly disarm any country that poses a gathering threat and an unwillingness to be constrained by treaties or international institutions that don’t suit the United States perfectly.

(117) Se sisältää päätöksen pitää Yhdysvallat kiistattomana supervaltana, halukkuuden käyttää voimakeinoja kaikkia niitä maita vastaan, joista on jonkinlaista uhkaa Yhdysvalloille ja haluttuun noudattaa kansainvälisiä sopimuksia, mikäli ne eivät sovi täydellisesti Yhdysvaltojen pirtaan.

The translations suggest that translating metaphorical expressions based on the macro-metaphors activated certain metaphorical mappings which remained active during
the entire translation process and influenced all translation solutions. The activation of certain metaphors or frames came out both at the level of the text and at the level of single expressions. The use of similar metaphorical expressions created lexical cohesion in the translated text by calling up the same conceptual metaphors governing the text every time they appeared. Also the fact that the article deals with “politics” and “war” may have initially triggered some metaphors that are conventional in conceptualizing these issues in Finnish, and these metaphors were used in suitable places throughout the text.

The analyses indicate that the translators paid special attention to the metaphors and perhaps even developed a strategy for translating them in a certain way along the translation process. It can be hypothesized that the abundance of metaphors in the text created a textual frame with some mega-metaphors and the translators tried to create the same effect in the translation both at the macro and micro level. This observation is worth studying further in more controlled conditions.

The results reported above show that qualitative analyses of the processes and products of translation of metaphorical expressions can provide a lot of in-depth information about the structure of metaphors as well as of the cognitive operations involved in the translation of metaphors. Combining the results of the qualitative and quantitative analyses produced by the study at hand, some tentative conclusions about the complex cognitive activity of translating metaphors can be drawn. In the following chapter, the overall results of the study will be reviewed and discussed.
CONCLUSION

The purpose of the present study was twofold: 1) to test the suggested distinction and compositional structure of primary and complex metaphors in translation and 2) to examine the translation processes of metaphorical expressions from the cognitive perspective, in particular with regard to the difficulty and cognitive effort of their translation. The study thus made an attempt to obtain psychologically and empirically grounded evidence of some of the fundamental claims of the conceptual metaphor theory while simultaneously gathering information about cognitive activities involved in the translation of metaphors that has been studied little so far. Using the conceptual metaphor theory as the framework for studying the translation of metaphors can be considered mutually beneficial both for cognitive metaphor studies and cognitive studies on translation processes.

The experiments included in the current research were built on the empirically grounded finding known as the Cognitive Translation Hypothesis (Mandelblit 1995:487–495), according to which the difficulty of the translation of metaphorical expressions depends on the compatibility vs. incompatibility of their conceptual mappings in the source and target languages. The aim of the study was to test further the Cognitive Translation Hypothesis in more realistic conditions and with an additional aspect of primary and complex metaphors.

The following two hypotheses were formed and tested in the experiments reported in this study: 1) Metaphorical expressions based on primary metaphors are easier to translate than metaphorical expressions based on complex metaphors, and 2) Translation of metaphorical expressions based on primary metaphors assist in the translation of metaphorical expressions based on complex metaphors composed of these primary metaphors. The first hypothesis arose from the assumption that if indeed the so-called primary metaphors are largely independent of language and culture due to their physical grounding in the basic human experience, the translation of expressions that reflect them should be easier than the translation of expressions that reflect complex metaphors, which are assumed to be more culture-specific combinations of primary metaphors. The second hypothesis was built on the assumption that pre-activating (priming) a part of the meaning of a complex metaphor by one of its component primary metaphors should facilitate the processing of the complex metaphorical expression. Translation as an intercultural cognitive activity was assumed to provide a window to the processing of metaphors in natural language and texts.

The difficulty of translation was measured by four individual variables: 1) acceptability, 2) blank translations, 3) fixation, and 4) time of translation. The first two variables were used to indicate difficulty of translation with regard to the translation products, while the latter two were expected to indicate cognitive effort during the translation processes and, this way, also reflect the difficulty of the task as a whole (Sun 2015).

To complement the quantitative analyses, in-depth analyses of the translation processes of different metaphorical expressions were conducted in the light of the chosen indicators of cognitive effort, viz. fixation and time of translation. Also the following questions were tentatively addressed to: are metaphorical mappings activated during translation, and does the translation of metaphorical language require more cognitive effort than the translation of literal language.
In the following, a summary of the results obtained from the study will be provided, as well as the implications of the results, first, for the conceptual theory of metaphor and, second, for the cognitive studies of translation processes.

8.1 IMPLICATIONS FOR THE CONCEPTUAL METAPHOR THEORY

Both experiments included in the study (see Chapters 5 and 6) provided support for the first hypothesis: the metaphorical expressions based on primary metaphors were easier to translate than the metaphorical expressions based on complex metaphors. Evidence for this was found in the processes of translation as recorded in the Translog files as well as in the final translation products. Compared to the translation of complex metaphors, the translations of primary metaphors were easier in terms of the majority of the variables set, i.e. were more acceptable, displayed a smaller number of blank translations, and their translation process took less time, i.e. cognitive effort, than that of complex metaphors. In contrast, there was no significant difference between primary and complex metaphors in the cognitive effort measured by the number of fixations during the translation process. (The concepts ‘translation difficulty’ and ‘cognitive effort’ as well as the indicators utilized to measure them will be discussed in 8.2) As hypothesized, primary metaphors tended to exploit similar domains of experience, i.e. have the same metaphorical mapping in English and Finnish, and this can be assumed to have made them easy to understand and translate.

Complex metaphors, on the other hand, took more time to translate than expressions based on primary metaphors and the translations were less successful, i.e. there were more instances of incorrect, incomprehensible and unidiomatic translations. The share of blank translations was also higher among the translations of the complex metaphors in Experiment II, but not in Experiment I. The unexpected outcome of Experiment I was hypothesized to depend on the low number of occurrences as well as other reasons to leave out an expression, such as avoidance of repetition. The majority of unacceptable translations in both tests were clustered on a few complex metaphorical expressions, such as to take the high road and to walk a fine line. These metaphors used as their source complex combinations of conceptual domains which were not used to express the same meaning in the target language, even if the individual words and domains were familiar. The analyses showed that complex metaphors were more often based on different metaphorical mappings in English and Finnish than primary metaphors, which made them, in general, more difficult to translate, since the translators could not utilize the original words or domains in the translation but had to break free from the source language conceptualization and find another way to express the same idea in the target language.

However, it must be noted that there were also a great number of complex metaphorical expressions that are so conventional in both English and Finnish that literal equivalents were readily available and, therefore, their translation did not pose any special difficulty. It can be assumed that this was due to the shared cultural experience and knowledge of the Western world and politics, which has led to the development and conventionalization of a number of similar metaphors and, consequently, similar metaphorical expressions in English and Finnish. In these cases, the metaphorical expressions could be translated in a rather straightforward way at the language level, and there was no need to analyse the expressions more thoroughly and access the
metaphorical mappings and, hence, the translation task as a whole was relatively easy. Thus, the study showed that the conventionality of the metaphor in source and target languages plays a significant role in the translation of metaphors, as has been discovered by Tirkkonen-Condit (2002) and Yan, Noël and Wolf (2010), among others. In future tests, the conventionality of the metaphorical expressions could be systematically controlled, for instance, by using corpus-based methods.

The most notable differences between primary and complex metaphors were observed in different mapping conditions: primary metaphors were easier to translate than complex metaphors, in particular, in cases where the source and target languages utilized different ways – either metaphorical or non-metaphorical – in the conceptualization of the idea, and thus the translation equivalents were also different in the two languages. This result was achieved in Experiment I by all indicators. The analyses of cognitive effort in the translation processes of Experiment II (reported in 7.2) supported this finding. The amount of fixation in the translation processes of primary metaphors leading to other than literal translation equivalents was significantly smaller than the amount of fixation in the corresponding translation processes of complex metaphors. Also the average times for finding another metaphorical translation or paraphrase were shorter for primary metaphors compared to complex metaphors. The results thus bring additional support to the Cognitive Translation Hypothesis elaborated into the translation of primary and complex metaphors.

In cases of incompatible mappings, the shift from one conceptual system to another, resulting in a metaphorical (but not literal) translation equivalent or a paraphrase, was easier to carry out and required lower cognitive effort in the case of primary metaphors than in the case of complex metaphors. From another viewpoint, this suggests that the conceptual mappings of primary metaphors were rather effortlessly activated during their translation, which allowed the cross-conceptual and cross-linguistic processing, whereas the conceptual mappings behind the complex metaphors did not get activated right away or at all, but the processing was constrained by the source language linguistic manifestation, also in cases where there was no literal translation equivalent available in the target language, and understanding and translating the metaphor would have required processing at the conceptual level of metaphorical mappings. In other words, the linguistic realization of the metaphor does not seem to play as big a role in the translation process of primary metaphors as it does in the translation process of complex metaphors but there is some shared conceptualization between primary metaphors in the two languages that goes beyond the language. It can thus be assumed that primary metaphors can be understood by virtue of their universally shared bodily grounding also in cases where their linguistic manifestations are different, whereas the processing of complex metaphors relies more on the linguistic realization of the metaphorical expression, because there is no shared experiential grounding to base the interpretation on.

The second hypothesis of the compositional structure of complex metaphors did not gain support in the study. There was no facilitating effect of the translation of primary metaphors on the translation of complex metaphors assumedly composed of these primary metaphors in the other translation experiment. Instead, translating primary metaphors seemed to make the translation of complex metaphors more difficult. The Test Group’s translation processes of complex metaphors revealed more fixation and longer times, and the translation products included a higher number of unacceptable and blank translations compared to the Control Group. However, due to the pilot nature and the limited number of subjects, the results of the priming test
must be considered tentative. A detailed report of the results of Experiment II was given in Chapter 6.

The translation processes were also analyzed in order to see whether the assumed primary meaning elements were utilized during the translation process of the complex metaphorical expressions, as could be the case if primary metaphors were conceptual building blocks of complex metaphors (see 7.3). This was done by examining the processes of searching translation equivalents recorded in the Translog files. The translation key log files did not display any indications that the translators would have interpreted the meaning or searched for translation equivalents with the help of the primary metaphors that were assumed to be their semantic constituents in accordance with the conceptual theory of metaphor. Instead, the translators based their analysis and reasoning of the complex metaphors on other factors. Rather than decomposing the complex metaphors into simpler meaning components, the translators tended to search for the meanings of the expressions by analyzing the experiential domains realized in the complex metaphorical expressions at the linguistic level. In some cases, the translators seemed to exploit the same conceptual domain in the translations of assumedly related primary and complex metaphors, which suggests that it can be the conceptual domain involved in the metaphorical mapping that functions as the shared conceptual ground between related primary and complex metaphors.

Hence, the observed inhibitory effect of the prime on the target indicates that there is some kind of conceptual connection between primary metaphors and complex metaphors that the mind was searching, but the connection is not semantically straightforward. The connection can be one between a generic term and a more specific term, or the primary and the complex metaphor may have some common conceptual denominator. The current experiment did not reveal what the connection is, but it could be hypothesized that the conceptual link in the semantic chain between primary and complex metaphors is the domain used as the source of the metaphorical image that primary and complex metaphors both utilize in their linguistic manifestations. To test this hypothesis, semantic priming tests could be arranged, in which different metaphorical expressions were either embedded in simple sentences or shown alone without any context, and the participants would have to determine the meaning of the expressions. This way, it might be possible to gain better insight into the cognitive processing of metaphors without so many interfering factors. It was assumed that translation can be a useful method in exploring processing of metaphors since it may reveal processes that are otherwise unconscious and hidden. On the basis of the outcome of the study, it must, however, be acknowledged that even if translation revealed some interesting features of metaphors, the complex act of translation itself brought into the process aspects that may have distorted the “pure” cognitive processing of metaphorical expressions.

The findings of the present research support the claim presented by Grady (1997) and Lakoff and Johnson (1999) that primary metaphors are physically grounded universal conceptual structures that operate across languages. This can further be considered to strengthen the view of embodied nature of cognition, advocated by Lakoff and Johnson (e.g. 1999), among others. The results are consistent with the empirical work conducted on the mental reality of primary metaphors in monolingual processing by various researchers, such as Boroditsky (2000), Soriano and Valenzuela (2009), Núñez, Motz and Teuscher (2005), and Gibbs, Lima and Francuzo (2004). Complex metaphors, on the other hand, do not appear to be as strongly and directly connected with our physical experiences but rather constrained by cultural and linguistic con-
ventions. Assuming that languages are full of metaphors, the findings about primary metaphors suggest that all the languages of the world may share some universal embodied conceptual basis (cf. the discussion of ‘semantic primes’ by Wierzbicka (1996), among others). It may very well be so that it is this shared embodied grounding that makes translation possible and allows us to communicate in different languages.

The evidence obtained from the two experiments suggests that there is something inherently different between primary metaphors and complex metaphors as far as their conceptual structure and cognitive processing are concerned. On the basis of the results, it can be claimed that primary metaphors have real psychological representation in our cognitive operations, while the psychological status of complex metaphors remains vague. The study did not provide any accurate information of the conceptual structure of complex metaphors. The hypothesis that complex metaphors are composed of primary metaphors could not be verified or rejected on the basis of the priming experiment. The experiment indicates that complex metaphors are not decomposed into their semantic parts, in other words, their assumed primary conceptual components are not activated, during normal cognitive processing such as translation. In contrary, they seem to be processed as semantic clusters, like idioms. This can be the reason that the translation processes of metaphors did not show any facilitating priming effects but, instead, the effects were inhibitory. One possible hypothesis for this result is that the priming task forced the activation of the component primary metaphors and, this way, interfered so much in the normal processing of the complex metaphors that it caused the inhibitory effect. All in all, it can be maintained that the mechanisms and effects of long-term semantic priming must be explored further.

On the basis of the results of the priming experiment, it can be suspected that the idea of complex metaphors being composed of primary metaphors is artificially constructed and grounded on theoretical observations at the level of language, and has no solid psychological basis. Or, to say the least, primary metaphors are not psychologically realized in the linguistic processing of complex metaphors during translation. The finding contrasts with Lakoff’s (2009, 2014) claim about the simultaneous activation of component primary metaphorical mappings during the processing of complex metaphors.

In the light of the current research, it seems that the theory of conceptual blending (see p. 43–44) introduced by Fauconnier and Turner (1998, 2008) could provide a more accurate characterization of the conceptual structure of complex metaphors. While the conceptual metaphor theory describes more static and deeply-rooted patterns of figurative language, the blending theory focuses on the online process of creating metaphors and takes into account more ad-hoc and personal instantiations of the entrenched conceptual metaphors (Grady, Oakley & Coulson 1999). Therefore, the conceptual metaphor theory is more suited to illustrate conventional metaphors, and the blending theory can offer a better explanation of novel metaphors. It can be said, however, that the blending theory and the conceptual theory of metaphor do not overrule but rather complement each other. Grady, Oakley and Coulson (1999) suggest that conceptual blends are constrained or initiated by conventional conceptual metaphors, more particularly, primary metaphors, but in such combinations that do not allow a systematic mapping from one domain to another, like in conceptual metaphors, and with extensions that can include various socio-cultural models and beliefs. Conceptual blends can also involve other figures of speech, such as metonymies.

Since complex metaphors consist of so different conceptual ingredients, including culture-bound knowledge and beliefs, it is reasonable to suggest that their structure
should be described at their own conceptual terms rather than through primary metaphors. More accurate and transparent categorization for metaphors has been suggested by Penttilä, Nenonen and Niemi (1998), among others. They make a difference between biological metaphors and cultural metaphors. Another option would be to divide metaphors into embodied metaphors, which have a direct basis in our bodily experiences, and cultural metaphors, which are defined by each culture and language. A simple distinction between “primary metaphors” and “other metaphors”, which would be defined separately, could also be a more reliable starting point for metaphor studies and theory. If the notions of primary and complex metaphor are to be preserved, it should be made clear that “complex” only refers to the complex and multidimensional structure of the metaphorical expression, and not to any compositional structure involving primary metaphors.

The cross-linguistic analyses of English and Finnish metaphors carried out in this study brought further evidence for Lakoff’s idea (1999:68-69) that there are differences between languages in the most conventional or prototypical examples the different cultures select to represent the source domains at the linguistic level of metaphorical expressions. Since it was found out that the metaphors were as default processed on the basis of their linguistic realizations, it can be assumed that linguistic differences are responsible for much of the difficulty in the translation of metaphorical expressions. The effects of prototypes on the formation of metaphors – and on their translation – could be examined further, for instance, through a priming experiment in which the translation of prototypes would work as activators of metaphorical domains.

Another theoretical problem highlighted by the conceptual analyses of metaphors carried out for the present study concerns the concept of ‘domain’, one of the cornerstones of the conceptual theory of metaphor. Within the conceptual metaphor paradigm, the source as well as the target domains of metaphors can be very different, ranging from simple domains of ACTION or MOTION to highly complex domains of POLITICS or JOURNEY. In addition, some of the linguistic formulations of the metaphors, such as PURPOSES ARE DESTINATIONS, are confusing, since both concepts “purpose” and “destination” are rather abstract and not clearly definable. Another characterization, such as PURPOSES ARE DIRECTED ACTIONS (TO LOCATIONS), would perhaps better characterize the metaphorical relation between the more abstract domain of “purpose” and the goal-oriented action involved in reaching one’s “destination”. There is also variation in the level of abstractness in which the mapping between the two domains is presented. For instance, VIABLE THEORIES ARE ERECT PHYSICAL STRUCTURES is a more abstract version of THEORIES ARE BUILDINGS. The lack of systematicity in the presentation and definition of domain makes the analyses difficult. In order to investigate the conceptual structure and cognitive processing of metaphors more reliably with empirical studies, the notion of conceptual domain should be more clearly defined and its role in real cognitive operations better established. The chart called “Metaphor Map” (presented in 2.2.2) created as a result of the analyses carried out for the present study is an attempt to characterize the structure and analysis of conceptual metaphors and make it more transparent for future studies.

The findings about the translation of primary and complex metaphors are completely novel within the field of translation studies, as the translation of metaphors has not been comprehensively studied with regard to the aspect of primary vs. complex metaphors. Consistent results have been presented by Rydning and Lachaud (2011), who found that the comprehension of primary metaphors requires less cognitive effort than that of complex metaphors, which is likely to affect the other stages of the
translation process and the quality of the translations. As a difference to Rydning and Lachaud’s study, the current study included in the analyses the entire processes of translation for individual metaphorical expressions including the drafting and revising stages, which gives it more relevance in translation research.

The results of the study also indicate that the processing of metaphors during translation takes place as default at the linguistic level and, only when necessary, at the conceptual level. The experiments showed that metaphorical expressions are normally translated on the basis of their surface linguistic realizations, without accessing the conceptual metaphorical mappings. In cases of incompatible metaphors, the conceptual mappings may get activated, but the current study did not yield any evidence that this takes place by breaking the metaphor into primary metaphors. This way, the results of the study are contradictory with Lakoff’s (2009) claim about the automatic activation of metaphorical mappings in language processing but consistent with the earlier findings (e.g. Gibbs & Perlman 2006; Steen 2011a, 2013) that conceptual metaphors are not necessarily accessed during online processing unless deliberate attention is paid to them (Keysar et al. 2000). The outcome of the study implies that metaphors are generally processed like non-metaphorical language, without activation of metaphorical mappings. If this is true, then the conceptual role of metaphors would be less important in translation than could be assumed on the basis of the conceptual metaphor theory.

8.2 IMPLICATIONS FOR COGNITIVE STUDIES OF TRANSLATION PROCESSES

The present study provided novel information about some under-investigated areas in translation studies. Theoretically, the study made an attempt to clarify the meanings and relations of the concepts ‘difficulty’ and ‘cognitive effort’ in translation research. The analyses of the translation of metaphors showed that the difficulty of translation is reflected differently on the products and processes of translation. On the basis of the observations, unacceptable and blank translations both indicate the difficulty or failure of the completion of the translation task, but do not necessarily correlate with the cognitive effort during the process of translation. For instance, a blank translation was in some cases found to involve minor cognitive effort during the translation process and, in some cases, high cognitive effort. Thus, blank translations do not provide any information of the process, whereas unacceptable translations can reveal aspects of the process that cause translation difficulty and may thus be considered better informants of the process than acceptable translations.

Time and fixation were used in the experiments to indicate the difficulty of translation manifested in the translation processes, that is, the cognitive effort invested into the process. The analyses suggest that the time of translation defines the extent of the process and can this way indicate the allocation of cognitive effort during the various stages of the translation process. Time alone cannot, however, reveal any details of the direction of cognitive effort. Instead, fixation was found to reveal characteristic features of the cognitive activities carried out as well as aspects of the distribution of cognitive effort during the processing of metaphorical expressions. Fixation gives a glimpse into what goes on in the mind of the translators during the comprehension of the original metaphorical expression and the search for translation equivalents including the linguistic formulation of the translation. Fixation was found to be the
best indicator of the cognitive effort required for these crucial operations during the translation process of metaphors. It can thus be concluded that the quality of the translation products can help in identifying the metaphorical expressions the translation of which may require high cognitive effort, whereas fixation and time provide valid information of the actual cognitive effort invested into the translation process and are therefore useful in examinations of translation processes.

On the other hand, an interesting finding was that even if fixation indicates higher cognitive effort during the process, it does not normally lead to a failure of the task but the contrary: fixation tends to predict a successful translation. Hence, the study showed that the difficulties, or cognitive effort, during the process does not always correlate with the difficulty of the task as a whole. This goes against Kahnemann’s (1973) model, in which great cognitive effort correlates with failure of the task. The current analyses suggest that the four indicators together can provide a comprehensive account of the difficulty of translation of different metaphorical expressions, but they must be treated somewhat differently.

The analysis of the translation processes with regard to the indicators of cognitive effort (fixation and time) disclosed what kind of metaphorical expressions are most effortful to translate as well as some typical strategies applied to the translation of metaphors. A report of the analyses was provided in 7.2. The progressive cognitive effort invested in the translation of metaphorical expressions with regard to their translation equivalents in the target language can be characterized as follows:

**Figure 4. Cognitive effort in the translation of metaphorical expressions**

It was found that the least effortful metaphorical expressions to translate are those that have literal equivalents in the target language. These expressions are quick to translate at the lexical level without any major revisions. The translation process was found to become more effortful if there is no literal equivalent available, and the translation equivalent is a metaphorical expression that conceptualizes the original idea through a different metaphorical mapping. The cognitive effort required was found to be the highest in cases of metaphorical expressions that do not have any metaphorical equivalent available in the target language and, therefore, the translator has to find a non-metaphorical paraphrase to express the original idea. This finding is in line with the results of the studies by Sjørup (2011, 2013), who also suggested that the cognitive effort is highest in processes leading to paraphrases due to the
“double conceptual shift” that involves not only one shift between two metaphorical mappings, as proposed by Mandelblit (1995), but also another from a metaphorical expression to a non-metaphorical expression at the conceptual level of processing. Thus, the present study yields additional support for the Cognitive Translation Hypothesis as well as corroborates similar results obtained in several other studies, such as Tirkkonen-Condit (2002), Al-Hasnawi (2007), Burmakova and Marugina (2014) and Sjørup (2011, 2013) in respect of the idea that the need to access the conceptual level of metaphorical mappings and the required shift of mapping increases the cognitive effort of the translation of metaphors.

On the basis of the analyses, it can be suggested that the automatic translation strategy with regard to all metaphors is translating literally at the linguistic level (House 2015), more accurately, using the literal equivalent of the original metaphor’s conceptualization and source domain. Indications of the literal translation strategy in the process of translation, called ‘fixation’ in this study, were observed in the Translog protocols as the use of literal equivalents of the words or expressions of the source language metaphorical mapping during the process of searching for suitable translations. It was found that the literal translation strategy is followed as long as possible when translating metaphors and changed only when necessary, that is when the translator detects that the metaphorical mapping is incompatible with the target language equivalent. The results showed that the strategy of translating at the linguistic level worked better with metaphorical expressions with a primary basis compared to complex metaphors. There were a greater number of literal equivalents available for primary metaphors than for complex metaphors in Finnish. Therefore, primary metaphors were typically translated quickly and without fixation into literal equivalents or paraphrases. On the other hand, the translation processes of complex metaphors were more varied in terms of cognitive effort, depending on the compatibility of the metaphorical mapping. Generally, the processes involved fixation and long time, and the translation product was most often another metaphor or paraphrase. These findings bring support to the idea of the universal primary metaphors and culture-bound complex metaphors alike.

However, the current analyses indicate that fixation, which has often been considered a negative phenomenon, seems to be a temporary problem and, after more or less revision, leads to an acceptable translation. The processes of translating metaphorical expressions with different mappings revealed that those processes that involved fixation more often resulted in an acceptable translation into another metaphor or paraphrase, whereas the processes that did not tended to result in an unacceptable literal translation or a blank translation. It can thus be suggested that the strategy of literal translation may even help the translators at the early stage of the translation process to find a way from the level of words to the deeper level of thoughts, especially in the translation process of metaphors, which often require the transition to another language system through the conceptual level.

The results of the study thus lend support to Tirkkonen-Condit’s Monitor Model (2005, 2006), according to which initiating the translation process by writing down a word-for-word translation with the intention of making revisions to it later during the process only if necessary is often a good strategy that saves the translator time and energy. On the basis of the findings, it can be hypothesized that process fixation indicates higher cognitive effort during the translation process, but predicts a successful completion of the translation task. The findings are also in line with those made by Sjørup (2011, 2013) about translators’ tendency to take the easiest road and prioritize
their mental resources. It seems that translators do not want to use any more effort than is necessary for completing the task of translation and, therefore, they always check the possibility of the literal translation. It was also found out that the monitoring of the translation solutions seems to be working throughout the whole translation process, which suggests that the translators may also adapt and develop their strategies along the way in order to create a coherent text.

In addition, the analyses included in the present study yielded tentative support to the hypothesis of the increased difficulty of translating metaphorical language compared to translating literal language (see 7.4). The translators in the Test Group, whose text included a higher number of metaphors, experienced more difficulties and invested more cognitive effort in completing the task of translation. This showed as a higher number of unacceptable translations as well as fixation and time-lag during the process. Indications of metaphors slowing down the translation process have also been found by e.g. Schäffner and Shuttleworth (2013), Sjørup (2011), and Zheng and Xiang (2013). The findings were complemented by some retrospective information obtained from questionnaires filled in by the translators after the experiments. The majority of the translators pointed out in the questionnaires that the metaphorical expressions were especially hard to translate. On the basis of the current study and earlier research, it can be suggested that the increased difficulty is due to the conceptual differences between the source and target cultures that metaphorical language reflects.

Other interesting observations of the textual role of metaphors and its effects on the translation of metaphors were made in the course of the study (see 5.4 and 7.5). The analysis of the overall metaphoricity of the translations indicated that the translators paid special attention to the metaphorical expressions in the source text. There was a general effort to translate metaphorical expressions by metaphorical expressions and, this way, preserve the metaphorical character of the original text. This showed, for instance, in that metaphorical translations were produced also for expressions that were not metaphorical in the source text. Furthermore, some translators commented in the retrospective questionnaire that they had to leave out some metaphors but tried to compensate this by adding metaphors in other places in the text. It was also discovered that translators did not always resort to the literally closest equivalents of the metaphorical expressions even if these were available, but rather based their choice on the suitability of the translation in the larger frame of the text taking into account also the other metaphors used in it. This implicates that translators do not perform a conceptual analysis of each translation item, but that they, also at the micro-level of the words, concentrate on the big picture, the text as a whole.

At the macro-level, the translators paid attention to the genre, the topic and the style of the text. The general theme of the texts used in the translation experiments was politics. It came out in the analyses that certain metaphors that are typically utilized to conceptualize the complex phenomena of the political realm in the Western world were systematically repeated throughout the experiment texts, forming extensive and complex strings or metaphorical expressions, referred as “macro-metaphors” in this study. The experiments showed that the same macro-metaphors were manifested also in the translated texts, even more frequently or consistently than in the original texts. The abundance of metaphors in the source text created a metaphorical frame with some extensive overarching metaphors which the translators attempted to maintain in their translations. In problematic cases where a suitable translation equivalent was not available or found, the translators tended to pick an expression from the domains utilized in the macro-metaphors. It can be hypothesized that the macro-metaphors
were active during the course of the whole translation process and the choices of the translators were at least partially dictated by these. In other words, the results suggest that the activation of certain metaphors or frames came out at the level of the text rather than at the level of single expressions or words. The activation of macro-metaphors during translation could be studied with priming in an experiment where individual micro-level metaphorical expressions worked as primes.

On the basis of these findings, it can be suggested that the translators aimed not only at preserving the metaphorical imagery but also at creating textual coherence in their translations, sometimes even at the cost of other things, such as idiomaticity or the speed of the translation process. In other words, it seems that the translators developed a strategy for translating metaphorical expressions in a certain way along the process. This hypothesis is also worth examining further.

Furthermore, it was found out that the translators tended to create more variety in the translated text by avoiding the repetition they observed within the source text (see 5.4). It has been noted in numerous studies that translators strive to avoid repetition in translated texts, even to such an extent that they clean away source language repetitions from translations (e.g. Jääskeläinen 2004). This procedure could have caused extra delay and effort in the translation process as well as omissions of some metaphorical expressions without indicating anything of the nature of the metaphors. However, the translation products showed that the omissions did not always result in any loss of information content but, instead, the translators often condensed the meaning of the source text or compensated for it in some other place in the translated text. This finding is consistent with another feature that has been found characteristic of translation, viz. to make the translated texts more concise through simplification of ideas (e.g. Baker 1995).

It should be clear from the report of this study that translation of metaphors, as any translation, is a comprehensive cognitive and communicative process affected by multiple factors that are challenging to control and measure in empirical investigations. Besides the cross-domain metaphorical mappings and their compatibility in the source and target languages, these include both the local context of the translation text and the global context, viz. the specific temporal, social and political context the text exists in, as well as the text’s communicative purpose, to mention only a few. Furthermore, factors outside the scope of the text and language, such as the translators’ competence, motivation and time pressure, affect the outcome of psychological studies such as the present one.

At the time of the empirical part of the current study, the amount of research into primary and complex metaphors was scarce. The starting point for the translation experiments was the then novel idea of the compositional structure of primary and complex metaphors along with the assumption of metaphors as cognitive constructs that are processed at the conceptual level. It was thus hypothesized that translation as a cognitive activity that requires conceptual level processing could bring out priming effects between primary and complex metaphors, and these effects could be considered as evidence of the suggested compositional structure of complex metaphors. Today, there is more knowledge available both about the compositional structure of metaphors as well as the use and effects of semantic priming. In the light of the new knowledge, it is reasonable to maintain that more research is necessary in order to make any accurate claims of the structure and processing of metaphors.

The primary purpose of the research reported above was to achieve reliable information of the translation processes of metaphors. This purpose was fulfilled as the
study yielded valid empirical evidence for and against the hypotheses concerning the cognitive reality and structure of conceptual metaphors in translation as well as contributed to the amount of information about the cognitive mechanisms and constraints governing the translation processes of metaphors that have been studied relatively little before. The hypotheses related to the compositional structure and processing of metaphors could not be reliably validated by the study, however. The tentative results suggest that more research is required on the topic. The findings of the study offer fruitful hypotheses for further research both in the field of cognitive metaphor studies and in the field of translation studies as well as for interdisciplinary research between these.

In summary, the present study showed that the conceptual basis of a metaphor affects the way it is translated. The experiments provided ample evidence that the difficulty of translation of metaphorical expressions depends on both the primary vs. complex type of the metaphor and the compatibility of the metaphor’s conceptual domain with the equivalent metaphor in the target language. More specifically, a metaphorical expression appears to be more difficult to translate 1) if it is based on a complex combination of metaphorical mappings without any direct experiential basis, as opposed to a primary metaphor with a single, experientially based mapping, and 2) if the conceptual domain utilized as the source of the metaphor is different in the source and the target languages, which inevitably leads to different linguistic realizations of the given ideas. On the basis of the results of the experiments, it can furthermore be concluded that the conceptual domain which the metaphorical image is derived from seems to play a more significant role in translation than the primary vs. complex nature of the metaphorical expression. It was, however, found out that the effect of incompatible conceptual domain is significantly greater on the translation of complex metaphors than on the translation of primary metaphors.

The observations of the processes of metaphor translation made in the context of the current study can be tentatively extended to translation in general. It seems plausible that the translation processes of any linguistic items that are conceptualized differently in the source and target languages require high cognitive effort due to the search for translation equivalents at the level of the conceptual metaphorical mappings beyond the words. The study yielded evidence that the difficulty of translation may be attributed to the conceptual equivalence vs. non-equivalence of the metaphorical mapping systems between the source and target languages, which depends on the amount of shared physical and cultural experiences among the people using the languages. This way, the study produced novel information on some of the most essential questions in translation studies: Why are some expressions more difficult to translate than others and how does the difficulty show in the process? What kind of processes contribute to a successful translation? The knowledge of metaphors gained from this study can hopefully be utilized not only in refining the theories of translation processes but also in developing translator training and profession.
BIBLIOGRAPHY


Stienstra, N. 1993. YHWH is the Husband of His People: Analysis of a Biblical Metaphor with Special Reference to Translation. Kampen: Kok Pharos.


APPENDICES

APPENDIX 1. EXPERIMENT I TEXT.

1 As Al Gore winnowed his prospective list of running mates last month, at least one prominent Democrat was less than thrilled with the idea that Joe Lieberman might get the nod.
2 Clinton praised the choice after it was made, but before that he railed privately how much Lieberman’s latest book ticked him off.
3 The Democrats know they’re walking a fine line by picking a Centrist running mate all the while calling for the workers to unite.
4 Many of Gore’s advisers were worried that Lieberman’s religion would backfire.
5 Gore concluded, in defiance of his hired-gun consultants, that Lieberman’s observant faith could be a strength, because it trumped the Republicans on values and religion.
6 It’s amazing how Lieberman dropped everything when he jumped on the Gore election train.
7 The fact that Lieberman is the first Jew on a major party U.S. Presidential ticket makes Gore’s choice historic, courageous and potentially transformative.
8 When Bush said Thursday night that he is “not running in borrowed clothes”, it was a deft dig at Gore, but not altogether, because Bush is fighting his father’s fight with weapons borrowed from the enemy camp.
9 Why would Gore want to keep down someone who can raise buckets of cash and fire up the Democratic base.
10 As a presidential candidate, is Al Gore more a candidate of his own right, based on his qualifications, or more a creation of Bill Clinton choosing him as Vice President?
11 Blindsided just four days before the start of the Democratic Convention, the Gore campaign managed to stay on course.
12 Which Bush is going to show up - the one who stayed on the high road with A. Richards or the one who was really low road with John McCain?
13 He has the ability to be aggressive without being nasty - something Gore, with his reputation for low blows, doesn’t share.
14 A year and a half spent building a policy foundation for the Bush candidacy could come down to whether the man has the right answer during a single 30-second exchange in a television debate.
15 Gore has benefited from low expectations in the past, but now is regarded as one of the most effective debaters on the political scene.
16 In the meantime, Gores try to unwind and escape the Nashville sun.
17 If Gore’s convention goes the way he hopes, the choice could turn out to be the beginning of a new public attitude toward him – one that will make this a new race.
18 Gore has been running a campaign based on “specifics”, hammering Bush for not offering more high-fiber proposals.
Here they hope to get to raising doubts whether Bush has the weight for the job.

In a battle over substance, the guy with 24 year’s experience has the edge over the one with five.

For Gore, good press relations are not crucial, since running on issues, he needs the press only to tell voters what he thinks.

Republicans have been moaning for years about how Clinton steals their issues and makes them his own.

Without a history of clearly defined positions on national issues, Bush needed his policy advisers to grow one for him.

Meet the man in charge of feeding him substance - and parrying Gore’s policy attacks. But his anticorporate message has turned some of the old Republicans off.

The problem with playing the character card is that you undermine your own message.

But, as for the beauty contest, Mr Bush wins that hands down.

Facing a blizzard of possibilities, parties traditionally begin by making one broad choice: do they concentrate more on winning undecided or independent voters.

This time neither candidate can afford to take anything for granted.

First we need to draw in the downscale voters, then get the upscale voters to take a second look.

If his base came home and waitresses tuned in, Gore could tighten the race and then turn his attention to more affluent swing voters with a sunnier, centrist message.

Four years ago, the media were filled with talk of the Soccer Moms, well-off suburban voters who were said to hold the key to the election.

His work cut out for him, Gore comes swinging out of Los Angeles.

Lieberman and Gore were so upbeat last week that it was hard not to wonder if the other shoe was going to drop.

Bolten has an aversion to public wired into his genetic code.

A friend from the firm says Bolten is so ambivalent about wealth that one year he “seemed genuinely embarrased” by the size of his paycheck.

No one as evil as Saddam Hussein has cropped up since, except the nearly down-and-out Slobodan Milosevic.

“The presidency is more than a popularity contest – It’s a day-by-day fight for people…and our whole future is at stake.”

“I won’t ever let you down”, Gore said.

It was a message aimed at every American who ever survived a bad patch along the road.
IS IT ABOUT DEMOCRACY?
The Question of American Power

Washington

If the United States storms into Iraq, which we now seem to have to swallow, it will have been airlifted to war with a tailwind from some unlikely sources. For starters, three men who have little in common with President George W. Bush have articulated the case for war better than the administration itself – at least up until its recent crescendo of case-making.

Tony Blair, who so resembles the American predecessor whom Bush despises, has been an eloquent and indispensable ally in the face of setting him on shaky ground at home.

Hans Blix, the Swedish diplomat who embodies the patient, lawyerly internationalism that some Bush partisans cannot abide, has managed without pushing war to demonstrate Iraq’s refusal to be contained. Iraq is still hiding behind the UN resolutions of its own choice.

Kenneth Pollack, the Clinton National Security Council expert whose argument for invading Iraq has clearly been one of the most influential books of this season, has provided intellectual cover for every liberal who finds himself inclining toward war but uneasy about Bush.

All three are walking a fine line in trying to maintain their prestige at the home front while expressing their approval of war.

The president will go to war with support - often equivocal and patronizing in tone - from quite a few members of the East Coast liberal media crew. The I-Cant-Believe-I’m-a-Hawk Club includes editors and columnists in The New York Times, The Washington Post, Time, and Newsweek. They all hold the same opinion that war is the only option in this situation.

Many of these wary warmongers are baby boom liberals whose aversion to the deployment of American power was formed by Vietnam but who dropped their pacifist ideas along the way - for most of us, in the vicinity of Bosnia.

The president also has enough prominent Democrats in his vehicle to make this endeavor credibly bipartisan. Four of the six declared Democratic presidential hopefuls stand for war, with reservations.

We reluctant hawks may disagree among ourselves about the most compelling logic for the seemingly low alternative of war – protecting America, relieving oppressed Iraqis or outrooting terrorism – but we generally agree that moves have to be made, the logic for standing pat does not hold.

Much as we might wish that the administration had orchestrated events so that
the inspectors had a year instead of three months, much as we try to take the high road and deplore the arrogance and binary moralism, much as we worry about all the things that could go wrong, we are hard pressed to see an alternative that is not built on wishful thinking.

Thanks to all these grudging allies, Bush will be able to claim, with justification, that the coming war is a far cry from the rash, unilateral adventure that some of his advisers would have settled for.

Does this mean that Bush is pulling together a new American consensus about how to deal with the dangerous world he inherited? I don’t pretend to speak for the aviary, but almost all of the hesitant hawks go out of their way to disavow Bush’s larger agenda for American power even as they salute his plan to use it in Iraq. This is worth chewing on a little, because with this war the administration is not just taking down a dictator, it is beginning to define in blood the new American imperium.

What his admirers call the Bush Doctrine is so far a crude edifice built of phrases from speeches and strategy documents, reinforced by a pattern of discarded treaties and military deployment. It consists of a determination to keep America an unchallenged superpower, a willingness to forcibly disarm any country that poses a gathering threat and an unwillingness to be constrained by treaties or international institutions that don’t suit the United States perfectly.

The first test to be faced upon the conquest of Iraq is whether the aim is mainly to promote democracy or mainly to promote stability. Some, probably including a few in Bush’s cabinet, will argue that it was all about cutting off Saddam’s regime at the knees. Once they see that done, they will say, once Saddam’s Republican Guard is purged, we can turn the country over to a contingent of Sunni generals and bring out troops home in 18 months. So, what is there left for those who hold on to the democratic vision, or was the original idea to make Iraq a functional democracy with a transparent political progress just a lot of hot air?

“Some of these guys don’t go for nation-building,” says Senator Joseph Biden, the senior Foreign Relations Committee Democrat who has ended up supporting war as the least bad option. “They think it’s cheaper to just go back and empty the swamp again if you have to. Not very sharp-sighted.”

Iraq would not become a great regional role model, being at least a decade behind the cutting-edge, although it would live better than it did under Saddam. The Saudis and probably the Israelis would prefer this to a rickety democracy governed by an unpredictable Shiite majority.
APPENDIX 2B. EXPERIMENT II TEXT, CONTROL GROUP

Translation Task: Translate the following text to be published as a column in Helsingin Sanomat.

Bill Keller NYT
Monday, February 10, 2003, International Herald Tribune

IS IT ABOUT DEMOCRACY?
THE QUESTION OF AMERICAN POWER

Washington

If the United States storms into Iraq, as it now seems inevitable, it will have been airlifted to war with a tailwind from some unlikely sources. For starters, three men who have little in common with President George W. Bush in the past have articulated the case for war better than the administration itself - at least up until its recent crescendo of case-making.

Tony Blair, who so resembles the American predecessor whom Bush despises, has been an eloquent and indispensable ally in the face of grave political risk.

Hans Blix, the Swedish diplomat who embodies the patient, lawyerly internationalism that some Bush partisans cannot abide, has managed without endorsing war to demonstrate Iraq’s refusal to be contained. Iraq is still resorting to the UN resolutions of its own choice.

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Many of these wary warmongers are baby boom liberals whose aversion to the deployment of American power was formed by Vietnam but who have had to change their pacifist opinions at some point - for most of us, in the vicinity of Bosnia.

The president also has enough prominent Democrats in his vehicle - some from conviction, some from the opposite - to make this journey credibly bipartisan. Four of the six declared Democratic presidential hopefuls stand for war, with reservations.

We reluctant hawks may disagree among ourselves about the most compelling logic for war - protecting America, relieving oppressed Iraqis or outrooting terrorism - but we generally agree that something has to be done, the logic for standing pat does not hold.

Much as we might wish that the administration had orchestrated events so that the inspectors had a year instead of three months, much as we try to take the high
road and deplore the arrogance and binary moralism, much as we worry about all
the things that could go wrong, we are hard pressed to see an alternative that is not
built on wishful thinking.

Thanks to all these grudging allies, Bush will be able to claim, with justification,
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senior Foreign Relations Committee Democrat who has ended up supporting war as
the least bad option. “They think it’s cheaper to just go back and empty the swamp
again if you have to.” Not very wise in the long run.

Iraq would not become a great regional role model, being at least a decade behind
the cutting-edge, although it would live better than it did under Saddam. The Saudis
and probably the Israelis would prefer this to a rickety democracy governed by an
unpredictable Shiite majority.
APPENDIX 3. QUESTIONNAIRE

KÄÄNNÖSKOE

Kati Martikainen
toukokuu 2001

Ryhmä______ Tietokoneen nro ______

1. Mikä on vuosikurssisi?

2. Arvioi, kuinka vaikealta kääntämäsi teksti tuntui, ympyröimällä oikea vaihtoehto.

   1   helppo
   2   melko helppo
   3   keskinkertainen
   4   melko vaikea
   5   vaikea

3. Mitkä asiat mahdollisesti aiheuttivat vaikeuksia Translog-ohjelman toiminnassa?

4. Mitkä asiat mahdollisesti aiheuttivat vaikeuksia tekstin kääntämisessä?

Kiitos.
TRANSLATION EXPERIMENT

Kati Martikainen
May 2001

Group______ Computer No. ______

1. Which year student are you?

2. Estimate how difficult the text was to translate by circling the right number.

1   easy
2   quite easy
3   mediocre
4   quite difficult
5   difficult

3. Did you experience any problems with the Translog programme and if yes, what kind of problems?

4. Were there some things that caused difficulties in translating the text?

Thank you.
APPENDIX 4. TRANSLOG SYMBOLS

* pause of 1 second (\([\ast:11.39]\) = pause of 11.39 seconds)
 DirectoryInfo Backspace
* Spacebar
Enter
Left Arrow
Right Arrow
Up Arrow
Down Arrow
Tab Key
\([-\text{^h}]\) Mouse Movement
12. Teemu Valtonen. An Insight into Collaborative Learning with ICT: Teachers’ and Students’ Perspectives. 2011.
35. Eeva Raunistola-Juutinen. Äiti ja nunna - Kirkkojen maailmanneuvoston naisten uskon antaminen 1900-luvun alussa Suomessa 2012.
95. Kati Turkama. Difficulty of the Translation of Primary and Complex Metaphors: an Experimental Study. 2017
“Difficulty of the translation of primary and complex metaphors” is an experimental study that focusses on the translation processes of two types of metaphors defined in the conceptual metaphor theory: universal and embodied primary metaphors and culture-specific complex metaphors. Through translation experiments, the study examines whether and how the alleged conceptual differences show in the translation processes of a colorful variety of metaphorical expressions in political texts.