TRANSLATION PROCEDURES USED IN TRANSLATING COMPUTER TERMS AS FOUND IN THE BOOK WIRELESS NETWORKING IN THE DEVELOPING WORLD 2ND EDITION FROM ENGLISH INTO BAHASA INDONESIA

THESIS

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ABSTRAK

Skripsi ini membahas prosedur penerjemahan istilah komputer yang terdapat dalam buku *Wireless Networking in the Developing World 2nd edition* dari bahasa Inggris ke dalam Bahasa Indonesia. Penelitian ini bertujuan untuk mengidentifikasi istilah-istilah komputer serta prosedur yang digunakan oleh penerjemah dalam menerjemahkannya ke dalam Bahasa Indonesia. Untuk analisa, data diambil dari buku *Wireless Networking in the Developing World 2nd edition* dan terjemahannya dalam Bahasa Indonesia. Pengumpulan data dilakukan dengan metode observasi dan teknik catat. Analisa data dilakukan dengan menggunakan metode padan translational dimana istilah komputer dalam bahasa sumber dibandingkan dengan terjemahannya dalam bahasa sasaran. Dalam menganalisa data, teori yang di gunakan adalah teori Vinay dan Dalbernet dalam Hatim dan Munday (2004:148). Teori ini membagi metode penerjemahan menjadi dua bagian: (1) terjemahan harfiah atau langsung (literal translation), dan (2) terjemahan tidak langsung (oblique translation) yang kemudian dipecah menjadi tujuh bagian yang dikenal dengan sebutan prosedur: (a) peminjaman (borrowing), (b) *Calque*, (c) terjemahan harfiah (literal translation), (d) transposisi (transposition), (e) modulasi (modulation), (f) kesepadanan (equivalence) dan (g) adaptasi (adaptation). Hasil analisis menunjukkan bahwa prosedur peminjaman (borrowing) adalah prosedur yang paling dominan digunakan penerjemah dalam menerjemahkan istilah komputer ke dalam bahasa target. Selain meminjam istilah komputer penerjemah juga menggunakan prosedur peminjaman yang disertai dengan transposisi (borrowing and transposition), transposisi (transposition), calque dan terjemahan harfiah (literal translation) dalam menerjemahkan istilah komputer ke dalam bahasa target.

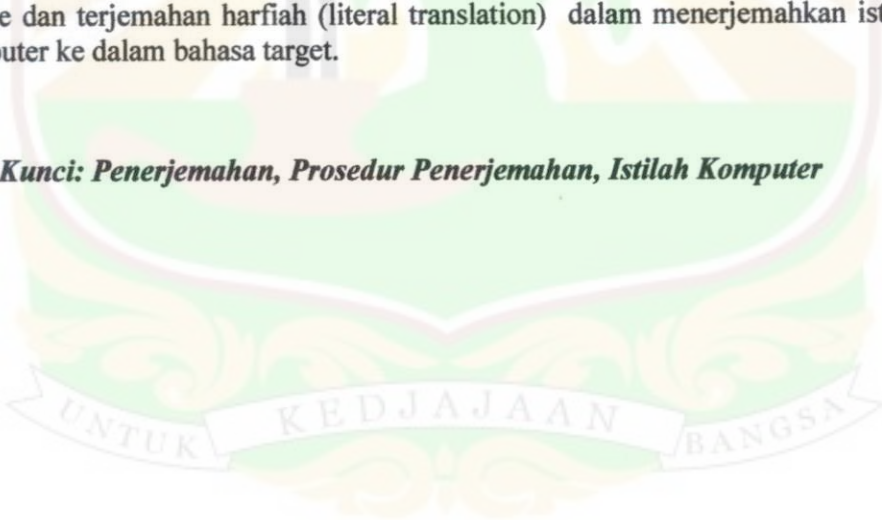*Kata Kunci: Penerjemahan, Prosedur Penerjemahan, Istilah Komputer*

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CHAPTER I

INTRODUCTION

1. Background of the Study

In this globalization era, computers have very great influence for human's life. We never imagine our life without computers. It surely will be so difficult. Computers help people in many activities. In this century, computers almost become an inseparable part of human life because we can find computers everywhere. Our society and daily life are being affected by computers because of its evolution. With the use of the computers, distance is no longer an obstacle. By using computer internet, it takes only a mouse click and a second of waiting to cross the oceans. Computer as a tool has created so many new terms in language and it keeps continuing alongside with the development of technology.

The advance development of computer technology has made the computer itself as a tool for working environment for many people. We will find so many computer terms when we use it or if we try to learn it from the available manual book. Translating specific terms from foreign language is not an easy case like translating daily conversation. Translator needs an additional knowledge in order to produce a good quality of translation product. So in order to make people understand the computer term, translator needs to know the computer terms and use the correct way in translating each of them. Translation procedure is the best way to solve that problem. A good translation product can be produced if it is translated correctly using proper procedure, so the message can be delivered well.

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Translation is known as a means of communication because it is used for learning foreign languages. According to Newmark (1988:5) "translation is rendering the meaning of a text into another language in the way that the author intended the text". Translation is important for learning many studies, because it can help us in understanding another language by transferring source text into target text through appropriate procedures. Newmark (1988:81) stated the difference between translation methods and translation procedures. He wrote that "While translations methods relate to whole texts, translation procedures are used for sentences and the smaller units of language". Vinay and Darbelnet's theory became the first classification of translation procedures that had a clear methodological purpose. According to them the procedures of translation can be classified into two methods that cover seven procedures (in Hatim and Munday 2004:30).

We do not need to rephrase the theory of translation procedures from Vinay and Dalbernet because it is so compact and easy to understand. That is the reason why I choose to analyze the book *Wireless Networking in the Developing World 2nd edition* in order to find the existence of Vinay and Dalbernet's theory of translation procedures. As an example, *email* which is translated into *email* is the case of borrowing procedure because the source language is borrowed directly. Another example is the literal translation procedure as we can see below:

Network is translated into *jaringan*

The procedure above shows that the target text is transferred grammatically and idiomatically appropriate directly from the source language.

1.2   Research Question

Based on the backgrounds above there are two questions which become the focus of this research, they are:

a. What are the commonly used computer terms found in the book "*Wireless Networking in the Developing World 2nd edition*"?

b. What are the translation procedures applied by the translator in translating those computer terms?

1.3   Objectives of the Study

The objectives of the study are to answer the research questions above that can be described as follows:

a. To find the commonly used computer terms found in the book "*Wireless Networking in the Developing World 2nd edition*".

b. To identify the translation procedures applied by the translator in translating the computer terms.

1.4   Scope of the Study

In this thesis the writer focuses on analyzing the data from the book "*Wireless Networking in the Developing World 2nd edition*" from English into Bahasa Indonesia. The data that will be collected is the computer term. The analysis will be focused on the findings of commonly used computer terms and the translation procedures applied by the translator in translating the English computer terms into Indonesian based on theory of Vinay and Dalbernet in Hatim and Munday (2004:148). These will be the main objective of this research.

1.5 Methods of the study

In analyzing the data there are three steps that are followed. They are collecting data, analyzing and presenting the result of analysis (Sudaryanto, 1993:5). Each step has its own method.

1.5.1 Collecting the Data

The data are taken from the book entitled *Wireless Networking in The Developing World 2nd edition*. The book itself was made from the BookSprint project on 2005 in London, England. The main team which arranged the outline of the book consisted of seven people and chose Rob Flickenger as the lead author and editor. Now the book is published by Hacker Friendly, under Creative Commons license as the source text together with the Indonesian translation entitled *Jaringan Wireless di Dunia Berkembang Edisi Kedua*. This book also available for internet downloads by accessing the official website at **http://wndw.net/**. The Indonesian version of the book *Jaringan Wireless di Dunia Berkembang Edisi Kedua* is translated into Indonesian by ODC (One Destination Center) team which consists of four people; they are Onno W. Purbo, Protus Tanuhandaru, Nurlina Noertam, and M. Reza Djajadikara. One of the ODC translators, Onno W. Purbo is also known as the senior of Indonesian IT expert.

This book is chosen for the research because it is used for learning computer networking. So in order to make this book is understandable for many people, it should be translated correctly. After analyzing the book, there are thirty one commonly used computer terms found in the book. Those computer terms represent the general computer terms which are often found in many computer books. The computer terms

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which contain in this book should be transferred correctly into the target language to avoid misunderstanding when reading it. This book is discussed about building wireless networking infrastructure by using our computer or laptop and then share it for local network community. If translator can use proper procedure to translate it, this book will help the readers in understanding computer networking because it contains so many practical studies. According to their official website this book has been downloaded until two million times and has been translated into six languages including Bahasa Indonesia. This book also often used for international technology conference in many countries. Words containing computer terms will be selected from the English book and compared to its Indonesian translation.

The data are collected by using non-participant observational method. In collecting the data, there are several steps followed. First, the English and Indonesian versions of the book are read and re-read several times to comprehend as well as to mark the words contain computer terms found in the book. Second the words contain the marked computer terms are paired with their Indonesian translation and then apply the note taking technique. Note taking technique is the technique of making a note of the data and then followed by the process of classifying the data (Sudaryanto, 1993:135). After finding all of the data, the next step is to analyze the data.

1.5.2   Analyzing the data

In analyzing the data, the writer uses translational identity method which is proposed by Sudaryanto (1993:13). Translational identity method is a method used in analyzing the translation of one language into another. In analyzing the data, first, the

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words contain the marked computer terms in the source language text are compared with their Indonesian translation in the target language text. The next step is identifying the computer terms and listing the translation procedures as the data findings by using Vinay and Dalbernet's theory. The analysis covers seven procedures in order to get the results of the analysis related to the procedures from the data. Then the last step is to show the most dominant translation procedures found in the target text.

1.5.3 Presenting the Result of Analysis

There are two ways of presenting the results of the analysis. They are formal and informal method (Sudaryanto, 1993:145). Formal method is a method of presenting the result of analysis in the form of signs and symbols. While informal method is a method of presenting the results of analysis in the form of words or verbal language. To present the results of analysis both formal and informal method will be used. To support the explanation the use of tables is also applied.

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CHAPTER II

REVIEW OF RELATED STUDY

2.1   Review of Previous studies

To give support for the idea of this thesis, some previous researches which are relevant to this research will be reviewed.

The first research was written by Ari Listiani (Magister of Linguistics, Majoring in Translation, Udayana University: 2010) entitled "An Analysis of Translation Procedures of The Terms Used in English Version of "Facebook" Social Networking Website into Its Bahasa Indonesia Version". This research discusses the translation of the terms used in English Version "Facebook" Website and its translation into Bahasa Indonesia Version. The theory applied to analyze the data is Vinay and Dalbernet's Translation Procedures Theory. This theory divided the translation method into 2 (two), i.e : (1) Literal Translation that covers (a) borrowing, (b) calque, (c) literal translation and (2) Oblique Translation covering (d) transposition, (e) modulation, (f) Equivalence and (g) adaptation. From the result of analysis, it is found that from 7 (seven) types of Translation Procedures, there are only 3 (three) types of translation procedures found they are :(1) borrowing, (2) literal translation and (3) transposition. And from the three types, Borrowing is the most dominant type of translation procedures that occur in the analyzed data.

The second research was conducted by Nelly Sofiyani (English Department, Faculty of letters, University of Sumatra Utara: 2011) with her research "An Analysis of

Translation Procedures in the Translated Business Terms of Ricky W. Griffin's Business Eighth Edition in Bahasa Indonesia". This research analyzes the translation of business terms which can be found in the book of Ricky W. Griffin, 8th edition and its Indonesian translation. The purpose of this research is to analyze whether the procedures or strategies in translating source language into target language can be applied or not in translating those terms. The theory which is used in this research is Vinay and Dalbernet in Venuti (2000:84-93) about the translation procedures. This research uses library research method in finding the references which relate with the research and descriptive qualitative method in analyzing the data. Finally, from the result of analysis can be concluded that the translation procedures which is used in translating the business terms from source language into target language are borrowing 54,2 %, calque 9,1%, literal translation 28,6%, modulation 3,2%, and transposition 4,9%. The most dominant procedure is borrowing with 54, 2%.

The third research was from Helen Novawati (English Department, Faculty of Language and Arts Education, Indonesia University of Education: 2012) entitled "An Analysis of Translation Procedures of Accounting Terms in a Bilingual Textbook For Grade xii of Senior High School Entitled "Accounting 2". This research investigates the translation of accounting terms in a textbook entitled *"Accounting 2: A Bilingual Textbook for Grade XII of Senior High School"*. The specific aims were to identify the accounting terms in the form of noun phrases, to identify the procedures in translating the noun phrases of accounting terms from English into the Indonesian language, and to examine the quality of the translation. This research applied a qualitative method by

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analyzing the data into several steps. First, all accounting terms found in the textbook were collected and categorized based on the categories of noun phrase suggested by Wishon and Burks (1980). Second, the accounting terms of in the noun phrases were analyzed in terms of their translation procedures by applying Vinay and Darbelnet's theory, 1958 cited in Munday, 2001. Third, the quality of the accounting term translation was assessed by employing Larson's evaluation criteria for translations (1984). The result shows that there are 125 accounting terms in the noun phrases found in the textbook, categorized into different forms such as Noun + Noun, Noun, Participle +Noun, Adjective +Noun, Noun + Preposition + Noun + Noun, Noun + Noun + Noun, Noun + Adjective, Noun+ Adjective+ Noun, Adjective+ Noun+ Noun, Participle + Noun + Noun, Noun + Conjunction + Noun +Noun, Noun + Preposition + Noun, and Participle (ed) + Participle (ing). The research also shows that the translator employed three procedures of direct or literal translation, and two procedures of indirect or oblique translation. Meanwhile, according to three reviewers, the quality of the accounting terms translation, in terms of accuracy, clarity, and naturalness, is at grade 3 (Good level) with percentage of 56.53%. It can be concluded that there were four dominant categories of noun phrases, with the most dominant translation procedure used is borrowing procedure of 43 terms (34.4%). Meanwhile, its translation has fulfilled the criteria of what is called good translation purposed by Larson in terms of accuracy, clarity, and naturalness. Based on the results of the study, it is recommended that translators should have sufficient knowledge in order to do the translation. And, for next

researchers, they can elaborate more on the issues of translation, especially in analyzing terms in specific fields of study.

Those three researches are relevant with this present research. They entirely work through specific terms and the translation procedures of translating those terms. This research is rather different with those previous studies because the writer will focus on different terms. Meanwhile, the data are taken from different source and analyzed in different way. Because of that the finding should also be different.

2.2   Definition of key terms

Translation: Larson (1984:3) states, "Translation consists of transferring the meaning of the source language into the receptor language."

Translation Procedures: Vinay and Darbelnet's (in Steiner and Yallop 2001) defined "translation procedures are the basic techniques of translation".

Computer term: Computer terms can be defined as words which are usually used in computer science, referring to object or process.

2.3   Theoritical Framework

2.3.1   Definition of Translation

To state a simplistic definition of translation we can say that it is transferring, as exactly as possible, the meaning of the original message in a way that is natural in the language into which the translation is being made. The term 'translation' can be generally defined as the action of interpretation of the meaning of a text, and production of an equivalent text that communicates the same message in another language. Hatim and Munday (2004:6) prefer to talk of 'the ambit of translation 'defined as:

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1. The process of transferring a written text from source language to target language, conducted by a translator, or translators, in a specific socio-cultural context.

2. The written product, or target text, which results from that process and which functions in the socio-cultural context of the TL.

3. The cognitive, linguistic, visual, cultural and ideological phenomena which are integral part of 1 and 2.

Brislin (1976:1) defines translation as "The general term referring to the transfer of thoughts and ideas from one language (source) to another (target), whether the languages are in written or oral form, whether the languages have established orthographies or do not have such standardization or whether one or both languages is based on signs, as with sign languages of the deaf"

Nida (1984:83) points out: "translation consists of reproducing in the receptor language the closest natural equivalent of the source language message, first in terms of meaning and secondly in terms of style".

Finally, Newmark (1988:7) defines "translation is a two-edged instrument: it has the special purpose of demonstrating the learner's knowledge of the foreign language, either as a form of control or to exercise his intelligence in order to develop his competence".

From those four definitions above can be concluded that translation is the process of transferring a written text from source language into target language by using our thought and ideas, reproduce the closest natural equivalent of the source language in

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terms of meaning and style then transforming a written source language which has the special purpose of demonstrating the learner's knowledge of the foreign language

2.3.2 Types of Translation

Larson (1984:15) divides two kinds of translation. They are literal translation and idiomatic translation.

1. Literal translation

Literal translation is known as form-based translation. It is a kind of translation that emphasizes on form. It just changes the forms the source language into the target language. This kind of translation does not communicate all of the messages contained in the source language to the target language. Sometimes it works but another it does not work so that it may make the reader get difficulty to catch the message delivered.

2. Idiomatic translation

Idiomatic translation is also known as meaning-based translation. It gives emphasis on meaning. It uses natural form of the source language to communicate all of the messages contained in the source language, both in grammatical and the choice of lexical items.

Those two kinds of translations are the crystallization of a continuum in translation that fall from very literal, to modified literal, to near idiomatic, to idiomatic, and then may even move to unduly free (Larson, 1984:17)

2.3.3 Translation Procedures

Vinay and Darbelnet presented the procedures as a description of the ways open to the translator in the translation process. Nevertheless, the procedures, as they are

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presented do not refer to the process followed by the translator, but to the final result. This theory also goes to translation technique. Molina and Albir (2002:509) defined "translation techniques as procedures to analyze and classify how translation equivalence works". It affects only the micro unit of text and the result of the translation. So from those explanations it is clear that translation procedure and translation technique refer to the same idea. Vinay and Dalbernet in Hatim and Munday (2004:148) introduce several procedures in translation which are divided into two strategies; direct and oblique translation. Direct or literal translation is used when a source language message can be transferred perfectly into a target language message. This strategy consists of three procedures, they are:

a. **Borrowing**

Borrowing is the simplest of all translation procedures. We can say that this task refers to a case where a word or an expression is taken from the source language and directly transferred into the target language word.

Borrowing in translation is not always justified by lexical gap in the target language, but it can mainly be used as a way to preserve the local color of the word, or can be used for introducing specific terms to avoid losing some of the semiotic aspects and specification aspects of the word if it is translated.

Examples:

a. Borrowing with no change in form and meaning (pure loanwords):

Email   ⟶   *email*   Internet   ⟶   *internet*

Dollar   ⟶   *dollar*

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b. *Calque*

A *calque* is a special kind of borrowing whereby a language borrows an expression from another, but then translates literally each of its elements. *Calque,* where the source language expression is literally transferred to the target language, such as *pen name,* is translated into Indonesian as *nama pena. Pen* means *pena* and *name* means *nama.* Another example, *blueprint* is translated into Indonesian as *cetak biru.* The word *blue* is translated into biru and *print* into cetak.

c. Literal Translation

literal, or word for word, translation is the direct transfer of a SL text into a grammatically and idiomatically appropriate target language text in which the translators task is limited to observing the adherence to the linguistic servitudes of the target language. In principle, a literal translation is unique solution in which is reversible and complete in itself. The translation has not needed to make any changes other than the obvious one, like those concerning grammatical concord or inflectional endings, for example English 'where are you?' translated into French 'Ou etes vous?'. This procedure is most commonly found in translations between closely related language, for example French-Italian, and especially those having a similar culture. There are other examples of literal translation :

Network   ⟶   Jaringan

Monitor   ⟶   Layar

Wireless   ⟶   Nirkabel

The oblique translation is used when a source language text cannot be directly translated without semantic or lexical changes in a target language text. This strategy consists of four procedures, they are:

a.   **Transposition**

The procedure called transposition is a change of sequence of parts of speech with another without changing the meaning of the message. The change of sequence also can be followed by the change of word class, the change from singular to plural, the change of word order and others. This change can occur because the source language and the target language have different grammatical structure, for example *big house* is translated into *rumah besar* in Indonesian.

b.   **Modulation**

Modulation is a variation of the form of the message, obtained by a change in the point of view. This change can be justified when, although a literal, or even transposed, translation results in a grammatically correct utterance, it is considered unsuitable, unidiomatic or awkward in the target language. To make it natural modulation needs to be applied as we can see in the examples below:

It isn't expensive → *harganya murah*

It is not possible to do → *ini mustahil*

c. Equivalence

Vinay and Dalbernet use this term to refer to cases where languages described the same situation by different stylistic or structural means. The classical example of equivalence is given by reaction of an amateur who accidentally hits his finger with hammer: if he were French his cry of pain would be transcribed as, "aie!", but he were English this would be interpreted as, "ouch" and if he were Indonesian he would say "aduh'. Another striking case of equivalences are the many onomatopoeia of animal sounds, for example:

cock-a-doodle-do (English) ⟶ kukuruyuuk (Indonesian)

Miaou (English) ⟶ meong (Indonesian)

Groaarr (English) ⟶ Auumm (Indonesian)

d. Adaptation

With this last procedure we reach the extreme limit of translation: it is used in those cases where the type of situation being referred to by the source language message is unknown in the target language culture. Adaptation can, therefore, be described as a special kind of equivalence, a situational equivalence. Cultural equivalent is transferring a source language cultural word into target language cultural word (Newmark, 1988:82). In this procedure, the situation to which the message refers does not exist in the target language and must be created by reference to a new situation which has quite similar concept. This procedure usually applied in the translation of book and film titles.

CHAPTER III

THE ANALYSIS

In this chapter the analysis of *translation procedures used in translating computer terms as found in the* book *wireless networking in the developing world 2nd edition from English into Bahasa Indonesia* will be presented. In conducting the analysis, some steps are followed. First, the data are placed in the column and they are arranged based on their page numbers. Then, the data are highlighted in bold and italic for source and target language. The next step is to identify the computer terms found in the text. The last step is determining the translation procedures which are applied by the translator. Beside those steps, two dictionaries are also used in conducting the analysis to support the findings of computer terms in the text. The dictionaries are *Barron's dictionary of computer and internet terms 10th edition,* and *Microsoft computer dictionary 5th edition.*

3.1 Analysis of Data

Datum 1

Source language	Target language
If you are a network administrator, you may wonder how *wireless* might fit Into your existing network infrastructure. (p. 3)	Jika anda adalah seorang administrator jaringan, anda mungkin bingung bagaimana *nirkabel* dapat dimasukkan ke infrastruktur jaringan anda yang sudah ada. (p. 2)

From the text above, the computer term that can be identified is *wireless.* *Wireless* is characteristic of communications that take place without the use of

interconnecting wires or cables, such as by radio, microwave, or infrared light (Microsoft computer dictionary 5th edition, 2002: 572). From the definition we can see that *wireless* is a computer specific term. The term itself is well known by most of general readers because this technology has been spread and used all over the world.

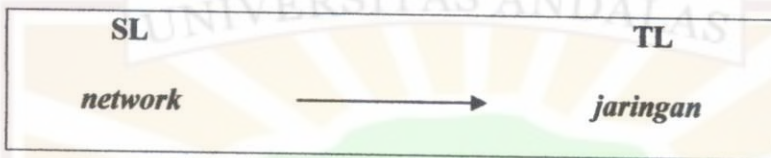| SL	TL
wireless ⟶	*nirkabel*
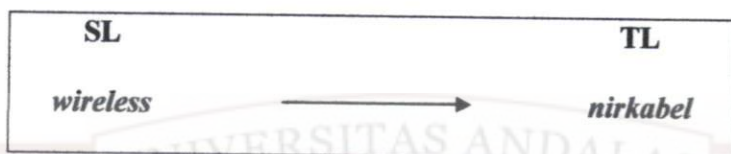
The computer term *wireless* is translated into *nirkabel* in Bahasa Indonesia. In translating this word, translator applies literal translation. The translator perfectly translates the word into target language without any borrowed word. According to Vinay and Dalbernet literal translation can be applied if the source language message can be transferred perfectly into target language message. The translator applies this procedure because the source language word is lexicalized in the target language. The translation of *wireless* into *nirkabel* is also common found by readers in English-Indonesian dictionaries. The advantage of applying this procedure makes the translator does not need to interpret the meaning of the word based on the context or search another meaning of the source language word.

Datum 2

Source language	Target language
If you are a network administrator, you may wonder how wireless might fit Into your existing **network** infrastructure. (p. 3)	Jika anda adalah seorang administrator jaringan, anda mungkin bingung bagaimana nirkabel dapat dimasukkan ke infrastruktur **jaringan** anda yang sudah ada. (p. 2)

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From the text above, the computer term that can be identified is *network*. *Network* is A group of computers and associated devices that are connected by communications facilities. A network can involve permanent connections, such as cables, or temporary connections made through telephone or other communication links. (Microsoft computer dictionary 5th edition, 2002: 362). This term is often used in computer networking science especially in establishing internet connection.

| SL	TL
network ⟶	*jaringan*

The computer term *network* is translated into *jaringan* in Bahasa Indonesia. In translating this word, translator applies literal translation. The translator perfectly translates the word into target language word without any borrowed word. The source language message can be transferred perfectly into target language message. The translator applies this procedure because the source language word has equivalence in the target language word and it has been lexicalized. The translation of *network* into *jaringan* is also common found in English-Indonesian dictionaries. The advantage of applying this procedure makes the translator does not need to interpret the meaning of the word based on the context or search another meaning of the source language word.

Datum 3

Source language	Target language
But radio waves have some unexpected properties compared to *Ethernet* cable. (p. 9)	Akan tetapi gelombang radio memiliki beberapa hal yang berbeda dibandingkan dengan kabel *Ethernet*. (p. 7)

In the sentence above *Ethernet* is the computer term that can be identified. *Ethernet* is a type of local-area network originally developed by Xerox Corporation. Communication takes place by means of radio-frequency signals carried by a coaxial cable. The name "Ethernet" apparently comes from "aether," the 19th-century name for the medium through which light waves were thought to travel (Barron's dictionary of computer and internet terms 10th edition, 2009: 176). This concept may not be found in target language word because Xerox Corporation which creates the device is not developed by Indonesia. The word *Ethernet* is common found for the computer device. The function of this device usually is to receive the internet signal transmission.

| SL	TL
network ⟶	*jaringan*
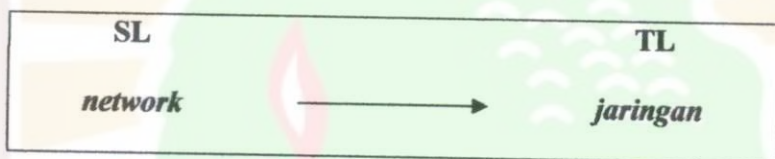
The computer term *Ethernet* is translated into *Ethernet* in Bahasa Indonesia. In translating this word the borrowing procedure is applied by the translator. The source language is borrowed directly into target language without any grammatical change. We also can say that this procedure as pure borrowing since there is no naturalized form found in the result of target language translation. The translator chooses this procedure because there is no equivalent for the target language word. In order to deliver the concept into target language, the translator has to borrow the source language word. Borrowing procedure will introduce the target language readers with the term or concept of the source language word. By applying the borrowing procedure translator does not change any concept of that specific computer term.

Datum 4

Source language	Target language
Radio is the term used for the portion of the electromagnetic spectrum in which waves can be generated by applying *alternating current* to an antenna. (p. 14)	Radio menggunakan bagian dari spektrum elektromagnetik dimana gelombangnya dapat dibangkitkan dengan memasukkan *arus bolak-balik* ke antenna. (p. 11).

A computer term which can be found in the text above is *alternating current*. *alternating current* is an electric current that reverses its direction of flow (polarity) periodically according to a frequency measured in hertz, or cycles per second (Microsoft computer dictionary 5th edition, 2002: 25). It is really clear that *alternating current* is computer specific term which is related with electronics and physics study. In Indonesian language this concept is also can be found. For engineering this term is very common and usually used in many practical studies.

SL	TL
alternating current ⟶	*arus bolak-balik*
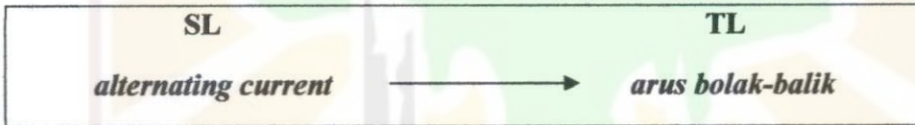
The computer term *alternating current* is translated into Bahasa Indonesia as *arus bolak-balik.* In translating this word, transposition procedure is applied by the translator. In applying the transposition procedures translator translates each of elements of the source language words then change the word order in the target language words. The word *alternating* is translated into *bolak-balik*, then the word *current* is translated into *arus*. The result, the word *arus* comes first and then followed by the word *bolak-balik*. In Indonesian *arus bolak-balik* is also common used for studying computer and physics.

Datum 5

Source language	Target language
Most likely, you are reading this book because you need to connect computer networks together in order to share resources and ultimately reach the larger global *Internet*. (p. 27)	Kemungkinan besar, anda membaca buku ini karena anda butuh menghubungkan komputer di jaringan untuk dapat berbagi sumber daya (resource) dan tersambung ke jaringan global *Internet*. (p. 25)

From the sentence above the computer term that can be found is *internet*. *Internet* is a cooperative message-forwarding system linking computer networks all over the world. Users of the Internet can view information on the World Wide Web, exchange electronic mail, participate in electronic discussion forums (newsgroups), send files from any computer to any other via FTP, or HTTP, and even use each other's computers directly if they have appropriate passwords (Barron's dictionary of computer and internet terms 10th edition, 2009: 256). At the heart of the Internet is a backbone of high-speed data communication lines between major nodes or host computers, consisting of thousands of commercial, government, educational, and other computer systems, that route data and messages. One or more Internet nodes can go off line without endangering the Internet as a whole or causing communications on the Internet to stop, because no single computer or network controls it (Microsoft computer dictionary 5th edition, 2002: 281). This computer term is a very famous term which is often used by people around the world.

| SL	TL
Internet	⟶ *Internet*
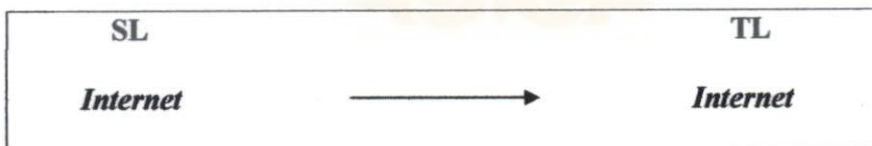
The computer term *Internet* is translated into *Internet* in Bahasa Indonesia. The translator applies borrowing procedure in translating this word. Translator borrows the source language word *internet* and puts into the target language word without any modification. In borrowing the word, the meaning of source language word is maintained in the target language word. Borrowing procedure is chosen by the translator because the source language word has no equivalent for the target language word. For the general readers *internet* has become a common computer term because it is often used and has been adopted into the target language in daily activity. By borrowing the source language word, the term and concept can be delivered well.

Datum 6

Source language	Target language
Before purchasing equipment or deciding on a *hardware* platform, you should have a clear idea of the nature of your communications problem. (p. 27)	Sebelum membeli peralatan atau menentukan *hardware* yang akan digunakan , kita harus mempunyai gambaran jelas tentang permasalahan komunikasi yang akan kita tangani. (p. 25)

Hardware is the computer term that can be identified from the text above. *Hardware* is the physical components of a computer system, including any peripheral equipment such as printers, modems, and mouse devices (Microsoft computer dictionary 5th edition, 2002: 246). It is obvious that *hardware* is the computer term which we often hear when using a computer. Every computer in this world cannot be separated from *hardware* parts.

| SL	TL
hardware ⟶	*hardware*
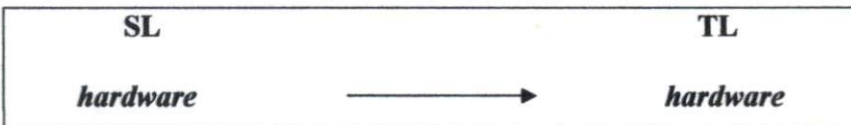
The computer term *hardware* is translated into *hardware* in Bahasa Indonesia. The translator directly borrows the source language word and transfers it into the target language word without any modification. Because there is no naturalized translation result in the target language word, the procedure can be considered as pure borrowing. Actually for the target language, *hardware* has equivalent word that is *perangkat keras*. But translator decides to borrow the source language word because it is more representative for the application in studying computer. The *hardware* term in target language word is frequently used and more familiar for the general readers.

Datum 7

Source language	Target language
The computer then sends these packets to a ***router***, which decides where to send them next. (p. 29)	Komputer kemudian akan mengirim paket ke ***router***, yang kemudian menentukan kemana akan dikirim selanjutnya. (p. 27)

From the text above we can identify *router* as the computer term. *Router* is an intermediary device on a communications network that expedites message delivery. On a single network linking many computers through a mesh of possible connections, a router receives transmitted messages and forwards them to their correct destinations over the most efficient available route. On an interconnected set of LANs (local area networks)—including those based on differing architectures and protocols—using the same communications protocols, a router serves the somewhat different function of acting as a link between LANs, enabling messages to be sent from one to another (Microsoft computer dictionary 5th edition, 2002: 458). This word is usually used for the device in computer internet connection.

SL	TL
router ⟶	*router*
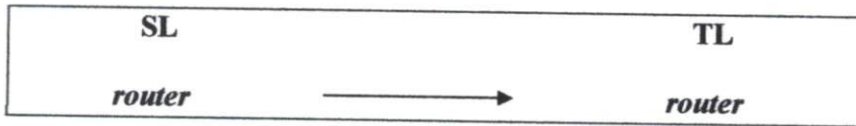
The computer term *router* is translated into *router* in Bahasa Indonesia. In translating the word, borrowing procedure is applied by the translator. The source language word is borrowed directly into the target language word. Pure borrowing is conducted by the translator without any grammatical modification. Translator employs the borrowing procedure because there is no another procedure that can be used to represent the concept contained in the source language word. The advantage of this procedure may help the reader to recognize and understand the source language term as well as its concept. Since this word is a computer specific term and it has no equivalent in the target language word, borrowing procedure is the best way to introduce the term to the readers.

Datum 8

Source language	Target language
A network *switch* can only distribute packets by using MAC addresses, so it need only implement layers one and two. (p. 32)	Sebuah *switch* jaringan hanya dapat mendistribusikan paket menggunakan alamat MAC, oleh karenanya hanya perlu mengimplementasikan lapisan nomor satu dan dua saja. (p. 29)

The word *switch* can be identified as the computer term from the sentence above. *Switch* in telecommunications and networking, a device for establishing connections between one location and another, doing the work of a telephone operator. For instance, on a computer network, a switch is a device that temporarily creates high-

speed paths between different segments as they are needed. It works like a hub but does not add congestion to cables on which the traffic is not actually needed (Barron's dictionary of computer and internet terms 10th edition, 2009: 465). In the computer science the term *switch* is common used for a device in establishing network connection. So it is clear that this word is not available in Indonesian language because in this case the word refers to a device.

SL		TL
switch	⟶	*switch*

Switch is translated into Bahasa Indonesia as *switch*. The procedure which is applied by the translator in translating this word is borrowing. As we can see, the translator uses pure borrowing in the target language without any change. In applying this procedure, translator directly transfers the source language word into target language word. Translator chooses this procedure because translator wants to keep the meaning of the source language word by introducing this term to the readers. This word also has been adopted into Indonesian language for studying computer science and networking.

Datum 9

Source language	Target language
A network switch can only distribute packets by using *MAC addresses*, so it need only implement layers one and two. (p. 32)	Sebuah switch jaringan hanya dapat mendistribusikan paket menggunakan *alamat MAC*, oleh karenanya hanya perlu mengimplementasikan lapisan nomor satu dan dua saja. (p. 29)

The computer term that we can identify from the text above is *MAC addresses*. *MAC address* is (Media Access Control address) a built-in number that uniquely and permanently identifies an adapter, such as the Ethernet card in a PC. It consists of 12 hexadecimal digits, which may be written with or without hyphens, such as 13-24-6C-2D-FF-3A or 13246C2DFF3A (Barron's dictionary of computer and internet terms 10th edition, 2009: 296). This explanation shows that *MAC addresses* is computer specific term. *MAC addresses* is usually used in computer for identifying the serial number of Ethernet card.

SL	TL
MAC addresses ⟶	*Alamat MAC*
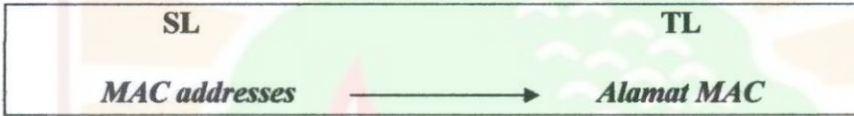
MAC addresses is translated into Bahasa Indonesia as *Alamat MAC*. The translator applies borrowing and transposition procedures in translating this word. In applying the procedures, translator only translate one of the elements of the source language word which is *addresses* becomes *alamat* in target language. Then translator also did small change by changing the word order and deleting plural marker –s instead of using *alamat-alamat* in the source language when translating it into the target language. The word *Alamat* comes first in the target language then followed by borrowing source language word *MAC*. The result of using this procedure, translator may inform the readers about the new concept and term to the readers.

27

Datum 10

Source language	Target language
Port numbers allow multiple services to be run on the same IP address, and still be distinguished from each other. (p. 45)	Nomor *port* memungkinkan menjalankan banyak servis pada sebuah alamat IP yang sama, dan masih dapat membedakan servis yang satu dengan yang lain. (p. 40)

The computer term that we can identify from the sentence above is *Port*. *Port* is an interface through which data is transferred between a computer and other devices (such as a printer, mouse, keyboard, or monitor), a network, or a direct connection to another computer (Microsoft computer dictionary 5th edition, 2002: 412). The word *Port* also has been adopted in Indonesian language to refer to the one of the parts in the computer hardware. The physical form of the *port* is like a hole for entering USB or another portable device to be able to connect into the computer.

SL	TL
Port	$\longrightarrow$ *Port*

The word *Port* is translated into *Port* in Bahasa Indonesia. In translating this word, translator applies borrowing procedure. Translator uses pure borrowing in the target language by directly transferring source language word into the target language word without any grammatical change. This option is taken by the translator because the concept is already known by the general readers and it has been lexicalized. This procedure has to be applied because there is no another option to represent this concept in the target language word.

Datum 11

Source language	Target language
Port numbers allow multiple services to be run on the same ***IP address***, and still be distinguished from each other. (p. 45)	Nomor port memungkinkan menjalankan banyak servis pada sebuah ***alamat IP*** yang sama, dan masih dapat membedakan servis yang satu dengan yang lain. (p. 40)

IP address is the computer term which is can be identified from the text above.

IP address is Short for Internet Protocol **address**, a 32- bit (4-byte) binary number that

uniquely identifies a host (computer) connected to the Internet to other Internet hosts,

for the purposes of communication through the transfer of packets (Microsoft computer

dictionary 5th edition, 2002: 287). From the definition above it is obvious that *IP*

address is the computer specific term. This term is usually used to recognize the number

of computer internet host. Every computer which is connected to network will receive

this *IP address*.

| SL	TL
IP address ⟶	*Alamat IP*

The word *IP address* is translated into *Alamat IP* in Bahasa Indonesia.

Borrowing and transposition procedures are applied by the translator in translating this

word. The procedures are employed by literally translating one of the elements of the

source language word which is *Address* becomes *Alamat* in the target language, and

then translator changes the word order in the target language. The word *Alamat* comes

first in the target language then followed by borrowing source language word *IP*. These

procedures are applied in order to introduce the new concept to the general readers

because it is often adopted in target language for studying computer networking.

Datum 12

Source language	Target language
The laptops do not communicate with each other directly, but must be in range of the **access point** in order to use the network. (p. 52)	Laptop tidak berkomunikasi satu sama lain secara langsung, tetapi harus dalam wilayah **akses point** untuk dapat menggunakan jaringan. (p. 47)

From the sentence above *access point* is the computer term that we can identify. *Access point* is a transceiver that connects the LAN to a wired network (Microsoft computer dictionary 5th edition, 2002: 14). This term is usually used to determine the source access of network. It is obvious that *access point* is computer specific term because it explains the way of computer networking system works.

SL	TL
Access point ⟶	*Akses Point*
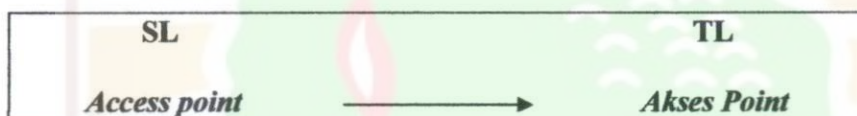
The word *Access point* is translated into *Akses point* in Bahasa Indonesia. The procedure which is applied by the translator in translating this word is calque. Translator literally translates one of the elements in the source language word which is *Access* becomes *Akses* in the target language word. Then the translator keeps borrowing the source language word *point* into the target language. In translating the word into the target language, translator does not change the word order. The result of the translation is lexical calque which respects the syntactic structure and introducing a new mode of concept in the target language.

Datum 13

Source language	Target language
As we'll see at the end of this chapter, using **bandwidth** shaping techniques can help mitigate some latency problems. (p. 67)	Seperti kita akan lihat pada akhir bab ini, menggunakan teknik membentuk **bandwidth** dapat membantu mengurangi beberapa masalah latensi. (p. 60)

The computer term that can be identified from the sentence above is *bandwidth*. *Bandwidth* is the rate at which a communication system can transmit data more technically, the range of frequencies that an electronic system can transmit. High bandwidth allows fast transmission or the transmission of many signals at once. On a monitor screen, high bandwidth provides a sharp image. On a computer network, the bandwidth of a connection is limited by the slowest link in the chain connecting two computers (Barron's dictionary of computer and internet terms 10th edition, 2009: 42). It is obvious that *bandwidth* is the computer specific term because it has function to explain the transmission signal in the computer networking.

| SL	TL
bandwidth ⟶	*bandwidth*

The computer term *bandwidth* is translated into *bandwidth* in Bahasa Indonesia. Borrowing procedure is applied by the translator in translating this word. Translator directly transfers the source language word into the target language word without any change. This borrowing can be considered as pure borrowing since the translator keeps maintaining the source language word in the target language word. As the result, translator introduces a new concept and term to the readers.

Datum 14

Source language	Target language
When the next person retrieves these pages, they are served from the local *proxy server* instead of from the Internet. (p. 80)	Ketika orang selanjutnya mengambil halaman tersebut, mereka akan memperolehnya oleh *server proxy* local, bukan dari internet. (p. 73)

The computer term which is found in the text above is *proxy server*. *Proxy server* is a firewall component that manages Internet traffic to and from a local area network (LAN) and can provide other features, such as document caching and access control. A proxy server can improve performance by supplying frequently requested data, such as a popular Web page, and can filter and discard requests that the owner does not consider appropriate, such as requests for unauthorized access to proprietary files (Microsoft computer dictionary 5th edition, 2002: 428). This term is considered as the computer term because it explains about computer network security system. This word is usually used for learning Internet connection management.

SL	TL
proxy server ⟶	*server proxy*
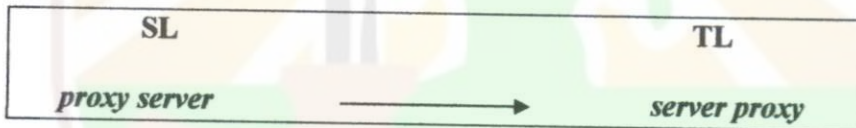
The computer term *proxy server* is translated into *server proxy* in Bahasa Indonesia. The procedures which are applied by the translator in translating this word are borrowing and transposition. Translator applies the procedures by directly borrowing the source language words into the target language words without translating each of elements literally. Translator only changes the word order into the target

language word. The borrowed word *server* comes first and then followed by borrowed word *proxy*.

Datum 15

Source language	Target language
Relying on a firewall may or may not be sufficient, depending on how the *firewall* is configured. (p. 82)	Mengandalkan firewall mungkin cukup mungkin tidak, tergantung bagaimana konfigurasi *firewall*. (p. 75)

Firewall is the computer term that can be found from the text above. *Firewall* is a security system intended to protect an organization's network against external threats, such as hackers, coming from another network, such as the Internet. Usually a combination of hardware and software, a firewall prevents computers in the organization's network from communicating directly with computers external to the network and vice versa (Microsoft computer dictionary 5th edition, 2002: 214-215). In the computer environment *firewall* term refers to the security system

SL	TL
firewall ⟶	*firewall*

The computer term *firewall* is translated into *firewall* in Bahasa Indonesia. In translating this word borrowing procedure is applied by the translator. The translator applies pure borrowing into the target language word without any grammatical change. This procedure is chosen because there is no equivalent of the source language word in the target language word. The best way to introduce this computer term to the reader is only by using borrowing without any naturalization or grammatical modification. The term *firewall* itself is more familiar for the readers because often used in the target

language word in studying computer science. The result of it, translator will introduce a new term as well as its concept to the readers.

Datum 16

Source language	Target language
Modern *operating systems* keep frequently accessed data in memory if there is enough RAM available. (p. 87)	*Sistem operasi* modern sering menyimpan data yang sering di akses dalam memori jika ada cukup tersedia RAM. (p. 79)

The computer term that can be found from the sentence above is *operating systems*. *Operating system* is the software that controls the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, disk space, and peripheral devices (Microsoft computer dictionary 5th edition, 2002: 378). This is obvious that this term is related to computer since it refers to software in the computer system.

| SL	TL
operating systems $\longrightarrow$	*sistem operasi*

The computer term *operating systems* is translated into *sistem operasi* in Bahasa Indonesia. In translating this word, transposition procedure is applied by the translator. Translator applies transposition by translating each of elements in the source language word literally into the target language word. *Operating* is translated into *operasi* then *systems* is translated into *sistem* by deleting the plural marker –s. After translating the elements, translator changes the word order in the target language. The word *Sistem* comes first and then followed by the word *operasi*. The result of the translation is transposition because the structural form has changed in the target language word.

Datum 17

Source language	Target language
Modern operating systems keep frequently accessed data in memory if there is enough **RAM** available. (p. 87)	Sistem operasi modern sering menyimpan data yang sering di akses dalam memori jika ada cukup tersedia **RAM**. (p. 79)

The computer term which is found in the text above is *RAM. RAM* is Acronym for random access memory. Semiconductor- based memory that can be read and written by the central processing unit (CPU) or other hardware devices (Microsoft computer dictionary 5th edition, 2002: 437). This term usually refers to part of the hardware in the computer device.
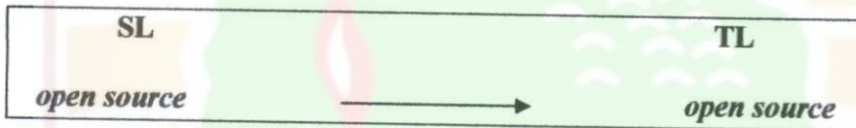
SL	TL
RAM	*RAM*
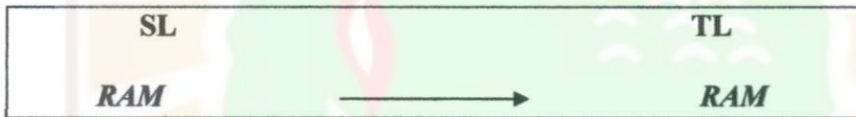
The computer term *RAM* is translated into *RAM* in Bahasa Indonesia. The translator applies borrowing procedure in translating this word. In applying this procedure translator directly puts the source language word into the target language word without any modification. This borrowing is considered as pure borrowing because there is no naturalized word and structural change found in the target language word. Translator chooses this procedure because source language word has no equivalent in the target language word. *RAM* term is more familiar for the readers in studying computer and it is also often used in Bahasa Indonesia. By using this procedure translator introduces new term and concept to the readers.

35

Datum 18

Source language	Target language
By using generic equipment that supports open standards and ***open source*** software, you can avoid some of these pitfalls. (p. 140)	Dengan memakai peralatan yang mendukung standar terbuka dan perangkat lunak ***open source***, anda dapat menghindari beberapa perangkat ini. (p. 124)

The computer term which is found in the text above is *open source. Open source* is the practice of making the source code (program instructions) for a software product freely available, at no cost, to interested users and developers, even though they were not involved in creating the original product (Microsoft computer dictionary 5th edition, 2002: 378). This term refers to the software which often uses by the computer system.

| SL	TL
open source ⟶	*open source*

The computer term *open source* is translated into *open source* in Bahasa Indonesia. The translator applies borrowing procedure in translating this word. The pure borrowing is applied by directly borrowing the source language words into the target language words. Translator does not translate each of elements literally. The source language structural form and word class keep maintained in the target language word. The result translator introduces a new concept to the readers.

Datum 19

Source language	Target language
By using generic equipment that supports open standards and open source ***software***, you can avoid some of these pitfalls. (p. 140)	Dengan memakai peralatan yang mendukung standar terbuka dan ***perangkat lunak*** open source, anda dapat menghindari beberapa perangkat ini. (p. 124)

Software is the computer term that we can identify from the text above. *Software* is computer programs; instructions that make hardware work. Two main types of software are system software (operating systems), which controls the workings of the computer, and applications, such as word processing programs, spreadsheets, and databases, which perform the tasks for which people use computers. Two additional categories, which are neither system nor application software but contain elements of both, are network software, which enables groups of computers to communicate, and language software, which provides programmers with the tools they need to write programs (Microsoft computer dictionary 5th edition, 2002:489). From this explanation it is clear that *software* is the computer specific term.

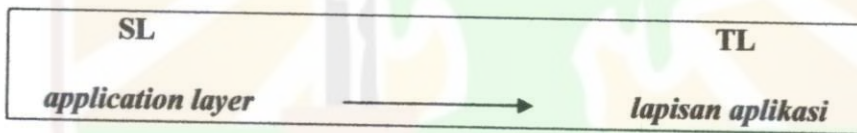| SL	TL
software ⟶	*perangkat lunak*
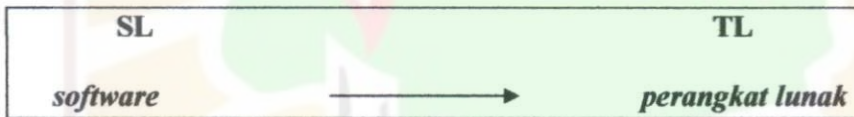
The computer term *software* is translated into *perangkat lunak* in Bahasa Indonesia. In translating this word, transposition procedure is applied by the translator. The translator separates and translates each of elements of the source language word. The word *soft* is translated into *lunak* and the word *ware* is translated into *perangkat*. The translator changes the word order in the source language. The word *perangkat* comes first and followed by word *lunak*. The result of the translation in the target language is a phrase, which shows the change of form and word class.

37

Datum 20

Source language	Target language
One can access and manipulate network packets at any level from the data-link layer through the *application layer.* (p. 143-144)	Seseorang dapat mengakses dan memanipulasi paket jaringan di tingkat manapun dari lapisan data-link hingga *lapisan aplikasi.* (p. 127)

The computer term which is found in the text above is *application layer.* *Application layer* is the highest layer of standards in the Open Systems Interconnection (OSI) reference model. The application layer contains signals that perform useful work for the user, such as file transfer or remote access to a computer, as opposed to lower levels, which control the exchange of data between transmitter and receiver (Microsoft computer dictionary 5th edition, 2002:32). The explanation shows that this term is common used for transferring data in the computer system.

| SL	TL
application layer	→	*lapisan aplikasi*

The computer term *application layer* is translated into *lapisan aplikasi* in Bahasa Indonesia. Transposition procedure is applied by the translator in translating this word. Translator employs transposition procedure by translating each of elements of the source language words literally into the target language words. The word *application* is translated into *aplikasi* and the word *layer* is translated into *lapisan*. After translating each of the elements, translator changes the word order in the target language. The word

lapisan comes first then followed by the word *aplikasi*. As the result, translator introduces a new mode of concept in the target language.

Datum 21

Source language	Target language
You can still try the same setup in *Ad-hoc mode*, which is supported by all chipsets. (p. 146)	Anda masih bisa menguji susunan yang sama untuk *mode Ad-hoc*, yang didukung oleh semua chipsets. (p. 129)

The computer term which can be identified from the text above is *Ad-hoc mode*. *Ad-hoc mode* is a temporary network formed by communicating stations or computers in a wireless LAN (Microsoft computer dictionary 5th edition, 2002: 20). This term is usually used to manage wireless network in computer system.

| SL	TL
Ad-hoc mode ⟶	*mode Ad-hoc*
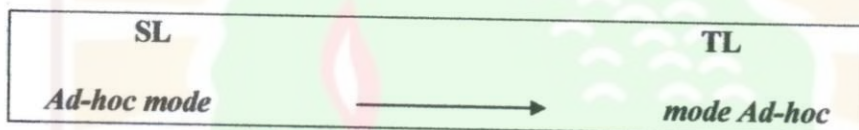
The computer term *Ad-hoc mode* is translated into *mode Ad-hoc* in Bahasa Indonesia. In translating this word translator applies borrowing and transposition procedures. The translator does not translate each of elements of the source language but directly borrows the source language words into the target language words. Then translator changes the word order in the target language. The borrowed word *mode* comes first then followed by borrowing the word *Ad-hoc*. The result of the procedures translator introduces a new concept to the readers.

Datum 22

Source language	Target language
You can still try the same setup in Ad-hoc mode, which is supported by all *chipsets*. (p. 146)	Anda masih bisa menguji susunan yang sama untuk mode Ad-hoc, yang didukung oleh semua *chipsets*. (p. 129)

The computer term that we can identify from the text above is *chipsets*. *Chipset* is A collection of chips designed to function as a unit in the performance of some common task. The term is most commonly used to refer to the set of integrated circuits, such as the programmable interrupt controller, that support a CPU together with the CPU itself (Microsoft computer dictionary 5th edition, 2002: 98). From the explanation it is obvious that *chipsets* is the term related to computer integrated circuits.

| SL	TL
chipsets ————————▶	*chipsets*
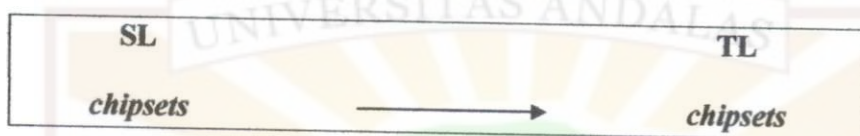
The computer term *chipsets* is translated into *chipsets* in Bahasa Indonesia. The procedure which is applied by the translator in translating this word is borrowing. The translator directly borrows the source language word into the target language word without any change. The procedure is considered as pure borrowing since the structural form of the source language word keeps maintained in the target language word. This procedure is chosen because the source language word has no equivalent in the target language word. As the result, translator represents a new term to the readers as well as its concept.

Datum 23

Source language	Target language
For example, you could start with either of the above two examples and implement a private wireless network where users are authenticated using a standard *web browser*. (p. 152)	Sebagai gambaran, anda dapat mulai dengan salah satu dari kedua contoh diatas untuk mengimplementasikan jaringan nirkabel pribadi dimana pengguna diautentifikasi dengan menggunakan *web browser* standar. (p. 135)

The computer term that we can identify from the text above is *web browser*. *Web browser* is a software that lets a user view HTML documents and access files and software related to those documents. Originally developed to allow users to view or browse documents on the World Wide Web, Web browsers can blur the distinction between local and remote resources for the user by also providing access to documents on a network, an intranet, or the local hard drive (Microsoft computer dictionary 5th edition, 2002: 562). This term is usually used for internet software integration, especially for exploring internet page request.

SL	TL
web browser ———————————▶	*web browser*
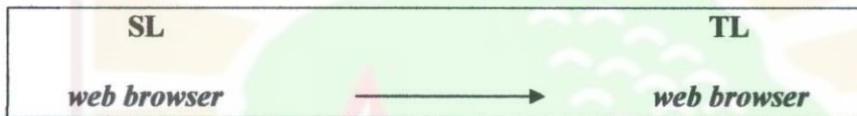
The computer term *web browser* is translated into *web browser* in Bahasa Indonesia. The borrowing procedure is applied by the translator in translating this word. The translator conducts pure borrowing procedure by directly borrows the source language words into the target language words without any change. The word class and structural form of source language keep maintained in the target language word. The result of this procedure represents a new term and concept to the readers.

Datum 24

Source language	Target language
In a traditional wired network, access control is very straightforward: If a person has physical access to a computer or network *hub*, they can use (or abuse) the network resources. (p. 157)	Di jaringan berkabel tradisional, control akses sangant sederhana: jika seseorang punya akses langsung (secara jasmani) ke computer atau *hub* jaringan, mereka bisa memakai (atau menyalahgunakan) sumber daya jaringan itu. (p. 139)

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The computer term which is found from the text above is *hub*. *Hub* is in a network, a device joining communication lines at a central location, providing a common connection to all devices on the network. The term is an analogy to the hub of a wheel (Microsoft computer dictionary 5th edition, 2002: 260). This is obvious that the term *hub* is computer specific term since it is related with computer networking devices.

SL	TL
hub	⟶ *hub*

The computer term *hub* is transalted into *hub* in Bahasa Indonesia. The translator applies borrowing procedure in translating this word. Borrowing is applied by directly transferring source language word into target language word without any grammatical modification. Since there is no any modification in target language word, this procedure can be considered as pure borrowing. Translator chooses this procedure because source language word has no equivalent in the target language word. This term is also common adopted in Indonesian language for learning computer networking. By using this procedure translator introduces a new term and concept to the readers.

Datum 25

Source language	Target language
Most users are blissfully unaware that their private *email*, chat conversations, and even passwords are often sent "in the clear" over dozens of untrusted networks before arriving at their ultimate destination on the Internet. (p. 167)	Kebanyakan user dengan tak sadar bahwa *email* pribadi mereka, percakapan chat, dan malah password sering dikirim "dengan sangat jelas" ke puluhan jaringan ysng tak dipercaya sebelum tiba ditujuan akhir mereka di Internet. (p. 148)

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The computer term which is identified from the sentences above is *email*. *Email* is short for electronic mail. The exchange of text messages and computer files over a communications network, such as a local area network or the Internet, usually between computers or terminals (Microsoft computer dictionary 5th edition, 2002: 190). This explanation shows that the term *email* has become a part of computer networking especially internet. Today this term is very famous for many people in all over the world because it is often used as medium for sending messages or documents digitally.

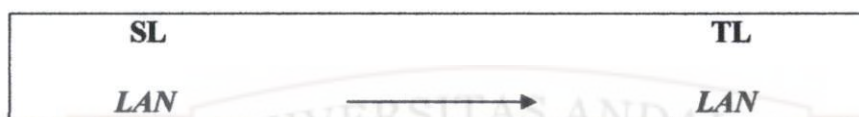| SL	TL
email	*email*

The computer term *email* is translated into *email* in Bahasa Indonesia. In translating this word, borrowing procedure is applied by the translator. The source language word is borrowed directly into target language word without any change. Translator purely borrowed the source language and maintained the structure of the word in the target language. Since there is no equivalent in the target language, borrowing is effective to represent the term and concept to the readers. This term also has been adopted in many languages including Bahasa Indonesia.

Datum 26

Source language	Target language
To get an idea of exactly what is causing the slowdown, you should begin by looking at traffic on the local *LAN*. (p. 176)	Untuk mendapatkan gambaran secara akurat apa yang menyebabkan kelambatan, anda sebaiknya memulai dengan melihat trafik di *LAN* lokal. (p. 155)

LAN is the computer term which is found from the sentences above. *LAN* (Local Area Network) can be defined as a group of computers and other devices dispersed over

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a relatively limited area and connected by a communications link that enables any device to interact with any other on the network (Microsoft computer dictionary 5th edition, 2002: 304). This term is always related with computer networking, especially for establishing connection in the computer device for certain area.
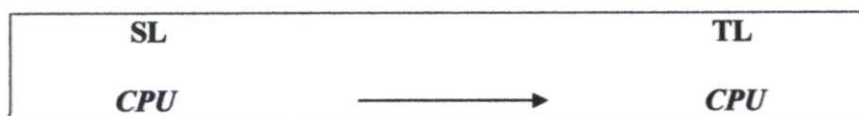
SL	TL
LAN ⟶	*LAN*

The computer term *LAN* is translated into *LAN* in Bahasa Indonesia. The procedure which is applied by the translator in translating this word is borrowing. Translator purely borrows the source language word into the target language word without any grammatical modification. The term *LAN* has no equivalent for the target language word. Borrowing is the best way to represent this term to the readers, since it is also often adopted in the target language for studying computer networking.

Datum 27

Source language	Target language
Don't forget to monitor the monitoring machine itself, for example its *CPU* usage and disk space, in order to receive advance warning if it becomes overloaded or faulty.(p. 184)	Jangan lupa memonitor mesin monitor itu sendiri, misalnya penggunaan *CPU* dan disk space, untuk mendapat peringatan yang lebih dahulu jika itu menjadi terlalu penuh atau rusak. (p. 162)

The computer term which can be identified from the text above is *CPU*. *CPU* is short for Central Processing Unit. The computational and control unit of a computer. The CPU is the device that interprets and executes instructions (Microsoft computer dictionary 5th edition, 2002:132). This term is clearly belongs to computer field since it represents the most important hardware component in the computer device.

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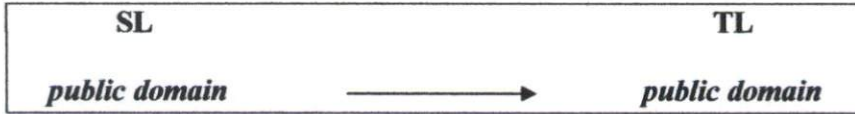| SL	TL
CPU $\longrightarrow$	CPU

The computer term *CPU* is translated into *CPU* in Bahasa Indonesia. The borrowing procedure is applied by the translator in translating this word. The source language word is borrowed directly into the target language word. Pure borrowing is employed by the translator without any grammatical modification. Translator employs the borrowing procedure because there is no another procedure that can be used to represent the concept contained in the source language word. The advantage of this procedure may help the reader to recognize and understand the source language term as well as its concept. Since this word is a computer specific term and it has no equivalent in the target language word, borrowing procedure is the best way to introduce the term to the readers.

Datum 28

Source language	Target language
Fortunately, the code has been released in the *public domain* and is freely available. (p. 198)	Untungnya, kodenya sudah dikeluarkan ke *public domain* dan bisa diambil dengan leluasa. (p. 175)

The computer term which is found in the text above is public domain. *Public domain* is the set of all creative works, such as books, music, or software, that are not covered by copyright or other property protection. Works in the public domain can be freely copied, modified, and otherwise used in any manner for any purpose. (Microsoft

computer dictionary 5th edition, 2002: 429). This term refers to the virtual storage media which often uses by the computer networking system.

| SL	TL
public domain $\longrightarrow$	*public domain*

The computer term *public domain* is translated into *public domain* in Bahasa Indonesia. The translator applies borrowing procedure in translating this word. The pure borrowing procedure is applied by directly borrowing the source language words into the target language words. Translator does not translate each of elements literally. The source language structural form keeps maintained in the target language word. This procedure is chosen because there is limitation of equivalent word in the target language. The word *domain* also has been adopted into Bahasa Indonesia. This term is often used in studying computer networking. The result, translator introduces a new concept and term to the readers.

Datum 29

Source language	Target language
Fortunately, you have decided to keep a graph of ***broadcasts*** as a percentage of the overall network traffic. (p. 203)	Untungnya anda sudah menyimpan sebuah grafik dari ***broadcast*** sebagai persentase dari trafik jaringan anda keseluruhan. (p. 180)

The computer term that we can identify from the text above is *broadcasts*. *Broadcast* is the process of Sending to more than one recipient. In communications and on networks, a broadcast message is one distributed to all stations (Microsoft computer dictionary 5th edition, 2002:73). This explanation shows that *broadcasts* is computer

specific term. *Broadcast* is usually used as the term of activity in sending or transmitting network connection.

SL	TL
broadcasts ———————————▶	*broadcast*
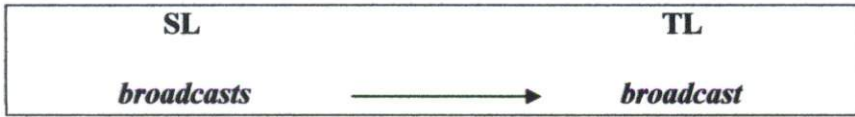
Broadcasts is translated into Bahasa Indonesia as *broadcast*. The translator applies borrowing procedure in translating this word. Translator chooses to borrow this term into target language because the word is also often used in Indonesian language especially for studying computer science. In applying borrowing, translator does not change source language structural form. Translator only did small change by deleting plural marker –s in the source language when translating it into the target language. The word *broadcast* is purely borrowed from the source language word to represent the term and concept to the readers.

Datum 30

Source language	Target language
Since Nairobi is a hilly place with lots of tall trees and valleys, wireless *broadband* networks demanded many base stations. (p. 328)	Karena Nairobi merupakan tempat berbukit-bukit dengan banyak pohon tinggi maupun lembah, jaringan *broadband* nirkabel memerlukan banyak base station. (p. 286)

In the sentence above *broadband* is the computer term that can be identified. *Broadband* is related to communications systems in which the medium of transmission (such as a wire or fiber-optic cable) carries multiple messages at a time, each message modulated on its own carrier frequency by means of modems (Microsoft computer dictionary 5th edition, 2002: 73). This concept may not be found in target language word because the word *broadband* is common found for the computer networking term.

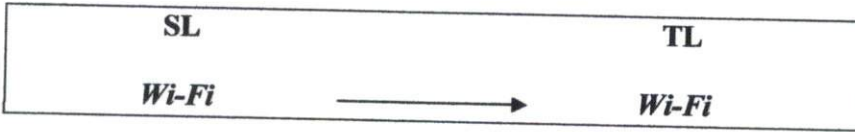| SL	TL
broadband ⟶	*broadband*
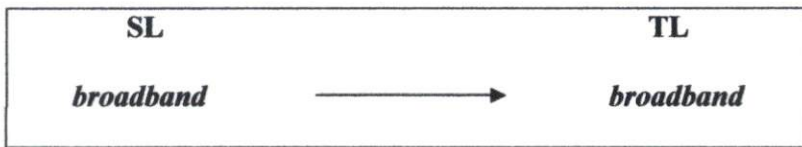
The computer term *broadband* is translated into *broadband* in Bahasa Indonesia. In translating this word, borrowing procedure is applied by the translator. The source language is borrowed directly into target language without any grammatical change. We also can say that this procedure as pure borrowing since there is no naturalized form found in the result of target language translation. The translator chooses this procedure because there is no equivalent for the target language word. In order to deliver the concept into target language, the translator has to borrow the source language word. Borrowing procedure will introduce the target language readers with the term or concept of the source language word. By applying the borrowing procedure translator does not change any concept of that specific computer term.

Datum 31

Source language	Target language
Although further tests must be conducted to ascertain the limits for stable throughput, we are confident that *Wi-Fi* has a great potential for long distance broadband communication. (p. 367)	Meskipun tes lebih lanjut harus dilakukan untuk memastikan batas yang stabil, kami yakin bahwa *Wi-Fi* memiliki potensi besar untuk komunikasi broadband jarak jauh. (p. 320)

Wi-Fi is the computer term that can be found from the text above. *Wi-Fi* is a set of widely used product compatibility standards for wireless 802.11 networking (Barron's dictionary of computer and internet terms 10th edition, 2009: 527). In the computer environment *Wi-Fi* term refers to the wireless connection technology.

SL	TL
Wi-Fi	Wi-Fi

The computer term *Wi-Fi* is translated into *Wi-Fi* in Bahasa Indonesia. In translating this word borrowing procedure is applied by the translator. The translator applies pure borrowing into the target language word without any grammatical change. This procedure is chosen because there is no equivalent of the source language word in the target language word. The best way to introduce this computer term to the readers is only by using borrowing without any naturalization or grammatical modification. The term *Wi-Fi* itself is more familiar for the readers because often used in the target language word in using computer device. As the result, translator will introduce a new term as well as its concept to the readers.

3.2 Findings

The findings of the research are displayed in the following table:

No.	Computer Terms (SL)	Indonesian Translation (TL)	Translation Procedure used
1.	Wireless	Nirkabel	Literal Translation
2.	Network	Jaringan	Literal Translation
3.	Ethernet	Ethernet	Borrowing
4.	Alternating current	Arus bolak-balik	Transposition
5.	Internet	Internet	Borrowing
6.	Hardware	Hardware	Borrowing

7.	Router	Router	Borrowing
8.	Switch	Switch	Borrowing
9.	MAC addresses	Alamat MAC	Borrowing & Transposition
10.	Port	Port	Borrowing
11.	IP address	Alamat IP	Borrowing & Transposition
12.	Access point	Akses point	Calque
13.	Bandwidth	Bandwidth	Borrowing
14.	Proxy server	Server proxy	Borrowing & Transposition
15.	Firewall	Firewall	Borrowing
16.	Operating Systems	Sistem operasi	Transposition
17.	RAM	RAM	Borrowing
18.	Open source	Open source	Borrowing
19	Software	Perangkat lunak	Transposition
20	Application layer	Lapisan aplikasi	Transposition
21.	Ad-hoc mode	Mode Ad-hoc	Borrowing & Transposition
22.	Chipsets	Chipsets	Borrowing
23.	Web browser	Web browser	Borrowing
24.	Hub	Hub	Borrowing
25.	Email	Email	Borrowing
26.	LAN	LAN	Borrowing
27.	CPU	CPU	Borrowing
28.	Public domain	Public domain	Borrowing

29.	Broadcasts	Broadcast	Borrowing
30.	Broadband	Broadband	Borrowing
31.	Wi-Fi	Wi-Fi	Borrowing

CHAPTER IV

CONCLUSION

After identifying the data, there are thirty one commonly used computer terms found from the book *Wireless Networking in the Developing World 2nd edition*. Those computer terms represent the most common computer specific terms that often found in many computer books. Then after having analyzed the data by using theory of translation procedure which is proposed by Vinay and Dalbernet, it is concluded that the most dominant procedure that is found from the data is borrowing. There are twenty cases of borrowing. So this is obvious that most of the computer terms which are used in computer books are borrowed from the source language. The computer term has limited equivalence in the target language, because most of the computer terms are directly derived from English language. This happens because computer science itself is not invented by Indonesian. Although most of the computer terms are borrowed from the source language, readers will not confuse because for the computer users or specific readers those terms have been familiar words for them, moreover it is better to introduce the concept to the general readers in order to make them familiar with those computer terms. The computer terms consider as universal because it is often adopted in many languages when studying computer.

Furthermore, from thirty one data, twenty data are translated using borrowing procedure. Four data are translated by using borrowing procedure combined with transposition procedure. Then two data are translated by using literal translation, and one datum is using calque. The rest, four data are translated by using transposition. In

short, the most frequent procedure applied by the translator in translating computer terms into Indonesian is borrowing.

In translating computer terms, the translator can use more than one procedure. If it is required, translator may apply two, three or four procedures at once. In addition, translator should know and understand the computer terms of both source language and target language so the meaning or concept of computer terms from the original author can be transferred well by using proper procedure.

Translating computer terms is not an easy case for any translator. An additional knowledge is required for producing a good quality of translation. If translator does not have enough knowledge for that specific study, translator can cooperate with any related expert. Only understanding basic language is not enough to be able to translate any text that relates with specific terms. Therefore, it is suggested for translator who interested in translating specific terms to have additional knowledge to understand the field of the study that translator deals with, so translator will have enough skill and knowledge to transfer the idea to the readers in a good sense and precise meaning.

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